



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

Getting closer to the phase out



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The actions by the Parties to the Montreal Protocol and its Amendments have evolved into a new phase. This year the mandatory control mechanisms are being applied to Article 5 countries for the first time. Preparations for this first level of restricted use of ozone-depleting

substances (ODS) have been made by most Article 5 Parties and appear to be successful.

This success has been founded on the common belief by all countries in the importance of protecting the ozone layer, combined with a high degree of cooperation among the Parties, Implementing Agencies, industry, non-government organizations and the Secretariats of both the Montreal Protocol and the Multilateral Fund. With the assistance provided through the Multilateral Fund and the management of the fund through the Executive Committee (ExCom) one can predict an accelerated phase out of ODS by Article 5 Parties.

Evidence of this accelerated phase-out schedule can be seen in countries

exploring the possibility of Terminal Phase-Out Projects, which would eliminate all remaining ODS use in their countries. The move towards Terminal Phase Out is being led by a number of small island states which are low-volume consumers. The experience they gain will provide a guide for how this type of action could be expanded to higher-volume consuming countries.

The recent decision by the ExCom through its Monitoring, Evaluation and Finance Subcommittee to review the institutional-strengthening projects and the National Ozone Units (NOUs) also signals a recognition of the changing nature of the fight to protect the ozone layer. The future role of NOUs will probably be expanded to accommodate the need to monitor the phase-out plan and to provide public awareness and education programmes including shaping national ozone policies.

The accelerated phase out of ODS in Article 5 Parties will be dependent on the availability of adequate financial support from the Multilateral Fund. The upcoming replenishment exercise will be crucial and should be a good indicator of the priority the international community is giving to protection of the ozone layer.

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The 1999 freeze in production and consumption of CFCs in developing countries: two months to go

27th ExCom Meeting agrees on closure of production sector in China

An agreement on the closure of the production sector in China was one of the significant milestones reached at the 27th Meeting of the ExCom held on 24–26 March 1999 in Montreal. The meeting also approved projects worth US\$22 million including work programme amendments for UNEP and

projects for other implementing agencies. Innovative approaches such as the preparation of a terminal phase-out plan for the Bahamas and national CFC phase-out programmes for Malaysia and Thailand were also approved.

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China's first HFC-134a pilot plant of Xi'an Jinzhu Chemical Industry Co. Ltd commissioned in March 1999. The process for this plant—which has a capacity of 200 tonnes per annum—was developed by Xi'an Modern Chemistry Research Institute. China plans another HFC-134a plant of 5000 tonnellannum capacity soon.

News from international agencies



Fund Secretariat

The Fund Secretariat made preparations for the 27th ExCom meeting and its subsidiary committees, held in Montreal from 22–26 March 1999.

Following the meeting the Secretariat updated its databases to reflect the decisions taken and the funding approved by the ExCom.

The latest versions of these databases are being added to the Fund Secretariat's web site (www.unmfs.org). In addition to providing information to the public about the Multilateral Fund, and reports of recent meetings of the ExCom, the site also provides documentation for forthcoming meetings specifically to members of the ExCom. Electronic transfer of meeting documents enables earlier delivery to ExCom members, giving them additional time to review the large volume of meeting papers.

An important new addition to the web site are the electronic versions of the forms needed by ozone officers to report annually on progress with the implementation of country programmes

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UNEP TIE OzonAction Programme

The 27th ExCom meeting approved UNEP's 1999 Work Programme

Amendment with a value of US\$1.5 million, and endorsed its 1999 Business Plan of US\$7 million. The work programme consisted of the preparation of country programmes (CP) for Laos and Liberia, institutional-strengthening projects and renewals for Algeria, Burkina Faso and the Democratic Republic of Congo, Refrigerant Management Plan (RMP) preparation (Central African Republic, Chile, Comoros, Congo, Benin, Morocco and Yemen), RMP implementation for Peru and Guatemala, and methyl bromide non-investment projects. The CP for the Democratic Republic of Congo was also approved.

The Regional Network of ODS Officers for Southeast Asia and the Pacific

held a follow-up meeting (see page 6). The OzonAction Programme also co-organized the Asia Regional Workshop on Lessons Learned on Technology Transfer under the Montreal Protocol (see page 7).

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UNEP Ozone Secretariat

The Secretariat circulated syntheses reports from the Scientific, Environmental Effects, and Technology and Economic Assessment Panels, and reported from the Aerosols, Economic, Foams, Refrigeration and Methyl Bromide Technical Options Committees to all governments and relevant institutions and organizations.

The Secretariat collaborated closely with the Multilateral Fund Secretariat and the TEAP on the issue of replenishment of the Multilateral Fund for 2000–02, and with the Co-Chairs of the three panels on the Synthesis of their 1998 Assessment Reports.

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UNDP

The 27th ExCom meeting approved US\$2.32 million for 15 UNDP investment projects that will eliminate 251 ODP tonnes in five countries. In addition, four projects amounting to US\$0.9 million were approved to test alternatives to methyl bromide use. Institutional-strengthening renewals were also approved for Costa Rica and India.

As of end-1998, 218 completed and partially completed projects in the aerosols, foams, halons, refrigeration and solvent sectors in 29 countries had eliminated a total of 11,053 ODP tonnes. By the end of December 1998, UNDP had expended almost US\$137 million of total approvals.

The ExCom also approved UNDP's 1999 Business Plan under which UNDP will formulate 141 investment and

methyl bromide alternative projects in 37 countries.

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UNIDO

The 27th ExCom meeting discussed the Business Plans for the implementing agencies for 1999, together with investment projects carried over from the Business Plans for 1998, and considered new sub-sectors. Eight investment projects submitted as a carry over of UNIDO's 1998 Business Plan were approved for a total value of US\$2,120,469 (including support costs). In addition, US\$1,063,330 were approved for the preparation of 39 projects in accordance with UNIDO's 1999 Business Plan. Finally, three institutional-strengthening projects, and one preparation of a CP were approved for a value of US\$489,799.

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World Bank

At the 27th meeting, the ExCom approved a US\$150 million proposal for the reduction and closure of all CFC production facilities in China. This will eliminate CFC production of about 45,000 ODP tonnes, representing about 60 per cent of the combined CFC production in developing countries, or about 45 per cent of global CFC production. The ExCom also approved US\$8.7 million for 22 investment projects in Argentina, China, India, Indonesia and Thailand which will lead to the phase out of 2,241 ODP tonnes. For more information on the Production Sector Phase Out in China, visit the World Bank's website under 'What's New' (full web address below).

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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.

REFRIGERATION/ AIR CONDITIONING

Swiss/German-Indian cooperation helping to eliminate CFC use

Further to a brief report in *OzonAction Newsletter* No. 28, page 5, Godrej-GE Appliances Ltd, India, is now implementing the 'Ecofrig Project' in association with the Indian environment ministry and the Swiss and German governments.

The first phase involves the installation of a polyurethane foaming facility using cyclopentane as a substitute for chlorofluorocarbons (CFCs). The phasing in of cyclopentane for foaming has already begun and is expected to be completed for the entire range of products by November 1999.

Godrej-GE expects to start commercial production of CFC-free refrigerators in mid-1999. In a second phase, expected to be completed during 2004–05, the company will finalize the selection of an eco-friendly gas refrigerant for compressors.

Contact: Mr Atul Bagai, Ministry of Environment and Forests, fax: +91 11 464 21 75/464 2176

New walk-in freezer in Subiaco Abbey uses Suva 404A

The Subiaco Abbey, in the United States, has recently replaced its 34-year-old walk-in deep freeze unit with a more energy-efficient unit using Suva® 404A as refrigerant, instead of R-502. Suva® 404a is a blend of: 44 per cent HFC-125; 52 per cent HFC-143a; and 4 per cent HFC-134a.

The abbey, which is home to 65 Benedictine monks, receives guests seeking a place of retreat on its 25-hectare campus, and raises 400 head of beef cattle on more than 250 hectares of farmland.

By 1994 the abbey's freezer had been leaking refrigerant for some time, and the insulation in its walls had begun to disintegrate. The decision was made to replace it and an analysis of the abbey's needs was made.

The new freezer uses a 10.5kW compressor, an outdoor condensing unit with a 3-phase, 3-HP Copeland compressor, and a Bohn evaporator cell. The local Dupont Refrigerants Authority provided advice to the installation team. The new system is now up and running, and the

Suva® 404A refrigerant is keeping the deep freeze temperature at around -23°C .

Contact: DuPont Europe, fax: +41 22 717 6169

METHYL BROMIDE

Electrical pulses may be substitute for methyl bromide

A new technique using high-voltage electrical current may eventually be added to the list of alternatives to methyl bromide for pest control. So called 'pulsed electric fields' (PEF)—microsecond bursts of high-voltage electrical current—have been shown to be effective in controlling fruit fly eggs and larvae in citrus fruits.

Research on PEF for pest control was carried out by Guy Hallman of the US Department of Agriculture's Agricultural Research Service (ARS). Hallman became interested in the technique after reading about tests carried out by Q. Howard Zhang of Ohio State University in which PEF was used to kill bacteria.

Zhang had found that 25,000 volts of electricity would kill the bacteria, and Hallman reasoned that a lower voltage should kill more complex organisms. In a collaborative experiment, the two researchers exposed fruit fly eggs to ten 50-microsecond pulses of about 9,000 volts. After this treatment, fewer than 3 per cent of the eggs hatched, and none of the larvae that did hatch survived to adulthood. Larvae were even more vulnerable than eggs—a few pulses of 2,000 volts were sufficient to prevent them from reaching adulthood.

In spite of these successes, the PEF technique is not expected to replace methyl bromide for citrus fruit fumigation in the immediate future. More research is necessary, especially investigations into possible effects on fruit, and studies of economic feasibility of the method. To this end, ARS is seeking an industrial partner for further exploration of PEF.

**Contact: Guy Hallman, ARS
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US EPA decision to re-register 1,3-dichloropropene

The US Environmental Protection Agency (US EPA) has decided to support the

Phase-out success

Unique phenolic foam project completed in India

Bakelite Hylam Ltd., pioneers and largest manufacturers in India of decorative and industrial laminates, phenolic resins, unsaturated polyesters and phenolic foam, has eliminated 58 tonnes of CFC-12 per year. The CFC-12—used as a blowing agent in the production of continuously laminated rigid phenolic foam panels for the construction industry—is replaced by n-pentane.

The project was funded by an MLF grant of US\$367,000 with an additional counterpart contribution from the enterprise. It covered replacement of the wet end of the laminator, extensive storage, handling, monitoring and safety systems for n-pentane, resin blending and metering systems, safety audits, technical assistance and training. The conversion technology was acquired from Zaco BV, The Netherlands. The project activities were completed in December 1998. This UNDP project, executed by UNOPS, is the only one of its kind under the Multilateral Fund covering phenolic foam applications.

continued registration of 1,3 dichloropropene (1,3-D), the active ingredient in Telone™ soil fumigants. Telone soil fumigants have been used by farmers throughout the world for more than 40 years to control soil-borne pests such as nematodes, bacteria and fungi, in more than 120 vegetable, fruit and nursery crops. With methyl bromide due to be phased out by 2005, farmers are showing increasing interest in Telone™ soil fumigants.

The US EPA's decision was given in the form of a 'Re-registration Eligibility Decision' (RED) for 1,3-D, concluding an extensive 12-year review of the products potential impact on human health and the environment. The terms of the RED require some changes in product labelling in order to satisfy US EPA concerns about threats to groundwater, but otherwise make all uses of 1,3-D eligible for reregistration. (Telone™ is a trademark of Dow AgroSciences LLC.) For further information visit <http://www.epa.gov/REDS>.

Contact: Dow AgroSciences, tel: +1 317 337 4651

Correction

The fax number given for PEN Air Conditioning Company in *OzonAction Newsletter* No. 28, page 3 was incorrect. The correct fax number is +61 7 3357 9034

UNEP releases study on potential for hydrocarbon replacements in existing refrigerators

UNEP is releasing a study on the use of hydrocarbons (HCs) to retrofit existing CFC-based domestic and small commercial refrigeration appliances.

This study is designed to help policy makers make informed judgements about retrofitting this type of equipment by providing key information about developing and developed countries' experiences with hydrocarbons. The study provides conclusions from a crucial international forum on this subject, existing technical information collected from diverse sources, newly collected data and a 'big picture' report that ties each of these elements together. It also identifies additional work that needs to be done.

The study will be of particular interest to low volume ODS-consuming countries (LVCs) as they have more limited options available in the short term to reduce CFC

consumption in order to meet their 1999 freeze, and subsequent reduction commitments under the Protocol. Hydrocarbon technology could be one such option.

The study was approved and funded as part of UNEP's 1997 Work Programme under the Multilateral Fund with additional support from Environment Canada, GTZ/Proklima, National Research Council Canada, the Netherland's Ministry of Development Co-operation and the Swiss Agency for Environment, Forests and Landscape (BUWAL). The study will be available in hardcopy and on the OzonAction web site.

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UNEP to develop Regional Strategy for Pacific Island countries

In close cooperation with the South Pacific Regional Environment Programme (SPREP) and the Government of New Zealand, UNEP is developing a programme aimed at the development and implementation of a regional phase-out strategy for all of the Pacific Islands in order to assist them in phasing out ODS. There are 14 countries in the South Pacific region that will benefit from this strategy although not all of them have ratified the Montreal Protocol yet. One of the objectives of the strategy is to encourage non-party countries to ratify and thus become eligible for assistance under the Multilateral Fund.

This strategy will utilize SPREP's expertise and existing networks of government and technical persons under its Pacific Island Climate Change Assistance Programme (PICCAP). The ODS strategy is expected to be implemented in 1999–2001 and promises to incorporate individual country strategies into a wider regional approach for cost-effective and efficient implementation.

The development of the strategy has commenced with a regional workshop held in Apia, Samoa in December 1998 to discuss the approach and the modalities for implementation.

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Completed Investment Projects under the Multilateral Fund

(as of 31 December 1998)

	foams	refrigeration	halons	aerosols	solvents	other	multi-sector	production sector	total number	total ODP tonnes
World Bank	34	60	2	10	19	2	2	6	135	26,819
UNDP	145	53	4	4	12	0	0	0	218	11,053
UNIDO	40	49	1	20	21	0	0	0	131	14,050

GEF and MLF team up to help Thailand reduce both GHG and CFC emissions

The Global Environment Facility (GEF) and the Multilateral Fund of the Montreal Protocol (MLF) have agreed to provide a total of US\$5 million in assistance for an innovative project in Thailand. The project will utilize non-grant financing to achieve two distinct environmental goals: protecting the ozone layer and mitigating climate change.

The concept of leveraging the two environmental financial mechanisms was initiated during the Chillers and Refrigerant Management Training Programme, held in Bangkok in 1995 and organized by UNEP's OzonAction Programme. As a follow up to this training programme the Chiller Replacement Programme, developed by

the Government of Thailand and the World Bank, was initiated. It will be managed by a domestic public utility company, the Electricity Generation Authority of Thailand (EGAT), and will initially replace 24 CFC chillers (building air-conditioning systems) with high energy-efficiency, non-CFC chillers through a revolving fund of US\$5 million. The GEF and the MLF will each provide US\$2.5 million. When the demonstration phase is successfully completed—that is, when the new chillers show significant energy and CFC savings—the initial sum invested will be used to expand the project by leveraging US\$25 million to purchase another 520 non-CFC chillers. Ninety per cent of the

savings earned in energy efficiency by each new chiller will be used to repay the GEF and the MLF. Upon project completion, it is expected that CFC consumption will be reduced by approximately 440 tonnes, and carbon emissions by about 1,390 million tonnes of carbon.

The programme is expected to provide lessons from which other countries could determine the potential of using such an approach for similar projects—feasibility of using a non-grant financing modality to supplement existing grant financing; and the capability of a domestic third party to manage a performance-based project.

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continued from page 1 ...

The Chairman of the ExCom expressed his view that 1999 is a year of transition in view of the CFC freeze. He also encouraged the ExCom to focus on ensuring that Article 5 countries comply with the 50 per cent reduction by 2005, perhaps by giving increased importance to the production sector although not necessarily reducing funding in the consumption sector.

Other main issues discussed during the meeting included the 1999 Business Plans and Work Programmes of the implementing agencies, investment projects submitted for approval and policy issues concerning transport refrigeration and evaporation losses.

The major decisions made included the following:

- Conclusion of an agreement on the closure of the production sector in China.
- Approval of the evaluation work programme for 1999.
- Approval of the country programmes for Bosnia-Herzegovina, Democratic Republic of Congo and Qatar.
- Implementing agencies and countries, when submitting projects, should provide up-to-date sectoral data to enable the assessment of the impact of such projects on meeting the requirements of the country's phase-out programmes and their obligations under the Montreal Protocol.

- Consumption of methyl bromide should be excluded from the calculation of ODS consumption used in establishing the status of a country as an LVC (countries consuming less than 360 tonnes).
- Setting up of a working group to revise existing guidelines for the methyl bromide sector.
- The Secretariat and the implementing agencies were requested to refine the proposed guidelines on ODS phase out in the commercial refrigeration end-user sector taking into account the comments of the Subcommittee on Project Review.
- Invitation to the members, bilateral agencies and implementing agencies to communicate views and field experience on the Refrigerant Management Plan (RMP) process, to be used as inputs for discussion of a contact group at the 28th ExCom, and a request to the Subcommittee on Monitoring, Evaluation and Finance to discuss performance targets for preparation and implementation of RMPs.

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Halon awareness campaign in Poland



seminars have been held on that subject in recent years, including one international event in which experts from other CEITs participated. In addition, a training course using leading national and world experts was run in 1998. The course was co-sponsored by the GEF and by the Polish Government. Two sets of guidelines presenting a broad outline of the problem were published. The key institutions involved in the development of the halon phase-out strategy and in building awareness are the State Fire Service Headquarters and the Research Centre for Fire Protection.

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An awareness-raising campaign is the key element in Poland's halon phase-out strategy. Many sectoral meetings and

In brief...

● ICI warns that high demand for HFCs will lead to higher price

Expectations that increased demand for HFCs will lead to market shortages in Europe this summer has led ICI Klea to announce a 'spot price' for bulk R-134a of £3.45/kg for non-contracted orders. This price became effective on 1 March 1999. Use of HFCs worldwide has risen by an average 10–15 per cent over the past two years. To meet this growing demand Europe imports around 25 per cent of its HFCs from the US, and has done so since 1996. The domestic US 'spot price' for bulk HFC-134a is already above £2.75/kg and is rising. This encourages HFC manufacturers in the United States to sell to their domestic customers before exporting. Furthermore, as supplies tighten, manufacturers will only ship the product to Europe if it can be sold at the US price plus shipping costs.

Contact: ICI Klea, fax: +44 1928 511418

● Do-it-yourself fabric protection for Australian market

The Heat Management Company (Brisbane, Australia) is marketing a product that can be washed into clothes to triple their UV protection to SPF 50 or greater. The product, known as Sunstopper, contains benzotriazol, a common UV absorber used in paints and other products.

Contact: The Heat Management Co.,
fax: +61 7 3272 9944,
e-mail: heatmanagement@one.net.au

● ODS being dumped in Africa

Zambia has expressed concern that it is becoming a dumping ground for a wide range of products containing ODS. According to *The Post* newspaper, other countries in the area are also being forced to use substances that harm the ozone layer. The Environmental Council of Zambia has released a statement saying it is developing measures to regulate the inflow and transfer of technology used in the manufacture of such products.

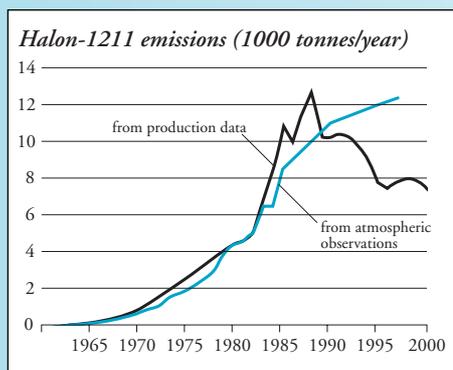
Contact: Mr Wilson Ndhlovu,
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Ozone science news

Unexpected rise in halon-1211 emissions may delay ozone layer recovery

Research by scientists at Australia's CSIRO indicates that emissions of the fire extinguishing gas halon-1211 are currently increasing by around 200 tonnes per year. This contradicts the previous assumption, by the Science Panel of the Montreal Protocol, that halon 1211 emissions had peaked in 1988 and would, by now, be declining.

The new measurements were made in the CSIRO's unique archive of pristine air collected at the Cape Grim baseline air pollution station in north-western Tasmania. The Grim station is located in the path of the 'roaring forties' which blow unpolluted air across the Southern Ocean.



Halon 1211, also known as BCF, is used in portable fire extinguishers. Although its production was phased out in developed countries in 1994, developing countries can continue to produce it until 2010. It now appears that the original calculation models developed to predict emissions of ODS under-estimated emissions of halon 1211 from developing countries.

A possible explanation for increased halon 1211 levels is release during the legal production of the substance in China, the country responsible for about 90 per cent of the world's remaining production of the gas.

While concentrations of most of the ozone-damaging CFCs are either steady or declining, halon 1211 levels continue to rise. Concentrations of halon 1211 in the ozone layer have increased by about 25 per cent over the past decade, making it responsible for around 20 per cent of current ozone layer destruction. In fact, according to CSIRO scientists, current emission levels make halon 1211 the most damaging of the halons, and could delay recovery of the ozone layer by as much as 10 years.

Contact: Dr Paul Fraser, CSIRO, fax: +61 03 9239 4613

Spring ozone levels over Greenland declining

The January 1999 issue of *Geophysical Research Letters* reports that monthly average values of spring ozone levels over Greenland have declined substantially over the past decade. This is the conclusion drawn from eight years of continuous ozone column measurements made at Thule, in north-western Greenland, by Signe Andersen of the Danish Meteorological Institute.

While average monthly spring ozone levels were lower in all years compared to the previous decade, the most dramatic declines were observed when the polar vortex was situated over Thule. In particular, during the years 1993, 1995, 1996 and 1997, ozone levels were some 30 per cent lower than the long-term average.

Andersen also used meteorological conditions to estimate what portion of the decline can be attributed to transport processes as opposed to chemical depletion. This analysis suggests that in 1995 transport explained about 30 per cent of the decline, while in 1996 transport explained only about 17 per cent of the decline. The balance of decline during these two years—some 114 Dobson Units—is attributed to chemical ozone depletion.

Contact: American Geophysical Union,
Service and Information Center: e-mail: service@agu.org

Harmful UVB radiation could affect fish

Work carried out in the Plymouth Marine Laboratory (United Kingdom) has shown that some types of fish could suffer from sunburn if they are exposed to higher levels than at present of UVB radiation, due to thinning of the Earth's ozone layer.

Researchers at the laboratory simulated the extra levels of UVB radiation expected to reach the Earth from the Sun over the next 50 years. Their findings show that more UVB could cause lighter coloured flat fish to have flaky skin and be at higher risk of disease.

Contact: Plymouth Marine Laboratory, fax: +44 (0)1752 633101, e-mail: enquiry@pml.ac.uk, <http://www.pml.ac.uk/pml/>

Network news

ODS Officers for SEAP meet in Bangkok

ODS Officers from Asia and the Pacific have indicated that they could easily meet the 1999 CFC freeze, but may face problems in meeting the 50 per cent reduction scheduled for 2005. This was one of the main issues discussed during the follow-up meeting of the Regional Network of ODS Officers for the Southeast Asia and the Pacific region held in Bangkok on 4–5 March 1999. This meeting was held back-to-back with the Asian Regional Workshop on Technology Transfer under the Multilateral Fund jointly organized by UNEP TIE, APCTT, and NAM S and T centre. The network meeting was attended by eight ODS Officers from the region and from Australia and Sweden. The meeting also discussed issues related to the HFC/PFC Task Force, policies under the Multilateral Fund and awareness projects in India. The next meeting will be held in September in Australia, hosted by the Australian government

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News from the NGOs

Public meeting draws attention to consumer concerns about methyl bromide use

Friends of the Earth Italy (Amici della Terra) organized a public conference on 16 March 1999 in Rome to raise awareness about methyl bromide use in Italy, the availability of environmentally-sustainable alternatives and increasing pressure from consumers in Northern Europe for farmers to shift towards alternatives.

The meeting was attended by participants from agricultural trade unions, consumer organizations, organic and conventional farmer organizations, and representatives from the relevant government ministries in Italy.

The following conclusions were reached:

- Non-chemical alternatives to methyl bromide such as solarization are being used effectively in Italy;
- Consumers are increasingly concerned about the health and environmental effects of ozone depletion and the use of methyl bromide on imported fruits and vegetables.

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Dialogue between Montreal and Kyoto Protocols: HFC/PFC Task Force set up

At the 1998 meeting in Buenos Aires, the Parties to the Framework Convention on Climate Change (FCCC) invited the relevant bodies of the Montreal Protocol to provide information on limiting emissions of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), including their use as replacements for ODS. At the 1998 meeting in Cairo, the Parties to the Montreal Protocol requested the UNEP Technology and Economic Assessment Panel (TEAP) to provide such information to the FCCC and to assess the implications to the Montreal Protocol of the inclusion of HFCs and PFCs in the Kyoto Protocol.

In response to these requests, TEAP created the Task Force on HFCs and PFCs chaired by Stephen O. Andersen of the US EPA. The Task Force includes 30 experts from 17 countries (Australia, Belgium, Brazil, Canada, Denmark, France, Germany, India, Japan, Mexico, The Netherlands, Poland, Singapore, Switzerland, Thailand, United Kingdom, and the United States). Task Force members have scheduled technical meetings in Japan, The Netherlands, Singapore, Switzerland, Thailand and the United States.

TEAP and IPCC jointly sponsored a meeting May 26–28 in Petten, The

Netherlands. TEAP will report interim findings at the Open-ended Working Group (OEWG) Meeting of the Montreal Protocol in June, and UNEP TIE and the Task Force are organizing a one-day seminar on the margins of the OEWG, tentatively scheduled for 18 June.

The final report will be completed and printed for distribution at the 11th Meeting of the Parties to the Montreal Protocol to be held in Beijing in November 1999.

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Meetings and workshops

RMP Review Meeting held in Cairo

Representatives from 19 Article 5 countries and nine non-Article 5 countries along with the implementing agencies, bilateral agencies and the Fund Secretariat participated in a meeting to review the experiences to date with Refrigerant Management Plans (RMPs). This meeting was convened in Cairo in November 1998 following a recommendation made by the Subcommittee on Project Review during the 25th ExCom meeting and was organized with financial and technical support from the governments of Switzerland and Germany.

The Meeting discussed the two aspects of the RMP process: preparation and implementation. A report was prepared at the conclusion of the meeting which included all the recommendations of the participants, noted the impediments, successes and suggested improvements and recommendations for the RMP process. The meeting report was submitted to the 27th ExCom for consideration and is available on the OzonAction website.

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Applying Montreal Protocol technology transfer experience to climate change

Lessons learned on technology transfer under the Multilateral Fund were discussed recently for the first time in the Asia and Pacific region. The venue for discussions was a workshop on technology transfer organized jointly by UNEP, the Asia and Pacific Centre for the Transfer of Technology (APCTT) and the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (1–3 March 1999).

The workshop provided a forum for both recipients and providers of technologies to present their unique perspectives on their experiences, and on the lessons learned during technology transfer and implementation.

Another important theme discussed at the meeting was the inter-relationship between the Montreal Protocol and the Kyoto Protocol. 1999 is a landmark year for both of these treaties. For the Montreal Protocol, it is the year in which developing countries will begin to implement their commitments; for the Kyoto Protocol, it is the last year before the Clean Development Mechanism (CDM) becomes operational.

Some of the gases which are substitutes for the ODS controlled under

the Montreal Protocol are also greenhouse gases which are to be controlled under the Kyoto Protocol. On the theme of inter-relationship between the treaties, Professor Ogunlade Davidson, Co-Chair of the Intergovernmental Panel on Climate Change (IPCC), told the meeting that the hands-on experience in technology cooperation, experienced throughout the world under the financial mechanism of the Montreal Protocol, would be useful to the Parties to the Climate Change Convention, where such mechanisms are still evolving.

The workshop concluded with a round table focusing on how to make technology transfer more successful and on actions that would start the process of understanding of the inter-related issues between the two climate protection treaties.

Once finalized, the report of the Bangkok workshop will be available on the UNEP TIE OzonAction web page at the address below.

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Methyl Bromide Phase Out

UPDATE

China sectoral policy plan for methyl bromide phase out proceeding well

The first mission for the preparation of the sectoral policy plan for methyl bromide phase out in China allowed for visits to a number of farms currently using methyl bromide, and consultation meetings with industry and research institutes to lead to an understanding of what the strategy will eventually achieve. The China State Environmental Protection Agency (SEPA) has set up a Steering Group for the project composed of representatives from SEPA, the Ministry of Agriculture, the Bureau of Internal Trade and the Bureau of Petrochemical Industry. The main objective of this project funded under the Multilateral Fund is to control

the growth of methyl bromide use in China, particularly for new applications. The mission took place during 3–12 March 1999.

The list of tasks set for completion of the project and a deadline for providing missing data were agreed upon during this mission. It also allowed the identification of short-term 'best bet' policy options for China to control methyl bromide use, preliminary results which will have to be approved at a wider consultation meeting scheduled sometime in July. This meeting will involve all implementing agencies, bilateral agencies and the Fund Secretariat. It is organized jointly by UNEP and SEPA.

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Demo project update—Egypt

Implemented by GTZ, a project demonstrating the use of four alternatives to methyl bromide in horticulture started recently in Egypt with a workshop of main horticulture growers, in order to plan demonstration trials. All growers involved showed commitment to applying methyl bromide alternatives. The approach will be tailor-made demonstration trials for different crops and locations (solarization, grafting, steam and integrated pest management with trap crop disinfection).

Contact: GTZ, tel: +49 6196 792178,
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Methyl bromide and the Montreal Protocol: the importance of the 1997 Adjustments

● *What are Amendments and Adjustments to the Montreal Protocol?*

Since the Montreal Protocol came into force in 1989, the Parties have met regularly to discuss and integrate advances in knowledge about the ozone layer and about the substances which deplete it. The decisions made by the Parties at these meetings are introduced into the Montreal Protocol in the form of Amendments or Adjustments.

● *What is the difference between an Amendment and an Adjustment?*

There is a clear distinction between an Amendment and an Adjustment. When a decision is made to introduce controls on a chemical or chemicals, that decision will be the subject of an Amendment to the Protocol. Amendments are ratified by individual Parties and, once ratified, become binding on the Parties. All subsequent decisions relating to a chemical or chemicals (such as changes to phase-out schedules) are the subject of Adjustments.

● *How many Amendments and Adjustments have been made to the Protocol since it came into force?*

There have been three official Amendments to the Montreal Protocol so far, made in London in 1990, Copenhagen in 1992 and in Montreal in 1997. Adjustments were made during the 2nd, 4th, 7th and 9th Meeting of the Parties.

● *What was the situation regarding methyl bromide before the Montreal Adjustments?*

Methyl bromide was first listed, in the Copenhagen Amendment, in 1992. However, no control measures were set for this substance until 1995 where, at the Seventh Meeting of the Parties, it was agreed that methyl bromide should be phased out by 2010 in developed countries and that its consumption and production should be frozen by 2002 in developing countries. This was considered an Adjustment to the Protocol.

● *What changes did the Montreal Adjustments bring about for methyl bromide?*

Taking heed of a recommendation from the Montreal Protocol's Scientific Assessment, that methyl bromide should be phased out as quickly as possible, the Parties, at their Ninth meeting, in Montreal 1997, agreed to a phase-out schedule for methyl bromide for developed

and developing countries, with interim reductions in between. The most important points of the Montreal Adjustments are: phase-out schedule for developed countries brought forward by five years; phase-out schedule introduced for developing countries.

● *Do the adjustments make allowances for the special needs of Article 5 countries?*

The Montreal Adjustments allow developing countries a 'grace period' for phase out of methyl bromide in relation to the schedule set for developed countries. This will give developing countries time to investigate and adopt alternatives.

The present requirements of the Montreal Protocol concerning methyl bromide are shown in the table below.

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Methyl Bromide	Developed Countries	Developing Countries (Article 5)
Prior to Montreal Adjustment	Freeze in 1995 at 1991 base level	Freeze in 2002 at average 1995–98 base level
After Montreal Adjustment	25% reduction by 1999 50% reduction by 2001 70% reduction by 2003 Total phase out by 2005	Review of reduction schedule in 2003 25% reduction by 2005 Total phase out by 2015

Preshipment and quarantine uses are exempt from these reduction and phase-out schedules. Critical uses for which no viable proven alternatives are available are exempt from phase out.

UNEP IE is now UNEP TIE

The former UNEP Industry and Environment centre (UNEP IE) in Paris is now the UNEP Division of Technology, Industry and Economics (UNEP TIE). The new division's mission is to help decision-makers in government, local authorities and industry to develop and adopt policies and practices that are cleaner and safer; make efficient use of natural resources; ensure adequate management of chemicals; incorporate environmental costs; and reduce pollution and risks for people and for the environment.

Headed by Mrs Jacqueline Aloisi de Larderel, the division is composed of one centre and four units. These are the International Environmental Technology Centre (Osaka), Production and Consumption Unit (Paris), Chemicals Unit (Geneva), Energy and OzonAction Unit (Paris), and Economics and Trade Unit (Geneva).

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World policy roundup

The Philippines has imposed a ban on new CFC-11 and -12 for the manufacturing sector starting January 1999. This is part of the policies identified in the updated country programme which was approved recently. CFCs will still be available for servicing.

Contact: Ms. Lourdes Sioson, DENR
tel: +632 9296626 ext 2106

The State of Bahrain has issued a Ministerial decree banning the import of consumer goods and motors that contain CFCs listed in Annex A of the Montreal Protocol. The decree also calls for industrial establishments and workshops that use ODS to register with the Environmental Affairs within 45 days of the passing of the decree, as any importation will have to be approved by them.

Contact: Jameel Eksail Fax (973) 310653

The Swedish environment agency proposes a ban on exports to developing countries of used refrigerators and other products containing ozone-depleting substances, in order to help those countries in their ODS phase-out efforts. The

Refrigerant recovery and reclamation in pictures



Guatemala (above left)

Mr Marco Alberto Giron Rieckhof, owner of the Mantenimiento de Refrideracion, S.A. refrigeration service company, in his workshop in Guatemala City.

The company services large commercial and industrial refrigeration plants in the city. It has 3-4 employees and its core business is service contracts with around 20 companies requiring 24-hour servicing of refrigeration plants.

Mr Rieckhof's company has received an A'Gramkow recovery machine from the NOU as part of the Guatemalan ODS Recovery and Recycling programme. Mr Rieckhof has established his own refrigeration training centre in the workshop, and has developed a refrigeration training device. This is shown in



the photograph, between Mr Rieckhof and the recovery machine.

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China (above right)

Mr Zhang Wen Xu from Zhejiang Fluoro Chemical Industry Research Institute and Mr N.J. Busch, consultant, beside an A'Gramkow reclaim station for reclaiming CFC from distribution cylinders. Mr Zhang Wen Xu assisted the factory with design, installation and operation of the reclaim station which recovered 50 tonnes of CFC-12 within the first six months of operation (June-December 1998).

Contact: SEPA fax: +86 10 6615 1776
e-mail: nepafeco@public.bta.net.cn

agency also proposes the five year postponement of a ban on the continued use of non-domestic refrigeration equipment containing up to 900 grams of CFCs, given the very high cost of replacing such equipment at the end of its life. However, refilling of equipment with CFCs, either new or recycled, is no longer allowed as of 1 January 1998

Contact: Maria Ujfalusi, Naturvardsverket
e-mail: maria.ujfalisu@environ.se

The Government of the **Republic of Croatia** recently enacted a by-law on substances that deplete the ozone layer. The by-law sets out the government's policies to control the emissions, use, and export and import of ODS listed under the Montreal Protocol.

The new law introduces a ban on import of recovered and recycled ODS (except for halons from halon banks) and the need for a licence to trade in ODS. It also includes specific reductions in the consumption of ODS under the Protocol until 2006 and penalties for those failing to achieve the limits within this regulation.

Contact: Mrs. Jasenka Necak, Ministry of Civil Engineering and Environmental Protection
fax: (385) 1 537 203

Senior Evaluation Officer

Mr Ansger Eussner recently joined the Multilateral Fund Secretariat as Senior Evaluation Officer. His main priority will be to implement the Monitoring and Evaluation work programme approved at the 27th ExCom.

Status of Ratification

(as at 12 May 1999)

The Vienna Convention
 169 Parties; no new Parties*

The Montreal Protocol
 168 Parties; no new Parties*

The London Amendment
 129 Parties; 2 new Parties:* Bulgaria and Estonia

The Copenhagen Amendment
 88 Parties; new Party:* Estonia

The Montreal Amendment
 12 Parties; 6 new Parties:* Bolivia, Jordan, Luxembourg, Panama, Spain, St Kitts and Nevis

*since the last issue of the *OzonAction Newsletter*

The National Ozone Unit Interview

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

Victor Yameogo



**Deputy Director General,
Bureau of Ozone,
Ministry of the
Environment,
Burkina Faso**

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

During the past two years we have focused on activities that will allow us to meet the freeze in 1999, and total CFC phase out by around 2005–06.

These included training programmes for refrigeration service technicians, and for refrigerator and cold room repairers, and meetings with the customs services, the Ministry of Trade and other stakeholders, to analyse the existing legislation in the country. These meetings allowed us to develop a licensing system for the control and monitoring of ODS consumption, introduced in March 1997.

We have also undertaken a number of awareness raising and information dissemination activities. All of this has led to the elimination of 2.4 tonnes of CFC. At present, we are in the process of setting up a reclaim/recycling centre.

What have been your major difficulties in meeting your goals?

Our difficulties are mainly administrative, especially slow responses in providing assistance which delay accomplishment of our tasks. This is true at both the implementing agency and national levels.

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

Legislation undeniably provides a framework which allows us to accomplish much. The licensing system provides us with a realistic view of the situation. It also stimulates the curiosity of importers and users who spontaneously search for accurate information from the Ozone Office. Training is also an important phase in attaining our objectives.

What steps are you taking to meet the 1999 freeze?

Burkina Faso is a very small country and does not have many investment projects. Hence, the phase out of ODS has to be addressed mainly through non-investment projects. Two important aspects that we are undertaking are training and the implementation of a licensing system.

Information dissemination and awareness raising are equally important, especially in a country where, unfortunately, a number of people can neither read nor write.

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

Our country shares borders with larger countries from where ODS are supplied. In this context, our lessons have been largely in the area of our work with the Customs Service. We found that in order to understand ODS consumption, it is important to work directly with the customs services, and not to just rely on statistics. This allows you to have a breakdown of the customs lists which includes the controlled substances, and understanding of the components of these substances (such as blends) to allow us to identify specific measures to control them. As similar lists are available in many countries in the sub-region, exchanges of experience and cooperation would be best in order to meet our objective.

Forthcoming meetings

HFC/PFC Task Force of TEAP: Refrigeration Sector Meeting, Germany, 3–4 June 1999.

Implementation Committee Meeting, Bureau Meeting, Ad Hoc Group on Replenishment Meeting, Geneva, Switzerland, 14 June.

19th Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, Geneva, Switzerland 15–18 June 1999

How have you used the products of the OzonAction Programme (such as publications) in your national awareness-raising activity, particularly in evaluating how successful they are?

The videos and posters produced by the OzonAction Programme have been used in national campaigns and training programmes. *Five Steps to Creating Awareness* has been a useful guidebook for us and NGOs. However, sometimes supply is insufficient. Reproduction of material is very costly in our countries. It would be advantageous if UNEP could provide more copies to the Ozone Office.

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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.

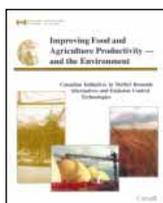
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New publications

Top left: *Engaging Countries. Strengthening Compliance with International Environmental Accords.* Massachusetts Institute of Technology.

Top right: *Improving Food and Agriculture Productivity—and the Environment.* Environment Canada, 1998.

Bottom left: *El agotamiento del ozono: plan de sensibilización en Uruguay.* UNEP.

Bottom right: *Fumigation Guidelines.* Ministry of Agriculture, Fisheries and Food, UK, 1999.

