



# zonAction



UNEP DTIE quarterly publication • OzonAction Programme under the Multilateral Fund

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

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## Farewell call

Our *View Point* this time is from Mr K. Madhava Sarma who has recently retired from his post as Executive Secretary of the Ozone Secretariat for the Vienna Convention and the Montreal Protocol. We would all like to take this opportunity to wish Mr Sarma a happy retirement.

The need to protect the ozone layer is now known throughout the world. At one time, however, people found it hard to imagine that CFCs, considered 'wonder chemicals' by industry since 1928, could travel 12 km up into the air and destroy the ozone that had been protecting life on Earth for millions of years.

Indeed, when I started my service in the Ministry of Environment in India, in 1986, the communications from UNEP and invitations to attend meetings on the ozone issue were treated as of peripheral importance. The whole issue was considered a problem for the industrialized countries, and one that they should solve themselves without involving the developing countries. The Montreal Protocol of 1987 changed this indifference to some extent, mainly because of the trade restrictions it sought to introduce. Also, atmospheric scientists from all over the world corroborated the scientific consensus on CFCs being the cause of ozone depletion.

The innovative institutions created by the Montreal Protocol—the Multilateral Fund, Executive Committee of the Fund and the Implementation Committee—have functioned much better than initially expected, and governments have acted wisely in heeding the scientific advice and in amending the Protocol four times so far. The Protocol also sends a clear signal to industry: that ozone-depleting chemicals have no future. Industry has discovered alternatives and supported the Protocol process. NGOs and the media have, through their efforts,

made ozone layer protection a favourite cause for everyone. We have now reached a stage where no country would dare to renege on its commitments to the Montreal Protocol. Scientists predict that the ozone layer will recover fully in another 50 years, if the Protocol is fully implemented.

I am extremely happy that I was one of the many cogs in the machinery that led to such wonderful results. However, there are a few important points which governments, scientists and industry need to tackle urgently.

The first is the possibility of new ozone-depleting chemicals appearing in the market. Legally, the Protocol has no control over such chemicals. One or two, with very low ozone depletion potential, have already appeared. Fifty years from now, when public awareness of ozone depletion may well be much less acute, there is no guarantee that more deadly chemicals will not be marketed. Governments must work out a solution to this problem quickly.



*My experience as Executive Secretary of the Ozone Secretariat has given me enormous pleasure and satisfaction thanks to the cooperation of the Governments, my colleagues in the Ozone and Fund Secretariats, UNEP and other international organizations, the scientists and technologists involved, and the NGOs. I particularly thank UNEP for giving me considerable freedom to operate, within the broad confines of the UN rules.*

The second problem concerns HCFCs and methyl bromide. These substances are controlled by the Copenhagen Amendment, but more than 60 countries, including India and China, have not ratified this Amendment. If they continue to increase their consumption, all the gains

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made so far could be wiped out in another 50 years. The governments that have already ratified the Copenhagen Amendment must use all their persuasive powers to solve this problem.

The last issue which I am concerned about is the exemption under the Protocol for use of ozone-depleting chemicals for 'essential' or 'critical' uses. These are meant to be short-term exemptions. However, experience has shown that, without regulatory pressure, they will persist and ozone-depleting chemicals will continue to build up in the atmosphere. Governments must show leadership in getting rid of these exemptions quickly.

During the last nine years, it has been a thrilling experience for me to see human intelligence and leadership displayed on a grand scale in tackling depletion of the ozone layer, and to witness such great results. I am sure that everyone involved in this issue—government decision makers, scientists, technologists, industry, NGOs, the media and UN Organizations—will continue their dedicated work until recovery of the ozone layer is assured.

## News from international agencies



### Fund Secretariat

The Fund Secretariat processed more than 60 technical and policy documents in preparation

for the 31st ExCom Meeting, held in Geneva, on 3–7 July 2000. These included:

- requests for bilateral cooperation amounting to US\$1.04 million;
- investment project proposals submitted by UNDP, UNIDO and the World Bank, worth US\$37.6 million, including US\$11.88 million for India's production phase out in 2000;
- amendments to the work programmes of UNDP, UNEP, UNIDO and the World Bank, worth US\$1.8 million, including US\$1.09 million for renewal of institutional strengthening in 10 countries; and
- progress reports of implementing agencies.

A technical audit report of a CFC production facility in Argentina was completed for submission to the ExCom. The Secretariat also prepared an evaluation report on training projects, desk studies on compressor evaluation and recovery and recycling projects, and discussed revised formats for terminal reports and extension requests for institutional strengthening at six Regional Network Meetings.

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### UNEP DTIE OzonAction Programme

UNEP furthered its networking programme activities during the May to July 2000 period with meetings of the Caribbean, Latin America, West Asia and South Asia networks being held (see page 7).

UNEP organized a regional workshop to provide assistance to developing countries in the establishing of their policies for monitoring ODS imports. The event was attended by ODS Officers from South Asia and representatives from customs offices. Two regional workshops for countries with economies in transition (CEITs) were held on the subject of Enforcement and Legislation, in Budapest and Azerbaijan (see page 6).

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### UNEP Ozone Secretariat

The Ozone Secretariat organized the Meeting of the Open Ended Working Group of the Parties to the Montreal Protocol, held in Geneva on 10–13 July 2000, and the Implementation Committee Meeting on 10 July 2000.

Members of the Secretariat attended the GEF Council Meeting, 8–11 May 2000, and the World Trade Organization Meeting on Trade and the Environment where the Secretariat presented issues relating to the Montreal Protocol.

The Secretariat also bade farewell to its Executive Secretary, Mr K. Madhava Sarma, who began his retirement at the end of July.

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### UNDP

UNDP reported to the 31st ExCom Meeting that, in 1999, it had helped to convert industrial processes in 125 enterprises eliminating 4,001 tonnes of ozone-depleting substances (ODS) in 26 countries. An additional 40 technical assistance capacity-building projects were also completed. UNDP disbursed US\$36.3 million in 1999.

The 31st ExCom Meeting granted a further US\$11.5 million to UNDP to cover 62 conversion projects which will eliminate a further 1,567 tonnes of ODS in 15 countries.

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### UNIDO

The 31st ExCom approved the execution of a total of 35 projects for

UNIDO. These comprise: 4 technical assistance/support projects (RMP); 21 investment projects in the foam, refrigeration and solvent sectors; 1 investment project in the methyl bromide sector; and 9 projects in preparation. The projects, which have a total value of US\$8,744,453, will phase out 1,173.1 ODP tonnes.

The methyl bromide investment project is of particular interest as it will enable Zimbabwe, the country in which it is located, to reduce its methyl bromide consumption by 41 ODP, allowing the country to meet its 2002 freeze obligation under the Montreal Protocol.

In the May–July 2000 period, four investment projects were completed, in the aerosols, foam and refrigeration sectors in Argentina, Syria and Tunisia. These will phase out 144.15 ODP tonnes.

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### World Bank

From 29 June 2000, India will phase out production of ozone-depleting substances, such as CFCs, with the help of a US\$82 million grant for a project to be implemented by the World Bank.

The India CFC Production Sector Gradual Phase-Out Project is the third of its kind to be implemented by the Bank, following similar operations in China and Russia. Together these three projects will help phase out more than 80 per cent of remaining global CFC production.

The India project will provide financial compensation for CFC producing enterprises that meet annual production ceilings agreed between India and the ExCom. The project also includes a technical assistance programme to be implemented by the Indian Ministry of Environment and Forests, with assistance from UNEP. This programme will help the Indian Government to implement a comprehensive CFC production monitoring and evaluation system, including a CFC production quota system.

**Contact:** Mr Steve Gorman, World Bank, 1818 H. Street, N.W. Washington D.C. 20433, USA, tel: +1 202 473 5865, fax: +1 202 522 3258, e-mail: sgorman@worldbank.org <http://www-esd.worldbank.org/mp/>

## Industry and technology updates

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

### REFRIGERATION

#### ODS recovery and recycling in China

The Liming Chemical Co. Ltd., China, has built an ODS recovery/recycling plant able to recover CFC-12, HCFC-22, HFC-134a, HFC-227ea, HFC-152a, and Halon-1211 and Halon-1301. The plant, at Linhai in the Zhejiang province, is equipped with a powerful compressor making it able to recover refrigerant residue from three or more transport cylinders simultaneously. The recovered CFC is clear of impurities and meets Chinese standards.



*Mr Li Wangchang, designer of the Liming Chemical Company's ODS recovery/recycling plant, Linhai, Zhejiang province, China.*

Designed by senior Chinese engineer and professor Mr Li Wangchang, the plant has recovered more than 30 tonnes of CFC-12 since the beginning of 1999.

**Contact: Liming Chemical Co. Ltd., Zhen Xing Street, Southcoast, Linhai, 317000 Zhejiang, China, fax: +86 576 5197058**

#### Pertamina to supply HC to Indonesia

Pertamina, an Indonesian state oil company, recently announced that it will supply the Indonesian market with a hydrocarbon substitute for ozone-depleting CFCs. The replacement product, produced by Pertamina under the trade name Petrozon, could be used as refrigerant for domestic refrigerators. According to Indonesia's Ministry of

Environment, using Petrozon would reduce energy consumption for homes.

**Contact: Ozone Unit, Indonesia State Ministry for Environment, tel: +62 21 851 7164, fax: +62 21 858 0111, e-mail: ozonenef@cbn.net.id**

#### Washington Monument gets new air conditioning

The Washington Monument, Washington DC, USA, is being fitted with a new air conditioning system as part of a US\$4.4 million restoration scheme. The new system uses R-22 (HCFC-22), a single component HCFC with low ozone-depleting potential, as the refrigerant. It includes a Trane rotary compressor chiller installed in an underground bunker. The chiller has dual scroll compressors and condensers and provides a glycol solution, chilled by the R22, to two Trane Modular Climate Changer air handlers.

The Monument, which receives 4,500 visitors per day in the summer season, is due to be re-opened later this year.

**Contact: Trane, tel: +1 608 787 3111**

#### US EPA approves Furan and hydrocarbons under SNAP

The US Environmental Protection Agency (US EPA) has added Furan and light hydrocarbons C3-C6 to its list of substances approved as environmentally-sound substitutes for ODS under its Significant New Alternatives Program (SNAP).

Furan is approved as an acceptable substitute for CFC-114 for retrofitting of existing uranium isotope separation process equipment. Furan is a perfluorocarbon (PFC) which does not deplete the ozone layer, but it does have a very high global warming potential and a long atmospheric lifetime. US EPA has therefore said that, as soon as more environmentally sound alternatives are developed in the future, Furan may no longer be considered an acceptable ODS substitute.

Saturated light hydrocarbons C3-C6 are accepted by EPA as replacements for HCFC-141b for all foam end uses except spray foam applications.

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

### *New initiatives from Coca-Cola on ozone protection and global warming*

The Coca-Cola Company has announced a set of policy initiatives it intends to implement by the next Olympics (Athens, 2004). Coca-Cola is the largest supplier of cold drinks for the Sydney event. The company has had a Task Force working to identify energy saving opportunities and to integrate alternative refrigerants and refrigeration systems for three years. The initiatives include:

- By the Athens Olympic Games the company will no longer purchase new cold drink equipment using hydrofluorocarbons (HFCs) where cost-effective alternatives are commercially available. This applies both to refrigerant gases and to insulation.
- Between now and 2004, the company will expand its innovative research and

development programme to identify and field-test promising alternative refrigeration technologies.

- Suppliers will be required to announce specific time schedules to use only HFC-free foam insulation and refrigeration in all new cold drink equipment by 2004.
- In line with the Kyoto agreement on climate change, Coca-Cola's suppliers will be required, by the end of the decade, to develop new equipment that is 40-50 per cent more energy efficient than that used today.

For the Sydney Olympics, 100 drink coolers using a hydrocarbon refrigerant will be installed as part of a field trial of new equipment.

**Contact: Trey Paris, tel: +33 1 404 676 4952**

## SOLVENTS

### Sawdust replacing trichloroethane

The Fox Valley Steel and Wire company, USA, is using sawdust to clean the nails it manufactures, instead of ozone-depleting trichloroethane.

Since the US EPA began to encourage users to find replacements for trichloroethane, in the 1980s, most companies involved in the wire industry have switched to caustic hot water as cleaning agent. Fox Valley Steel, however, does not have a wastewater treatment plant, making caustic hot water prohibitively expensive. The company therefore decided to use sawdust to clean the nails, a process abandoned in the 1940s because it was too labour intensive.

Accratec Engineering Inc. created a computer-operated sawdust tumbler for Fox Valley Steel, able to clean two tonnes of nails at a time. The sawdust used is waste from another company, Ort Lumber Inc., USA.

**Contact: Fox Valley Steel & Wire,**  
tel: +1 920 779 4544

## AEROSOLS

### CFC-free inhaler penetrating European market

The Ivax Corporation has recently announced that sales of its CFC-free Easibreathe inhaler are outstripping those of its closest competitors in the European market, where inhalers using CFCs are still on offer.

Ivax has already obtained approval to market its CFC-free beclomethasone conventional metered-dose inhaler in six countries. The inhaler is currently available in Ireland and has taken over half of the CFC-inhaler market in just two years. Ivax is expecting its CFC-free products to give it a competitive edge in the European market within the next three years.

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<http://www.ivax.com>

### CFC-free inhalers declared effective

Australia's National Asthma Campaign (NAC) has declared that new CFC-free inhalers are just as effective a those using CFC.

To reassure inhaler users, NAC's chairwoman, Christine Jenkins, said that the only difference is the type of propellant. Users should note that, while the new

inhalers using ozone-friendly propellants may taste and feel slightly different, there is no difference in their effect.

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<http://www.nationalasthma.org.au>

## METHYL BROMIDE

### Vikane assessed as alternative to methyl bromide

Tests conducted by the US Department of Agriculture's (USDA) Horticultural Crops Research Laboratory have shown that sulfuryl fluoride—known as Vikane—can be an effective substitute for methyl bromide in combating the codling moth and navel orangeworm. The codling moth affects walnuts and the navel orangeworm affects almonds and, sometimes, walnuts.

USDA's laboratory research showed that Vikane can be as much as seven times more toxic for the pests than methyl bromide, and that it passes through nuts more quickly. Results showed that a fumigation time of four hours would be sufficient to provide pest control complying with requirements.

**Contact: USDA Agricultural Research Service,**  
website: <http://www.ars.usda.gov>

### Messenger: bearing good news

The US EPA has approved a biopesticide which may support efforts to replace methyl bromide for some uses.

The biopesticide, known as 'Messenger', is a protein product derived from naturally occurring harpin. Like harpin, Messenger triggers plants' natural defence systems against viruses, bacteria and fungi. It also helps plants fight off some insects. The plants develop resistance if they are sprayed before being attacked.



'Messenger' at work

## MITI report shows that HFC and PFC emissions have not decreased in some areas

Greenhouse gas emissions related to use of hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) have not decreased in some areas of industry, according to an advisory panel to the Japanese Ministry of International Trade and Industry (MITI).

MITI found that, while overall HFC and PFC emissions have decreased, the amounts of these gases used in manufacture of liquid crystal displays and in sprays used to dust computers have increased. HFCs and PFCs were introduced to replace ozone-depleting CFCs, however concern has grown over their acceptability as substitutes, given their high global warming potential and the possibility of reductions being required under the Kyoto Protocol.

The company reports that Messenger has been field tested in more than 500 trials on over 40 different crops, and notes that the product poses no threat to human health, and evaporates within two hours of application.

**Contact: Mr Jerry Butler, EDEN Bioscience Corporation,** e-mail: [butlerj@edenbio.com](mailto:butlerj@edenbio.com),  
fax: +1 425 806 7400  
<http://www.edenbio.com>

### New soil sterilization system from Nepon, Japan

Nepon Inc., Japan, has introduced a new system using hot water to kill weeds, insects and harmful germs in soils. The water treatment could be used before planting, in the same way as methyl bromide.

The Nepon system spreads water at 50 °C evenly across fields and allows it to penetrate to a depth of 30 cm. A heat exchanger is used to heat the water indirectly and special sheeting is used to insulate and spray the water.

The system will be made available in large and medium-sized versions. The large size will cost around US\$36000, the medium sized one around US\$15000. They will be distributed through the National Federation of Agricultural Cooperatives.

**Contact: Nepon Inc.**  
tel: +81 3 3409 3131, e-mail: [eigi@nepon.co.jp](mailto:eigi@nepon.co.jp)  
<http://www.nepon.co.jp>

### USA and Canada studying alternatives to methyl bromide

Researchers in the USA and Canada are collaborating to find alternatives to methyl bromide for control of the fungus *Fusarium oxysporum*, the organism responsible for Fusarium wilt in some plants—notably tomatoes.

Research teams from the USDA Biocontrol of Plant Disease Laboratory and Canada's Agriculture and Agri-Food Southern Crop Protection and Food Research Center have combined their complementary expertise to investigate the possibilities of biocontrol, i.e. using one organism to control another. It has been found that certain species in the *Fusarium oxysporum* family can counter the effects of *Fusarium oxysporum*, leading to better tomato yields. The problem now is to identify the effective strains.

**Contact:** Agriculture and Agri-Food Canada, fax: +1 613 759 6726, <http://www.agr.ca>

**USDA Agricultural Research Center, website** <http://www.ars.usda.gov>

### HALONS

#### New halon bank to serve Indonesia's essential uses

Indonesia has established a national halon bank to recycle, recover, reclaim and store halons 1211 and 1301. Operated by the Garuda Maintenance Facility, a government subsidiary, the halon bank serves Indonesian halon users, including aviation companies, who need banked halon for their essential uses. Indonesia's National Ozone Unit is a member of the halon bank's advisory panel.

The new service is only available to Indonesian users at present, but regional and international expansion is expected in the future. Cooperation is already under way with DASCEN, Australia, on regional halon banking.

**Contact:** Mr Wilman, Coordinator GMF-National Halon Bank, P.O. Box 1303, Garuda Maintenance Facility, Soekama Hatta Airport, Jakarta, Indonesia, tel: +62 21 5508032, fax: +62 21 5501257, e-mail: [wilman@gmf-online.com](mailto:wilman@gmf-online.com)

#### Summit introduces new technologies

Summit Environmental Corporation Inc. has announced new firefighting technology advancements at the Halon Option Technical Working Conference, held in Albuquerque, USA. The new technology will be used to enhance Summit's main product, FlameOut.

The technology announced by Summit is being tested and it is expected that it will increase FlameOut's capability to extinguish all types of fires from liquid-fuels and gases. The company will issue further information when testing is completed.

The Conference is an annual meeting allowing halon industry leaders to exchange information about innovations and new technologies and to help to find viable fire suppressants to replace halon.

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## 31st ExCom: assisting Article 5 countries with compliance

By the end of 1999, 64 out of 99 Article 5 countries were already in compliance with the June 1999–June 2000 CFC freeze requirements and, with approved Multilateral Fund projects, 38 of those countries could already meet the 50 per cent CFC reduction target for 2005. These figures were part of the roundup of the current status of compliance presented to the 31st Meeting of the Executive Committee of the Multilateral Fund (ExCom), held on 3–7 July 2000 in Geneva, Switzerland. The figures, based on the latest data available from the Multilateral Fund Secretariat, also showed significant early compliance with the 2002 freeze: 83 Article 5 countries can already meet the 2002 halon freeze and fully half of the Parties that have ratified the Copenhagen Amendment already comply with the freeze on methyl bromide. However, there are areas of concern: without further action on their part or by the Fund, 21 countries might not meet the CFC freeze until after 2001; 18 countries will need action to meet the halon freeze; and 16 will require action to meet that on methyl bromide.

Globally, the data show that 73 per cent of the remaining consumption of ozone-depleting substances (ODS) is of CFCs and that 62 per cent of that is in refrigeration, mainly in the servicing sector.

Many delegations suggested that the Multilateral Fund (MLF) should prioritize CFC phase out in the refrigeration servicing sector as the best means of promoting compliance, and that this should be reflected in funding for business plans of Implementing Agencies and bilateral organizations. There was general agreement that, in future, programmes should increasingly be country-driven with a preference for sector and country phase-out programmes, instead of a project by project approach.

The ExCom also reached agreement on changes to the guidelines for Refrigerant Management Plans (RMP), summarized as follows:

- It was recognized that many approved RMPs do not contain a strategy enabling countries to fully phase out the use of CFC refrigerants for servicing. NOUs in low volume consuming countries (LVCs) with RMPs already approved were therefore requested to review the expected results of their RMPs, including use in the informal sector, and to identify needs for further actions to meet the Montreal Protocol phase-out schedule, including activities that would require national financing. Additional funding

up to 50 per cent of that originally approved for implementation of RMPs could be requested from the MLF. However, requests must be accompanied by a commitment to meet the 50 per cent reduction in 2005 and 85 per cent reduction in 2007, if necessary through import restrictions. The need for further assistance after 2007 would be reviewed in 2005.

- Funds for new RMPs for LVCs will be increased to twice the normal amount of original funding for RMPs already approved, and funding for implementation will be increased by 50 per cent. RMPs should contain a comprehensive phase-out strategy including development of regulations and activities which would require national financing and which would be sufficient to meet at least the 85 per cent reduction in 2007. RMPs should include the same commitment to meet at least the 50 per cent and 80 per cent reductions, through import restriction if necessary.
- The ExCom agreed to consider funding the development of a comprehensive national strategy for the refrigeration sector for high volume consuming countries.

## WORKSHOPS

### *Illegal trade in ODS: as serious a problem as drug trafficking*

*'Environmental crime is a looming threat to the hard work being carried out by the world community. Illegal trade in ODS is an environmental crime and will be a major barrier to the early recovery of the ozone layer.'*

This comment by Mr Klaus Töpfer, Executive Director of UNEP, indicates the seriousness of a growing form of illegal activity: the illegal trade in ozone-depleting substances banned under the Montreal Protocol. To help counter its further development, UNEP has instigated response at the regional level. The two workshops described below are examples of that response in action.

#### **Regional Enforcement and Legislation Workshop, Budapest**

At the Regional Enforcement and Legislation Workshop, held in Budapest, Hungary, on 15–17 May 2000, Customs Officers and officers in charge of NOUs came together for the first time in the history of the Montreal Protocol to take steps to fight environmental crime. At the meeting, delegates from 10 Central European and Baltic countries, assisted by experts on environmental crime from the European Commission, Poland, the UK, Ukraine and from the US Department of Justice, agreed on effective measures to fight environmental crime. These include:

- effective deployment of detection equipment;
- intensive public awareness campaigns;
- tightening controls within and across borders; and
- heavy penalties for trafficking, including jail sentences.

Another significant outcome of the workshop was the establishment of an informal Internet network among customs authorities within the region and beyond it, to exchange vital information on illegal trading in ODS.

The workshop, organized jointly by the Hungarian Customs and Finance Guard and UNEP's OzonAction Programme, was attended by delegates from Bulgaria, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

In his opening address to the meeting, Mr Mihaly Arnold, Lt. Gen. and Commissioner of Hungarian Customs Administration, stressed, *'we are determined to halt this increasing trend of illegal trade and environmental crime. Regional Cooperation is the key to success that will lead us to our final goal of protecting the ozone layer.'*

#### **Regional Enforcement and Legislation Workshop, Baku**

A regional meeting of customs officers and NOUs from the Newly Independent States met in Baku, Azerbaijan, on 7–9 June 2000, as a further step in UNEP's regional initiative to fight illegal trade in ODS. Participants from Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan agreed on the same series of effective measures agreed at Budapest and on the importance of setting up an informal Internet network (see *Budapest Workshop*, above).



*Participants in Baku Regional Enforcement and Legislation Workshop. Left to right: N. Kryzhanovsky, Ozone Office, Belarus, V. Minchenia, Ozone Office, Belarus, N. McCarthy, US Department of Justice.*

Following the workshop, all of the participating countries will have a licensing system in place by the end of 2000. The remaining challenge will be to implement and enforce that system.

**For further information on either of these events, contact UNEP DTIE OzonAction Programme, fax: +33 1 44 37 14 74, e-mail: [ozonaction@unep.fr](mailto:ozonaction@unep.fr)**

*Watch out for our forthcoming special supplement on illegal trade in ODS*

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Other important decisions from this Meeting were:

- *Project approvals:* 99 projects were recommended for blanket approval at a total cost of US\$16 million. Resources available at the start of the Meeting were around US\$14 million, rising to US\$18.7 million by 7 July.
- *Foam density:* a new technical study facilitated an ExCom decision on determining the eligible level of funding for foam density changes in certain projects. This enabled final approval of 40 foam projects that had been awaiting decision.
- *Methyl bromide:* Projects were approved in Peru, Turkey and Zimbabwe, with some innovative conditions: in return for approval, governments agree to achieve specified reductions in methyl bromide consumption by given dates; and to introduce regulatory measures. Funding would be disbursed in tranches, dependent on performance.

The full report of the ExCom Meeting is available at: <http://www.unmfs.org>.

Contact: Multilateral Fund Secretariat, fax: +1 514 282 0068

### *Ozone science news*

#### **Arctic ozone layer recovery may be delayed**

NASA's Ames Research Center (ARC) recently announced that more polar stratospheric clouds than anticipated may delay recovery of the ozone layer above the Arctic region.

Polar stratospheric clouds represent a dual threat to stratospheric ozone. As NASA official Phil DeCola explains, 'they provide the surfaces which convert benign forms of chlorine into reactive ozone-destroying forms, and they remove nitrogen compounds that act to moderate the destructive impact of chlorine.'

Work by ARC scientist Azadeh Tabazadeh has indicated that colder and more humid conditions are allowing formation of more such clouds in the Arctic and, if Arctic temperatures drop by around 3 °C, they will last longer, leading to more ozone depletion over the northern hemisphere, where many people live.

Contact: John Bluck, NASA, tel: +1 650 604 5026, e-mail: [jbluck@mail.arc.nasa.gov](mailto:jbluck@mail.arc.nasa.gov)

## NETWORK NEWS

### *Caribbean Network*

The 6th main meeting of the Caribbean Network of Ozone Officers stressed the importance of licensing systems in controlling imports and exports of ODS. Participants also heard a proposal that import and export controls could form part of general trade controls agreed within CARICOM, the Caribbean Community encouraging economic cooperation between Caribbean countries. The network delegates agreed to invite a CARICOM representative to their next meeting, as a means of increasing CARICOM's awareness of ozone issues and of encouraging it to include Montreal Protocol related issues in its regional meetings.

Turning to problems of CFC phase out, the delegates discussed the problem of selecting appropriate replacement technologies, given that HCFCs are transitional substances, HFCs are included under the Kyoto Protocol and hydrocarbons raise safety and cost issues. It was recommended that consideration be given to the organization of a joint meeting of Ozone and Climate Change Officers to explore cross-cutting issues.

It was also recommended that:

- countries in the region should examine the Bahamas' Terminal Phase Out Management Plan, to consider whether such an innovative and cost-effective approach to phase out could be useful to them; and
- an e-mail forum should be set up as a priority, to allow network members to exchange information.

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e-mail: CMosler@latino.rolac.unep.mx

### *West Asia Network: request for workshop on alternative technologies*

At their meeting in Jeddah, Saudi Arabia, held in May 2000, Ozone Officers from the West Asia network raised the important question of how to choose alternatives to technologies presently in use, taking into account ozone depletion, global warming, safety, cost and availability. After discussions, they requested UNEP to arrange a workshop to explore these issues in detail.

Representatives from 10 network member countries and the National

Authority of Palestine met, at the kind invitation of Mohammed Saleh Al Sahafi, the Ozone Manager from Saudi Arabia. All countries invited colleagues from their Ministries of Justice and Legal Affairs and of Industry. These guests of the network were able to contribute usefully to one of the main themes of the meeting: how to put in place and implement legislation to control imports of ODS. Mr Atul Bagai, India's Ozone Officer, introduced this topic drawing on his recent experience in successfully piloting India's new ozone regulation through the legal system to adoption. Countries also reviewed their progress towards compliance with the CFC, halon and methyl bromide freezes with the help of input and analyses from UNEP and the Multilateral Fund Secretariat.

### *Central and Latin America and Spanish-speaking Caribbean Network: delegates assess their networks*



*Mr Eduardo Ganem of the Multilateral Fund Secretariat networking with ODS Officers from Latin America.*

Delegates attending the 7th joint main meeting of the Central and Latin America and Spanish-Speaking Networks, in Montelimar, Nicaragua, May 2000, were asked to list the benefits and weaknesses of their networks, together with proposals for their future development. The request came from Mr Marco Gonzales who had been asked to attend by the ExCom in order to evaluate the networks. All of the Ozone Officers acknowledged the importance of their network to their work, even if it was not always easy to measure the network's impact in concrete terms.

Discussions covered a number of important topics, including compliance with the Montreal Protocol, how to improve data availability and accuracy and the ongoing

difficulties of illegal trade in ODS. Delegates requested further information on technology choices and the costs and options for disposal of contaminated and surplus ODS.

### *South Asia network meeting*

Ozone Officers from the South Asia Network held their main meeting in Negombo, Sri Lanka, in June. Mr Steve Anderson (AFCAM, Australia) gave an update on the work of the TEAP HFC/PFC task force. Ozone Officers expressed concern about the potentially confusing messages being given on technology choices to replace CFCs. They agreed that Ozone Officers, Climate Change Officers, industry representatives and NGOs from the region should come together at a workshop to debate technology choice and sustainable alternatives to ODS. The Ozone Officers also benefited from an excellent presentation by Dr Willem Bouma (CSIRO) on the latest scientific information on the state of the ozone layer and its likely recovery and requested that this be repeated annually.

The network members welcomed Mr Ansgar Eussner, the Senior Monitoring and Evaluation Officer, who was there to conduct his evaluation of the network. Ozone officers reaffirmed the value of the network in supporting and assisting them in their work while the evaluator stressed the need to focus on objectives and achieving specific results. The meeting also welcomed Ms Maria Nolan (UK) as developed country partner to the network and agreed to promote closer involvement of the UK in all network activities.

The network expressed its concern at the continuing problem of illegal trade and underlined the importance of the monitoring and enforcement workshop planned for October in Dalian, China, in finding effective means to overcome this problem.

### **Examples of South-South Cooperation: Article 5 countries sharing knowledge**

Dr Dao Duc Tuan, a National Ozone Coordinator from Vietnam, is currently in Laos to assist the national Ozone Office in finalizing the Laos country programme.

India is helping the Democratic Peoples Republic of Korea to get its Ozone Office up and running and in training the Ozone Officer.


**WORLD POLICY ROUNDUP**

### Bangladesh to ban ODS

Bangladesh's Environment Minister, Mr Syeda Sajeda Cowdhury, recently announced that the Bangladeshi government is considering imposing a ban on use of ODS in the country. Use of CFCs in air conditioners and refrigerators is widespread in Bangladesh at present.

**Contact:** Dr S. K. Purkayastha, Senior Officer, Ozone Cell—Department of Environment, Paribesh Bhaban, E-16 Agargaon Sher-E-Bangla Nagar, Dhaka 1207, Bangladesh

### Brazil: controlling manufacture and imports

The Brazilian government has announced that it will ban the manufacture of new equipment and products either produced with or containing ozone-depleting

substances in the following sectors: non-medical aerosols; refrigeration; air conditioning and firefighting.

A quota system to regulate imports will also be introduced early in 2002.

**Contact:** Conama, tel: +55 61 226 28 37, fax: +55 61 226 4961, e-mail: conama@mma.gov.br

### Brunei: import permits for CFCs

Officials in Brunei recently announced that the country is to introduce a requirement for permits to import CFCs used as the refrigerant in domestic or commercial refrigeration equipment.

**Contact:** Environment Unit, Ministry of Development, tel: + 673 2 383222 fax: + 673 2 383644, e-mail: uas@mod.gov.bn

### India: new rules on ODS smuggling

India's Ministry of Environment and Forests has recently published new regulations to control ozone-depleting substances (ODS) in the country. The salient features of the new regulations are as follows:

- ban on the use of CFCs in equipment manufactured after January 2003;
- introduction of phase-out dates in the production and consumption sector ahead of the grace period allowed to Article 5 countries under the Montreal Protocol;
- restrictions on import and export of ODS and equipment containing ODS;
- consumers, traders, wholesalers and other users of ODS are required to register with relevant authorities.

**Contact:** Ozone Cell, Ministry of Environment and Forests, tel: +91 11 464 2176/460 2601 fax: +91 11 464 2175/464 2176 e-mail: ozone@del3.vsnl.net.in

The Alliance for Responsible Atmospheric Policy has created a website listing country-specific HCFC regulations. The site can be found at: [www.ARAP.org](http://www.ARAP.org). Click on 'Public Documents'.

## Success stories

### CT Foam, Malaysia: a successful conversion to liquid carbon dioxide technology

CT Foam, a Malaysian manufacturer of flexible moulded foam (FMF) products has successfully converted to liquid carbon dioxide (LCD) technology. The LCD is being used as an alternative to water-based systems which require use of additional CFC-11 for production of mattresses, cushions and pillows.

LCD is a non-ozone-depleting technology with zero global warming potential. It is already used in the manufacture of PU and flexible slabstock (FPF) foams, but less so for FMF where it competes with water-based alternatives.

Prior to conversion the lowest possible density that CT Foam could achieve with



Overview of the cushion line

water based systems was between 48 and 51 kg/m<sup>3</sup>. CFC-11 then had to be used as an auxiliary blowing agent to obtain the required densities of 35-48 kg/m<sup>3</sup>. LCD was the only alternative technology that would allow the enterprise to continue to achieve these low densities. For higher densities, the company selected all-water-based systems.

The conversion project was prepared and implemented by UNDP and executed by UNOPS. UNOPS called in an expert from a major European LCD foam manufacturer whose assistance helped to smooth implementation and allowed the company to produce excellent products from the first day of conversion. In the case of CT Foam, the slightly higher cost of water-based systems was more than offset by the lower cost of the LCD technology, a

good example of selection of an alternative technology that, in a given situation, has both environmental and economic advantages. The project will eliminate the use of 14 tonnes of CFC-11 per year.

**Contact:** UNDP, fax: +1 212 906 6947



Detail of the pouring process

## OzonAction Newsletter: staying relevant

The *OzonAction Newsletter's* Editorial Board held an informal meeting recently, to discuss the ways in which the *Newsletter* could maintain and increase its relevance to its readers' activities and interests. The meeting, held in Geneva, Switzerland on 11 July 2000, was particularly timely as Article 5 countries are now emerging from the 'grace period' allowed them under the Montreal Protocol. The Board members and *OzonAction* editorial team affirmed their commitment to ensuring that the *Newsletter* remains as close to its readers in this new situation as it has in the past.

At the close of the meeting, the Board members agreed that henceforth the Editorial Board should be known as the Review Board, to better reflect its role.

**Contact:** Rajendra Shende, UNEP DTIE, fax +33 1 44 37 14 74,

## Laying the Foundations

### Awareness raising for the younger generation

#### A Millennium Conference to raise awareness among children

Colourful A-4 format handouts specially created for children were handed out at the Millennium International Children's Conference held in May 2000 and organized jointly by UNEP and Borough Council of Eastbourne, UK. The handouts combine facts about the ozone layer and ozone depletion with puzzles, crosswords and other activities. The young participants at the conference also heard a Japanese children's song about ozone preservation and were encouraged to set up Ozone Protection Clubs in their schools.

Have a go at the puzzle featured here!

Contact: UNEP DTIE, fax +33 1 44 37 14 74, e-mail: [ozonation@unep.fr](mailto:ozonation@unep.fr)

O	I	L	I	C	H	L	O	R	I	N	E	O
B	Z	Z	J	O	N	A	H	A	O	I	C	Z
R	S	O	L	V	E	N	T	S	H	U	Z	O
O	E	B	N	Y	F	F	G	H	A	A	O	N
M	B	R	A	E	R	O	S	O	L	S	E	E
I	K	U	Q	H	L	E	M	E	O	P	V	H
N	G	B	C	C	E	A	W	O	N	Y	U	O
E	C	F	C	F	P	N	Y	Z	S	A	H	L
A	Z	P	C	C	X	D	N	E	S	D	M	E
I	R	R	E	F	R	I	G	E	R	A	N	T
M	E	T	H	Y	L	B	R	O	M	I	D	E

#### Words to find

OZONE LAYER  
OZONE HOLE  
CFC  
HALONS  
REFRIGERANT  
HCFC  
AEROSOLS  
METHYL BROMIDE  
SOLVENTS  
HALONS  
CHLORINE  
BROMINE

If the ozone layer is to recover and is to be permanently protected, tomorrow's citizens will have to be aware of the threats, and of how to avoid them. This special feature gives examples of how awareness and understanding can be encouraged among even the very youngest.

#### Ozone depletion song for children

UNEP has released a compact disc of a children's song promoting stratospheric ozone layer protection efforts worldwide. The song was originally composed with Japanese lyrics by Yumiko Hagi of the Japanese Save the Ozone Layer Network (JASON) and was translated into English with the collaboration of UNEP's OzonAction Programme.

The CD, featuring both Japanese and English versions of the song, was distributed to National Ozone Units on World Environment Day.

Contact: UNEP DTIE, fax: +33 1 44 37 14 74, e-mail: [ozonation@unep.fr](mailto:ozonation@unep.fr)



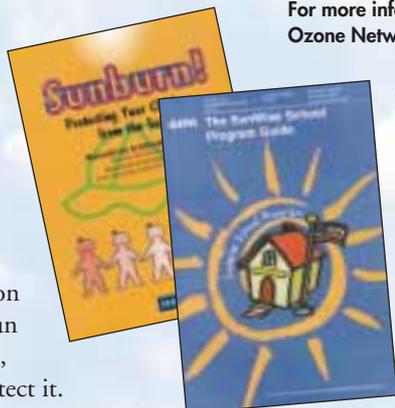
## Skin cancer: teaching children the importance of protection

Teaching 'sun safety' to the younger generation is an important issue. Three interesting initiatives in this area are presented below, two from Japan and one from the USA.

#### Sunburn: Protecting Your Children from the Sun

by Dr Masamitsu Ichihashi, Kobe University School of Medicine (Japan)

This 50-page booklet provides concise and clear basic information on the effects of the sun on the human skin, and on how to protect it.



Attractive and humorous drawings not only underscore the main points but will help to gain the attention of younger readers. Even complex subjects such as DNA damage and ozone depletion are handled skillfully and clearly. The booklet will be useful to parents and children alike.

For more information, contact: Japan's Save the Ozone Network, fax: +81 27 323 0731

#### The SunWise brochure (from US EPA)

The US EPA has released a full-colour brochure featuring sun-safety tips for children. The brochure, entitled *Sun Safety for Kids: The SunWise School Program* is part of EPA's SunWise School Program designed to teach

schoolchildren to avoid overexposure to the sun. The programme was pilot tested in 150 schools in 38 states and is now available nationwide in the US.

Contact: US EPA website, <http://www.epa.gov/sunwise>

The Song of Sunny Days, published by Japan's Save the Ozone Network, is aimed at very young readers. It uses a series of charming illustrations to explain how they can protect the ozone layer and how to protect themselves from harmful UV rays.

Contact: Japan's Save the Ozone Network, fax: +81 27 323 0731



## The National Ozone Unit Interview

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

### Marco Pinzon



#### ODS Officer, Colombia

*Colombia has a number of investment projects approved to phase out ODS. Can you summarize the major achievements of the National Ozone Unit for the last two years in implementation of those projects?*

In the last two years, the Executive Committee has approved 12 investment projects in the foam, refrigeration and solvent sectors, with UNDP and the World Bank. Their implementation will allow Colombia to eliminate 180 ODP tonnes, almost 20 per cent of total consumption in 1999.

*What have been your major difficulties in meeting your phase out targets?*

We are doing very well in meeting the freeze, but are now facing a major challenge for the 2005 deadline. Policies and procedures of the Executive Committee move faster than those at the national level. Sometimes you find that, finally, you could manage to adapt some Executive Committee policy/procedure, and you think you've done a great job. But then, you realize that the policy/procedure has changed or no longer applies. I think this difficulty could be avoided by a more visionary perspective, allowing smoother adaptation of plans to keep pace with the extremely dynamic Montreal Protocol.

*Colombia is an active participant in the Spanish-speaking network of ODS Officers for Latin America. How have the network's activities helped you in implementing your projects?*

Networks are a key space in which we can exchange experiences with other Ozone Officers, get views on how to implement decisions of the Executive Committee, learn from more developed countries through workshops, have the opportunity to get closer to the implementing agencies and clarify implementation process issues. And, most important, the network is a place where we can feel confident about our work, not because of comparisons of results, but because of the spirit of cooperation in the meetings.

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

Although each country has its own mechanisms to meet the Montreal Protocol targets, the fact is that all we Article 5 countries have the same control deadlines. I think that, first of all, we have to keep in mind that we are responsible for the recovery and protection of the ozone layer. Actually, this phrase is our mission statement.

*How do your awareness raising activities contribute to ODS phase-out activities in your country? Have you used the products of the OzonAction programme in your national awareness raising activities? How did you evaluate the success of your awareness programmes?*

We have always stressed the importance of public awareness activities. They are therefore an essential part of our phase-out programme. Although they do not eliminate ODS directly, they certainly are a key driving force in this process.

Of course, UNEP materials are very important in disseminating information. We have reinforced some of them by adapting texts or copying material. Sometimes UNEP's publications capture more attention than ours do, but I consider this as a synergy, because finally the impact is always more than expected.

To give an idea of our work, I would like to share some figures with you:

- 2000 refrigeration technicians have been trained.
- 8 companies have collaborated with the UTO (ecolabel) on more than 1000 products and services.
- A television ad to persuade people to use only trained technicians to service or repair their damaged refrigerators was shown in October–December 1999. Estimated audience, 14 million.
- Around 200 seminars organized in schools, universities and industries, attended by at least 50 people. More than 10,000 people reached.
- Two and a half million leaflets distributed. Estimated readers, about 7.5 million.
- Our song 'Ultravioleta' has been presented in various radio programmes. Estimated listeners, 10,000 people.

Of course, it is difficult to estimate the ODS eliminated by these activities, but one thing is certain, people are waking up to the problem.

**Contact:** Marco Pinzón,  
**fax:** +57 1 340 6215  
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**or** uto@minambiente.gov.co

## Forthcoming meetings

2000 Earth Technologies Forum.  
 30 October–1 November 2000,  
 Washington, D.C., USA

32nd Meeting of the Executive Committee of the Multilateral Fund. 4–8 December 2000, Ouagadougou, Burkina Faso

12th Meeting of the Parties to the Montreal Protocol. 11–14 December 2000, Ouagadougou, Burkina Faso

## Status of Ratification

(as at 20 July 2000)

### The Vienna Convention

176 Parties. New Parties: Angola, Kyrgyzstan

### The Montreal Protocol

175 Parties. New Parties: Angola, Kyrgyzstan

### The London Amendment

141 Parties. New Parties: Benin, Georgia

### The Copenhagen Amendment

108 Parties. New Parties: Algeria, Benin, Fiji, Georgia

### The Montreal Amendment

39 Parties. New Parties: Egypt, Georgia

### The Beijing Amendment

1 Party. No new Parties.\*

\*since the last issue of the *OzonAction Newsletter*

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The contents of this newsletter are provided for information and do not necessarily represent the policy of UNEP.

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