



## Viewpoint

### Multilateral Fund and Sustainable Development



*H.E. Tadanori Inomata  
Ambassador of Japan to  
Costa Rica, Chairman  
of the Executive  
Committee of the  
Multilateral Fund*

The Fourteenth Meeting of Contracting Parties to the Montreal Protocol in Rome last November agreed on the highest level of replenishment with US\$ 573 million for the period from 2003 to 2005. The Parties also determined that 21 countries were

in potential or actual non-compliance with the freeze on CFC consumption.

The replenishment agreed at the 14th Meeting of the Parties put the Multilateral Fund in a good position to assist efforts by the Article 5 Parties to achieve compliance. Among the issues which the Executive Committee followed up at the April meeting in Montreal were financial planning for the 2003-2005 triennium, the adoption of the 2003 business plan for the Multilateral Fund, the allocation of resources for Article 5 Party compliance, and the mobilization of public support for the work of the Multilateral Fund.

It would be inevitable that the number of cases of non-compliance would rise as Parties move further towards total phase-out of ODS that are deeply embedded in the national economies. For example, eradication of poverty means more use of refrigerators as consumption of milk and dairy products grows and more use of methyl bromide in melon production as well. *The developing countries cannot achieve conversion to alternative technologies and substances from ODS without facing a major challenge to achieving sustainable growth in their economies.* The Multilateral Fund has not only to promote aggregate reduction in the consumption and production of ODSs in Article 5 Parties, but should also ensure that the phase-out be compatible with sustainable development.

*Finally, I am concerned with the Multilateral Fund's paradoxically low level of visibility on the international scene such as the WSSD and the world media, despite the highest level of funding in the Fund's history and an ever-growing number of activities.* The Multilateral Fund is undergoing a transition, both with regard to the Secretariat's leadership and with regard to its approach, with the shift from project-driven to compliance-driven planning. I believe that no complacency is to be permitted. The Fund must sustain an adequate level of commitment with more efficiency and innovative action to deal with the daunting tasks ahead.

## Contents

Viewpoint	1
" We Will Miss Tuan "	1
News from International Agencies	2
TechTalk	3
World Policy Roundup	5
New Publications	5
The Progress in Ratification of the Montreal Protocol and its Amendments	5
Dialogue and Discussion	6
Uzbekistan Cuts Emissions of ODS	6
Illegal Trade	7
Environmental Crime and Environmental Security at the Border	8
Breaking News: Philippines' Vigilance Thwarts CFC Smugglers	8
Science News	9
Eastern Europe and Central Asia join Regional Network of ODS Officers	9
The National Ozone Unit Interview	10
Sweden Maintains Momentum to Support Networks	10
Forthcoming Meetings	10

## " We Will Miss Tuan "



*Dr Dao Duc Tuan,  
Director of National  
Office, Vietnam*

The Montreal Protocol community mourns the loss of Dr. Dao Duc Tuan, Director of Vietnam's National Office for Climate Change and Ozone Protection, who passed away on 27 February

2003 after a long illness.

Dr. Tuan's dedication to both ozone and climate issues garnered the scientific, political and industry support which allowed Vietnam to ratify the Montreal Protocol. He also pioneered the creation of the National Office for Climate Change and Ozone Protection, firmly reiterating the concept of the inter-linkages of these issues. As Director of the Office, he strongly voiced developing country concerns and provided technical expertise through various task forces of the Intergovernmental Panel on Climate Change (IPCC) and

UNEP- organized roundtables.

One of his greatest achievements is the Vietnam Pledge by multinational companies not to increase ODS dependence in Vietnam, thus allowing Vietnam to phase out ODS materials well ahead of the schedule set by the Montreal Protocol.

Dr. Tuan was also the recipient of the USEPA 2003 Stratospheric Ozone Award, in recognition of his exceptional contribution in the implementation of both the Montreal and UN Framework Convention on Climate Change in Vietnam. He will be sorely missed.

## News from International Agencies



### Fund Secretariat

At its 38th Meeting of Executive Committee (ExCom) approved US\$ 82 million for projects to

eliminate 11,000 tons of ODP. It pledged US\$ 16 million of financial assistance for implementing agreements to phase out CFC consumption in Nigeria, the Philippines and Indonesia, and ODS production in Argentina (CFC) and China (CTC). A three-year phase-out plan based exclusively on the compliance needs of Article 5 countries won approval for the first time in the Fund's history. The Committee decided to award US\$ 1.5 million each to UNDP, UNIDO and the World Bank to finance core budgets of their Montreal Protocol Units.

At its 39th Meeting, the Committee allocated US\$ 52 million to investment and work activities in 50 developing countries. Much of it will go to China to help complete ODS phase-out plans, and to India for winding up CFC production.

**Contact: Dr Omar El Arini, Multilateral Fund Secretariat, 1800 McGill College Avenue, 27th floor Montreal, QC, Canada H3A 3J6**  
tel: +1 514 282 1122  
fax: +1 514 282-0068  
e-mail: secretariat@unmfs.org, www.unmfs.org



### UNEP DTIE

The 39th ExCom Meeting endorsed UNEP's 2003 business plan, worth US\$ 14 million, as well as approved

US\$ 1.26 million work programme amendment. The Committee also approved funding to help set up a new regional network for Article 5 countries in Eastern Europe and Central Asia, with bilateral assistance from Austria, the Czech Republic, Hungary, the Slovak Republic and Sweden (see page 9). Regional networks implemented through UNEP now include 130 developing countries. Information activities to support new Russian-speaking members were also approved, including a Russian version of this newsletter.

The reoriented and restructured Compliance Assistance Programme started its regional delivery with full speed in all the regions. Six regional meetings were held and seven training courses were conducted. The Communication Strategy for Global Compliance was endorsed and a related Japanese bilateral project supporting Nigeria's Information, education and communication needs was approved.

**Contact: Mr Rajendra M. Shende, UNEP DTIE, 39-43 quai André Citroën, 75739**

Paris Cedex 15, France, tel: +33 1 44 37 14 50, fax: +33 1 44 37 14 74, e-mail: ozonaction@unep.fr, www.uneptie.org/ozonaction



### UNEP Ozone Secretariat

The 30th Meeting of the Implementation Committee and the Bureau of the

Montreal Protocol will take place in Montreal on 4-5 July. It will be followed (7-11 July) by the 23rd Meeting of the Open-ended Working Group, for which the Secretariat has arranged the infrastructure and prepared documents. The agenda includes a debate on proposed changes to the Montreal Protocol arising from nominations submitted by 12 Parties for critical use exemptions of methyl bromide in 2005.

The Secretariat has also finalised publication of the 2002 assessment reports prepared by the three standing Assessment Panels for Science, Environmental Effects and Technology and Economics and its six Technical Options Committees (see page 5).

**Contact: Mr Marco Gonzalez, Ozone Secretariat, P.O. Box 30552, Nairobi, Kenya,**  
tel: +254 2 623 885, fax: +254 2 623 913/623 601, e-mail: marco.gonzalez@unep.org, www.unep.org/ozone



### UNDP

The 38th ExCom Meeting approved 30 new activities for

UNDP, including a National CFC phase-out plan for Nigeria, two phase-out plans in refrigeration manufacture (in India and Syria) and one in servicing for Indonesia. Among the other approved projects were two terminal umbrella programmes in foam for Argentina and Colombia, and one in aerosols for India, as well as phase-out activities in several Low Volume Consuming countries (LVCs) in the African region. UNDP's work in Cuba in the Metered Doses Inhaler aerosol sub-sector was singled out for special praise, in the context of Montreal Protocol's compliance.

UNDP's 2003-2005 business plan was approved at the 39th Meeting of the ExCom. It covers ongoing and new work in 57 countries, with corresponding funding of US\$ 104 million and a phase-out target of 11,960 ODP tonnes.

**Contact: Dr Suelly Carvalho, Montreal Protocol Unit, UNDP, 304 East 45th Street, Room 9116, New York, NY 10017, USA,** tel: +1 212 906 5004, fax: +1 212 906 6947, e-mail: suelly.carvalho@undp.org, www.undp.org



### UNIDO

The 39th ExCom approved US\$ 305,000 for preparing investment projects in the refrigeration, solvents and

process agents sectors and for phase-out plans in the fumigant sector. It also endorsed a Country Programme Update for Argentina, a terminal phase-out management plan for CFCs in Croatia, two investment projects for Bosnia and Herzegovina in the refrigeration and foam sector, and the national ODS phase-out plan for Albania. The latter includes conversion of cleaning installations from CTC to tetrachloroethane at Energy Combinat Ltd Albanian, and a refrigerant recovery and recycling network. Following approval of additional tranches for 2003, UNIDO will continue to assist in implementing the RMP to phase out use of ODS in refrigeration and air conditioning in Algeria, and China's tobacco sector plan, a US\$ 2 million annual work programme.

**Contact: Mrs H. Seniz Yalcindag, UNIDO, P.O. Box 300, A-1400 Vienna, Austria,** tel: +431 26026 3782, fax: +431 26026 6804, e-mail: yalcindag@unido.org, www.unido.org



### World Bank

US\$ 20 million was approved at the 39th ExCom Meeting for the first annual programme of China's carbon

tetrachloride sector phaseout plan. The first chlorinated rubber plant in India to receive financial assistance through the Multilateral Fund for CTC phaseout was reopened in May after conversion, using new technology developed in India.

Total Multilateral Fund approvals by the end of December were worth US\$ 545 million, with 122,090 ODP tonnes (134,580 metric tonnes) of ODS phased out to date. The seventh annual workshop for financial agents was held in Washington, D.C. along with NOU representatives. The emphasis was on issues surrounding implementation and reporting. The event was followed by the 20th meeting of the Ozone Operations Resource Group, involving sector experts, client countries and representatives of the Multilateral Fund Secretariat, UNEP, UNDP and UNIDO.

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

# TECH TALK

*Tech Talk showcases commercially-available technologies that reduce or replace ODS, as well as technologies currently under research. Without seeking to endorse any technology or product, Tech Talk covers all technologies permitted under the Montreal Protocol, including those using transitional substances (HCFCs) and not-in-kind alternatives. We welcome information and contributions from all interested parties.*

## AEROSOLS

### Aerospan Inhaler Promises Relief to Asthma Patients and Ozone Layer

Forest Laboratories, Inc. recently announced the results of a new lung biopsy study which found that use of the company's non-ozone-depleting, hydrofluoroalkane (HFA)-based inhalation aerosol Aerospan "reduced both large and small airway inflammation and improved lung function in patients with asthma."

"Using tissue samples from patients with asthma, we were able to show that Aerospan treats inflammation in the large and small airways of the lung," said McGill University medicine and pathology professor Qutayba Hamid. "This is the first time lung biopsies from the distal lung have demonstrated this effect of an inhaled corticosteroid."

The company said samples were taken from the "peripheral and central" airways of 12 asthmatic patients' lungs prior to and after six weeks of treatment with Aerospan, which was administered in a dosage of "four puffs twice daily." The samples were examined to determine "the levels of a number of different cell types that indicate inflammation, such as eosinophils."

"Lung function was assessed at the start of the study and after treatment using common measures, including forced expiratory volume in one second...and forced expiratory flow," the company stated. "Following Aerospan treatment, a significant reduction in inflammatory markers was seen in both the peripheral and central airways when compared to baseline."

Contact: Forest Laboratories, Inc., [www.frx.com](http://www.frx.com)

## DESTRUCTION TECHNOLOGIES

### Successful CFC Destruction Tests

Eco Logic and Fielding Chemical Technologies Inc. partnered to conduct a test using Eco Logic's Gas-Phase Chemical

Reduction (GPCR) technology to demonstrate that the technology could be used for disposal of CFCs and halons. The CFC-12 was selected because it is a highly stable compound and is believed to be one of the most difficult to destroy. The purpose of the test was to demonstrate that CFC-12 could be destroyed using GPCR without the creation of problematic residuals. Results confirmed that there was no CFC-12 detected in the liquid or gaseous outputs, and no residual compounds were created. A copy of the test report can be provided upon request from Eco Logic.

Contact: Fred Arnold Ecologic International, Inc., e-mail: [fred.arnold@ecologic.ca](mailto:fred.arnold@ecologic.ca), [www.ecologic.com](http://www.ecologic.com)

## HALONS

### DuPont Brings Total Flooding Halon 1301 Replacement to Market

DuPont Fluoroproducts recently introduced a new FE-25 fire extinguishing agent in the U.S. intended to serve as a retrofit replacement for the use of halon-1301 in flooding systems. The new FE-25, or hydrofluorocarbon (HFC)-125, agent will be marketed in the U.S. and Europe by Fike Corporation under the Fike ECARO-25 trade mark.

DuPont describes FE-25 as non-ozone-depleting alternative to halon that safely protects people, high-value assets and business productivity. The company claims that FE-25 is a safe, high-performance product with physical properties similar to halon-1301, therefore is no major investment or redesign of facilities required for a retrofit.

The company indicated that both the European Union's Committee for Standardization and the U.S. National Fire Protection Association have listed HFC-125 as an acceptable replacement for halon-1301 in existing total flooding systems. "The ability of ECARO-25 to utilize existing piping structure reduces the cost of conversion and minimizes business interruption," said Fike sales and

marketing vice president Jeff Moore.

"Only the agent storage container and system nozzles must be replaced to be in compliance with environmental standards." Contact: Diane Shomper, Dupont Fire Extinguishants, e-mail: [diane.r.shomper@usa.dupont.com](mailto:diane.r.shomper@usa.dupont.com), [www.dupont.com/fire](http://www.dupont.com/fire)

### New Clean Agent Fire Suppression System From Ansul

The SAPPHIRE™ automatic, fixed nozzle, fire suppression system is manufactured by Ansul and uses 3M™ NOVEC™ 1230 fire protection fluid for total flooding applications, such as computer rooms and telecommunication facilities. It is listed by Underwriters Laboratories (UL) and UL of Canada (ULC), and designed in accordance with NFPA Standard 2001: Clean-Agent Fire Extinguishing Systems.

NOVEC 1230 fluid has zero ozone-depletion potential, an atmospheric lifetime of just five days, and a global warming potential of 1.0. It is approved by the USEPA under the Significant New Alternatives Program and registered under the European List of Notified Chemical Substances.

Contact: Jim Cox, Ansul Inc., e-mail: [jimcox@tycoint.com](mailto:jimcox@tycoint.com), [www.ansul.com](http://www.ansul.com)



*New Ansul system suppresses fires in computer rooms and telecommunication facilities*

## METHYL BROMIDE

### Using Ozone to Protect Ozone Layer

A new study from Purdue University Indiana, USA finds that ozone can eliminate insects in grain storage facilities without harming food quality or the environment acting as a potential alternative to methyl bromide.

When ozone is used for killing grain insects, it lasts for a short period of time and does not damage the environment or the grain, Purdue scientists report. "Ozone has a very short half-life and we're using relatively low dosages, but enough to kill an insect," said Linda Mason, Purdue entomology associate professor.

"The chemicals currently used can kill everything in and around the grain bin, including people. With ozone, we're not generating ozone at deadly concentrations, and we have better control over it when it's present."

**Contact: Linda Mason, Purdue University,**  
**e-mail: [lmason@aes.purdue.edu](mailto:lmason@aes.purdue.edu),**  
**[www.agriculture.purdue.edu](http://www.agriculture.purdue.edu)**

## REFRIGERATION AND AIR CONDITIONING

### Energy-saving Refrigerants

ISCEON® 29 and 79 complement the energy-saving A1/A1 accredited, zero ODP refrigerant ISCEON® 59 (R125/R134a/R600). First used commercially in 1995, ISCEON® 59 is available worldwide as an alternative for HCFC-22 in areas including facilities



*Cooler supermarkets with Rhodia's refrigerants*

management, food production, supermarkets, original equipment manufacturers (OEMs) and the oil industry.

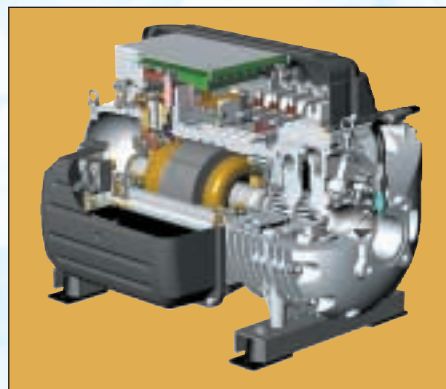
Rhodia states that ISCEON® 29 provides an opportunity for improved performance in water chillers where the equipment is running close to its design capacity. As with ISCEON® 59, where systems have been monitored, ISCEON® 29 has shown reduced energy consumption when compared with HCFC-22.

ISCEON® 79 is a non-flammable, low-temperature, direct replacement for HCFC-22. It offers a solution for applications, where a refrigerant with better capacity, Coefficient of Performance (COP) and 20% lower Global Warming Potential (GWP) than R-404A / R-507 is required.

All three refrigerants are long-term zero ODP HCFC-22 replacements, working with the traditional lubricant in new and existing equipment. Rhodia claims that these refrigerants retain performance and lower energy costs by up to 10%.

**Contact: Katy Walters, Rhodia,**  
**e-mail: [katy.walters@eu.rhodia.com](mailto:katy.walters@eu.rhodia.com)**  
**[www.isceon-refrigerants.com](http://www.isceon-refrigerants.com)**

### Turbocor Showcases Compressor Breakthrough



*Turbocor's ultracompact, oil-free compressor*

Recently showcased at the 2003 Earth Technology Forum, the Turbocor Compressor is up to 30 percent more efficient than other compressors in its size range, according to its manufacturer Turbocor, Inc.. This advanced level of performance can be monitored – on site or remotely – using a web-based monitoring and diagnostics system. An oil-free design eliminates the risk of efficiency loss through oil contamination of the refrigerant and

avoids the need for accessories such as oil heaters, pumps, separators and filters.

Other advantages Turbocor claims for this award-winning model, which works with either chilled water or direct-expansion systems, are its light weight – around one-fifth that of many conventional compressors – and its quiet running and soft-start qualities. The company says it runs at a sound level of less than 70 dB and draws only 2 amps of start-up power, compared to 500-600 amps required by more conventional compressors.

**Contact: Eugene Smithart, Turbocor,**  
**e-mail: [smitty@turbocor.com](mailto:smitty@turbocor.com), [www.turbocor.com](http://www.turbocor.com)**

### Navy Investigates Chilling with Sound

The U.S. Office of Naval Research (ONR) has long funded researchers at Penn State, who now have proved they can build a compact freezer case substituting sound waves for chemical refrigerants.

"The Navy has been looking for years for alternatives to freon-based cooling systems aboard Navy ships to save energy as well as the environment," says ONR's Steve McElvany, science manager for the Navy's TRITON (for '3-ton') chillers program. "The Navy would like to find an ecologically-friendly way to distribute cooling aboard our carriers. The early research we funded in this area has led to Garrett's freezer concept."

The thermo-acoustic freezer case envisioned by Dr. Steven Garrett and Matt Poese at Penn State - partially funded by Ben & Jerry's as well as the ONR - would use high amplitude sound energy to cool itself.

In tests, Garrett's team used a "souped-up" loudspeaker to generate high-amplitude sound energy with inert pressurized gases. While listeners might not be able to tolerate amplified music at decibels higher than 120, Garrett's team reached sound levels hundreds of thousands of times higher (173dB), and reached a temperature differential of -8 degrees below zero. That's cool enough for that tub of ice cream. And it's quite enough, too, to take care of distributed cooling systems in the U.S. Navy fleet.

**Contact: Gail Cleere, ONR,**  
**e-mail: [cleereg@onr.navy.mil](mailto:cleereg@onr.navy.mil), [www.onr.navy.mil](http://www.onr.navy.mil)**


**WORLD POLICY ROUNDUP**
**China Bans CTC Solvent Use**

China has decided to ban nationwide the use of carbon tetrachloride as a cleaning solvent, beginning June 1st, as part of its national programme to protect the ozone layer. Any enterprise, environmental protection or other related unit which violates the rules and regulations issued in the circular from the State Environmental Protection Administration concerning the termination of the chlorinated compound, will be subject to harsh penalties. Since 1999, China has been gradually reducing its production of ozone-unfriendly fluorinated and chlorinated compounds in compliance with the Montreal Protocol.

**Contact:** Liu Yi, SEPA,  
e-mail: [nepateco@public.bta.net.cn](mailto:nepateco@public.bta.net.cn)

**U.K. Re-launches 'Take-Back' Scheme**

The U.K.-based electric appliance retailer Comet recently announced the reintroduction of its "take-back" service for used refrigeration products, which had been discontinued last year after the European Union (EU) enacted new

rules requiring all materials be removed from waste refrigeration systems before being discarded. Under the old take-back scheme, Comet said it collected and disposed of old refrigerators for customers who purchased new units.

"When the EU legislation on the disposal of CFCs in fridges and freezers came into place at the beginning of 2002, retailers had neither the technology nor the infrastructure in place to dispose of refrigeration products in accordance to the new laws, and so there was no choice but to stop collection," said Comet deputy managing director for operations Tom Barry. "Now that Comet has developed the necessary infrastructures with Wincanton, PLC, to meet the new legislation, we're delighted to be the first national electrical retailer to be able to offer a new take-back service."

The company noted that it will charge a £15 (about US\$ 24) fee to cover disposal costs under the new take-back scheme.

**Contact:** Robin Smith, Comet,  
e-mail: [comet.pressdesk@ehpr.co.uk](mailto:comet.pressdesk@ehpr.co.uk)  
[www.comet.co.uk](http://www.comet.co.uk)

**New Publications**


*Planning, Designing and Implementing Policies to Control Ozone Depleting Substances under the Montreal Protocol: A Handbook of Policy Setting at the National*

*Level* (OzonAction Programme, 2003). This handbook provides developing countries with guidance on designing, implementing and sustaining appropriate and effective policies for complying with the Protocol. [www.uneptie.org/ozonaction](http://www.uneptie.org/ozonaction)



*The latest assessment reports of the UNEP Technology and Economic Assessment Panel (TEAP)* are available at [www.teap.org](http://www.teap.org) or [www.unep.org/ozone](http://www.unep.org/ozone)



Vietnam's National Office for Climate Change and Ozone Protection translated UNEP's *National Training Programmes on Good Practices in Refrigeration* into Vietnamese.



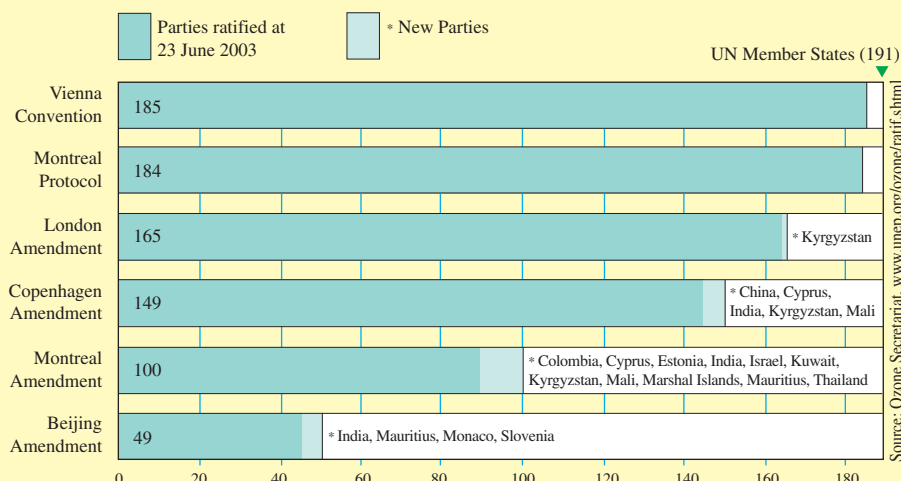
*The Ozone Layer. A general awareness booklet about ozone depletion and the international response produced by the UK Department for*

*Environment, Food and Rural Affairs* 2003. [www.defra.gov.uk](http://www.defra.gov.uk)



*Protecting the Ozone Layer: Science and Strategy* by Edward A. Parson (Oxford University Press, 2003) examines parallel developments of science, technology,

industry strategy, politics, and negotiations, and shows how these contribute to the successful management of the ozone depletion issue. [www.oup.co.uk](http://www.oup.co.uk)

**The progress in ratification of the Montreal Protocol and its amendments**  
(as at 23 June 2003)


## DIALOGUE AND DISCUSSION

### Meetings/Conferences/Workshops

#### Iran Consults Stakeholders on Compliance Action Plan

Methyl bromide is used in Iran mostly for post-harvest use, particularly on key agricultural export products such as pistachio nuts. During 20-21 May 2003, the Ozone Layer Protection Unit (OLPU), in close cooperation with the Plant Protection Organisation (PPO) of the Ministry of Agriculture in Iran, organised a 2-day consultation meeting of methyl bromide stakeholders to discuss issues related to the methyl bromide phase-out and Iran's current compliance status.

Facilitated by UNEP and invited experts, the workshop helped dispel fears among the methyl bromide users who were concerned about the availability of effective alternatives for methyl bromide. The workshop also recommended that further research on alternatives be undertaken, and that training programmes be initiated in order that alternatives can be readily adapted.

Contact: Mr. Fereidoun Rostami, OLPU,  
e-mail: environ3@bci.iran.com

#### University of West Indies Takes Role to Lead Halon Information Clearinghouse

The final technical workshop for the English-Speaking Caribbean was convened in Trinidad and Tobago on 14-15 April 2003. This workshop was organized by UNEP's Regional Office for Latin America and the Caribbean through bilateral assistance received from Environment Canada.

The main objective was to develop an agreed mechanism for a Halon Information Clearinghouse (HICH) for the English-speaking Caribbean, to be housed at the University of the West Indies (UWI) St. Augustine, Trinidad and Tobago. The UWI will be responsible for overall administration and management. The National Ozone Units of each participating country and their ministries will provide information on their national halon stocks and inventories. A non-governmental organization, representing fire protection industry would provide ongoing technical advice to the UWI.

Contact: Mirian Vega, UNEP ROLAC,  
e-mail: mvega@mail.rolac.unep.mx

#### Non-chemical Alternative to Methyl Bromide

Participants attending the Main Meeting of the Latin America and Spanish-speaking Caribbean ODS Officers Meeting (Bogota, May 5-8, 2003) had the opportunity to visit "Asocolflores" in the Region of Tenjo, to observe the application of a non-chemical technological alternative to the use of methyl bromide.

Steaming is the introduction of water vapor into the soil at approximately 100°C. Soil-borne pests are killed by the latent heat released when the steam condenses. During this process the soil temperature increases to between 60-80°C for a specific period (4 to 8 hrs). Soil temperature and treatment duration determine whether complete elimination (sterilisation) occurs, or only partial removal of soil microflora (pasteurisation).

Steam and Integrated Pest Management (IPM) were identified as effective alternatives to methyl bromide. Countries implementing methyl bromide phase-out projects in the cut-flower sector have chosen to adopt these same treatments. Steam with organic amendments is used commercially in Colombia. Commercial adoption of substrates in greenhouse flower production is increasing in Colombia, Brazil, Ecuador and many other countries.

Contact: Mirian Vega, UNEP ROLAC,  
e-mail: mvega@mail.rolac.unep.mx

## UNDP Uzbekistan Cuts Emissions of ODS

The Joint Environment Programme of UNDP, UNEP and the Government of Uzbekistan has recently completed the activities of a Refrigerant Management Plan (RMP) that has virtually stopped accidental emissions of CFCs into the atmosphere during the servicing and repair of refrigeration equipment. Components of the RMP included a Refrigerant Recovery and Recycling (R&R) project implemented by UNDP/UNOPS, while the train-the-trainers and customs training activities were implemented by UNEP.

The R&R project, with funds from the Global Environment Facility (GEF), involved more than 100 of the country's enterprises and private entrepreneurs engaged in the assembling, maintenance and use of refrigeration equipment and air-conditioning systems. 430 portable recovery machines and 300 hand pumps with accessories for the recovery of CFC-12 refrigerant from refrigeration installations, as well as the equipment and machines for 12 recycling stations, have been distributed among these companies.

The R&R project has enabled refrigeration-related businesses and other facilities to recover



Refrigeration training in Uzbekistan

and reuse 52.6 tonnes of CFC-12 refrigerant. Uzbekistan's refrigeration servicing sector's demands for CFCs are presently entirely satisfied by those refrigerants made available through the project. It has saved Uzbekistan foreign exchange through supplementing CFC refrigerant imports, and has created extra working activities for refrigeration service companies.

The project included conducting 10 training workshops in three major cities. Originally, it planned to train 350 specialists, but awareness-raising activities by the State Committee for Nature Protection of Uzbekistan generated wide interest, and ultimately 500 specialists underwent training. Representatives of UNDP, UNEP and

UNOPS called the project an excellent example of fruitful cooperation between GEF, UNDP, UNEP, UNOPS, the Government and the private sector. The training workshops also helped local entrepreneurs to better understand global environmental issues and their part in protecting the ozone layer.

Uzbekistan has been a party to the Vienna Convention and Montreal Protocol since 1993 and, in 2000, adopted a National Programme to control and restrict the use of ODS. The programme outlines the strategy and action plan for stage-by-stage phase out of ODS. The country ceased imports of CFC-11 in 2000 and of CFC-12 in 2002.

Another project with assistance of UNDP will help Sino, the country's largest refrigerator manufacturer, produce ozone-friendly refrigerators that are competitive in price and performance. The support provided will assist Uzbekistan to meet its objective of restricting the consumption of ODS by 2003.

Contact: Nadejda Dotsenko, State Committee for Nature Protection, e-mail: ozon@tk.uz

## ... ILLEGAL TRADE ...

### NEED TO SHIFT FOCUS

Achieving the Montreal Protocol's goals will require an important shift in focus by developing countries and countries with economies in transition (CEITs). To date, the emphasis has been on establishing phase-out schedules and technology conversion. These will continue to be primary goals, but two factors will combine to make enforcement and compliance a more integral part of the Protocol's ultimate success.

First, most Article 5 countries have now agreed to the 2010 phase-out date for Annex A and Annex B ODS, and most have begun the arduous task of limiting consumption and production. A World Bank study projects a shortfall in the legitimate supply of Annex A and Annex B ODS, starting in 2004. This shortfall will increase the likelihood of illegal production and illegal trade, as well as the potential erosion of the Protocol's phase-out schedule.

Developing nations will need to take decisive enforcement action to prevent the proliferation of a new black market.

Second, developed countries are starting the second generation of phase-outs, those for HCFCs and other Annex C chemicals. Developed countries learned the hard way that their phase-out of Annex A and B ODS could be hampered, if not crippled, by cheap imports from

Article 5 nations and CEITs. Preventing a new round of smuggling -- of cheap, illegal HCFC imports, this time -- will require a concerted enforcement effort from both the developed and developing nations.

All countries will benefit from greater cooperation and greater exchange of information. In an effort to foster a better exchange of information, OzonAction plans to run a series of articles on illegal trade, providing information on known smuggling problems.

### TRENDS ...

The most significant new trend in black market smuggling is the illegal trade amongst Article 5 nations. As restrictions go into place and the two largest remaining producer countries, China and India, comply with production quotas, the supply of Annex A and B ODS will diminish. Prices in Article 5 countries, while not yet rivaling those of Article 2 countries, present profitable opportunities for smugglers. Recent intelligence suggests that legal and illegal production is finding its way into the black market.

#### Mexico & Guatemala and India & Nepal

During an ODS training workshop held in February 2003 in Monterrey, Mexico, the plant manager for Mexico's last remaining production facility told the audience that his company was legally exporting CFC-12 to several of its neighboring countries, including Guatemala.

The Mexican company sold Guatemala CFC-12 for approximately US\$ 4/kg, but the same product sold for approximately US\$ 10/kg in Mexico because of pricing efforts designed to restrict usage. The higher Mexican price and excess supply in Guatemala

caused the exported CFC-12 to be smuggled back into Mexico. This is similar to a situation on the border between India and Nepal, where India imposed a tax on domestically consumed CFC-12 but not on exports to Nepal.

India and Nepal were made aware of this problem and made successful seizures and convictions that deterred the activity. Mexico and Guatemala and other Central American countries will need to work together to correct this problem. Adopting an effective licensing system and quota system will go a long way towards preventing legal trade from getting into the wrong hands. Until that occurs, the Mexican company involved decided in June 2003 to freeze its CFC-12 sales to its Guatemalan customers.

### ... AND TWISTS

#### Reverse Retrofitting in Malaysia

During a regional ODS training workshop for South East Asia and the Pacific in November 2002, the head of Malaysia's Ozone Protection Unit spoke of an unusual problem in his country. Prior to Malaysia's CFC-12 phase-out, its markets were saturated with cheap imports.

While these imports were legal, the saturation resulted in a considerably lower price for CFC-12 than the ozone-friendly alternative HFC-134a. The lower price caused auto mechanics who were servicing car air conditioning systems to begin reverse retrofitting -- that is, using CFC-12 to service cars built with HFC-134a systems.

While Malaysia may be the first to acknowledge this problem, they may not be alone. Many Article 5 countries saw large increases in CFC-12 imports prior to starting their phase-out. This advanced stockpiling has caused temporary oversupply in a number of countries.

National Ozone Units need to work closely with industry and the public, to educate them about the harm caused to human health and the environment by reverse retrofitting. Not only does this practice put a country at risk of supply shortages in later years of the phase-out, but it also represents a one-time net increase in CFC-12 usage that was not contemplated by the Protocol.



*Customs officers at the frontline of the Montreal Protocol*



### Mining "Enforcement Gold" in South Africa

In 2002, South Africa's NOU was flooded with requests to import "used" CFC-12 into the United States. One of the exporting businesses claimed to have recovered 14,250 kg from equipment used in certain South African gold mine operations. Prior to approving these exports, the NOU contacted the gold mine to determine whether the CFC-12 was truly a recovered product. The NOU discovered that the gold mine operators had never heard of the exporting businessmen, and had not "recovered" any CFC-12 from the mining operations. Thanks to the diligence of the NOU, the South African export permits and U.S. import permits were denied and the product was seized.

The South Africa NOU should be commended for its prompt response to this problem. This example shows that NOUs need to play close attention to requests for exports of "recovered" products. NOUs faced with such requests should ask whether the amounts claimed are realistic, given the countries' supply and recycling practices. The NOU should also ask the exporting nation probing questions about the CFC-12's source. If the source can not be verified, the export should be prevented until the recovery claims are sorted out. This example also points out the need for all parties to the Protocol to have effective licensing systems.

Without such systems, there would have been no legal means for South Africa to prevent these disguised shipments from being exported. The most the NOU might have been able to do would have been to alert the importing country of the potential problem.

**Contact:** Sam S. Manikela, DEAT, South Africa, e-mail: [Smanikela@ozone.pwv.gov.za](mailto:Smanikela@ozone.pwv.gov.za)

These are just a few examples of the illegal trade issues facing developed and developing countries. OzonAction is interested in learning about other illegal trade problems. Please contact us at [ozonaction@unep.fr](mailto:ozonaction@unep.fr) if you would like to share lessons learned from illegal trade problems in your country.

## Environmental Crime and Environmental Security at the Border

Illegal trade in ODS, hazardous waste, and protected species is a thriving international business that produces over US\$ 1 billion per year in profits. Intelligence reports from various enforcement networks indicate that organised crime is responsible for up to 50% of the illegal trade in these commodities. This problem has new significance as certain regulated chemicals could also be used in terrorist attacks. The combination of organised crime and dangerous chemicals poses a serious security threat to human health and the environment.

Customs agencies are at the forefront of every country's efforts to combat illegal trade and maintain security. Recent statistics indicate that they are responsible for up to 60% of endangered species and ODS seizures. Customs training is critical to these enforcement efforts particularly in developing countries where national training programs may be lacking. The secretariats of three multilateral environmental agreements

(MEAs), the World Customs Organization (WCO) and Interpol have agreed to join forces to create an integrated "Green Customs" approach to training Customs officials. The Memorandum of Understanding (MOU) was signed between WCO and UNEP on 2 June 2003. The programme is designed to provide customs agencies with a "block" of environmental crime training that will cover all enforcement of MEA components that focus on processing and inspecting dangerous goods. The training will be delivered through regional trainer workshops and will be designed for incorporation into a country's national customs training programme. OzonAction has launched a Green Customs web site to help facilitate this programme. It contains important information about upcoming training programs, training material, a list of expertise trainers and updates on current events.

**Contact:** Suresh Raj, UNEP, e-mail: [suresh.raj@unep.fr](mailto:suresh.raj@unep.fr), [www.unep.fr/ozonaction/customs](http://www.unep.fr/ozonaction/customs)



*World Customs Organization's Secretary General, Mr. Michel Danet, (left), and United Nations Environment Programme's Executive Director, Mr. Klaus Toepfer, exchange copies of the MOU*

### Breaking news

#### Philippines' Vigilance Thwarts CFC Smugglers

The Philippines Department of Environment and Natural Resources (DENR) and the Bureau of Customs recently apprehended an illegal shipment of 1,140 disposable cylinders (DAC) containing CFC-12. At the rate of 13.6 kg/DAC, that is 15.5 MT. The importer had asked the Philippines Ozone Desk (POD) for approval to import HFC-134a from Shanghai, China. The ozone staff, however, noticed that the price of the shipment was extremely low and became suspicious. The POD then asked Customs to place the shipment on alert.

The result was that, on 29 May 2003, a joint Customs-DENR team with a refrigerant

identifier (provided under the Customs Training Project) discovered that the shipment was in fact comprised of 100% CFC-12. This is a classic case of smuggling through false declaration and mislabelling. The refrigerants would probably have been sold to unsuspecting workshops which, in turn, would then place the CFC-12 gas into a car fitted with HFC-134a compressors – thus leading to possible failure of the AC system.

NOUs and Customs offices should be constantly aware of such practices, since similar cases can happen in other countries. Importers can make a significant profit by selling CFC-12 refrigerants at HFC-134a prices.

**Contact:** Prudencio Calado, DENR, e-mail: [ozonewatch@vasia.com](mailto:ozonewatch@vasia.com)



## Science News

### Scientists Discover MCF in Air over Europe

A team of researchers from the University of Utrecht in the Netherlands recently announced they have identified traces of the ozone-depleting industrial solvent methyl chloroform (MCF) in the atmosphere over Europe.

However, University of Utrecht researcher Maarten Krol said the presence of MCF emissions is more likely attributable to such "sleeping" sources as buried waste than to any European country violating the international ban on MCF, established under the Montreal Protocol.

While Krol maintains that the amount of recently discovered atmospheric MCF is "relatively insignificant," the research team noted that levels of the chemical hydroxyl, which helps cleanse the air of pollutants, may not have declined as greatly as previously assumed due to the underestimation of MCF emissions.



*Hercules C-130 taking samples*

To measure MCF levels, Krol said a Hercules C-130 plane was flown over the Alps, central Europe and Germany last year. Krol noted that previous MCF emissions estimates were based on MCF production and usage figures, as well as atmospheric measurements in western Ireland.

According to Krol, atmospheric airflow simulations identify central and southern Europe as the most likely sources of the MCF emissions.

**Source:** Maarten Krol, University of Utrecht,  
e-mail: M.Krol@phys.uu.nl, www.phys.uu.nl

### Ecological Weather Station Set up in NE China

A newly-built weather tower in Liaoning Province is to be put into use soon to monitor ecological changes in the area. As the first ecological weather station in China, the weather tower would observe the local ecological system, according to an official with Liaoning provincial meteorological bureau. The station would

mainly provide statistics on the rise of temperatures and sea levels, acid rain and damage to the ozone layer.

The 100 m high weather tower was built near Jinzhou City near the Bohai Sea. The station would combine satellite remote-sensing technology with long-term ground observation to monitor the ecological changes in the coastal area of Liaoning. Jinzhou was chosen because this area could provide many ecological phenomena for observation and study droughts, flooding, desertification, and sandstorms.

With more than 2,600 weather observatories and stations, China has formed a complete weather monitoring and forecast system. The establishment of ecological weather stations is an extension of the country's weather service.

**Source:** www.china.org.cn/english

### Dramatic Proof of Ozone Hole's Effect

Scientists from Otago University (New Zealand) and the University of New Hampshire (United States) have found that ultraviolet radiation, no longer blocked by ozone, is penetrating Antarctic sea ice 2.5m thick to affect the organisms living underneath. Some eggs laid by sea urchins are being grossly deformed, their usual near-perfect circular shape distorted like a badly burned human body. Others are dying.

By installing protective screens in some areas and not others, the scientists have been able to show that radiation is cutting the survival rate of newly hatched eggs by 30 to 40 per cent. In areas where there was no sea ice and the eggs were exposed on the sea's surface, none survived.

"They were really quite dramatic results," said Dr Miles Lamare of Otago University. He said the results were "highly conservative" because the ozone hole over Antarctica this summer was much weaker than in the previous few years. He plans to repeat the tests next summer, when the ozone hole may be more serious again.

In recent years the ozone hole has formed over Antarctica around September each year, when clouds form in the stratosphere high above the poles and react with CFCs to remove the ozone, which normally blocks ultraviolet radiation.

**Source:** Miles Lamare, Otago University,  
e-mail: miles.lamare@Stonebow.otago.ac.nz  
www.otago.ac.nz/MarineScience

## Eastern Europe and Central Asia join Regional Network of ODS Officers

At its 39th Meeting in April 2003 the ExCom approved a new Regional Network for ten Article 5 Countries in Eastern Europe and Central Asia. This network is funded by the Multilateral Fund and bilateral agencies.

The following countries will participate in the network: Albania, Armenia, Bosnia and Herzegovina, Georgia, Kyrgyzstan, Former Yugoslav Republic of Macedonia, Moldova, Romania, Serbia and Montenegro and Turkey. The financial and/or policy support for the network will be provided by Austria, Croatia, the Czech Republic, Hungary, the Slovak Republic and Sweden.



The main objective of this network is to strengthen the capacity of National Ozone Units (NOUs) in the region for sustained compliance with the Montreal Protocol.

Regional networks have proven to be an effective means of institutional capacity-building for the management of ODS phase-out in a highly cost-effective manner. By strengthening local expertise, and providing an opportunity to work together with other countries in the region, networking activities promote the accelerated low-cost phase-out of ODS.

Within the framework of the new network, consultation meetings with the country representatives have been planned for the fourth quarter of 2003.

**Contact:** Leo Heileman UNEP, e-mail:  
leo.heileman@unep.fr  
www.uneptie.org/ozonaction

## The National Ozone Unit Interview

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

### Gebru Jember



**Assistant ODS Officer, National Meteorological Services Agency, Ethiopia**  
e-mail: [nmsa@telecom.net.et](mailto:nmsa@telecom.net.et)

*Ethiopia was very proactive in completing its country programme in 1996. Which of the main projects completed by Ethiopia had an impact on ODS phase out?*

Ethiopia ratified both the Vienna Convention and the Montreal Protocol in October 1994 and less than a year later, in September 1995, the government formed a National Ozone Committee of relevant governmental, non-governmental and research-based organizations.

This Committee is responsible for advising the government and making decisions relating to ozone issues. It has been involved in various activities towards the implementation of the Protocol, including an ODS data survey. This survey was followed by the preparation of a country programme which was submitted through UNEP and approved at the 20th ExCom Meeting.

Ethiopia has also taken significant steps to phase out ODS consumption under its institutional strengthening project by advancing awareness activities, enhancing ODS legislation, completing a recovery and recycling project and continuing to extend the surveying and collection of data on ODS consumption.

Ethiopia has been a member of English-speaking Regional Network of ODS Officers and benefited from institutional strengthening.

Recently the Ozone Office, in collaboration with GTZ, hired a national consultant and conducted the survey for halon-1211 and 1301. A national Halon Bank Workshop was organized two months ago. Following this workshop, the office is now awaiting the recovery and recycling machine for halon-1211 and 1301, which will rotate around southern and southeastern African countries.

*Which policies had most effect on helping Ethiopia comply with the Protocol?*

The approval of legislation has paved the way to enforce Draft Regulations. But the Ethiopian customs authority is taking significant measures to comply with the Protocol by imposing lower taxes on ozone-friendly substances than on others.

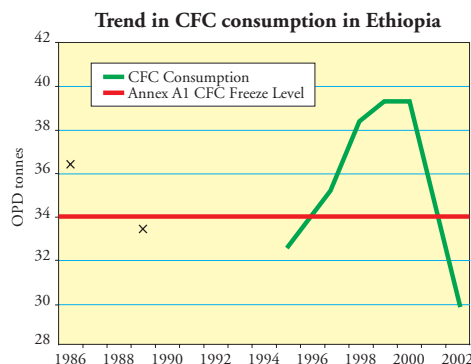
*The 14th Meeting of the Parties (November 2002) declared that Ethiopia was in non-compliance with the CFC consumption freeze. What are the top compliance challenges facing your country?*

The biggest challenges have been the delay of the recovery and recycling refrigerant project and the non-delivery of items necessary for the training of refrigeration technicians.

*What steps is Ethiopia taking to return to compliance?*

To return to compliance, the NOU is on course to ratify the amendments to the Protocol, approve any outstanding legislation and implement regulations and the licensing system. Ethiopia is also training customs and enforcement officers based in different parts of the country to prevent smuggling. A licensing system has been successfully introduced to control and monitor the amount of ODS entering or leaving the country and a Refrigerant Management Plan is in place. We also have comprehensive phase-out plans and strategies for the refrigeration and air conditioning sectors, using a 'train the trainer' approach to enable technical managers and instructors from technical training institutes to train air conditioning and refrigeration engineers.

In addition, we aim to distribute recovery and recycling equipment to different parts of the country, according to their consumption levels. And we intend to persevere with public awareness programmes and with measures for the recovery and recycling of halon-1211 and 1301, as well as for strengthening the Halon Bank.



Source: OzonAction, Article 7 data

## Sweden Maintains Momentum to Support Networks

The government of Sweden has extended its financial support for three more years to the Regional Network of ODS Officers in South East Asia and the Pacific.



Since 1993 Sweden has been promoting the Regional Networking concept as a cost-effective means to assist developing countries with meeting their compliance obligations

under the Montreal Protocol. For more details, see [www.unepctic.org/ozonaction/library/policy](http://www.unepctic.org/ozonaction/library/policy)

## Forthcoming meetings

XXI IIR International Congress of Refrigeration, 17-22 August 2003, Washington DC USA. [www.icr2003.org](http://www.icr2003.org)

World Ozone Day, 16 September 2003, global. [www.unep.org/ozone](http://www.unep.org/ozone)

15th Meeting of the Parties to the Montreal Protocol, 10-14 November 2003, Nairobi, Kenya. [www.unep.org/ozone/](http://www.unep.org/ozone/)

**This newsletter is available online at:**

[www.unepctic.org/ozonaction](http://www.unepctic.org/ozonaction)

**OzonAction**, a tri-annual publication, is available in Arabic, Chinese, English, French, Russian and Spanish.

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

**Review Board:** Mrs J. Aloisi de Lardere, Dr S. Andersen, Mr P. Bakken, Dr N. Campbell, Dr S. Carvalho, Dr O. El-Arini, Mr M. Gonzalez, Mr P. Horwitz, H.E. T. Inomata, Mrs I. Kökeritz, Dr L. Kuijpers, Mr G. Nardini, Mr K. M. Sarma, Mr R. Shende, Mr D. Stirpe, Mr Liu Yi

**Contributing Editor:** Mr Robert Lamb

**Publication Manager:** Ms Anne Fenner

**Information Manager:** Mr Jim Curlin

Please send comments and material for publication to Mr Rajendra Shende, Head, Energy and OzonAction Branch, at the address below.

UNITED NATIONS ENVIRONMENT PROGRAMME  
DIVISION OF TECHNOLOGY, INDUSTRY AND ECONOMICS (UNEP DTIE)

**OzonAction Programme**

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

TEL: +33 1 44 37 14 50 FAX: +33 1 44 37 14 74

E-MAIL: [ozonaction@unep.fr](mailto:ozonaction@unep.fr)

[www.unepctic.org/ozonaction](http://www.unepctic.org/ozonaction)

*This publication is printed on cyclus paper. Design and production by Gerafer, Annecy, France, [www.gerafer.com](http://www.gerafer.com)*