



## Press Releases/Information Notes



### PRESS RELEASE

#### New Report on How to Save the Ozone Layer while Combating Climate Change

Geneva, 11 April 2005 – After 20 years of protecting the ozone layer with a new generation of chemicals, governments are confronting the fact that these ozone-friendly substitutes for chlorofluorocarbons (CFCs) also happen to be greenhouse gases that contribute to global warming.

To assess the extent of the problem and the available solutions, the Intergovernmental Panel on Climate Change (IPCC), in collaboration with the Technology and Economic Assessment Panel (TEAP), has produced a Special Report entitled "Safeguarding the ozone layer and the global climate system: issues related to hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs)".

The result of two years of work by 145 experts from 35 countries, the report was finalized at a meeting in Addis Ababa, Ethiopia from 6 - 8 April and is being released today.

Taken together, the various solutions identified by the report could cut the global warming contribution of CFCs and their replacements in half by the year 2015.

The IPCC was established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). The TEAP was set up under the 1987 Montreal Protocol on Substances That Deplete the Ozone Layer and is administered by UNEP.

"Although climate change and ozone destruction are essentially different issues, our use of certain chemicals links them together," said WMO Secretary-General Michel Jarraud. "We must continuously monitor, undertake research and improve how we manage this group of extremely useful substances, which is implicated in not one, but two of the major environmental problems we have ever known."

Under the Montreal Protocol, the world's governments are phasing out CFCs, halons, and other destructive chemicals and replacing them with safer alternatives. However, like CFCs themselves, some of these alternatives, such as hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), are also powerful greenhouse gases.

For this reason, governments included HFCs and PFCs in the 1992 Climate Change Convention and in its 1997 Kyoto Protocol, under which most developed countries are to reduce their emissions from a basket of six greenhouse gases by the period 2008 – 2012.

"There can be no trade-offs between saving the ozone layer and minimizing climate change," said UNEP Executive Director Klaus Toepfer. "This report demonstrates that it is in our power to maintain the Montreal Protocol's momentum while achieving the Kyoto Protocol's targets. It also reveals that many available win-win solutions are cost-competitive when compared with options for reducing carbon dioxide and other greenhouse gases."

According to the report, emissions of CFCs and their replacements can be minimized by:

- improving the containment of chemicals to prevent leaks, evaporation and emissions of unintended by-products;
- reducing the amounts needed in any particular type of equipment;
- promoting more end-of-life recovery, recycling and destruction of substances;

- increasing the use of ammonia and other alternative substances with a lower or zero global warming potential; and

- using various emerging technologies that avoid gases that deplete ozone or contribute to climate change.

#### The transition to ozone-friendly chemicals

The problem of ozone depletion arose from the wide-scale application of stable, non-flammable chemicals to refrigeration, air conditioning, foams, aerosols, fire protection and solvents starting in the middle of the last century. By the 1980s, scientists had demonstrated that these chemicals drift up into the stratosphere where they help to destroy the ozone molecules (O<sub>3</sub>) that protect life on earth from excess solar radiation.

As confirmed by today's report, rapid action by governments to adopt and implement the Montreal Protocol has reduced the global production of ozone-depleting gases and essentially stabilized the ozone layer.

HCFCs were successful in meeting the early CFC phase-out goals but are generally considered undesirable for most new equipment because they do have some ozone-depleting potential; they will eventually be phased out under the Montreal Protocol.

Because HFCs and PFCs contain no chlorine or bromine (the main culprits in ozone depletion), they have been among the substitutes considered for the long-term. Unfortunately, they are also greenhouse gases.

#### The contribution to global warming

Molecule for molecule, CFCs and many of their replacements are much more powerful greenhouse gases than carbon dioxide, but emission levels are lower. The contribution that CFCs, their replacements and other ozone-depleting substances currently make to global warming is estimated to be about 10% of the contribution from fossil-fuel-related carbon dioxide emissions, or around 5% of humanity's total greenhouse gas emissions.

Since virtually all ozone-depleting substances and their replacements are now used in closed systems, they are generally not emitted until years or even decades after being produced. For instance, large amounts of CFCs still exist in current refrigeration and air-conditioning equipment and in insulating foams, from which they can leak or evaporate. Later, when the equipment is decommissioned, they are often simply released into the atmosphere.

For CFCs and HCFCs, there are no regulations under the Montreal or Kyoto Protocols to prevent such emissions. Meanwhile, the stored amounts of HFCs and HCFCs continue to increase.

About 65% of today's total emissions from this group of chemicals still come from CFCs, mainly from existing refrigeration and air-conditioning equipment. Consequently, reducing leaks from these sources could substantially reduce greenhouse gas emissions, benefiting both the ozone layer and the climate system.

HCFCs and HFCs are estimated to currently contribute 20% and 15%, respectively, of emissions from this group of chemicals. However, by 2015 as much as 50% may derive from HFCs, with 40% from HCFCs, depending on which substitutes and technologies are used. CFC emissions will likely decline to around 10% due to the phase-out of new uses and reduced releases from stored amounts.

#### Estimating the costs

Efforts to minimize emissions of CFC replacements will cost money. Estimated costs vary widely and depend on the type and size of a particular piece of equipment and the solution employed. For example, replacing HFCs in a household refrigerator could cost from zero to US\$30, while replacing HFCs in an automobile air-conditioning unit could cost from US\$48 to US\$180.

The costs for bigger equipment, such as large-scale supermarket systems, would be much higher. Incinerators for destroying the HFC byproducts of HCFC manufacture, for example, could involve hundreds or thousands of dollars.

However, when compared to other ways of reducing greenhouse gas emissions, these costs

are relatively low. The costs for HFC incineration, for example, are lower than US\$0.2 per tonne of CO2 equivalent.

In addition, many solutions will also reduce energy use, and thus yearly energy costs and associated carbon dioxide emissions. For example, the cost of reducing emissions from residential and commercial refrigeration, air-conditioning and heating units could be zero to about 170 US\$/ton CO2 equivalent. If energy efficiency improvements are included, in some cases net savings of 75 US\$/tonne CO2 equivalent can be achieved.

**The Report is being posted in English at <http://www.ipcc.ch>**

**For more information please contact:**

UNEP:

Michael Williams in Geneva at +41-22-9178-242/244/196, +41-79-409-1528 (portable) or [michael.williams@unep.ch](mailto:michael.williams@unep.ch); Eric Falt, Spokesperson, at +254-20-623292, or [eric.falt@unep.org](mailto:eric.falt@unep.org); or Nick Nuttall, Head of Media, at +254-20-623084, or [nick.nuttall@unep.org](mailto:nick.nuttall@unep.org)

WMO:

Carine VanMaele in Geneva at +41-22-730-8314/15, +41-79-406-4730 (portable), or [cvanmaele@wmo.int](mailto:cvanmaele@wmo.int)

UNEP DTIE:

Rajendra Shende, Head OzonAction, at +33-1-44-37-14-50 or [ormshende@unep.fr](mailto:ormshende@unep.fr)

Or visit The United Nations Environment Programme website <http://www.unep.org>



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