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**More Action Needed to Guarantee Recovery of Ozone layer: New
Substances May Damage Earth's Protective Shield**

*As Planet Celebrates International Ozone Day on September 16,
Scientists and the United Nations Environment Programme Urge
Vigilance*

Nairobi, September 14 2001 - A range of new chemicals, used in everything from fire extinguishers to cleaning fluids, are appearing on the market to the concern of scientists studying the ozone layer.

The new substances, with names such as n-propyl bromide and halon-1202, are not controlled by the Montreal Protocol which lists ozone-depleting substances that are to be phased out.

Studies indicate that some of the new substances, which are being used as replacements for banned ones, may have the potential to damage the ozone layer. This protective layer is located in the stratosphere where it shields life on Earth from high levels of cancer-causing ultra violet light.

The quantities being manufactured are at the moment believed to be small. But scientists at universities and institutes around the globe, along with researchers at the United Nations Environment Programme (UNEP), are concerned that over the coming years they may be produced in ever increasing quantities.

UNEP has estimated that the ozone layer and the ozone hole over Antarctica, which so far this September is extending over 24 million square kilometers or an area about the size of North America, will recover by 2050. This is as a result of the banning and phasing out of existing, long lived, ozone depleting chemicals such as chlorofluorocarbons (CFCs). These were widely used in products such as hair sprays until they were outlawed by the Montreal Protocol.

But the emergence of these new chemicals has triggered concern that this recovery date may be significantly delayed.

Klaus Toepfer, the Executive Director of UNEP, said: "The Montreal Protocol has been a success story of which we can all be proud. Ninety-six ozone damaging chemicals have been banned or are being phased out and 1.3 billion US dollars have so far been contributed by developed countries to the Multilateral Fund to help developing countries implement the Protocol."

The fund was set up in the early 1990s to provide support to developing countries to help them phase out listed substances.

"But we must remain vigilant if our success story is to ultimately have a happy ending. Some of these new, replacement chemicals, may prove to be no threat at all to the ozone layer although they may pose threats to human health, wildlife and the environment generally. Others however may have the potential to cause significant damage to stratospheric ozone, undermining our efforts to date. I would urge countries to carry out immediate scientific assessments of these new chemicals and to ban those that are shown to have real ozone-depleting potential. Finally governments, industry and organizations like UNEP must, based on sound science, work together to devise a long term strategy so that we know in advance the ozone depleting potential of future chemicals before they appear on the market," he said.

Such a strategy might involve a public/private partnership where companies voluntarily agree to test and assess a new chemical for its ozone damaging potential, presenting their findings to governments before manufacturing and marketing the new substance.

Mr Toepfer's views were echoed by Professor Mario Molina, a joint winner of the 1995 Nobel Prize for Chemistry for his work on the chemistry of stratospheric ozone, and Institute Professor at the Massachusetts Institute of Technology in the United States.

"It is important to keep the issue of new, emerging, chemicals in perspective. Firstly we must be worried about those substances with a large potential for depleting the ozone layer like the old CFCs. But even these new, short lived, substances need to be watched," he said.

Until recently it was thought that these new substances could not damage the ozone layer. It was thought they did not live long enough to reach the stratosphere. However new research is changing this view. There is evidence that under the right conditions such substances and their breakdown products can travel far enough to reach the Earth's protective shield.

"At the moment I believe we do not have a big problem with these new substances. But we cannot be complacent. If enough of them are manufactured and emitted, we will delay the recovery of the ozone layer quite significantly," said Professor Molina, also a winner of the UNEP Sasakawa Environment Prize.

He urged for more scientific studies to fully assess the ozone damaging potential of the new chemicals: "We need to know which of them are safe and which may be a worry in the future. We have enough experience to know that we cannot take the ozone layer, which shields life on Earth from levels of ultra violet light which can cause cancers and eye cataracts, for granted".

Professor John Pyle of the Centre for Atmospheric Science at Cambridge University in England and another leading ozone layer expert said: "Relatively small amounts of these new substances are being produced. But new measurements indicate that the levels of some of them are growing rapidly in the atmosphere. In the past, for example with the CFCs, we only took action once we had a problem, when we found damage to the ozone layer was already under way We do not want a repeat of this so we must not take our eye off the ball".

At least four new substances with a potential to damage the ozone layer have been identified. Nelson Sabogal of UNEP's Ozone Secretariat based in Nairobi, Kenya, said: "These are however only the ones we know about so far. There may be many more. One of our difficulties is that each of these new substances can have up to fifteen different names which can make monitoring and tracking of them in international trade a tough task for governments".

Hexachlorobutadiene has an ozone depleting potential (ODP) higher than some ozone damaging substances which are already banned under the Montreal Protocol. (See notes to editors on the meaning of ODP). It is used as a solvent and is produced as a by-product of chlorinated chemical production such as the manufacturing of vinyl chloride.

It has been classified as a high-volume production chemical by the Organization for Economic Cooperation and Development with one country reporting that its factories were now producing more than 10,000 tonnes annually.

A Canadian government report has concluded that Hexachlorobutadiene has "the potential to contribute somewhat to the depletion of stratospheric ozone".

n-Propyl Bromide is being used as a solvent in applications including degreasing, vapour cleaning and the cold cleaning of metal parts. Among the new substances of concern, this one has been the most intensively studied by the Technology and Economic Assessment Panel of the Montreal Protocol. It has concluded that n-propyl bromide is being aggressively marketed.....as a solvent, a feedstock and as a carrier and intermediate for pharmaceutical and other industries".

The Panel estimates that around 5,000 to 10,000 tonnes of this substance are being used and emitted annually. It estimates that by 2010, emissions are likely to rise to between 20,000 and 60,000 tonnes as industries switch from banned substances to this one.

Professor Pyle, a member of the Scientific Assessment Panel of the Montreal Protocol, said that many of these new chemicals, like n-propyl bromide, were short-lived. Their ability to reach the ozone layer depends on the time of year and geographical location where they are used, new studies show.

This has made it difficult to precisely assess its ozone-depleting potential. However some preliminary estimates indicate it may be as damaging as substances which are already banned or subject to phase-outs.

6-bromo-2-methoxyl-naphthalene. Little is known about the scale of manufacture or the ozone depleting potential. It is currently being used in the manufacture of methyl bromide which is a fumigant that is subject to a world-wide phase out under the Montreal Protocol.

Halon-1202 is extremely effective for putting out electrical fires and is being used by the armed forces in some countries. Scientists have yet to estimate the quantities being made and emitted. But new research indicates that it may be long lived. Its potential

to deplete the ozone layer has been tentatively estimated to be higher than some banned substances. The Scientific Assessment Panel of the Protocol have been asked to study this issue. Their findings are expected to be disclosed at the Thirteenth Meeting of the Parties to the Montreal Protocol who are scheduled to meet in Colombo, Sri Lanka, in mid October.

Apart from the new substances entering the market, the phase out of existing ones which have been definitely identified as damaging the ozone layer, is far from complete.

Hydrochloroflourocarbons (HCFCs) will not be fully phased out until the year 2030 and methyl bromide, which as mentioned before, is used in agriculture as an insecticide, is not due to be fully phased out until 2015.

Meanwhile smuggling of banned substances is continuing. A report in the Japan Times last month said more than 100,000 bottles of CFC-12, have been circulating in Japan.

The chemical, which was banned in industrialized countries in 1996, is used in car air conditioning units. It is believed that the chemical was illegally imported from countries where production of CFC-12 is still permitted.

Notes to Editors

The Ozone Depletion Potential or ODP of a substance is based on a comparison with the CFC-11. So CFC-11 has an ODP of one and all other substances are either bigger than one or lower than one.

Hexachlorobutadiene has an ODP of 0.07

n-propyl bromide, which has a variety of other names including 1-bromopropane or nPB, may have an ODP of between 0.0033 and 0.111. If the ODP is found to be at the higher end, then it is potentially more damaging than HCFC-21 which is already controlled by the Montreal Protocol

6-bromo-2-methoxy-naphthalene has other aliases including BMN. There is no information of its likely ODP

Halon-1202, which has alternative names including dibromodifluoromethane, Freon 12-B2, R12B2 and UN1941, may have an ODP of between 0.3 and 1.7

A report by the Scientific Assessment Panel, *Assessing the Impacts of Short-Lived Compounds on Stratospheric Ozone*, was published by the UNEP Ozone Secretariat in May 2000.

A document by the Technology and Economic Assessment Panel, *Montreal Protocol on Substances that Deplete the Ozone Layer*, was published by UNEP's Ozone Secretariat in April 2001. It carries a Report on the Geographical Market Potential and Estimated Emissions of n-Propyl Bromide. www.unep.org/ozone or www.teap.org

International Ozone Day is an annual event that takes place on September 16. This year's slogan is Save O₃ur Sky:Protect Yourself Protect the Ozone Layer. Web site for downloading posters, copyright UNEP, is www.unep.org/ozone/ozone_day2001/ The

site also has a graphic showing the decline of CFCs in developed countries and a small increase in use in developing ones.

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