

Questions and answers about the effects of the depletion of the ozone layer on humans and the environment.

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The ozone molecule contains three atoms of oxygen and is mainly formed by the action of the ultraviolet rays of the sun on the diatomic oxygen molecules in the upper part of the Earth's atmosphere (called the stratosphere). Atmospheric pollution near the Earth's surface can form localized areas of ozone. The stratospheric ozone layer protects life on Earth by absorbing most of the harmful ultraviolet radiation from the sun. In the mid 1970s it was discovered that some manmade products destroy ozone molecules in the stratosphere. This destruction can result in damage to ecosystems and to materials such as plastics. It may cause an increase in human diseases such as skin cancers and cataracts. The discovery of the role of the synthetic ozone-depleting chemicals such as chlorofluorocarbons (CFCs) stimulated increased research and monitoring in this field. Computer models predicted a disaster if no action was taken to protect the ozone layer. Based on this research and monitoring, the nations of the world took action in 1985 with the Vienna Convention for the Protection of the Ozone Layer followed by the Montreal Protocol on Substances that Deplete the Ozone Layer in 1987. The Convention and Protocol were amended and adjusted several times as new knowledge was obtained. The Meetings of the Parties to the Montreal Protocol appointed three Assessment Panels to review the progress in scientific knowledge on their behalf. These panels are the Scientific Assessment Panel, the Technological and Economic Assessment Panel and the Environmental Effects Assessment Panel. Each panel covers a designated area and there is a natural level of overlap. The main reports of the Panels are published every four years as required by the Meeting of the Parties. All the reports have an executive summary that is distributed more widely than the main report itself. It became customary to add a set of questions and answers--mainly for non-expert readers--to the executive summaries. This document contains the questions and answers prepared by experts who comprise the Environmental Assessment Panel. It is based mainly on the 2006 report of the Panel but also contains information from previous assessments. Readers who need detailed information on any question should consult the full reports for a more complete scientific discussion. This set of questions refers mainly to the environmental effects of ozone depletion and climate change. The report of the Scientific Assessment Panel contains questions and answers related to the other scientific issues addressed by that Panel. All these reports can be found on the UNEP website (<http://ozone.unep.org>).