NATUR VÅRDS VERKET

Research and monitoring activities regarding the state of the ozone layer and the ultraviolet radiation

Ground based monitoring of UV
Broadband and spectral UV-monitoring has been done in Sweden at a number of sites by SMHI (Swedish Meteorological and Hydrological Institute). A selection of data sets is freely available at http://www.smhi.se. Measurements are still recorded, at two sites in Sweden, in Norrköping by SMHI and in Stockholm, Halmstad and Visby by SSI (Swedish Radiation Protection Authority).
Modelling UV-radiation
A system, STRÅNG, for modelling radiation parameters has been developed at SMHI, with additional funding from the Swedish Environmental Protection Agency and the Swedish Radiation Protection Authority (SSI). The main object of the new system is to produce field data in *near real time* with hourly resolution. At the moment the following variables are considered: global irradiance CIE-weighed UV, photosynthetic active irradiance, direct solar irradiance and sunshine duration. Data are available since 1999until yesterday from http://produkter.smhi.se/strang/

Ground based monitoring of total ozone
Daily monitoring is done at two sites in Sweden. Data are sent to the World Ozone and Ultraviolet radiation Data Centre (WOUDC) and to the WMO Ozone Mapping

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Centre, Thessalonica, Greece for the production of near real-time maps. All total ozone data are available at WOUDC and at the web-site of SMHI.

UV-index forecasting for public information
In 1996 the UV-index forecast was introduced on the World Wide Web (http://www.smhi.se) as a Table for 15 regions in Sweden and three resorts. One year later the graphical layout was improved and since then the daily course of the UV-index is presented for a number of climatological similar regions in Sweden. There is also some additional text presenting the some specific features of interest regarding UV-radiation in general.

The phase-out plan in Sweden

In the late 1980s Sweden adopted a stepwise schedule to phase out the use of all CFCs. Since then the regulation has been amended several times. The present regulation bans all commercial use of all ozone depleting substances, ODSs, under the Protocol. The definition of use of ODSs covers manufacturing of products and equipment, installation of new equipment, servicing of existing equipment and as a working medium in existing equipment.

Some exception to the bans are allowed in the regulation, for instance exemptions for equipment used by the defence forces and exceptions covering the use of halons in aeroplanes and submarines, HCFC in existing refrigeration, air-conditioning and heat pump equipment (ban on refilling equipment came into force 2002) and CFC s in Medical Dose Inhalers, MDIs.

The use of ODSs in laboratories is also prohibited, unless the Swedish EPA has granted an exemption.

All use of Methyl Bromide is also prohibited, including the use for quarantine and pre-shipment.

The main activities in Sweden during the last two-three years have been focusing on the implementation of our stringent legislation and on international activities.

Addressing the needs of the developing countries

Swedish International Development Agency

Since 1997 Sweden through the Swedish International Development Cooperation Agency (Sida), provides technical assistance to developing countries (Article 5 countries) in meeting the Montreal Protocol obligations for the phase-out of Ozone Depleting Substances (ODSs) through its bilateral Ozone Layer Programme (OLP). Since 1999 the OLP is managed by the Stockholm Environment Institute (SEI) and to date the programme has addressed fourteen bilateral projects mainly focusing on;

I. Assisting developing countries with strategic planning for the phase-out of ODS in the refrigeration servicing sector and on strengthening the ownership and capacity of the national authorities in charge of ozone layer protection.

II. Facilitating regional cooperation in order to prevent illegal trade with ODS and to gain better control of the ODS consumption

Initially the projects where concentrated to the South East Asian region where Sweden has well established contacts through the network between ODS officers that Sweden initiated in 1992 (ODSONET/SEAP). This network is managed by the United Nations Environment Programme (UNEP). Member countries of ODSONET/SEAP include: Brunei Darussalam, Cambodia, Fiji, Indonesia, Lao P.D.R., Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam - and two developed countries, Australia and Sweden. The regional network enables national ozone officers from the region to meet twice a year, together with representatives from developed countries and implementation agencies, and provides a forum to discuss regional issues, disseminate information on and gather feedback on the policies of the Montreal Protocol (MP) and its Multilateral Fund (MLF). This peer support system proved so successful that it was quickly adopted by the MLF. Today there are nine regional or sub-regional networks in other parts of the world[1], which form the backbone of a global ozone network for 139 national ozone units. Since 2001, partner countries in the Eastern European region have become increasingly interested in Swedish assistance. The OLP has developed well established working relations with UNIDO, UNEP, World Bank, UNDP as well as with the Multilateral Fund secretariat. The Swedish EPA is a member of this important network.

Regional networking to curb illegal trade

In 2001 Sweden initiated a second networking initiative. Together with UNEP, it established a network for customs and ODS officers in the SEAP region. That network has since been extended to include the South Asia (SA) Region in 2003. The SEAP and South Asia Networks, with bilateral support from Sweden has aimed to strengthen cooperation between customs and ozone officers at the regional and national levels to target growing problems of illegal trade of ODS in those regions. The underlying concept for this initiative was to allow experiences gained in one country to be utilized to abate crime in the others and curb illegal actors and smugglers in more than one country in the region using similar methods. For example, countries can compare their records of import and export to see if the names of importing and exporting entities tally. In addition, tracking of shipments in the region is facilitated when customs authorities in the various countries have regular exchanges.

Major achievements from this bilateral project include: development and sharing of information sheet on official importers and exporters in each country; voluntary adoption of prior informed consent procedure to control the export of chlorofluorocarbons (CFCs) to countries in the region with Singapore taking a leading role; and sharing of information on ODS trade which has lead to bilateral cooperation to address discrepancies between the records of importing and exporting countries. The Swedish project on regional networking between ozone and customs officers is pioneering and has proven to be an effective method for restricting illegal trade. In fact, MLF evaluations have recognised the project on customs cooperation as an effective approach to prevent illegal trade.

In March 2007 Sweden decided to fund an additional new project in this area: Regional Enforcement Networking to improve compliance with other Multilateral Agreements in the chemicals and waste area that include trade restrictions (in addition to the Montreal Protocol; the Basel Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants). The Project aims to initiate integrated regional cooperation between countries in North-East, South and South-East Asia and enable the participating countries to gain better control over their import and export of chemicals (ODS, Persistent Organic Pollutants and chemical waste) by promoting further regional co-operation for the control of trans-boundary movements of those chemicals and substances. The project aims to improve communication channels for informal information exchange and develop common tools for data management and collaboration, extending the existing ODS enforcement networks by integrating control of trans-boundary movements on chemicals covered by the Montreal Protocol, and the Rotterdam, Stockholm and Basel Conventions.

Other activities

Public awareness

The Swedish EPA (SEPA) has updated and adjusted the information on ozone depleting substances on its web-site to include information about interpretation of certain paragraphs in the Swedish Ordinance on fluorinated greenhouse gases and Ozone Depleting Substances.

Special information addressing the 20th anniversary of the Montreal Protocol was also developed and put on the web-site.

Participating in the Nordic Ozone layer Group meetings

The Nordic Ozone Group is a sub group to the Nordic Chemicals Group under the Nordic council of Ministers. The Nordic Ozone Group meet two – three times annually and discuss implementation issues and co-ordinates actions regarding controlling ODSs. The group plans projects and conferences on important issues.

During the last years the Nordic Group has develop 2 reports:

- Halon critical uses and alternatives
- Potential Ozone Depleting substances – use and alternatives in the Nordic countries

A new report is in pipeline – a guidebook on products containing Ozone Depleting Substances for customs officers.

The last mentioned project is funded by the Nordic Council of Ministers, as part of a project to strengthen the control on exportation and importation/placing on the market of products that are prohibited or restricted under the European Union (EU) regulation No 2037/2000 on Substances That Deplete the Ozone Layer.

The guidebook will be submitted to the Ozone Secretariat as soon as it has been printed. The others have been submitted to the Secretariat earlier.

Facilitating the Work of the Stockholm Group

In 2006 the Swedish EPA also facilitated the establishment of the Stockholm Group, an informal gathering of ozone experts to discuss the remaining challenges facing the Montreal Protocol and explore the possibility to undertaking new and additional measures to meet them. The Stockholm Group was instrumental in conducting the first informal assessment of the technical and economic feasibility of new control measures for HCFCs. The reports from the Stockholm Group meetings gave confidence to experts and others to make formal recommendations to their governments that an accelerated HCFC phase-out was deserving of their support. In addition, it also directly resulted in at least one of the proposed adjustments to accelerate the HCFC phase-out in production and consumption sectors, globally. The Stockholm Group work was crucial in addressing many of the issues raised by an accelerated HCFC phase-out in the months leading up to the decision to adjust and accelerate the phase-out of HCFC in production and consumption sectors at the 19th Meeting of the Parties in September, 2007.