On 1 November 1986, a chemical warehouse of Sandoz, at Schweizerhalle was destroyed by a fire.

20 tonnes of toxic red-coloured extinguishing foam was dumped into the Rhine.

Aquatic life in the Rhine suffered catastrophic damage as a result of inflows of toxic, red-coloured firefighting water.

Massive dying of fish was the result; virtually the entire eel population was wiped out.
1986

**Sandoz chemical spill**
**Schweizerhalle, Basel-Landschaft, Switzerland**

- The readily apparent impacts on river biology – images of dead fish were transmitted worldwide – led to major progress in the areas of chemical water quality monitoring, legal regulations and risk reduction measures in the chemical industry.
- The blaze at the Sandoz plant shattered public confidence in the chemical industry’s self-inspection regime.
- Action taken by the authorities as a direct consequence of the disaster included the enactment of the major accidents legislation and the establishment of chemical inspectorates.
- The anti-pollution efforts of the International Commission for the Protection of the Rhine (ICPR) were substantially intensified.
- Apart from the immediate damage caused, it can now be concluded, almost 30 years later, that the accident had positive effects overall from the viewpoint of water protection.

1986

**The Single European Act**
**European Economic Community**

- The Single European Act (SEA) revises the Treaties of Rome (1957) in order to add new momentum to European integration and to complete the internal market. It amends the rules governing the operation of the European institutions and expands Community powers, notably in the field of research and development, the environment and common foreign policy.
- The act adds three new articles (Artices 130R, 130S and 130T of the EEC Treaty) which permit the Community "to preserve, protect and improve the quality of the environment, to contribute towards protecting human health, and to ensure a prudent and rational utilization of natural resources".
- It specifies that the Community can only intervene in environmental matters when this action can be attained better at Community level than at the level of the individual Member States (subsidiarity).
The Brundtland Report, also called Our Common Future, was released in 1987 by the World Commission on Environment and Development (WCED), sponsored by the United Nations and chaired by Norwegian Prime Minister Gro Harlem Brundtland.

WCED explored the causes of environmental degradation, attempted to understand the interconnections between social equity, economic growth, and environmental problems, and developed policy solutions that integrated all three areas.

The report introduced the concept of sustainable development and described how it could be achieved.

Sustainable development is the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

1986

The Single European Act
European Economic Community

1987

Brundtland Report
“Our Common Future”
World Commission on Environment and Development
Definitions of Sustainable Development

1980 IUCN World Conservation Strategy
“For development to be sustainable, it must take account of social and ecological factors, as well as economic ones, of the living and non-living resource base, and of the long-term as well as the short-term advantages and disadvantages of alternative action”

A prerequisite for sustainable development is the conservation of living resources
• to maintain essential ecological processes and life-support systems on which human survival and development depend;
• to preserve genetic diversity; and
• to ensure the sustainable utilization of species and ecosystems.

1987 Brundtland Report “Our Common Future”
Sustainable development is the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

1987 Montreal Protocol on Substances that Deplete the Ozone Layer

• The Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

• It was agreed on 16 September 1987, and entered into force on 1 January 1989. The Vienna Convention and the Protocol have been ratified by 197 parties, which includes 196 states and the European Union, making them the first universally ratified treaties in United Nations history.


• As a result of the international agreement, the ozone hole in Antarctica is slowly recovering. Climate projections indicate that the ozone layer will return to 1980 levels between 2050 and 2070.
1987

Montreal Protocol on Substances that Deplete the Ozone Layer

- Due to its widespread adoption and implementation it has been hailed as an example of exceptional international co-operation.
- Effective burden sharing and solution proposals mitigating regional conflicts of interest have been among the success factors for the Ozone depletion challenge.
- It is widely believed that without the protocol, ozone depletion would have risen to around 50 per cent in the northern hemisphere and 70 per cent in the southern mid-latitudes by 2050.
- This would have resulted in twice as much UVB reaching the Earth in the northern mid-latitudes and four times as much in the south.
- The implications of this would have been horrendous: 19 million more cases of non-melanoma cancer, 1.5 million cases of melanoma cancer, and 130 million more cases of eye cataracts.

1987

Montreal Protocol on Substances that Deplete the Ozone Layer

The Protocol can be summarized in seven key features:

1. It requires each of the 196 countries and the European Union that ratified the protocol and its amendments to phase out production and consumption of nearly 100 chemicals that have ozone depleting properties, in accordance with agreed timelines.
2. The protocol requires each of the Parties to report annually on their production, imports and exports of each of the chemicals they have undertaken to phase out.
3. An Implementation Committee made up of ten Parties from different geographical regions reviews data reports submitted by Parties, assesses their compliance status, and makes recommendations to a meeting of the Parties regarding countries in non-compliance.
4. The protocol includes trade provisions that prevent Parties from trading in ODS and some products containing ODS with non-Parties, and also provisions for trade between Parties.
5. The protocol includes an adjustment provision that enables Parties to respond to developing science and accelerate the phase-out of agreed ODS without going through the lengthy formal process of national ratification. It has been adjusted five times to accelerate the phase-out schedule, which is in itself a remarkable achievement;

6. Developing countries are allowed a “grace period” of 10 to 16 years beyond the dates established for industrialized countries to comply with the control provisions of the protocol;

7. In 1990 the Parties established the Multilateral Fund for the Implementation of the Montreal Protocol to help developing countries meet their compliance obligations under the treaty.

### Summary of Montreal Protocol Control Measures

<table>
<thead>
<tr>
<th>Ozone Depleting Substances</th>
<th>Developed Countries</th>
<th>Developing Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorofluorocarbons (CFCs)</td>
<td>Phased out end of 1995 [*]</td>
<td>Total phase out by 2010</td>
</tr>
<tr>
<td>Halons</td>
<td>Phased out end of 1993</td>
<td>Total phase out by 2010</td>
</tr>
<tr>
<td>Carbon tetrachloride</td>
<td>Phased out end of 1995 [*]</td>
<td>Total phase out by 2010</td>
</tr>
<tr>
<td>Methyl chloroform</td>
<td>Phased out end of 1995 [*]</td>
<td>Total phase out by 2015</td>
</tr>
<tr>
<td>Hydrochlorofluorocarbons (HCFCs)</td>
<td>Freeze from beginning of 1996</td>
<td>35% reduction by 2004</td>
</tr>
<tr>
<td></td>
<td>65% reduction by 2010</td>
<td>90% reduction by 2015</td>
</tr>
<tr>
<td></td>
<td>Freeze in 2016 at 2015 base level</td>
<td>Total phase out by 2040</td>
</tr>
<tr>
<td>Hydrobromofluorocarbons (HBFCs)</td>
<td>Phased out end of 1995</td>
<td>Phased out end of 1995</td>
</tr>
<tr>
<td>Methyl bromide</td>
<td>Freeze in 1995 at 1991 base level [*]</td>
<td>Freeze in 2002 at</td>
</tr>
<tr>
<td></td>
<td>25% reduction by 1999</td>
<td>50% reduction by 2001</td>
</tr>
<tr>
<td></td>
<td>70% reduction by 2000</td>
<td>20% reduction by 2005</td>
</tr>
<tr>
<td></td>
<td>Total phase out by 2005</td>
<td>Total phase out by 2015</td>
</tr>
</tbody>
</table>

[*] With the exception of a very small number of internationally agreed essential uses that are considered critical to human health and/or laboratory and analytical procedures.

[**Based on 1989 HCFC consumption with an extra allowance (ODP weighted) equal to 2.8% of 1989 CFC consumption.**

[***Up to 0.5% of base level consumption can be used until 2030 for servicing existing equipment.**

[****All reductions include an exemption for pre-shipment and quarantine uses.**
1987

Montreal Protocol on Substances that Deplete the Ozone Layer

* Tonnes multiplied by the ozone depleting potential of the considered gas.

Source: United Nations Environment Programme Ozone Secretariat

1987

Montreal Protocol on Substances that Deplete the Ozone Layer

Simulations of the Antarctic ozone hole contrast the “expected future” resulting from curtailing chlorofluorocarbons and a “world avoided” scenario in which CFC use increases annually by 3%. The equivalent effective stratospheric chlorine (EESC) accounts for the influence of chlorine and the more-destructive bromine, both products of anthropogenic gases.

By 2014 the EESC in the “world avoided” is almost twice that in the “expected future,” and total ozone is about 80 Dobson units less. By 2060 the EESC is 17 times as high, Antarctic total ozone is 260 DU less, and large ozone depletions cover the entire globe.

**1987**

Montreal Protocol on Substances that Deplete the Ozone Layer

**1988**

Intergovernmental Panel on Climate Change (IPCC)

- The Intergovernmental Panel on Climate Change (IPCC) was created in 1988.
- It was set up by WMO and UNEP to prepare, based on available scientific information, assessments on all aspects of climate change and its impacts, with a view of formulating realistic response strategies.
- At the end of 2007 the IPCC was awarded the Nobel Peace Prize.
- The initial task for the IPCC was to prepare a comprehensive review and recommendations with respect to the state of knowledge of the science of climate change; the social and economic impact of climate change, and possible response strategies and elements for inclusion in a possible future international convention on climate.
- Today the IPCC’s role is “...to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation”.
IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies.

The scientific evidence brought up by the first IPCC Assessment Report of 1990 underlined the importance of climate change as a challenge requiring international cooperation to tackle its consequences. It therefore played a decisive role in leading to the creation of the United Nations Framework Convention on Climate Change (UNFCCC).

Since then the IPCC has delivered on a regular basis the most comprehensive scientific reports about climate change produced worldwide, the Assessment Reports.

The IPCC Second Assessment Report of 1995 provided important material for the negotiations that led to the adoption of the Kyoto Protocol in 1997.


The Fifth Assessment Report (AR5) was released in four parts between September 2013 and November 2014. AR5 provides a clear and up to date view of the current state of scientific knowledge relevant to climate change.