Stratospheric ozone

Global limit for CFC emissions

Washington

INTERNATIONAL support is growing for a global cap on chlorofluorocarbon (CFC) emissions in order to avoid potentially serious climatic changes. So much has emerged from an informal meeting two weeks ago of the signatories of the Vienna Convention on Protection of the Ozone Layer. The meeting reached broad agreement on the need for controls. This could lead to an international protocol as soon as next summer.

Quite apart from the protection of the ozone layer which such an agreement would provide, an international agreement to restrict the emission of particular materials could be a precedent for similar accords on the regulation of other global pollutants including carbon dioxide, the chief candidate as culprit in the greenhouse effect.

The Vienna convention, the first to tackle a potentially global environmental problem, was signed in March 1985 by 21 countries; four more have since signed. Signatories agreed to hold informal workshops to discuss technical issues before the opening of formal negotiations on a control protocol, which must start in Geneva in December. At the final workshop at Leesburg, Virgina, US Ambassador Richard E. Benedick said that "there seems to be agreement that the world has entered a danger zone" and that almost all countries consider the risks "sufficiently serious as to warrant control actions".

CFCs are widely used as refrigerants, as solvents and in aerosol sprays. Although it is still uncertain how soon environmental problems due to CFCs may appear, all agree that their reaction products contribute to the breakdown of the stratospheric ozone layer. They are also "greenhouse gases" that could contribute to global warming. The worst offenders are CFCs 11 and 12; substitutes are available for many uses but often have disadvantages such as flammability and toxicity.

In 1985 an international study concluded, on the basis of two-dimensional atmospheric models, that continued releases of CFCs 11 and 12 at 1980 rates would reduce the ozone vertical column by a global average of 9 per cent, with reductions of up to 14 per cent in polar regions. But predictions are made difficult by the close coupling of CFC stratospheric chemistry and that of other pollutants. Observations of actual decreases in ozone have been hard to interpret, but there does seem to have been a 2 to 3 per cent decrease over the period 1970–80.

Agreement on a control protocol seems imminent after a productive workshop in Rome but not all is sweetness and light. US participants at Leesburg were annoyed that the European Community and European industry still seem unwilling to contemplate further controls. The European Community has voluntarily adopted a cap on European CFC production capacity, but US critics point out that, with European production much less than the ceiling, production (and hence emissions) could continue to increase into next century before the cap would be effective.

In the United States, there has been a ban on the non-essential use of CFCs in aerosols since the 1970s and the US government has tried to persuade others to follow suit. US government sources hint that, if Europe does not now come into line, the substantial European export trade in CFCs could be affected.

Significantly, the Alliance for Responsible CFC policy, a US industry consortium, has dropped its opposition to international controls, and now supports US attempts to negotiate an international protocol. The alliance has called for the US government to cooperate with other countries to fix a "reasonable global limit" for the growth of CFC production.

At Leesburg, the consensus was in favour of a cap on global emissions, rather than on the restriction of end uses. Much attention focused on a Canadian formula that would fix national quotas for CFC production as proportions of a global limit weighted 25 per cent for population size and 75 per cent for gross national product. British representatives at Leesburg (who were not formally representing their government's position) did not exclude the adoption of such a formula, but suggested that a change in the total that Europe could release at the same time might be politically too big a step in one year.

Observers were encouraged by signs of interest in global action from the Soviet Union, which for the first time gave figures on its CFC 11 and 12 production. Japan proposed a two-tier control system that woudl place immediate restrains on growth, followed by more controls as data become available with which to fix a safe emission limit.

Tim Beardsley

British research funds

Pound's fall an embarrassment

THE recurring problem of foreign exchange once more threatens to beggar the Science and Engineering Research Council (SERC), Britain's principal source of basic science funding. According to the latest estimates (see figure) the council is likely to be a record £18 million in the red next year on international subscriptions of some £70 million, which make up nearly a quarter of its annual budget. This is the effect on British science of the falling oil price, which hit oil-rich Britain on the foreign exchange markets and pushed up SERC's international payments.

The council owes its international dues in Swiss francs (for the European Organisation for Nuclear Research, CERN), European Currency Units (for the European Space Agency, ESA), French francs, Belgian francs, Swedish kronor and Australian dollars. But the rub is that the British Treasury only pays the council in pounds sterling. In the now rare years when sterling is strengthening, the council can make a book profit on the exchange rate. But most of this must be paid back into Treasury coffers. Years of argument have resulted in agreement with the Treasury that the council can now save 4 per cent of its subscriptions (£0.7 million) from one year to the next, or shift up to £1 million of any exchange rate profits into domestic expenditure. But this facility is nowhere near enough to meet the projected crisis in 1987-88.

In the current financial year, corrections made at the time of the public expenditure review in October 1985 plus the "Christmas present" of the then Secretary of State for Education and Science, Sir Keith Joseph, means the council expects to break even. But the corrections came late in the day, and were unpredictable largesse. Moreover, they only amounted to £12 million, whereas a 50-per-cent larger correction seems necessary for next year. In its advice to government this summer, the Advisory Board for the Research Councils (which divides up the British government's basic science budget) recommended that SERC receive a £9 million adjustment for exchange rates, but even this is now out by a factor of two. Long-term research planning is thus made impossible, council officials complain.

In place of this uncertainty, the research council is seeking a new system of funding: a "variable cash-limited budget". This would be fixed partly in sterling, and partly in foreign currency. Thus the Treasury would suffer the exchange uncertainty, instead of "the whole thing being dumped on our plate", says SERC secretary Ashley Catterall. The Treasury, however,