Fischler has suggested that management of scientific committees within the commission might be better transferred to independent agencies, as in the United States, where the government often asks the National Academy of Sciences and the Institute of Medicine to report on controversial topics.

He also argued last month that new mechanisms are needed to prevent the narrow interests of individual member states from prevailing over science and the collective interest. Fischler has floated the idea of creating an independent food agency. But it is far from clear that this is a practical proposition, as such an administrative structure would have few powers under the current EU statutes.

To the same end, the parliament would like decisions on public health to be managed at a higher political level. Parliament officials argue that the nomination of a single commissioner for all aspects of public health would mean that issues such as BSE would require high profile negotiations with the agriculture and industry commissioners.

Another demand that has been made strongly by groups in the United Kingdom and in the parliament is the need to broaden the expertise of scientific committees. The predominance of veterinarians on the UK and the commission's BSE committees resulted in blinkered vision, claims one official at the parliament.

The BSE crisis has revealed the need to include on such committees researchers from other disciplines, such as molecular biology, argue critics. Recognizing this, the commission last summer established a multidisciplinary committee on BSE which may serve as a model for the gathering of scientific views on other issues in future (see *Nature* **381**, 724; 1996).

But, whatever reforms are introduced in 1997, the commission's scientific advisory and regulatory systems risk being dogged for some time to come by the conflicting interests of member states. The need to reach compromises may prevail over purely scientific considerations.

As if to prove this point Fischler has over the past few months championed the conclusion of the commission's scientific advisers on the need to ban sheep offals, on the grounds that sheep may be harbouring BSE.

The response of the member states was fairly predictable. While Britain and France favour a ban, it has been opposed by other members, including Germany, which argue that it is unnecessary given that they have ostensibly no cases of BSE. Despite the lessons of BSE, it seems that science will continue to have an uphill struggle in 1997 in competing with economic and political considerations. **Declan Butler**

Climate panel forecasts way ahead

London. How can science advice on controversial issues effectively feed into the policy-making process? One pioneer has been the Intergovernmental Panel on Climate Change (IPCC). Despite being dogged by controversy which escalated considerably during 1996, the IPCC appears set to become a model for other areas of risk-based policy-making.

The IPCC was set up in 1988 by the World Meteorological Organization and the United Nations Environment Programme. It involves many of the world's leading climate researchers who prepare comprehensive five-yearly reports on the state of the world's climate.

Its reports have a direct influence on global climate policy. The latest 3,600-page report ended a long-running debate on whether human activities, such as burning fossil fuels, were responsible for the rise in average world temperatures (see *Nature* **378**, 524; 1995).

The report was endorsed with varying degrees of enthusiasm by around 100 countries which have signed the climate convention. It was also backed by the United States, the world's largest emitter of carbon dioxide, opening the door for a recognition of the need for policies to reduce carbon dioxide emissions (see *Nature* **382**, 287; 1996).

The IPCC's achievement is partly due to its unique structure, in which scientists representing both independent research institutes and national governments are given the chance to contribute. Sir John Houghton, chairman of Britain's Royal Commission on Environmental Pollution and co-chair of the IPCC's science working group, says direct government involvement in the process not only provides the reports with political clout but also gives scientists direct access to policy-makers.

The IPCC is divided into three working groups. The first deals with the science, the second with impacts, and the third with the economics of climate change. Each group is headed by two chairmen, drawn from a developed and a developing country. Working groups are further sub-divided into chapters, comprising many 'contributing authors' and headed by a team of expert 'lead authors' drawn from independent research institutes.

The work of each chapter is reviewed by a different group of independent experts, government scientists, and non-governmental organizations before being finalized by the lead authors. Government scientists are then responsible for line-by-line approval of a 'summary for policy-makers' of the entire IPCC report.

Close attention is paid to this summary, as it is often the only document read by policy-makers. The lead authors also write their own summary. Efforts are made to ensure all three documents agree. But success is not guaranteed.

Government scientists often come with prior agendas reflecting national interests. The oil states, for example, remain sceptical of measures for reducing carbon dioxide, which will hit their export income. The small island states, on the other hand, are lobbying for tough measures because their existence would be threatened if sea levels were to rise.

Because climate science is complicated and largely determined by computer models of future climate, tensions

inevitably emerge over interpretation and emphasis. Developing countries, for example, remain opposed to the methodology used in one chapter to calculate projected loss of life and property from climate change, in which losses in the developed world were valued at a higher rate than for less developed countries. Last year developing countries' scientists refused to endorse this principle when drafting the IPCC document's summary for policy-makers (see *Nature* **378**, 429; 1996).

In another example, Saudi Arabia and Kuwait lobbied to water down conclusions on the human influence on global climate. They eventually relented after being marginalized by the rest of the drafting committee. But their campaign was taken up by a prominent US fossil-fuel lobby, which protested when it learnt that parts of the main report had been altered after peer review to clarify ambiguities that had arisen during the writing of the policy-makers' summary (see *Nature* **381**, 546; 1996).

Despite the setbacks, Houghton believes the IPCC has proved a success. "The science must never be compromised. But scientists need to be patient with politicians." **Ehsan Masood**