

Responses to:

- Stern Review (SR) Discussion Paper and Technical Annex
- Sir N. Stern's O.I.E.P. Lecture Notes
- Evidence submitted to SR by The Royal Society, R. McKittrick & R. Kininmonth

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Introduction

The terms of reference state that the S.R. '...takes place within the context of existing national and international climate change policy.' Those policies have been developed within the framework of the IPCC doctrine of anthropogenic global warming which in turn requires the reduction of greenhouse gas emissions. The S.R. Discussion Paper claims that, 'There is now an overwhelming body of scientific evidence that human activity is increasing the concentrations of greenhouse gases in the atmosphere and causing warming', and Sir Nicholas Stern accepts that proposition as in his lecture to the O.I.E.P he stated that '...the science does seem overwhelming....that's crucial because the science actually shapes the economics.... The science of the problem determines what kind of economics you can or should bring to bear.'

Since the publication of the 2001 Report by the IPCC (Third Assessment), there have been many scientific papers and books produced which strongly criticise the methodology and conclusions of the IPCC (see references in evidence submitted to S.R. by McKittrick and Kininmonth, and in evidence submitted to the House of Lords Select Committee by Professors Lindzen and Nils-Axel Morner). Lord Nigel Lawson (member of the House of Lords Select Committee), in evidence he gave to the US Senate Committee on Environment and Public Works (10.05.05) stated, 'The IPCC's consistent refusal to entertain any dissent, however well-researched, which challenges its assumptions, is profoundly unscientific....The "hockey stick" chart of temperatures over the last millennium...is almost certainly a myth and the IPCC refuses to entertain any challenge to it.' (see submission to S.R. by McKittrick) Lord Lawson concludes that '...the science of climate change is uncertain in that reputable scientists hold greatly differing views about the rate at which such warming is likely to occur.'

Questions have also been raised about the pre-instrumental record of carbon dioxide concentrations in the atmosphere (see McKintrich and Essex, chapter 7). It is estimated that 750 GtC (billions of tons) of carbon are stored in the atmosphere. Each year 220 GtC circulate between the biosphere/hydrosphere and the atmosphere of which 7GtC is produced by human activity (fossil fuel burning, cement production and land use changes). The anthropogenic carbon dioxide input is 3% of the estimate natural exchange. All these figures are estimates and again no probabilities are attached to these flows. It is not unreasonable to suggest that any small variation in the natural flows would swamp the contribution from human activity.

There is now considerable doubt that the dogmatic statements made by the IPCC since 1990 to the effect that present global temperatures are higher than they have been in the last 1,000 years (probably over the last 10,000 years) and that the rise in temperature is primarily caused by increased anthropogenic emissions of greenhouse gases are entirely valid and can be supported by strong evidence.

The Royal Society Response (12/05)

The response states that the Society aims to influence government policy, ‘...by providing independent, rigorous and objective science advice’. The authors of the response are not named but Sir David Wallace approved the response on behalf of the Council of the Royal Society.

The Royal Society’s Response to S.R. is very similar to the evidence the Royal Society presented to the House of Lords Select Committee (see Volume II: Evidence, p. 293). The letter from the Royal Society to the House of Lords Select Committee included a ‘Guide to the Facts and Fictions About Climate Change’ prepared by a group led by Sir D. Wallace, FRS and Sir John Houghton FRS, former chair of Working Group I of the IPCC. It is, therefore, not surprising that the response submitted by the Royal Society to S. R. simply re-states the IPCC doctrine of global warming and certainly is not based on independent, rigorous and objective science. It is part of what McKittrick and Essex refer to in their excellent book, *Taken by Storm – The Troubled Science, Policy and Politics of Global Warming*, (Pub: Key Porter Books Ltd, Toronto 2002), as ‘Official Science’. The Royal Society cannot be regarded as an independent source of scientific advice with regard to climate change.

Since Prime Minister Thatcher informed the United Nations General Assembly (08.11.89) that, ‘The UK has agreed to take on the task of co-ordinating an assessment [of climate change] within the IPCC...and will be establishing a new centre for the prediction of climate change..(The Hadley Centre), successive governments have strongly supported the work of the IPCC. Research in support of the global warming doctrine has been funded by hundreds of millions of pounds of public money awarded to government agencies, research institutes and university departments. It is therefore not surprising that the Official Science in the form of the Government’s Chief Scientific advisor, the relevant government departments and most politicians, including the Prime Minister, continue to support the global warming doctrine. Any suggestion that some, if not all, of the basic science upon which the doctrine is based is flawed would have large repercussions for the climate science ‘industry’ which the IPCC doctrine has produced.

The Stern Review and the Uncertainties of Climate Science

If the S.R. decides to proceed on the basis of the Official Science presented to it by those who accept the IPCC doctrine of global warming, then this submission and those of other critics of the doctrine (see McKittrick and Kininmonth) are largely irrelevant. However,

the S.R. will still be required to assess the value of the predictions produced by the Hadley Centre and others of future climatic change.

The Hadley Centre and the Tyndall Centre have produced climate change scenarios for the UK (UKGIP02 Scientific Report). The report states (p iv), 'No probabilities can be attached to these four climatic futures – in line with the IPCC, we do not suggest that one is more likely than another. While they represent a wide range of possible future climates, the UKCIP02 scenarios do not capture the entire range of future possibilities.'

One of the possible future climates they do not include is that of a cooling climate. The variations in temperature in the British Isles have been estimated for the most recent interglacial-glacial-interglacial cycle (last 130,000 years). During the last interglacial (125,000 yrs BP) average annual temperatures were 2°C warmer than at present. During the ensuing glacial period there was an intermittent decline in temperature with some periods of relative warmth, until a major ice sheet was established over the British Isles. Twenty thousand years ago average annual temperature was approximately -5°C, with winter temperatures as low as -30°C in southern England. A rise in temperature of 15°C over a period of 1500 years resulted in the disappearance of the British Ice Sheet and a rapid rise in sea level. There was a return to cold conditions between 14,000 and 11,000 years BP, when annual average temperatures decreased by 15°C in central England to -6°C, before rising again by 15°C to +9°C in about 1,000 years. These exceptional temperature changes (1° to 1.5° per century) were associated with major changes in North Atlantic sea surface temperature related to the wastage of the North American Ice Sheet. Holocene (last 11,000 years) climatic changes in the Northern Hemisphere are now known to have been larger and more frequent than previously thought. The high Arctic was warmer than at present 9,000 yrs BP and there were other relatively warm periods around the NE Atlantic 6,000, 2,000 and 1,000 yrs BP. It has also been established that cool ice-bearing waters (sea ice) occurred as far south as Britain on nine occasions between 11,000 and 1,000 yrs BP. These climatic changes were probably represented in changes of average annual temperature in Britain of at least +1°C or -1°C with larger changes in January and July temperatures. The increase in average annual temperature in Britain since 1860 of 0.7°C (Jones and Lister 2004) appears to fall within the range of natural variability of the British climate over the past 10,000 years.

Figure 1.1 in the S.R. Discussion Paper is very misleading. It is not a graph of global average surface temperature but of temperature anomalies. These anomalies are referred to an unspecified average at the end of the 19th century. A simple statement that global average temperature has increased by 0.75°C, i.e. from 14°C to 14.75°C would have been less dramatic in its impact. If a Northern Hemisphere temperature graph had been presented which included the colder Little Ice Age of the 15th to 19th centuries and the warmer Medieval Period, the 20th century increase would have appeared much less significant (see references in McKittrick submission). The average annual temperature in central England in 1700 AD was 8°C and it was probably at least 11°C in 1100 AD, compared to the present average of 10°C. The average temperatures plotted on Fig. 1.1 are also unreliable as they are based on a variable number of recording stations:

1860: 220, 1900: 1350, 1960: 375 and 2000: 1,200. The changing number and therefore location of data sources must make the resulting graph unreliable.

The fact that the average annual temperature in central England has been below 10°C for 85% of the last 130,000 years would suggest that the present interglacial warmth (9°C to 11°C) is unusual and that a return to lower temperatures will occur sometime in the future. Most climatologists agree that present analytical techniques do not allow a prediction of when these lower temperatures will occur. However, one scientist, Dr. T. Landscheidt (Energy and Environment Vol 14, p. 327-350) has stated that, '...contrary to the IPCC's speculation about man-made global warming as high as 5.8°C within the next hundred years, a long period of cool climate with its coldest phase around 2030 is to be expected. It is shown that minima in the secular Gleissberg cycle of solar activity, coinciding with periods of cool climate on Earth, are consistently linked to an 83-year cycle. As the future course of this cycle and its amplitudes can be computed, it can be seen that the Gleissberg minimum around 2030 and another one around 2200 will be accompanied by severe cooling on Earth.'

Since Sir Nicholas Stern admits that the 'science actually shapes the economics', which scientific theory will he consider the most important? There is no evidence that British annual average temperature has changed by more than 1°C in any one century over the past 10,000 years. The long term millennial climatic record points to probable natural cooling sometime in the future. The Hadley Centre predicts increasing average annual temperature of 2° to 5°C (depending on which emission scenario is used) by the 2080s, although they admit that no probabilities can be attached to these 'climate futures' and that UKCIP02 scenarios do not capture the entire range of future scenarios. In that context Dr. Landscheidt's forecast of a cooling by 2030 should be given equal attention by the S.R.

For the study of the economic impact of climate change it is actually changes in weather rather than long-term climate trends which are important. It is assumed that economists are not able to forecast the state of the British economy in 2050 and that the UK Meteorological Office will not provide a weather forecast for the next 50 years. The transfers which have been made by the IPCC and the Hadley Centre from analyses of millennial scale climatic change (now known to be dubious) to decadal forecasts with no stated probabilities are false. Climatic change and therefore regional and local weather variability will always impact on economic activity. Since all the evidence points to the inability of science to predict changes which may occur in the UK over the next century with any degree of accuracy, the task given to the Stern Review is extremely difficult.

When each expert witness at the National Academies Panel on temperature Reconstruction (Washington D.C. 02.03.06) was asked whether the science was such that we could determine the average century temperature 1,000 years ago within 0.5°C, every presenter except one (Prof. Mann) replied no (see climateaudit.org). If it is not possible to establish that the twentieth century estimated warming of 0.6°C in the northern hemisphere, is greater than natural changes which occurred at other times during the Holocene, then there is no basis for ascribing the warming mainly to anthropogenic

causes. It is unlikely that the IPCC's statement that, '...the increase in temperature in the 20th century is likely to have been the largest of any century during the past 1,000 years', can be justified.

It would appear that a major gap exists between what policy makers require and what climate science can provide. It is time for climate scientists to admit that the present state of knowledge does not permit the identification of the nature of the relationship between small changes in global and hemispherical annual average temperatures and the complex exchanges which occur in the carbon cycle. Even the most sophisticated computer models will not produce useful predictions if they are based on false assumptions about the dynamics of the turbulent atmosphere. The 'economics' of the Stern Review really are dependent on very uncertain science. The report of the US National academies Panel on Temperature Reconstruction is due to be published in June and should be closely examined by the Stern Review. The book by Essex and McKittrick, *Taken by Storm*, should be required reading for anyone involved in writing the Stern Review Report.

R.J.P., Glasgow, 15.03.2006

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