

Executive Summary

As parties to the United Nations Framework Convention on Climate Change (UNFCCC) gather in Bali, Indonesia to initiate a fresh effort to develop a global strategy to address climate change, the case for basing that strategy on early, deep cuts in emissions is being aggressively touted. To reinforce that case, the argument is being made that if such a strategy is not adopted, developing countries like China and India will be those most adversely affected.

The most substantive case for this argument lies in a report by Sir Nicholas Stern of the economics of climate change which was commissioned and paid for by the British government in 2006.¹ The Stern Review recommended that all countries implement immediate and substantial cuts in their greenhouse gas emissions, with the goal being to stabilize the concentration of greenhouse gases in the atmosphere so as to avoid significant changes to the global climate.

The Stern Review has recommended its emissions cuts be achieved through a combination of taxes and regulatory caps on emissions. It concluded that, over the long run, its cuts would generate a net economic benefit for all countries, including developing countries.

The Stern Review is an economic counter-argument to the concern of developing countries that significant reductions in emissions of greenhouse gases will increase the cost of energy and reduce the capacity to pursue high economic growth as the primary strategy to reduce poverty and raise living standards.

Yet, the conclusions of the Stern Review are seriously flawed. Simply put, they overestimate the economic benefits of early and deep emissions cuts and significantly underestimate the costs associated with such cuts. If implemented, they would derail efforts to alleviate global poverty.

The Development Challenge

At present one billion people in the developing world are compelled to live on less than US\$1 a day. Such extreme poverty means that:

- more than 800 million people do not have an adequate diet;²
- more than 10 million children a year die before reaching the age of five from preventable or curable diseases;³
- over one billion people lack access to potable water; and
- nearly two billion people lack access to the energy necessary to meet basic human needs.⁴

The argument put forth by Stern and others would all but halt efforts of governments to lift people out of poverty and to grow economies. Economic growth is essential for sustained poverty reduction and improvements in human development. The countries that have enjoyed rapid economic growth have pulled more people out of poverty faster than those with static or declining rates of growth. This has been most dramatically demonstrated in East Asia where extreme poverty fell by over 84 percent between 1981 and 2004. In China alone, this transformation was to the benefit of 500 million people.⁵

On one hand, the developing countries recognize that climate change is a serious issue. On the other hand, the very strong relationship between greenhouse gas emissions, energy use and economic growth implies that immediate and substantial cuts in emissions will rapidly translate into reduced access to energy, lower economic growth and a reduced capacity to roll back poverty.

The stakes are high for developing countries as they consider how best to resolve the apparent conflict.

Exaggerated Benefits from Emissions Cuts

The Stern Review has estimated the economic benefits from its proposed emissions cuts (in terms of the damages that would be averted by doing so over the next 200 years) is equivalent to at least 5 percent of global gross domestic product (GDP) each year, now and forever. This translates into US\$85 per ton of carbon dioxide (CO₂).⁶

The Stern Review has significantly overestimated the benefits of such an approach. This reflects both its overvaluation of the possible damages of climate change, as well as its use of an implausibly low discount rate for estimating the present value of such damages. The discount rate used by Stern has been widely criticized by economists.⁷ There is little or no empirical support for such a discount rate, as it implies that people would be willing to save virtually all their income for the benefit of future generations.⁸

The damages identified by the Stern Review and its evaluation of them are highly speculative. Its estimate lies well outside those in the peer-reviewed economic literature. For example, Professor William Nordhaus of Yale, a leading researcher on the economics of climate change, has recently re-estimated the benefits at just over US\$7 per ton of CO₂. This is at the top end of the range of estimates in the peer-reviewed literature.⁹

1 Stern, 2006

2 Ahmed et al, 2007

3 WHO, 2007

4 The World Bank, 2007a

5 The World Bank, 2007a

6 Stern, 2006

7 Byatt (et al), 2006

8 Dasgupta, 2006 and Nordhaus, 2007

9 Byatt (et al), 2006

Although the Stern Review acknowledges that some adaptation to climate change is inevitable, it significantly understates the scope.

- The Stern Review understates the behavioral changes in response to climate change. For example, it does not admit the possibility that agronomic practices will change — that crops will be planted earlier or later in the year in response to temperature changes, or that dams will be built to cope with precipitation or flooding changes.
- It is biased towards technological pessimism in assessing the cost of climate changes — in contrast to its technological optimism about future mitigation costs.¹⁰

Real Costs of Mitigation

The Stern Review has concluded that the economic cost of its recommended cuts in emissions will be no more than one percent of GDP by 2050. Its calculation significantly underestimates the likely costs of mitigation.

The Stern Review's mitigation cost estimates are well above those in the peer-reviewed economic literature. The difference reflects biases in the estimation process used by Stern and the omission of certain costs. The latter include the administration and compliance costs of the policy measures, which are likely to be substantial, as well as the economic efficiency losses they would impose.

The Review has substantially overestimated the scope for technology to reduce the costs of mitigation, and the uncertainty attached to prospective reductions in those costs. In part, this reflects the likely adverse impact of the Stern recommendations on the investment climate, particularly in the initial period of implementation, and therefore on the ability to commercialize any of the potential gains made by the development of new technologies.

Long Term Strategies the Solution

Claims that early and deep cuts in emissions are warranted, in order to mitigate the risk of irreversible damage and to avert the risk of greater adverse impact on developing countries, are not supported by the technical analysis or economic assessments in the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC).¹¹

The IPCC report reminds us that on current settings, levels of greenhouse gases in the atmosphere will continue to increase as a result of previous developments and not peak until between 2100 and 2150. No action taken in the short term will mitigate that. The conclusion to draw is that priority should be given to measures to assist countries to adapt to those changes.

On mitigation, the extensive peer-reviewed literature on the economics of climate reveals a clear and consistent consensus on an optimal policy strategy. This is a *long-term* strategy with

modest cuts in greenhouse gas emissions to begin with, followed by *progressively deeper* cuts over the medium to longer-term. The strategy is known as the 'policy ramp' and it has survived extensive and rigorous testing in the peer-reviewed literature.¹²

The logic behind the 'policy ramp' is straightforward. At present the investments with the highest rates of return are mostly in tangible, technological and human capital — such as economic infrastructure, plant and equipment, research and development, and education and training. This includes investments in research and development of low-carbon-emissions technologies. As the prospective damage from climate change becomes more evident over the coming decades, it will become more economical to shift investment toward a range of measures that involve progressively more intensive reductions in greenhouse gas emissions.

The practical validity of this strategy has been confirmed by the Copenhagen Consensus. In 2004, a panel of eight distinguished economists, including four Nobel Laureates, ranked how best to spend US\$50 billion on global challenges, including climate change. The 2004 Consensus Conference ranked climate change last and considered that health, water, education and hunger were more pressing issues. At the follow-up Consensus Conference in 2006, 24 distinguished United Nations ambassadors came up with similar rankings. Climate change was again ranked last.¹³

A climate change strategy cannot, however, be implemented by any one country in isolation. Implementation will require international cooperation, particularly by those countries that account for the largest share of global emissions or those that are expected to become large emitters in the foreseeable future. These countries include both developed countries, such as the United States, Japan and members of the European Union, as well as developing countries, such as China and India.

While the inclusion of the developing world in the process is crucial, the international community needs to appreciate the importance of balancing implementation of climate change goals with economic development strategies and practices.

This will require accepting certainties such as increases in energy consumption by these countries for some time and a concentration on mitigation efforts like cooperative research and developments in low-emissions technology. Over the medium to long term, these developing countries will be able to progressively realize greater energy efficiencies and lower rates of emissions.

For all countries a long term strategy to address climate change is essential. It allows room for economic growth to raise living standards, while providing the capacity to achieve progressively deeper reductions in emissions if and when they are most valuable to the global community. ●

10 Byatt (et al), 2006

11 IPCC, 2007

12 Nordhaus, 2007

13 Lomborg, 2006