

The Stern Review

On the 30th October 2006 the [HM Treasury](#) released the [Stern Review](#). This was a report commissioned by Gordon Brown, then Chancellor of the Exchequer, to assess what impacts, if any, climate change would have on the global economy. The aim of the report was twofold; to look at the scientific evidence for climate change and the possible economic impacts; and to find economic measures that would help to mitigate its effects.

The Chancellor asked renowned economist Sir Nicolas Stern to write the report. Before working as a civil servant at the treasury Sir Nicolas was the Chief Economist and Senior Vice-President of the World Bank. Academically Sir Nicolas has built up a strong reputation as a professor at both Cambridge University and the London School of Economics. He is also an expert on economic development in Asia and Africa.

THE BAD NEWS

The report concludes that the scientific evidence for man-made climate change is overwhelming. It is well established that the world's climate is warming. Stern collected evidence from climate scientists that show that the rise in temperature directly correlates with the rise of industrialisation. Industrial processes inevitably create waste products, such as carbon dioxide and methane, known as greenhouse gases because of their contribution to the greenhouse effect. With the increase in industrial activity from developing countries such as China, Brazil and India the global temperature is set to rise by between 2 and 5 degrees in the next century, the scientists warned. If no action is taken to cut emissions of greenhouse gases then we could see global temperatures rise by around 2°C by 2035, according to Stern. Without action there is a 50% chance that temperatures will rise by 5°C degrees by 2100.

The physical effects of climate change will be wide ranging, the report continues. An increase of global temperature of 5 degrees could lead to the Greenland ice sheet melting. The last time this happened, around 125,000 years ago, global sea levels rose by several metres. A rise of this magnitude would have huge consequences for all coastal and tidal settlements including London, New York and Sydney. Whilst this may be a long time off smaller rises in sea levels would have a catastrophic impact on many poorer countries. A rise in sea levels by 1-2 metres would totally flood the Maldives and large parts of Bangladesh as well as numerous other low lying coastal regions. Stern states. However it is not just the rise in sea levels that are a risk to human life. Climate change can have a severe effect on weather patterns. More extreme and unpredictable weather could cause the loss of lives and homes and it would have a huge impact on agriculture. This is already happening, Stern concludes. In 2003 Europe experienced its hottest summer for nearly 500 years resulting in the loss of up to 50,000 lives.

It is not just human lives that are at risk from climate change. Extreme weather events similar to El Nino will occur more regularly, causing floods and damage to agriculture. The El Nino in 1972 caused a near collapse of the fishing trade in the Southern Pacific, due to the increase in sea temperature at the time. The Northern Atlantic's already vulnerable fish stocks would go the same way were a similar event to occur there, or if sea temperatures continue to rise. But it is not just the human lives that are at risk from the effects of climate change. A rise of 3°C in global temperature could see around 20-50% of land species being lost as well as irreconcilable damage to delicate marine habitats such as The Great Barrier Reef. Extinction of this magnitude has not been seen for millions of years.

THE GOOD NEWS

‘There is still time to avoid the worst impacts of climate change, if we take strong action now.’

Although the earlier sections of the Stern report are negative about the issues surrounding climate change, Stern is very positive about the action that can be taken. He concludes that there is still time to act to prevent climate change on this colossal scale. The damage can be greatly reduced, he says, if we act quickly to reduce the levels of greenhouse gases, particularly carbon dioxide (CO₂), in the atmosphere. If levels of greenhouse gases can be stabilised between 450 and 550ppm CO₂ equivalent (CO₂e), then the risks are significantly reduced. The current level is 430ppm CO₂e and is rising by more than 2ppm each year. For greenhouse gases to become stable, emissions would have to be reduced by at least 25% by 2050.

The science may be a little complicated, but what it boils down to is that if immediate action is taken, then the major risks of climate change can be avoided - at a manageable cost to the world's economy. In fact if major action is taken straight away then the costs of stabilising emissions between 500 and 550ppm CO₂e are around 1% of global GDP. In contrast, if action is not taken the subsequent costs will amount to 5% of annual global GDP. This could even rise to 20% if a wider range of risks and impacts is taken into account. Economically as well as environmentally, it is clear that action is needed to tackle the effects of climate change while it is still affordable - and before too many people have suffered.

The report also recognises that any action must not have a detrimental effect on the growth and development of the world economy. This applies to wealthy and developing nations alike. It is not enough for Britain and other developed countries to cut emissions because in other countries, like China, emissions are growing at such a rate. On the other hand, western nations need to recognise the need and desire for poorer countries to develop. What are clearly needed are global solutions to the larger issues of climate change, as well as better understanding of the problems at local level.

Stern sees the Kyoto Protocol, and its successors, as key to the future reductions of global emissions. The Kyoto Protocol is something that is mentioned often in the media without much explanation. A treaty signed by many of the world's developed nations, including the UK, its aim is to reduce greenhouse emissions, mostly through economically viable solutions. One of its main proposals is emissions trading, through schemes such as the Clean Development Mechanism (CDM) and The European Union Emissions Trading Scheme (EU ETS). The aim of the CDM is to allow richer countries that have exceeded their Kyoto obligations to offset their emissions by setting up ecologically sound projects in developing nations. The EU ETS sets a uniform price for carbon emissions from heavy industry across Europe. Businesses that exceed their quota of CO₂ emissions can purchase additional so called "carbon credits" from businesses that have lower emissions.

Both of these policies have been heavily criticised. The CDM has been attacked as favouring richer nations, with many environmentalists believing that the developed world has a duty to reduce their own emissions before trying to cut those of poorer nations. The EU ETS has also been criticised because each EU member state decides its own quota of CO₂ emissions. Some believe that countries are deliberately setting their quota high so

there is not such a large impact on business. Whether or not these criticisms are valid it is clear that such policies are needed if large economies, such as the US and China, are to sign up to future climate change agreements. The report highlights Sir Nicolas's belief that the world need not choose between averting climate change and encouraging growth and development. In fact he goes so far as to say that a whole billion-dollar industry can be created around climate change.

As well as emissions trading, the report highlights the need for countries to reduce their emissions in more 'conventional' environmental ways. In 2000 24% of global greenhouse emissions came from energy production. It is one of the fastest growing sources of greenhouse gases, increasing around 2.2% a year between 1990 and 2002. It is clear then that new energy sources are needed to replace the fossil fuel power stations that cause many of these emissions. While countries have reduced their CO₂ emissions from energy production in the past – France's switch to nuclear power in the 1970's, for example - the report states that a huge increase in development of new technologies is needed. This fits in with Stern's other points about climate change needing a global solution. He believes that cooperation is essential to developing the technology.

TRANSPORT AND CLIMATE CHANGE

Transport is another major cause of CO₂ emissions. It accounts for around 14% of global emissions. As with energy production, emissions from transport are rising. Three quarters of these emissions come from road transport, so this is an obvious area to target to reduce greenhouse gases. Stern puts forward the idea that road transport could be included in emissions trading schemes. There are three ways of doing this. Individual motorists could be given fuel quotas that could be traded with other motorists. However, this would be expensive to set up - not to mention

unpopular. The oil refiners could be targeted, too. Regional refiners could buy permits to cover the emissions generated by vehicles that use their fuel. Lastly car manufacturers could have targets for the fuel efficiency of their vehicles. If the targets were exceeded, the car companies would have to purchase permits to cover the excess. Whether or not any of these policies are implemented, it is clear that governments are looking at reduction of emissions from road transport as a key element of the battle against climate change. The UK government has recently published a report into road pricing. Although predominantly aimed at cutting congestion, there are obvious environmental benefits, too.

Locally the Government has given £1.86 million from the [Transport Innovation fund](#) to look at the possibility of introducing road pricing and other transport measures to the region. However, even if such a charge were to be introduced, it wouldn't be for at least 10 years. In the meantime Nottingham City Council has been considering a scheme which would be relatively cheap to implement, and that would contribute to the next two tram lines. The Workplace Parking Levy is a charge on parking spaces at large, city-based businesses.

The fact that the Government, at both local and national level, is putting more time and money into environmental issues, shows that the electorate has come to think of it as an important issue. Big business is also waking up to the importance of climate change to its customers. Consumers are becoming increasingly aware of concepts such as food miles and carbon footprints - and many big businesses are going greener. One of the leaders in the current environmental boom is [Marks and Spencer](#) who recently announced a £200 million scheme to make themselves carbon neutral within five years. They will do this by offsetting their carbon emissions by planting trees, and by sourcing food locally when possible.

Marks and Spencer clearly believe that being environmentally sound is a business asset. Many other supermarkets have followed suit such as Tesco and Waitrose, both of which have environmental policies. But it's not just food stores that boast green credentials. Even the oil companies are at it, most notably BP. They famously rebranded themselves as [Beyond Petroleum](#) to reflect their move towards greener ways of producing energy. Although it's easy to dismiss this as a cynical attempt to jump on the climate change bandwagon, this commercial climate change does reflect the increasing awareness of consumers, in that they want towards more ethical and environmentally sound products. This reinforces Stern's assertion that a whole new industry can be created out of the global response to climate change.

From the Stern Review it is clear that business needs to play a part in helping to halt the current trend in climate change. We live in a market lead economy, so it is only right that the market helps with the solution. It makes good commercial and economic sense to try to make businesses more environmentally friendly, both for their customers and for the wider world. As the Stern Review suggests, act now to avoid paying later.