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Climate Change

From Kyoto to Copenhagen

The Kyoto Protocol represented the world's first co-ordinated attempt to tackle the issue of climate change, but it failed. The United Nations Climate Change Conference to be held in Copenhagen in December 2009 represents the next chance for the world's nations to reach agreement on what action should be taken. This paper maps out some of the major international initiatives aimed at achieving consensus on climate change policies. It also looks at the aims of the United Nations Framework Convention on Climate Change and explains why the Copenhagen conference is unlikely to succeed.

INTRODUCTION

The impact of climate change on natural and human systems is incredibly complex and extremely difficult to model. The economic consequences are even harder to predict. Significant too are the impacts on the economy from changes in government regulation. As governments attempt to impose market-based and other initiatives to move to a low-carbon economy, it is expected that there will be financial winners and many financial losers. Experience suggests that the consequences of government measures are not always intuitively obvious.

The Kyoto Protocol represented the world's first attempt to tackle the issue of climate change. By many measures, Kyoto failed, with the emission of anthropogenic greenhouse gases continuing to rise at an increasing rate in the period post 2000. The next international gathering to be held in Copenhagen in December represents the next chance for the world's nations to reach agreement on what action should be taken to address the issue of climate change, and importantly, who should bear the costs.

The intention of this paper, originally, was to examine the path from Kyoto to Copenhagen, and look at some of the issues that would determine the likelihood of success in Copenhagen. However, no one now expects an agreement to be reached at Copenhagen. In a post Global Financial Crisis (GFC) world, the climate change issues, at this point in time, appear to remain too intractable and the political will insufficient. Thus the goal of this paper has become to educate the reader on the aims of the United Nations Framework Convention on Climate Change (UNFCCC),

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and to look at some of the reasons why the Copenhagen conference is unlikely to achieve success.

The literature of climate change is replete with acronyms and this paper is no exception. We include a glossary at the end of this document.

THE SCIENCE

Our understanding of climate change is built up from hundreds of studies and thousands of data series looking at physical systems (e.g. ice core studies) and biological systems (e.g. tree ring studies). More recently satellite imagery and direct measurement of sea, land and air temperatures has given us more granular data, particularly for the period post 1970. Each scientific study contributes to the mosaic of understanding.

A great deal of controversy still exists around the science of climate change and “climate change sceptics” still argue that scientific proof of climate change has not been achieved. In a 2007 interview, U.S. pollster and lobbyist Frank Luntz noted that the U.S. never ratifying the Kyoto Protocol was in large part due to the ability of lobby groups to create a “perception of uncertainty” around the science of climate change¹.

At the extreme end of the climate change debate are the conspiracy theorists who argue that the IPCC itself is responsible for fabricating data and suppressing studies inconsistent with climate change. Those interested in following the conspiracy theory arguments are referred to the website www.junkscience.com.

Actually, there is remarkably little disagreement in the scientific community around climate change. A University of Illinois Survey in 2008 found that of 10,257 geoscientists polled, 97% of them agreed with the hypothesis that global temperatures are increasing as a result of anthropogenic green house gas (GHG) emissions².

The body responsible for advising policy makers on the science of climate change is the Intergovernmental Panel on Climate Change (IPCC). In its Fourth Assessment Report (AR4) the IPCC found that globally temperatures are rising and that rate of growth has been around 0.13 degrees Celsius per decade and is accelerating. The IPCC cites the cause of the rise is almost definitely an increase in anthropogenic CO₂-eq gases³.

According to the IPCC, the consequences of climate change include significant changes to patterns of precipitation, disruption to food production, rising sea levels, more frequent extreme weather events, disease, ocean acidification, impacts to biological systems and the extinction of species. The greatest impacts to human systems will fall on developing nations, particularly the megadelta regions of Africa and Asia, and Small Island Developing States (SIDS).

Major uncertainties still exist around the impact of climate change on the Greenland and Antarctic ice sheet mass, creating wide ranges in modelling as to possible rises in ocean levels. The probability of large scale singularities (e.g. an abrupt change of the meridional overturning circulation as per the 2004 disaster movie “The Day After Tomorrow”⁴) is assessed as *very unlikely*⁵.

It is not our intention to convince you that climate change is a fact. Rather, we adopt the view that actions around climate change are like wearing a seat belt. You may be sceptical that a seat belt will save your life in the event of an accident. But the consequences of being right are insignificant compared to the consequences of being wrong. Hence the prudent action is to wear the seat belt.

Improvements in modelling and better understanding of feed-back effects indicates temperature increases at various levels of atmospheric CO₂-eq concentration will be higher than previous modelling indicated.

THE UNFCCC AND THE KYOTO PROTOCOL (COP3)

The UNFCCC sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. This international treaty recognises that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The UNFCCC, which came into force in 1994, enjoys near universal membership, with 192 countries having ratified.

Parties to the UNFCCC were classified as follows:

- **Annex I** – Developed industrialised countries who agreed to reduce GHG emissions to targets below 1990 levels;
- **Annex II** – A subgroup of Annex I comprising most of the Organisation for Economic Co-operation and Development (OECD) members. Annex II countries pay the costs of climate change adaptation and mitigation in developing countries; and
- **Developing nations** – Developing countries that can volunteer to become Annex I countries when their economies are sufficiently developed.

The third meeting of the UNFCCC Conference of Parties (COP) was held in Kyoto in 1997 and was referred to as **COP3**. **COP1** had been held in Berlin in 1995 and **COP2** the following year in Geneva. The outcome of COP3 was an historic document commonly referred to as the “Kyoto Protocol”. Legally the Kyoto Protocol was an amendment to the UNFCCC and introduced more powerful (and legally binding) measures.

The provisions of the Kyoto Protocol were legally binding on the Annex I nations that ratified the agreement. In the main, the Kyoto Protocol was an agreement from 37 industrialised countries and the European community to reduce GHG emissions to a level 5.2% below 1990 levels by 2012. The Kyoto Protocol set specific and binding targets for developed nations but only voluntary measures for developing nations.

The conditions outlined in the Kyoto Protocol did not become binding until it was ratified by at least 55 countries representing at least 55% of the world’s total GHG emissions as at 1990 levels. That condition was not met until February 16, 2005, following Russia’s ratification of the treaty.

Most industrialised nations (eventually) ratified Kyoto. Australia did not do so until December 2007, following the election of the Rudd Labor government. The United States, the world’s largest producer of anthropogenic GHG emissions, never ratified Kyoto. U.S. ratification became extremely unlikely following the passage of the Byrd-Hagel resolution by the U.S. Senate, which stated the U.S. should not sign any protocol under the UNFCCC unless it “*also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period*”. In the end, President George W. Bush refused to submit the Kyoto Protocol to the U.S. Congress for ratification due to his belief that it would damage the economy and his objection to the lack of binding targets for China and India.

CONFERENCE OF PARTIES AND THE ROAD TO COPENHAGEN

Subsequent to Kyoto, COP meetings were aimed at coming up with a “Plan of Action” to implement the Kyoto Protocol.

COP6 in 2000 was held in The Hague, the Netherlands and was dominated by European rejection of compromise measures proposed by the United States. Talks collapsed and following COP6 the U.S. declined to participate in Kyoto Protocol-related negotiations, acting only as an observer.

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COP6-bis was a continuation of the COP6 negotiations held in Bonn, Germany. Main points included:

- **Flexible Mechanisms** – detail of measures including emission trading schemes, Joint Implementation (JI), and the Clean Development Mechanism (CDM), which allows developed countries to partially meet reduction targets by funding sustainable development in developing countries.
- **Carbon Sinks** – allow credit for carbon sequestration, activities such as forest management which absorb and store carbon from the atmosphere.
- **Compliance** – a broad outline was agreed as to consequences for failure to comply with the Protocol.
- **Financing** – established three funds to support adaptation and mitigation in least-developed and developing countries.

COP7, held in Marrakesh, largely completed the Plan of Action which became known as the “Marrakesh Accords”.

COP8, 9 and 10 did not reach any major decisions.

COP11 in 2005 in Montreal, Canada, was the first Meeting of Parties (MOP) to the Kyoto Protocol, which came into effect following Russia’s ratification of the treaty. The Montreal Action Plan sought to extend the Kyoto Protocol beyond 2012. The Ad hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) was established as a new body to negotiate deeper cuts in GHG emission reduction target for developed countries only.

COP12 in Nairobi did not reach any major decisions.

COP13 was held in 2007 in Bali Indonesia. The Bali Action Plan established a timeline and structure of negotiations leading to COP15 in Copenhagen. The Ad hoc Working Group on Long Term Cooperative Action under the Convention (AWG-LCA) was established as a new body to conduct the negotiations necessary to achieve the ambitious emission reduction targets consistent with limiting temperature increases to 2 degrees Celsius above pre-industrialisation levels.

COP14 in Poznan, Poland, reached principles on the establishing and financing of a fund to help developing countries in terms of adaptation and mitigation measures.

Since COP14 the pace of negotiations has intensified. Major events leading into **COP15** are listed below.

- Bonn UN Climate Change Talks – 10 - 14 August 2009. Negotiation session for progressing the final text of the COP15 agreement.
- UN Summit on Climate Change – 22 September 2009. A Heads of State meeting designed to give “political impetus” to the negotiating process. At this meeting both President Obama of the United States as well as Chinese President Hu Jintao committed to reaching an agreement in Copenhagen. The Australian Minister for Climate Change, Penny Wong, first raised the option of an alternative structure to the COP15 agreement.
- G20 Pittsburgh – 24 - 25 September 2009. Economic forum attended by the G-20 Heads of State. Agenda included negotiations to clarify issues around establishing funds to finance adaptation, mitigation and technology transfer for developing countries.
- AWG-KP and AWG-LCA Sessions, Bangkok – 28 September - 9 October 2009. Meeting aimed at progressing the text of the final COP15 agreement. While some progress was made on issues relating to adaptation, technology transfer and flexible mechanisms, talks ended with no progress

made on key political issues and more than 28,000 words of text remaining in dispute. Following this meeting and the subsequent Major Economies Forum in London, UNFCCC Secretary Yvo de Boer admitted that it was unlikely an agreed text would be achieved at COP15. The need for an extra summit in 2010, **COP15.5**, was raised.

- European Council Meeting, Brussels – 29 - 30 October 2009. Elaboration of the EU's position with regard to financing.
- AWG-KP and AWG-LCA Sessions, Barcelona – 2 - 6 November 2009. These sessions were designed to progress the final text of the COP15 agreement. Increasingly however, focus is turning to establishing a structure for post-Copenhagen negotiations.

COPENHAGEN (COP15)

When initially planned, the COP15 meeting was to feature a signing of a global agreement on climate change adaptation and mitigation measures that would take the UNFCCC past the measures specified in the Kyoto Protocol which expire in 2012. As we approach the meeting, the finalisation of an agreement looks increasingly unlikely.

In an interview in March 2009, the Executive Secretary of the UNFCCC, Yvo de Boer stated there were four determinations needed to achieve an international agreement in Copenhagen⁶:

1. How much are the industrialised countries willing to reduce their emissions of GHGs?
2. How much are developing countries such as China and India willing to do to limit the growth of their emissions?
3. How is the help needed by developing nations to engage in reducing their emissions and adapting to the impacts of climate change to be financed?
4. How is that money going to be managed?

The negotiation of an agreement has been painfully slow with little progress made at AWG-KP sessions. The specific reasons for the lack of progress are key political issues which make the task of the negotiators, particularly the U.S. negotiating team, extremely difficult. These are discussed below.

One issue of the debate around COP15 is whether the agreement should take the legal form of an amendment to the Kyoto Protocol or replace that treaty entirely. Developing nations, China and India in particular, are in favour of effectively extending the Kyoto Protocol agreement while the United States is in favour of a new agreement (one that would include specific emission growth restrictions for developing nations). Following the Barcelona talks a third option, an overarching agreement comprised of the individual commitments of each nation, was proposed by U.S. envoy Todd Stern⁷.

DEVELOPED VERSUS DEVELOPING

Whether success is achieved in Copenhagen largely depends on the United States and China. The problem of climate change is a legacy of developed nations. The majority of the carbon in the atmosphere was put there by rich countries. On a per capita basis developed countries produce around 16.1 tonnes CO₂-eq compared to 4.2 tonnes per capita for developing countries⁸. Increasingly however, the percentage of GHG emissions produced by developing countries is increasing, with developing countries producing more than half the anthropogenic GHG emissions each year since 2004.

The impacts of climate change are not evenly distributed across regions. Developed nations are far less vulnerable than poorer nations to the stresses caused by climate change. This is across a wide range of impacts including rising sea levels, disruption in food production, disease, and severe weather events including more frequent cyclones, floods and drought. By way of example, contrast the ability of the Netherlands and Bangladesh, both low-lying countries, in coping with higher sea levels and more frequent cyclones.

Developing nations

The attitude of the developing nations is that the issue of climate change, while serious, is secondary to other social issues related to poverty. China's position is that developing countries should be allowed to pursue in the 21st century the same type of industrial growth that the developed world achieved in the 20th century. As per Kyoto, China argues that developing countries should not have binding targets limiting growth in GHG emissions – rather, mitigation strategies and sustainable development in the developing world should be voluntary and largely achieved through funding and technological transfer from developed countries. Further, mitigation in developing countries should not be allowed to count toward target reductions in CO₂-eq emissions in developed countries (i.e. no transfer of carbon credits)⁹. This would significantly increase the price of carbon permits in developed nations and put developed nation industries at an economic disadvantage to their developing nation competitors.

China and India have indicated they will commit to plans to reduce their carbon intensity, but they are not prepared to sign a treaty without seeing hard commitments from the developed countries.

Developed nations

The position of the developed nations is far from homogeneous. While Norway may have committed to a 40% reduction target, of the developed nations it is the position of the United States that is most crucial to the success of COP15. However, and despite the political imperative given by Barack Obama, American negotiators are mindful of the mistakes made at Kyoto and will not commit to a specific target reduction number at COP15 in the absence of legislation from the U.S. Congress. Currently, the U.S. proposes a 20% reduction target (which equates to a 7.3% reduction on 1990 levels), as put forward by the Boxer-Kerry Bill¹⁰. However, this bill will not be passed before COP15 and may not pass at all. The head of the U.S. Environmental Protection Agency Carol Browner was quoted as saying she did not think there would be a legislative outcome in the U.S. Senate this year¹¹.

While the U.S. debates the economic consequences of a 7.3% reduction, the position taken by China and India is that the developed world should commit to a 40% reduction, effectively the target required to stabilise CO₂ atmospheric concentrations at a level consistent with a 2 degree Celsius increase in temperature. In a post GFC world, the political will to achieve those levels of cuts, in the face of aggressive industry lobbying and waning public interest, is severely diminished. Post COP15 it is possible there may be continued reference to the 2 degree target, but specific plans, if implemented, are more likely to be consistent with scenarios which see emissions stabilise at CO₂-eq atmospheric concentrations consistent with a 3.5 – 4.0 degree Celsius increase in temperatures.

A further issue for developed countries revolves around the issue of cost. There is an expectation that the Annex II countries will fund the cost of adaptation and mitigation in the developing world. The UNFCCC estimates those costs to be in the order of US\$250 billion per annum by 2020¹². The prospect of funding developing world costs while at the same time imposing measures that will negatively impact domestic economies is a hard message to sell politically. Further, considerable

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uncertainty exists as to whether the cost of mitigation is actually higher than the cost of adaptation, i.e. it may be cheaper to clean up the mess than to actually attempt to prevent it – a worrying scenario for the environment and those most directly impacted.

INDUSTRY

Companies and industry bodies wish to protect the interests of shareholders and employees. Consequently, industry bodies are substantial lobbyists around climate change issues. Between 2000 and 2003, ExxonMobil alone gave more than US\$8.6-million to think tanks, consumer groups and policy organisations engaged in alleged “anti-Kyoto” messaging¹³.

Going into Copenhagen, carbon-intensive industries, particularly coal and coal-powered electrical generation, have been particularly active lobbyists in most countries, but specifically in Australia and the United States.

Much of the uncertainty impacting industry concerns the range of possible reduction targets for CO₂-eq emissions. Cap-and-trade emission trading schemes in Australia and elsewhere will determine a carbon price and that price will be primarily determined by country specific targets for emission reduction. Guarantees around the price of carbon permits limit the effectiveness of market mechanism in delivering reductions. Similarly compensation arrangements, protection for companies in competitive open markets, and the exclusion of some sectors, such as agriculture, also limit the effectiveness of the market mechanism. China’s objections to flexible mechanisms softened in Bangkok. Restrictions on the ability to import carbon credits from developing countries would have made Australia’s Carbon Pollution Reduction Scheme (CPRS) unworkable, except for relatively low emission reduction targets¹⁴.

In Europe, the introduction of an Emission Trading Scheme (ETS) was not without hiccups. Problems with measurement and implementation led to an over allocation of permits and windfall profits for electricity producers. The price of carbon in Phase I of the scheme was extremely volatile and eventually collapsed¹⁵.

CONCLUSION

The next UNFCCC Conference of Parties to be held in Copenhagen in December represents the next chance for the world’s nations to make a significant impact on global climate change. It seems unlikely that agreement will be reached at the conference due to key political issues. Also, the focus on climate change has lessened recently as a consequence of the global financial crisis¹⁶. Nevertheless, the risks associated with climate change and how we respond to it will remain one of the most important factors influencing society, and security prices, this century.

“There is every reason to believe that as the 21st century unfolds, the security story will be bound together with climate change....The last time the world faced a challenge this complex was during the Cold War.”¹⁷

John Ashton, The UK Foreign Secretary’s Special Representative for Climate Change

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USEFUL SOURCES OF INFORMATION ON CLIMATE CHANGE

To remain informed of Climate Change issues, good sources of information are:

- the **COP15 website**, which contains links to media coverage of climate change issues;
- the weekly **The Economist** magazine, which has a particular focus on the economic impacts of climate change and regulation;
- a comprehensive, but somewhat agenda-driven source of news is the **Climate Group**; and
- the **Institutional Investors Group on Climate Change (IIGCC)**, a forum for collaboration between pension funds and other institutional investors in issues relating to climate change¹⁸.

GLOSSARY

AWG-LCA – Ad hoc Working Group on Long-term Cooperative Action under the Convention. Working party established at COP13 in Bali in 2007 with representation from all 192 parties to the UNFCCC tasked with negotiating and developing a text for the treaty to be agreed at COP15 in Copenhagen.

AWG-KP – Ad hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol. Working Group established at COP11 in Montreal in 2005 tasked with establishing commitments from the 37 industrialised nations party to the Kyoto Protocol for specific and deeper reductions to GHG emission targets post 2012.

BINGO – Business and Industry Non-Government Organisations

CDM – Clean Development Mechanism. Allows companies to earn carbon credits through investment in authorised sustainable development projects in developing nations.

COP15 – Conference of Parties 15. The Conference of Parties to the UNFCCC meets every year - the Copenhagen conference is the 15th such meeting and the most important since COP3, which was held in 1997 in Kyoto, Japan.

CO₂-eq – Carbon Dioxide equivalent emission. The amount of CO₂ emission that would cause the same amount of radiative forcing (the amount of the sun's energy captured and retained by the planet) as a given amount of other GHG.

CPRS – Carbon Pollution Reduction Scheme, a “cap and trade” scheme that sees the issuance of carbon permits which allow companies to emit long-lived GHGs. Trading in permits establishes a price for carbon emissions. The volume of available permits is established by emission reduction targets and the ability of companies to generate “carbon credits” through authorised mechanisms such as CDMs.

ETS – Emission Trading Scheme; see CPRS.

GHGs – Green House Gases. Gases whose presence in the atmosphere increase radiative forcing. The main GHGs are Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Sulphur Hexafluoride (SF₆) and the group of gases known as Halocarbons (Fluorine, Chlorine, Bromine).

IPCC – Intergovernmental Panel on Climate Change. A body established in 1988 by the World Meteorological Organisation and the United Nations Environment Program to evaluate the scientific evidence of climate change and advise policy makers accordingly.

SIDS – Small Island Developing States. Climate change will have particularly severe impacts on SIDS. Many SIDS face severe inundation under scenarios of rising sea levels and more frequent severe weather events.

UNFCCC – United Nations Framework Convention on Climate Change. A non-binding international treaty designed to limit GHG emissions and establish cooperative agreements around mitigation and adaptation. The UNFCCC was finalised at the United Nations Conference on Environment and Development, commonly known as the Earth Summit, held in Rio de Janeiro in June 1992, and signed by 192 countries including Australia and the United States.

END NOTES

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- The Climate Group - <http://www.climategroup.org/>
- The IIGCC - <http://www.climategroup.org/>

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