

Dealing with reality

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The Kyoto Protocol was intended to cut the greenhouse gas emissions of developed countries to 5 per cent less than they were in 1990, and this was to be achieved by the end of 2012. As that deadline approaches it is time to take stock of what has actually happened. There is some good news and some bad news: The bad news is that political solutions to mitigate global warming lack the ambition to deliver what the scientists demand—a limit on the increase in temperature of 2°C. The good news is that, 20 years after the Rio Earth Summit, the ‘Environment’ is firmly on the corporate agenda and as economies emerge from recession the green shoots of growth can be truly green. But we need more commitment from our politicians. This is difficult to achieve as international recession drags on because policies to boost growth at any price are better vote-winners than policies that increase environmental costs.

1. Introduction

What would it take to reach an international agreement to combat climate change at the 18th Conference of Parties to the UN Framework Convention on Climate Change (UNFCCC) scheduled to take place in Doha in November/December 2012? Cynics would answer that it would take an international disaster unequivocally attributable to global warming of such magnitude, and impacting directly on major economies, that public opinion would force politicians to agree a new climate change mitigation agreement or lose their tenure.

Only a peculiarly warped mind could wish for any such event. But this is the reality faced by battle-weary climate activists in the wake of the ‘Rio + 20’ conference, which closed on 22 June 2012.

In June 2012 more than 40,000 people attended the conference to mark the 20th Anniversary of the Rio Earth Summit in a spirit of hope, despite growing frustration following the failed Copenhagen Conference of Parties (COP) to the UNFCCC in December 2009.

It was understood in advance that Rio + 20 was the wrong conference to deliver a new international climate agreement. Nevertheless, environmental romantics may have hoped that whatever the magic ingredient had been 20 years ago that produced the UNFCCC and the subsequent Kyoto Protocol, might reappear at the June 2012 meeting to break the negotiating logjam we now face. The commitments made under the Kyoto Protocol

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expire at the end of 2012 and, unless there is a breakthrough, there is no legally binding international treaty to extend or replace it.

In reality, there was no magic ingredient at work back in 1992, and the UNFCCC was born after years of hard negotiating labour. To forge a new international climate agreement for 2013 and beyond will require more of the same blood, sweat and tears we have seen since the disappointing Copenhagen COP in 2009.

2. The topography of international agreements and conferences

Like its predecessor, RIO + 20 had a much wider agenda than just climate change mitigation and adaptation. Before judging its outcome, the document entitled 'The Future We Want',¹ it is necessary to view the UNFCCC in the context of the wider Rio + 20 agenda.

UN Conference on the Human Environment: The Stockholm Conference

The original Rio Earth Summit, which was convened in 1992, took place 20 years after the 1972 UN Conference on the Human Environment, held in Stockholm. The Stockholm conference sought to draw attention to the link between economic development and environmental degradation. This conference resulted in the setting up of the UN Environment Programme (UNEP). Little progress was made until 1983 when the UN set up the World Commission on Environment and Development, emphasizing that while economic development was a top priority, it came with a price: environmental degradation. The alternative of 'sustainable development' was introduced by this Commission, headed by Gro Harlem Brundtland of Norway.

UN Conference on Environment and Development: The Rio Earth Summit

Building on this work, in 1987 the UN General Assembly planned the UN Conference on Environment and Development (UNCED). This was seen to be necessary to address the development needs of poorer countries while engaging the cooperation of developed countries in ensuring that this development would not 'cost the earth'.

In the meantime, environmental damage in the form of pollution of air, land and water, ozone depletion and, arguably, global warming had proceeded apace. In 1988, the World Meteorological Organisation (WMO) and the UNEP joined forces to create the Intergovernmental Panel on Climate Change (IPCC). This is a scientific and intergovernmental organization operating between the policy-makers and the scientists. It does not carry out research, but produces reports attempting to capture the consensus of opinions on the current state of scientific, technical and socio-economic knowledge about climate change. The IPCC published its First Assessment Report in 1990, its Second Assessment Report in 1995, its Third Assessment Report in 2001 and its Fourth Assessment report in 2007. The first draft of the Fifth Assessment Report is expected to be available for expert review by the end of July 2012 and the final full

¹ <<http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf>> accessed 19 September 2012.

report by October 2014. Each successive report has provided more assurance that global warming is occurring and that humans are the likely cause of the changing climate.

The Fifth Report has some lost ground to make up in repairing the damage to the credibility of the scientific case caused by the hacking into the University of East Anglia Climate Research Unit's correspondence in 2009—so-called 'Climategate'. This was presented in the media as unveiling a conspiracy to dupe the public and policy-makers into taking costly action against global warming that was unjustified by ambiguous scientific data.

Not being a scientist, this author makes no judgements on the merits of the scientific evidence for anthropogenic global warming. The UNFCCC says, 'The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.'² Scientific certainty is unlikely ever to be achieved. In 200 years' time when scientists look back at the climate data for this period there will still be doubtless arguments over what caused the weather pattern that actually occurred.

Policy-makers are being forced to make decisions that affect the well-being of 'humanity' based on questionable scientific data. But policy-makers, by and large, don't work on behalf of humanity: they work for the constituents that will get them re-elected to a position of power. Realistically, the best that can be hoped for is that the policies laid down today, for whatever reason, will lead us towards clean technology for its own sake and will cut down on the waste of scarce resources, such as fossil fuels.

Despite the subsequent controversy, the first IPCC report in 1990 was, to many, new news and it emerged in time to have a significant impact on the 1992 Rio Earth Summit.

The long-heralded UNCED, the proper name for the Rio Earth Summit, took place in Rio de Janeiro during 3–14 June 1992 and was attended by 172 governments and 2,400 NGO representatives. Its agenda was not simply global warming and climate change, but the full impact of economic and social development on the environment. Today conducting an environmental impact assessment before implementing an investment decisions is routine. We have the Rio Earth Summit to thank for laying the foundations of this approach. The main conceptual revolution was to consider sustainable development as composed of three pillars—economic development, social development and the protection of the environment—that are intertwined and mutually supportive.

The tangible outcome of the UNCED was three agreements and two legally binding conventions. These were:

- the Agenda 21 agreement—a global action plan for sustainable development;
- the Rio Declaration on Environment and Development—principles defining the rights and obligations of States;

² UNFCCC Art 3.1.

- the Statement of Forest Principles—principles underlying the sustainable management of forests worldwide;
- the Convention on Biological Diversity; and
- the UNFCCC.

The UN Convention to Combat Desertification (UNCCD) also grew out of the UNCED, but this was not established until 1994.

This article will primarily focus on the UNFCCC. It should be borne in mind that the UNFCCC was actually adopted by the UN in New York on 9 May 1992 and was only signed by 166 countries at the UNCED in June 1992. It entered into full force and effect on 21 March 1994. It was not negotiated from a standing start and delivered fully ratified at the two-week Rio conference. It has now at the latest count been signed by 194 parties.

The UNFCCC

The UNFCCC makes some powerful and, with hindsight, surprising commitments.³ These are contained in Article 4, which introduces the concept of ‘common but differentiated responsibilities’, a term that lies at the heart of current negotiating difficulties. This term reflected the argument that developed countries have greater responsibility for the current level of greenhouse gases (GHGs) in the atmosphere attributable to their past economic growth and should therefore accept greater responsibility for solving the problem. It also reflected the fact that country parties to the UNFCCC signed up under different categories with different obligations.

Countries who signed up as Annex I Parties, the OECD⁴ and the Commonwealth of Independent States, agreed to limit their own GHG emissions⁵ and return to levels of emissions evident in an earlier historic period.

Countries who signed up as Annex II Parties, the OECD, agreed ‘in addition to their Annex I commitments’ to pay the costs of developing countries in measuring and communicating their GHG emissions, to underwrite the cost of transferring green technology and to provide assistance to vulnerable developing countries in adapting to climate change.

Countries who signed up as non-Annex I Parties, effectively everyone else broadly referred to as developing countries, committed to do nothing more than cooperate with the process, particularly by facilitating the monitoring and measuring of their own GHG emissions. This disparate non-Annex I group contains countries as diverse as China, Saudi Arabia and Haiti.

Perhaps the most surprising of these commitments to 21st-century eyes is the commitment by developed countries, such as the USA, ‘to underwrite the cost’ of transferring green technology to developing countries, including China. As developed economies stagnate or languish in prolonged recession while developing economies enjoy growth rates in high single figures or even double figures, albeit from a lower base, living up to this commitment is not an easy sell for politicians (see Figure 1). This is not a

³ For the full text of the Convention, see <<http://unfccc.int/resource/docs/convkp/conveng.pdf>> accessed 19 September 2012.

⁴ Except South Korea.

⁵ Excluding gases already covered by the Montreal Protocol on Substances that Deplete the Ozone Layer.

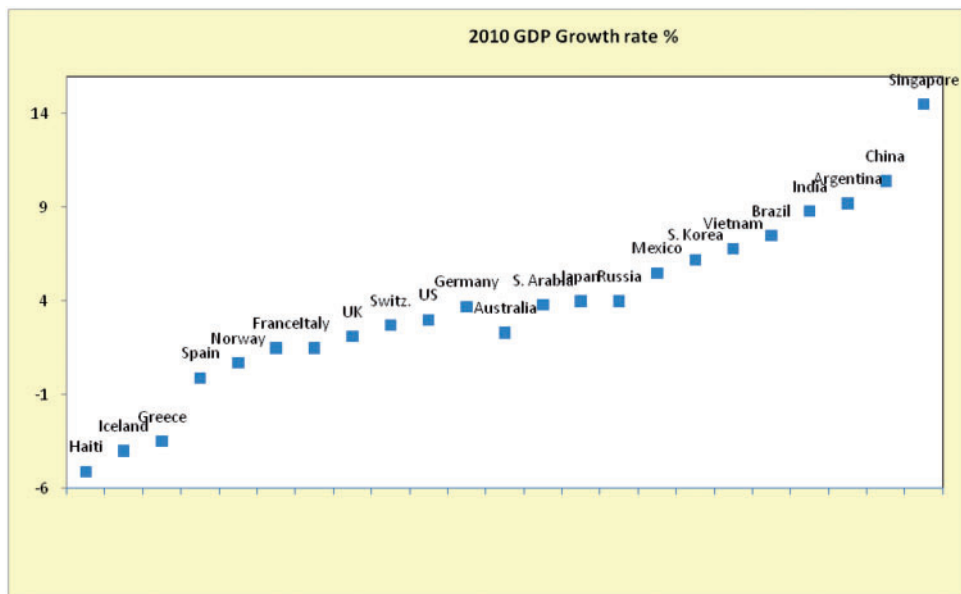


Figure 1. Gross domestic product (GDP) growth rate in 2010 (per cent). *Source:* World Bank.

vote-winning proposition in countries facing unemployment rates of ~8 per cent, such as the USA.⁶ It is also very different from the economic circumstances that prevailed when the UNFCCC was agreed.

Of course, the UNFCCC does not oblige a country like the USA to help China in particular, and there are many other countries, for example in Africa, who could make more politically palatable candidates to receive inward investment from developed countries. For example, at Rio + 20 Secretary of State Hilary Clinton pledged \$20 million in grants to business owners in Africa: not an impressive sum, but illustrative of the fact that UNFCCC signatories have discretion on how the public purse is deployed.

The debate is focused on China and the USA because these two countries are now the top two emitters of GHGs in the world, respectively, although Chinese GHG inventory data is patchy at best (see Figure 2). The fact that China is a non-Annex I country and a potential recipient of international assistance rather than a dominant and fast-growing economy with Annex I responsibilities does not play well with US voters, or voters in other developed countries facing competition from China. Similarly, the fact that Chinese per capita income is approximately one-third of that of the USA creates considerable resistance to any suggestion that China should tackle emissions by limiting its rate of growth.

The concept of ‘common but differentiated responsibilities’ represents an attempt to find a way through this political quagmire, and it lies at the heart of the UNFCCC

⁶ US Bureau of Labor Statistics, May 2012 <<http://www.bls.gov/news.release/metro.nr0.htm>> accessed 19 September 2012.

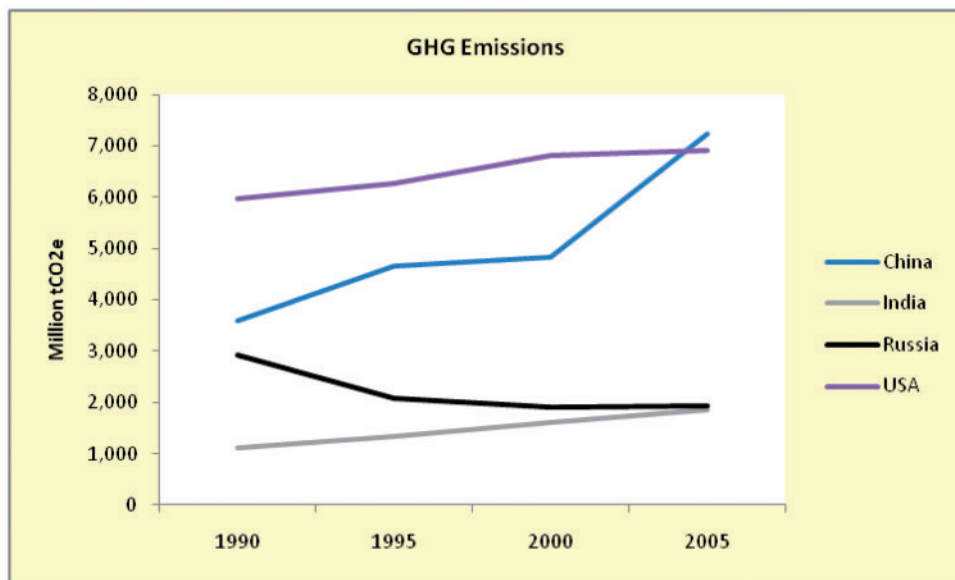


Figure 2. GHG emissions (million tCO₂e). *Source:* World Resources Institute.

negotiations, seen by some as a stumbling block and by others as a stepping stone to a new agreement.

When reviewing the conferences of parties (COPs) to the UNFCCC and judging their progress or otherwise it may be wise to keep the actual UNFCCC Annex I/Annex II and non-Annex I commitments on hand. Because if no international agreement to succeed the Kyoto Protocol is agreed, these commitments remain in place: there is no sunset clause in the UNFCCC. It should also be borne in mind that the USA has committed to the UNFCCC as an Annex I/Annex II party. The USA's rejection of the Kyoto Protocol is well-publicized. Its acceptance of the UNFCCC is not.

The Kyoto Protocol

The most significant of the COPs to the UNFCCC was COP3 in December 1997 at which the Kyoto Protocol⁷ was adopted in principle. The Kyoto Protocol translated the UNFCCC into a specific action plan. The Protocol required ratification by 55 States, including those countries that contributed 55 per cent of 1990 emissions, before it could enter into full force and effect. Russia tipped the balance with its ratification in October 2004 and the Kyoto Protocol entered into full force and effect on 16 February 2005. To date 192 countries have ratified or otherwise endorsed the Protocol. The supreme body of the Kyoto Protocol is the Meeting of Parties (MOP), which takes place annually to coincide with the UNFCCC COP process.

⁷ For the full text of the Kyoto Protocol, see <<http://unfccc.int/resource/docs/convkp/kpeng.pdf>> accessed 19 September 2012.

The Kyoto Protocol contains legally binding targets for developed countries to reduce their emissions of GHGs by an overall amount of 5.2 per cent, compared with 1990 levels, during the 2008–2012 period. In Kyoto parlance, the developed countries that committed to cap their emissions are referred to as Annex B countries.

This overall 5.2 per cent Annex B emissions reduction target is not evenly split: for example, a 7 per cent cut was proposed for the USA, which it subsequently rejected, 8 per cent for the European Union (further spread unevenly via an intra-EU Burden Sharing Agreement), 6 per cent each by Canada and Japan, stabilization by Russia and the Ukraine and increases, relative to 1990 levels, of 1, 8 and 10 per cent by Norway, Australia and Iceland, respectively. The USA rejected its cap, as did Australia. The latter then accepted it in 2007 following a change of government.

The cap-and-trade concept is that a central authority sets a limit on the permitted level of emissions, ie the caps referred to above. The central authority either sets the cap or allocates the right to emit in the form of permits or allowances below current or expected emissions levels. These allowances are either given for free or sold at auction by the central authority to the emitting entities. An emitter facing a cap or shortage of permits can then:

- cut production;
- invest in clean technology
 - at home
 - overseas; or
- buy in the market sufficient allowances to cover its shortfall between its cap and its actual verified emissions during the compliance period.

At the end of the compliance period, emitters must possess and surrender to the central authority sufficient permits or allowances to cover what was actually emitted by that party during the compliance period. These allowances are then cancelled and taken out of circulation by the central authority to ensure that they cannot be used again to permit future emissions.

For cap-and-trade to work, there has to be a shortage of permits in circulation, ie the caps have to be set below the business-as-usual level in order to motivate a change in behaviour. If allowances are in surplus, they will be priced too cheaply and emitters will simply buy allowances rather than close old plant or invest in clean technology.

This is the concept of the Kyoto Protocol. The central authority is the body of the UNFCCC; the emitting entities are 37 developed countries; and, the overseas investment options are the Clean Development Mechanism (CDM) and Joint Implementation (JI).

The CDM and JI are two of the three ‘flexibility’ mechanisms for achieving target reductions contained in the Kyoto Protocol:

1. The CDM is a project-based scheme, allowing carbon credits to be claimed by developed, capped countries for emissions reductions in developing, uncapped countries. This aims to promote sustainable economic growth and has a collateral

benefit of clean technology transfer. This delivers actual net cost-effective global reductions in emissions.

2. JI is also a project-based scheme, allowing carbon credits to be claimed by developed, capped countries for emissions reductions in other developed, capped countries or Economies in Transition that also have an emissions target. The credits given to countries investing in JIs are offset by corresponding debits to the host developed country and this makes JIs a zero-sum game at the country level, although not at the individual company level.
3. International Emissions Trading (IET). The underlying principle of IET is that those countries or firms that have achieved emissions reductions in excess of Kyoto targets can sell certified emissions reductions units to countries or firms that cannot meet targets as easily or cheaply by investment in new and greener technology, by cutting production or by investing in CDMs or JIs.

CDMs and JIs are 'baseline-and-credit' vehicles for delivering physical reductions in emissions. Investors are rewarded with one allowance for every tonne of carbon dioxide equivalent (tCO₂e) that their investment saves compared with a business-as-usual scenario where the investment either does not take place or takes place using a less environmentally friendly technology. To ensure that investments contribute to sustainable development and also save GHGs, investors in projects must seek approval from a Designated National Authority of the host country and the country in which the investment money originates. Investors also have to obtain independent, audited verification of the emissions savings they claim from a Designated Operational Entity.

The allowances awarded to CDM and JI investments called, respectively, Certified Emissions Reductions (CERs) and Emissions Reduction Units (ERUs), can be purchased and surrendered by emitters at the end of the compliance period to cover actual emissions during that period. In the case of the Kyoto Protocol the compliance period is 2008–2012.

Emissions trading is an economic tool designed to achieve least cost compliance with reduction targets. Allowances authorized for creation by the central body of the UNFCCC up to the limit of the agreed caps can be traded, and baseline-and-credit allowances from the CDM and JI can be valorized, on the market. The market, the contracts and exchanges that facilitate trade, were created in the private sector, not by the UNFCCC.

Unless there is a shortage of allowances in circulation, it will always be easier and cheaper for emitters to buy low-priced surplus allowances than invest in expensive clean technology or to shut down ageing, inefficient plants. If a cap-and-trade scheme is successful in promoting clean technology, a surplus of allowances will grow over time as actual emissions decline in relative terms. In theory, to continue to keep allowance prices high caps have to be revisited and further reduced at periodic intervals to maintain a flow of green investment.

In practice, caps are set by a political process of horse trading and will therefore always tend to surplus: no matter how committed to mitigating global warming is the entity required to agree a cap, there is usually special pleading that low caps should apply to

other countries, sectors or companies, not to the emitting entity in question. So it was with the Kyoto Protocol.

One price of achieving acceptance of the Kyoto Protocol was the cap that would apply to Former Soviet Union (FSU) countries. The base year for setting caps was 1990, so the agreement to allow Russia and Ukraine to maintain their 2008–2012 emissions at 1990 levels built a surplus into the overall Kyoto cap. The economies of Russia and Ukraine slumped after 1990, so this cap gave these two countries an approximate 30–40 per cent surplus of allowances at the outset. Russia is the third largest emitting country in the world after China and the USA,⁸ so a 30 per cent surplus would translate into a problem for the market unless the international capped economies grew at an unprecedented rate before the end of the compliance period. This was always far-fetched and in reality has not happened. The Russian surplus continues to bear down on the market in this last year of the Kyoto compliance period.

This in-built surplus was further compounded when the USA, then the largest emitter in the world, having pledged a 7 per cent cut under 1990 levels that would have left it extremely short of allowances, withdrew from the Kyoto Protocol in late March 2001.

The Marrakech Accords

At the Marrakech conference of parties, COP 7, in October/November 2001, it was agreed that, despite the bitter blow of the USA's withdrawal, the remaining parties would continue down the Kyoto Protocol route towards UNFCCC compliance and hope that the USA would change its mind (and its government) before 2008 and join in.

The outcome of this COP was the Marrakech Accords that sought to put flesh on the bones of the Kyoto commitment to cut GHG emissions by 5.2 per cent below 1990 levels in the 2008–2012 period. This was agreed by 166 countries. The first step was to construct methodologies capable of back-calculating what actual emissions were in 1990 and therefore what the commitment to cut by 5.2 per cent meant in terms of tCO₂e in 2008–2012.

After Marrakech, much of the detailed work to implement Kyoto remained to be done, but it succeeded in keeping the Kyoto framework in place. It provided a detailed package for reporting and reviewing countries' inventories (ie the quantity broken down by source of each GHG emitted by a country in a specified year) based on IPCC methodologies and proposed rules on a compliance regime with enforceable and binding consequences for countries that do not meet their Kyoto commitments.

Article 18 of the Kyoto Protocol allows for amendments to the Protocol to deal with national defaulters. The ultimate success of Kyoto would depend on its being enforced. The Marrakech 'rulebook' recommends that if a country has insufficient allowances to cover its actual emissions at the end of the first commitment period (2008–2012), it is in default. The defaulter must make up any shortfall in allowances in the second commitment period, with an additional 30 per cent penalty. In addition, the defaulter's eligibility to sell surplus allowances under the Kyoto Protocol's international emissions trading mechanism is suspended until compliance is achieved. In other words, the country and

⁸ Excluding land use, land use change and forestry.

the companies operating within the defaulting country cannot trade in the emissions market.

However, if a country does default, it reduces the chances of that country signing up for the second commitment period, so this provision is toothless in reality. The country most likely to face this situation was always Canada because it is very short of allowances. This shortage has been compounded by the increasing export of Canadian oil to the USA, a situation that will be exacerbated by an increasing supply of Alberta's carbon intensive tar sand oil with the Keystone pipeline expansion expected in 2013. Despite the fall in the price of international allowances to less than €8/tCO₂e, Canada has deemed that its cost of compliance with the Kyoto Protocol is unacceptable. It withdrew formally from the Kyoto Protocol after the Durban COP in December 2011 as did Russia and Japan, but for different reasons.

But at the Marrakech COP 7 in 2001 this was all in the future and the Accords can, arguably and with hindsight, be considered a practical step forward in spite of adverse circumstances.

One objective of Marrakech was to attempt to ratify Kyoto in time for the World Summit for Sustainable Development in September 2002. It failed in this objective and it was not until the Russian Duma agreed to ratify the Kyoto Protocol on 22 October 2004 that the 55 country/55 per cent of 1990 emissions, based on best estimates at that time, requirement for ratification was met: Russia took the total to 61.6 per cent. The Kyoto Protocol entered into full force and effect on 16 February 2005.

The Bali Roadmap

The Kyoto Protocol contained an automatic termination provision in that it envisaged a first finite compliance period of 2008–2012. Although further commitment periods were envisaged, these represented no more than an agreement to agree, with no fall-back provision if agreement was not forthcoming. Discussions to decide its successor began in earnest at the Bali COP 13 in December 2007. The agreement that emerged was referred to as the Bali Roadmap.⁹

The Bali conference formalized the setting up of an Ad Hoc Working Group (AWG) on Long-term Cooperative Action under the UNFCCC and an AHWG on Further Commitments for Annex I Parties under the Kyoto Protocol. It re-iterated the principle of common but differentiated responsibilities and respective capabilities, taking into account social and economic conditions and other relevant factors. It called for enhanced national/international action on mitigation of climate change, specifically advocating:

- Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all 'developed' countries, with comparable efforts, taking into account differences in national circumstances;

⁹ <http://unfccc.int/key_documents/bali_road_map/items/6447.php> accessed 19 September 2012.

- Nationally Appropriate Mitigating Action (NAMA) by ‘developing’ countries in context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner;
- Policies and incentives on Reduced Emissions from Deforestation and Degradation (REDD) in ‘developing’ countries;
- A cooperative sectoral approach;
- The use of market tools, when appropriate;
- Regard for economic and social consequences;
- A coherent and integrated approach to mitigation in the public and private sectors.

COP 13 set in motion an agreement process that was expected to be concluded at COP 15 in Copenhagen in 2009. It set down a Copenhagen wish list for:

- enhanced national/international action on adaptation;
- enhanced action on technology development and transfer, to support action on mitigation and adaptation;
- enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation;
- improved access to adequate, predictable and sustainable financial resources and financial and technical support, and the provision of new and additional resources, including official and concessional funding for developing countries; positive incentives for developing country Parties for the enhanced implementation of national mitigation strategies and adaptation action; innovative means of funding to assist developing countries that are particularly vulnerable to the adverse impacts of climate change in meeting the cost of adaptation;
- incentivize the implementation of adaptation based on sustainable development;
- mobilization of public- and private-sector funding and investment; and
- financial and technical support for capacity-building.

This was a pretty tall order for action to be completed within two years. Inevitably, the actual Copenhagen conference turned out to be a bitter disappointment when measured against the Bali expectations.

The Copenhagen Accord

COP 15, held in Copenhagen in December 2009, was a bit of a shambles from the beginning. Adverse weather and a severe underestimation of attendance by the Danish authorities led to frustration both inside and outside the formal negotiating sessions. The meeting seemed set to end with no agreement when the newly elected Barack Obama rode over the hill like the cavalry on the last day of the conference.

What is now known as the Copenhagen Accord¹⁰ was thrashed out at the 11th hour amongst an elite few countries including the USA, China, India, Brazil and South

¹⁰ For full details, see <http://unfccc.int/meetings/copenhagen_dec_2009/items/5262.php> accessed 19 September 2012.

Africa. Many national representatives had already left before discussions began in earnest, causing a severe ruffling of political feathers and certain countries, like Sudan, Cuba, Nicaragua, Venezuela and Bolivia to reject the Accord. Nevertheless, any deal involving three of the world's four largest emitters, the USA, China and India, could not be ignored despite the fact that it rode roughshod over formal UN negotiating protocols. The UNFCCC decided to 'note' the agreement although it was constitutionally unable to adopt it formally.

The Accord started by noting that any future increase in global temperature should be below 2°C since pre-industrial times. This is more significant than it at first appears. For the first time in almost 20 years we were hearing a US president acknowledge anthropogenic global warming and accept the need for human intervention to divert environmental catastrophe.

The Accord also recognized the concept of common but differentiated responsibilities and capabilities for Annex I and non-Annex I countries. It sought agreement for:

- Annex I Parties to commit to implement individually or jointly quantified economy-wide emissions targets for 2020, ie new caps for the 2013–2020 period.
- Non-Annex I Parties to take mitigation actions:
 - lesser developed countries (LDCs) and small island developing states (SIDS) to undertake actions voluntarily with support; and
 - other non-Annex I parties *seeking international support* to be subject to international measurement, reporting and verification and report every two years.

As indicated earlier in this article, the UNFCCC did not bind the developing non-Annex I countries to any specific mitigating action. The Copenhagen Accord sought to change that situation, buying the cooperation of large developing countries such as China and India with cash. The Accord envisaged providing new funding for developing countries to enable and support mitigation, adaptation, the development and transfer of technology and capacity-building.

Initially, the developed countries were to provide \$30 billion for these purposes during the period 2010–2012 with a balanced allocation between adaptation and mitigation actions. The developed countries would further commit to a goal of \$100 billion dollars per year by 2020, with a significant portion of that funding flowing through a new Copenhagen Green Climate Fund (GCF). On 12 February 2010 the UN launched a panel to design and oversee a \$100 billion annual fund for climate mitigation and adaptation financing in non-Annex I countries, dubbed the Advisory Group on Financing (AGF).

Any countries hoping for a share of this pot had to make suitable NAMA commitments and to have such NAMA action subjected to external oversight and audit at least every two years.

One hundred and fourteen countries subsequently signed up to the Copenhagen Accord including the big four—China, the USA, Russia and India.

By the end of January 2010, 55 countries representing about 78 per cent of emissions from energy use had pledged GHG emissions cuts under the Copenhagen Accord. These included:

- Annex I
 - USA: a cut of 17 per cent by 2020 compared with 2005 levels;
 - Russia: a cut of 15–30 per cent by 2020 compared with 1990 levels; and
 - Europe: a cut of 20–30 per cent compared with 1990 levels, the larger cut being contingent upon appropriate action by the rest of the world.
- Non-Annex I
 - China: a voluntary cut of 40–45 per cent cut in *CO₂ per unit of GDP* by 2020 compared with 2005; and
 - India: a voluntary cut 20–25 per cent cut in *CO₂ per unit of GDP* by 2020 compared with 2005.

The Chinese and Indian cuts are cuts in the carbon intensity of economic growth, not in absolute emissions or in economic growth. This is a significant step forward, but makes no promises about actually delivering these relative cuts, ie there are no sanctions if targets are missed, and no provision for third-party measuring and verification of any action claimed. Chinese and Indian data on GHG emissions in 2005 and carbon intensity of GDP growth at that point in time was not available, so these pledges were not unnaturally treated with some suspicion. It is unlikely that the GCF would pay out without proof of action.

Progress with assembling the GCF has been slow. Ideas for the sourcing of funds have ranged from scrapping fuel subsidies, taxing emissions from aviation and shipping, hypothecating revenue from the auctioning of emissions allowances to industry under national cap-and-trade schemes, and imposing a levy on emissions allowance trading transactions. It has also been suggested that the larger developing countries be net contributors to the GCF, rather than net beneficiaries.

The Copenhagen Accord was a significant landmark on the road to a new international climate agreement, but there was evidently a long way to go.

The Cancun Agreements

The next major step was at the Cancun COP 16 in November/December 2010. Despite the fact that the UNFCCC did not ‘own’ the Copenhagen Accord, the Cancun meeting established the GCF as an operating entity of Article 11 of the UNFCCC, a financial mechanism, governed by a board and administered by a trustee. The World Bank was appointed as the interim trustee of the GCF, subject to a review three years after start-up of the operating phase of the fund. An independent secretariat was called for and further design work was delegated to a Transitional Committee.

The 2010–2012 fast-start finance of \$30 billion that was promised in the Copenhagen Accord was recognized formally in a call by the COP for ‘developed country Parties to

provide information on their efforts to achieve this goal and on how developing country Parties can access these resources'. As we approach the end of 2012 it remains difficult to establish how much, if any, of this fast start finance has actually been provided and how much is actually diverted money that was already ear-marked for international aid.

The Cancun Agreements also undertook to establish clear goals and a timetable for reducing GHGs to keep the global average temperature rise below 2°C and to consider by 2015 whether the objective actually needs to be 1.5°C. The communiqué contained many of the now familiar words about the need to:

- encourage the participation of all countries;
- ensure international transparency of the actions which are taken by countries;
- mobilize the development and transfer of clean technology for the best effect;
- coordinate an approach to adaptation to help vulnerable countries adapt;
- take concrete action on forests in developing nations. (Financing options to be addressed during 2011);
- build up global capacity, especially in developing countries; and
- establish effective institutions and systems to ensure successful implementation.

The Durban platform

The Durban COP 17 in November/December 2011 kept the negotiating ball in play by addressing the practical issue of what would be the consequences of not having a successor to the Kyoto Protocol in place for 1 January 2013.

While politicians have been negotiating, industry and individuals have been getting on with making green investment decisions. Many of these decisions were taken on the understanding that there would be a new and ongoing international climate agreement with caps that would create a demand for emissions allowances beyond 2012. As meeting after meeting has failed to spell out the shape of a new agreement, market participants, and in particular investors in projects, have become increasingly concerned about the security of their investments.

In the case of CDM projects, investments are evaluated in the light of certain 'additionality' criteria. These specify, among other things, that if a project will take place without the financial contribution made by the sale of CERs awarded to the project for reduced emissions compared with the business as usual scenario, then the project is not additional and cannot be registered as a CDM project. By definition then, all of the registered CDM projects require the forward stream of CER income to make them financially viable.

This raised the question of what would happen to those CDM projects to which CERs would no longer be awarded if the Kyoto Protocol ceased and the CDM Executive Board (EB) was wound up. Even if the CDM EB remained functional and continued to issue CERs, this would be of little comfort to CDM project investors if there were no ongoing caps that had to be honoured by country parties in part by buying CERs.

At Durban, 35–38 industrialized countries, excluding Russia, Japan and Canada, agreed a second commitment period of the Kyoto Protocol operating from 1 January 2013 to

31 December 2017 or 2020. It is envisaged that the Kyoto Protocol's accounting rules, mechanisms and markets will all remain in place during this period. The parties to this second period agreed to quantify economy-wide targets for review by the beginning of May 2012. Both Australia and New Zealand missed this deadline and said that they would consider developments in the run up to the next COP in December 2012 before taking a final decision. There remains a lack of clarity over exactly which industrialized countries have agreed to do precisely what during 2013–2017. Market participants assume that those countries that have agreed to do anything will simply roll forward the same level of cap from 2008 to 2012. But this is no more than an assumption requiring verification. This question will be discussed in detail in Doha, as indicated below.

Nevertheless, despite the shaky foundation of this extension agreement, it provided some comfort that the market for international allowances will not grind to a halt at the end of 2012.¹¹ The CDM will be reviewed in 2012 with the outcome of the review to be made public in September 2012. However, the future of the JI mechanism is in doubt after 2012, which has prompted Russia, the biggest JI host, to remove its self-imposed limit on JI projects and to approve as many as possible before the end of this year.

Arguably more importantly, if less immediately urgent, was the agreement at Durban to adopt a universal legal agreement on climate change as soon as possible, but no later than 2015, to take effect from 2020. An AWG on the Durban Platform for Enhanced Action (ADP) was set up to guide this effort. A reporting framework for both developed and developing countries was agreed. Governments agreed that the package to support developing nations agreed in Cancun would become fully operational in 2012. This included:

- the GCF;
- an Adaptation Committee to improve global coordination; and
- a Technology Mechanism.

Countries have already begun to pledge contributions to the start-up costs of the GCF and to help developing countries get ready to access the fund. A Standing Committee comprised of 20 members, populated equally by developed and developing countries, is planned to oversee climate finance.

The Durban COP called for the Adaptation Committee, composed of 16 members, to report on its efforts to improve the coordination of adaptation actions at a global scale. The adaptive capacities of the poorest and most vulnerable countries are to be strengthened. It is envisaged that National Adaptation Plans will allow developing countries to assess and reduce their vulnerability to climate change. The most vulnerable are to receive better protection against loss and damage caused by extreme weather events related to climate change.

It is envisaged that the Technology Mechanism will become fully operational in 2012. The full terms of reference for the operational arm of the Mechanism—the Climate

¹¹ In fact the accounting period for 2008–2012 compliance continues until 2015. Emitters have the ability to trade their way to compliance before then.

Technology Centre and Network—were agreed, along with a procedure to select the host. The other arm is the Technology Executive Committee.

Governments agreed a registry to record developing country mitigation actions that seek financial support and to match these with support. It is planned that the registry will be a flexible web-based platform. Governments agreed to develop a new market-based mechanism to assist developed countries in meeting part of their targets or commitments under the UNFCCC.

A substantial issue that was shelved at Durban for future consideration was the ‘banking’, or carry forward, of surplus allowances from the 2008–2012 period into any subsequent period that is agreed. As indicated above, the Kyoto market is vastly over-supplied by allowances with much of this surplus is in the hands of FSU countries, particularly Russia and the Ukraine. The Kyoto Rulebook¹² allows countries with a surplus to carry it forward with no restriction for use in the next commitment period.¹³ In Durban it was proposed that banking of surpluses be disallowed or limited.

Unsurprisingly, Russia was strongly opposed to any such measure. For example, Russia’s Copenhagen pledge to cut its emissions by 15–30 per cent relative to 1990 levels by 2020 could be achieved with little or no cut from current levels because of its 2008–2012 surplus. It is unlikely that China, the USA and India will sign up to any agreement that allows Russia the ‘free ride’ of using its surplus allowances to cover any future growth in its GHGs arising from economic development. It is equally unlikely that Russia will sign up to an agreement that removes this boon.

Rio + 20

It was against this complex political backdrop that the Rio + 20 meeting took place in June 2012. This was a meeting of the UN Conference on Sustainable Development (UNCSD), not of the UNFCCC, and it had no authority or infrastructure to address the Kyoto Protocol or its succeeding treaty. UNCSD had an agenda to address, among others, jobs, energy, sustainable cities, food security and sustainable agriculture, water, oceans and disaster readiness. Climate change mitigation and adaptation issues are interwoven throughout this agenda, but it was the wrong forum from which to expect new Annex I caps or a developing country NAMA programme.

The outcome document, ‘The Future We Want’, was put forward as the common vision of the heads of states and governments that are members of the United Nations, a group which includes China, the USA, Russia and India. The document was negotiated in advance of the meeting. There were three specific paragraphs, reproduced below, in the 53-page document addressing climate change. These do no more than endorse the need for climate change mitigation and adaptation and exhort UN parties to try harder. The lack of enforceability is illustrated by the fact that it urges parties to fully implement the Kyoto Protocol and this has been accepted by Canada, which has already withdrawn from the Kyoto Protocol.

¹² The Kyoto Protocol Reference Manual on Accounting of Emissions and Assigned Amount, s 7.6.

¹³ However, there are limits on the carry forward of the allowances arising from CDM and JI projects.

Climate change

190. We reaffirm that climate change is one of the greatest challenges of our time, and we express profound alarm that emissions of greenhouse gases continue to rise globally. We are deeply concerned that all countries, particularly developing countries, are vulnerable to the adverse impacts of climate change, and are already experiencing increased impacts, including persistent drought and extreme weather events, sea-level rise, coastal erosion and ocean acidification, further threatening food security and efforts to eradicate poverty and achieve sustainable development. In this regard we emphasize that adaptation to climate change represents an immediate and urgent global priority.

191. We underscore that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions. We recall that the United Nations Framework Convention on Climate Change provides that parties should protect the climate system for the benefit of present and future generations of humankind on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. We note with grave concern the significant gap between the aggregate effect of mitigation pledges by parties in terms of global annual emissions of greenhouse gases by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2° C, or 1.5° C above pre-industrial levels. We recognize the importance of mobilizing funding from a variety of sources, public and private, bilateral and multilateral, including innovative sources of finance, to support nationally appropriate mitigation actions, adaptation measures, technology development and transfer and capacity-building in developing countries. In this regard, we welcome the launching of the Green Climate Fund and call for its prompt operationalization so as to have an early and adequate replenishment process.

192. We urge parties to the United Nations Framework Convention on Climate Change and parties to the Kyoto Protocol to fully implement their commitments, as well as decisions adopted under those agreements. In this regard, we will build upon the progress achieved, including at the seventeenth session of the Conference of the Parties to the Convention and the seventh session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, held in Durban, South Africa, from 28 November to 9 December 2011.

Extract from 'The Future We Want' UNCSD, 22 June 2012

The next milestone is COP 18 that will take place in Doha from 26 November to 7 December 2012.

3. Doha COP 18—November/December 2012

On the agenda¹⁴ for decision in the Doha COP 18 are, amongst other items:

- whether the second commitment period of the Kyoto Protocol starting in 2013 will be for 5 or 8 years; and

¹⁴ <http://unfccc.int/files/press/press_releases_advisories/application/pdf/20120525_pr_sb6_close.pdf> accessed 19 September 2012.

- how to quantify the precise caps that have been agreed by those Annex B countries that sign up.

As mentioned above, Russia, Canada and Japan have opted out, and Australia and New Zealand have deferred a decision until the COP itself. If formalized in Doha, an agreement to extend the first commitment period will buy time for the ADP to frame a new 2020 global agreement by 2015 and to outline a plan of action for the period up to 2020.

The position of the big four—China, the USA, Russia and India—is crucial. These countries together accounted for 48 per cent of global emissions in 2005. None of these countries will be capped in the extended Kyoto agreement, but any agreement for 2020 onwards will have to include them or it will not succeed in its climate goals. If these four concoct an agreement amongst themselves it would be powerful, even if it does not happen within the UN negotiating framework and timetable.

China

It is in China's own best interests to grow using the cleanest available technology in order to be a successful economic force in the 21st century. Using its command-and-control power it is gradually cleaning up its economy by closing down old polluting plants. China has been the biggest beneficiary in the form of inward investment in clean technology under the Kyoto CDM. China's carbon intensity, ie its emissions per unit of GDP growth has declined markedly since 1990, as shown in Figure 3.

China is experimenting with a domestic cap-and-trade system. On 13 June 2012, the National Development and Reform Commission issued its 'Tentative Measures for the Administration of Voluntary Greenhouse Gases Emissions Reduction Trading'. It already has seven pilot schemes on the drawing board. It is thought that the first of these will commence in Shenzhen and Shanghai in 2013, followed by Beijing and Guangdong. Schemes in Chongqing, Hubei and Tianjin may follow. These are a prelude to China-wide fixed caps, and holds out the prospect of a scheme the size of which could make the European Emissions Trading Scheme (EU ETS) pale to insignificance. Two separate programmes, a limit on energy use and a direct energy consumption tax, are also planned for 2015.

The Chinese model could provide a lesson for other countries seeking to introduce domestic ETs. It envisages a scheme where different sectors or regions compete with each other to reduce carbon intensity. The winners and losers are potentially all Chinese¹⁵ so any transfer of money that occurs remains within the Chinese economy.

The USA

A large question mark continues to hang over any USA action. President Obama promised before his election in 2009 to 'Implement an economy-wide cap-and-trade program to reduce GHG emissions to the level recommended by top scientists to avoid

¹⁵ However, the June 2012 plan allows foreigners to trade in Chinese allowances to provide liquidity to the market.

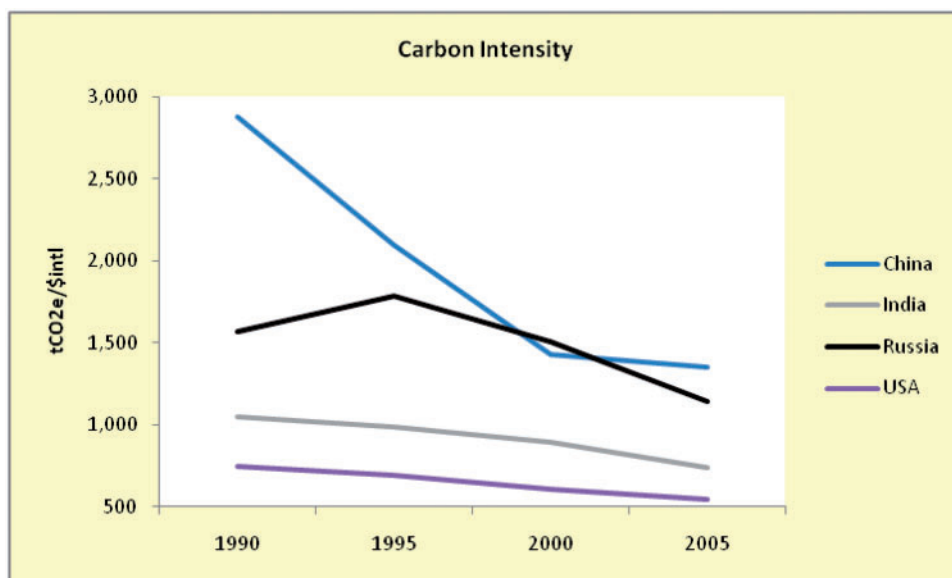


Figure 3. GHG emissions intensity (tCO₂e per \$1 million). *Source:* World Resources Institute.

calamitous impacts: 80 per cent below 1990 levels by 2050.¹⁶ Two attempts to deliver on this promise failed—the Waxman-Markey and the Kerry-Lieberman bills.

Climate change has not been high on the agenda in the current presidential campaign, which will go to a vote on 6 November 2012. Action is now focussed on the efforts of the Environmental Protection Agency (EPA), supported by Obama, which won on appeal an industry challenge to its ruling that GHGs are a danger to the public and it therefore has the right to regulate them. Republican candidate, Mitt Romney, is siding with the lobby to reduce the power of the EPA in this area.

Regional efforts in the USA are moving ahead independently of the Federal scheme deadlock, spearheaded by the Regional Greenhouse Gas Initiative, which began in 2009 and applies only to the power sector. California's Cap-and-Trade Regulation is expected to take effect at the beginning of 2013 and the Western Climate Initiative also has a tentative 2013 start date.

Russia

Russia's position on climate change was set down in the Presidential statement of its Climate Doctrine¹⁷ on 17th December 2009 (the Doctrine). This is an inwardly focussed document that says 'Political decisions on climate and regulations based on them should focus on the long-term interests of the Russian Federation'. The Doctrine stated that 'The

¹⁶ 'Barack Obama's Plan to Make America a Global Energy Leader', Obama 08, BarackObama.com.

¹⁷ Climate Doctrine of the Russian Federation, Presidential Statement, 17 December 2009 <<http://archive.kremlin.ru/eng/text/docs/2009/12/223509.shtml>> accessed 19 September 2012.

choice of economic instruments contributing to lower man-made greenhouse gas emissions (including the possible use of market mechanisms, such as emissions trading) will be determined on the basis of their effectiveness with the help of Government and private financing mechanisms.'

The Doctrine was adopted in a 'Comprehensive Plan for Implementing the Russian Federation's Climate Doctrine for the Period until 2020' by a government decree of 25 April 2011. The responsibility for considering and developing an internal emissions trade system, where greenhouse gas permits could be traded on the domestic market, is placed on the Ministry of Economic Development. No concrete action has emerged so far.

India

The Prime Minister of India announced the National Action Plan on Climate Change (NAPCC) in June 2008. NAPCC outlined eight national 'missions' for addressing sustainable development and climate change. As part of this initiative the National Mission for Enhanced Energy Efficiency is developing a 'Perform Achieve and Trade' (PAT) mechanism, aimed at rewarding energy efficiency in seven energy-intensive industrial sectors. Obligated entities are required to buy 'ESCCerts' from government auctions.

These ESCerts are intended to be fungible (interchangeable) with the permits used for compliance in India's second climate initiative, a Renewable Purchase Obligation mechanism applicable to the cement and steel sectors.

The first three-year compliance period of the PAT scheme was intended to be 2009–2012, but it remains to be seen if India had all the necessary Measurement, Reporting and Verification and ESCert registry mechanics in place for this to happen in practice.

Emissions trading around the world

Outside the big four countries, the cap-and-trade concept that lies at the heart of the Kyoto Protocol continues to spread.

- The EU ETS has been trading since 2005 but continues to grapple with a surplus of allowances, largely attributable to poorer economic performance since 2008, than was anticipated when caps were set. This has kept emissions allowance prices at levels too low to incentivize all but the least capital intensive clean technologies.
- The New Zealand ETS has been operating since 2008 and it too wrestles with low prices. The whole system is under review and this has delayed the application of the ETS to the agricultural sector, which accounts for 50 per cent of New Zealand's emissions.
- Australia introduced a carbon tax on 1 July 2012 as a precursor to an emissions trading scheme starting in 2015. This has become an election issue and the opposition party has stated its intention, if elected, to dismantle the scheme before it is even implemented.
- Japan, already short of emissions allowances, is struggling with the loss of nuclear power following the post-Fukushima shut downs. It is concentrating its climate change mitigation efforts on bilateral offset crediting schemes with mainly South

East Asian countries, although it has been experimenting with domestic voluntary cap-and-trade schemes since 2008.

- South Korea passed legislation on 2 May 2012 to introduce an economy-wide ETS in 2015.
- The state government of Rio de Janeiro had planned to launch its own state ETS at Rio + 20 to start in 2013, but gave in to industry lobbying and decided to delay the scheme.
- The World Bank Partnership for Market Readiness, a \$100-million initiative to jump start carbon markets in poor countries, has awarded grants to Chile, China, Colombia, Costa Rica, Indonesia, Mexico, Thailand, Turkey and Ukraine to help them launch pilot ETSs.

Any attempt to combat global warming at the international and national levels will inevitably be political: no matter how convinced are the negotiators that global warming is a serious issue that must be addressed urgently, few countries or political parties are prepared to go further and faster than their competitors for fear of losing their seat.

Arguably, the EU is the exception to this rule. The EU, led by France, Germany and the UK, has lobbied for deeper cuts because they recognize the economic necessity of being at the forefront of developing new technology. Attempts to gain consensus on a 30 per cent rather than 20 per cent reduction target for 2020 and to intervene in the market to boost current low prices have been blocked, primarily by Poland—a coal-based economy.

Ultimately, an international treaty will only be successful if it changes the behaviour of nations, companies and individuals. Those with foresight are already planning and investing for a low carbon future, but this is unlikely to be sufficient to achieve the objective of limiting global warming to 2°C.

There are two messages to take away from this article. First, watch China. It has the scale, the ambition and the political power to introduce a domestic cap-and-trade scheme with caps low enough to deliver high carbon prices. Secondly, don't expect too much from the Doha COP. Until the public is clamouring at political doors for meaningful action, any caps that are agreed are likely to be too high to mobilize sufficient investment in clean technology to please the scientists. But don't give up on Doha either. In the words of the 16th-century poet, Michael Drayton 'Now if thou wouldst, when all have given him over, From death to life thou mightst him yet recover'.