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Reaching an international agreement on climate change

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The Environmental Audit Committee

The Environmental Audit Committee is appointed by the House of Commons to consider to what extent the policies and programmes of government departments and non-departmental public bodies contribute to environmental protection and sustainable development; to audit their performance against such targets as may be set for them by Her Majesty's Ministers; and to report thereon to the House.

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The current staff of the Committee are: Gordon Clarke (Clerk); Sara Howe (Second Clerk); Richard Douglas (Committee Specialist); Oliver Bennett (Committee Specialist); Susan Monaghan (Committee Assistant); Stella Kin (Secretary); and Elizabeth Gardner (Sandwich Student)

Contacts

All correspondence should be addressed to The Clerk, Environmental Audit Committee, Committee Office, 7 Millbank, London SW1P 3JA. The telephone number for general inquiries is: 020 7219 6150; the Committee's e-mail address is: eacom@parliament.uk

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Summary

The agreement of the Bali roadmap was hailed as a defining moment in the global response to climate change. The roadmap charted a course for negotiations on a successor agreement to the Kyoto Protocol when it expires in 2012. However, although the roadmap recognised that developed countries will have to make deep cuts in emissions and that more needs to be done to help developing countries adapt to and mitigate climate change, there remain real and substantial uncertainties about the pace and eventual outcome of the negotiations.

A post-2012 agreement will only be a success if it is guided by the science, which warns us that developed countries must reduce emissions by 25-40% by 2020 and 80-95% by 2050. Given that these emission reductions only translate to a 50-50 chance of avoiding dangerous climate change the international community should aspire to even greater reductions. Although most developing countries are not required to reduce emissions, they will need to commit to certain actions that will limit the growth of and eventually stabilise their emissions. We believe that the targets for developed countries and commitment to actions by developing countries are the minimum that the UK and EU should accept in the negotiations.

Diplomacy will be key in helping to reach agreement on the effort required. As domestic politics will have an impact on the positions taken in the negotiations, diplomatic efforts should be directed at both governments and influential stakeholder groups in other countries. We welcome the greatly increased resources the Government has provided for climate change diplomacy and the priority now given to climate change by FCO. At the same time it is important that international negotiations do not get mired in problems about process.

The Government must take a subtle approach to the negotiations, particularly with respect to developing countries. It will have to work closely with them to explore the actions that they might be willing to commit to. The post-2012 agreement can be more flexible and creative than its predecessor in responding to the different needs of different countries. For example it might include energy efficiency or sectoral targets. Emission reduction targets for developing countries would not be equitable in all cases given historic emissions. All developing countries will need to commit to a range of actions, but those in which per capita GDP is growing quickly will need to commit to more robust measures. It is clear that substantial developed country financing will be required in order to shift developing countries onto a low-carbon path and also to encourage them to agree to mitigation actions. The Government will have to work hard to persuade developed countries to agree to the creation of effective funding mechanisms able to deliver the billions of pounds that will be required per year. Useful lessons can be learned from the experience of the CDM so far.

The UK Government has a credible voice in international negotiations. It is important that it does not undermine this position by supporting domestic policies that run counter to climate change objectives. An over-reliance on the use of international credits to meet domestic targets or watering down green initiatives in the face of a slowing economy could have this effect.

1 Introduction

1. The December 2007 UN Climate Change Conference in Bali, Indonesia, was hailed as a defining moment in the global response to climate change. It saw the agreement of a roadmap for negotiations on the next Kyoto commitment period starting in 2012. The roadmap recognised that all developed countries have to make deep cuts in emissions and that more has to be done to help developing countries adapt to climate change. However, the roadmap lacked clear goals or timetables and there remain real uncertainties about how the negotiations will progress.

2. We decided to examine the various challenges and opportunities that lie ahead. We found that certain key issues will have to be addressed in reaching an effective deal. These include:

- the level of effort required by Annex 1 countries;
- the degree of flexibility permissible in the agreement;
- the provision of funds for adaptation, mitigation and technology transfer to developing countries; and
- the need to get developing countries at different stages of development to accept different responsibilities.

3. In addition we also found that it would be important for the UK and EU to consolidate the role they play as leaders in the negotiations.

2 Avoiding dangerous climate change

Stabilisation targets

4. The Bali conference followed the latest report of the Intergovernmental Panel on Climate Change (IPCC). The IPCC gave its strongest indication yet that climate change is occurring as a result of greenhouse gas emissions resulting from human activity and found that current action was failing to reduce these emissions. It concluded that this would lead to mostly adverse impacts on humans and the environment, including some that could be abrupt and irreversible.[1]

5. The IPCC report indicates that if we are to have a good chance of avoiding dangerous climate change[2] global emissions would have to peak and start to decline by 2015, reducing globally by 50-85% in 2050 (from 2000 levels).[3] Annex 1 countries (developed countries as defined in the UN Framework Convention on Climate Change), would have to reduce

[1] Climate Change 2007: Synthesis Report, Summary for Policymakers, Intergovernmental Panel on Climate Change, 17 November 2007, www.ipcc.ch

[2] As defined by the EU, dangerous climate change is thought to occur at temperature increases greater than 2^0C. Stabilising atmospheric concentrations at 450 ppm CO_2-eq would give us a 50% chance of avoiding this.

[3] Working Group III Report "Mitigation of climate change", Intergovernmental Panel on Climate Change, 2007, www.ipcc.ch

emissions by 25-40% by 2020 and 80-95% by 2050 (see table 1).[4] Non-Annex 1, or developing, countries would in many cases still be permitted to increase their emissions, but at a slower rate. However, reducing emissions by these amounts might still only give us a 50% chance of avoiding dangerous climate change. Reducing these odds would require more stringent targets and earlier emissions reductions.

Table 1: The range of difference in emissions from 1990 for Annex 1 countries and non-Annex 1 countries under two atmospheric concentration stabilisation scenarios

Stabilisation scenario	Region	2020	2050
450 ppm CO2-eq	Annex 1	-25% to -40%	-80% to -95%
	Non-Annex 1	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
550 ppm CO2-eq	Annex 1	-10% to -30%	-40% to -90%
	Non-Annex 1	Deviation from baseline in Latin America, Middle East and East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East

Source: www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter13.pdf

The ranges presented are as a result of different assumptions as to the degree and apportioning of effort.

6. Jennifer Morgan from E3G told us that the IPCC 450 ppm CO_2-eq scenario provides a good starting point for negotiations, although more work needs to be done to improve confidence in the temperature implications of this concentration. She thought we should err on the side of caution and aim for more stringent reductions.[5] The UK and EU sought to get a range of figures in line with the 450 ppm scenario recognised in the Bali roadmap, but following opposition from a number of countries, including the US, Canada, Japan and Australia, these were not included. Nevertheless, they appear as a footnote in the roadmap and are included in the Kyoto Protocol work plan.[6]

7. **International negotiations must be guided by the best science we have available. This indicates that to give us a good chance of avoiding dangerous climate change, atmospheric concentrations of greenhouse gases should be stabilised at no more than 450 parts per million CO_2 equivalent. To make this happen developed countries, such as the UK, will be required to reduce emissions by some 25-40% by 2020 and 80-95% by 2050. Developing countries will have to limit their emission growth. Given that these reductions appear likely to only translate to a 50-50 chance of avoiding dangerous climate change the international community should aim for more stringent reductions.**

[4] Working Group III Report "Mitigation of climate change", Intergovernmental Panel on Climate Change, 2007, www.ipcc.ch

[5] Q62

[6] Ev 93

Sharing the load

8. Different frameworks have been proposed to help share the burden of emission reductions. One framework that has received a great deal of attention is contraction and convergence (C&C). Developed by the Global Commons Institute, this framework involves first the contraction of greenhouse gas emissions in line with targets which aim to avoid dangerous climate change, and then the convergence of future national limits on emissions based on a global emissions budget. National limits would be allocated on a per capita basis.

9. We asked witnesses whether C&C might be a sensible and equitable way to calculate emission targets. To our surprise it did not receive a ringing endorsement. Professor Burke thought that C&C could be an eventual outcome, but that the international community would not willingly and deliberately adopt it. He believes that trying to push any particular framework in the negotiations would cause problems. Other commentators have indicated that C&C might not be feasible as developing countries are likely to resist fixed and binding commitments—even if commitments would not apply for many years and even if there are short-term benefits to be gained by them. Developing countries fear that the adoption of C&C might constrain their growth in the future before they reach current industrialised country development levels.[7]

10. Under C&C some developing countries, such as India and Indonesia, might only be permitted to increase emissions intensities for a very limited period, after which time they would be required to reduce them. Other developing countries like Thailand and Venezuela, which have relatively high per capita emissions, would be required to reduce emissions immediately. However, it has been argued that that C&C could provide an equitable framework for a 'genuine long-term solution to climate change, reducing political risk and offering businesses and investors the sort of predictable framework they prefer'.[8]

11. Chris Dodwell, Defra's Head of International and EU Policy on Climate Change, told us that endorsing a particular framework for negotiation 'is the surest guarantee that we will not achieve it'.[9] He accepted, however, that without a framework to direct negotiations it would be difficult to secure a global scheme that delivered the degree of effort required. He pointed out that developing countries were now generating their own ideas about what they will be willing to do, and that it would be important to encourage them to develop these domestic plans and commit to them as part of an international agreement. The Government is calculating and modelling the aggregate impact of actions in other countries. It is assessing whether there are additional measures that could be taken, such as sectoral approaches.[10]

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[7] International Energy Agency, *Beyond Kyoto: Energy Dynamics and Climate Stabilisation* (Paris, 2002), p 112

[8] Kuntsi-Reunanen, J. Luukkanen, "Greenhouse gas emission reductions in the post-Kyoto period: Emission intensity changes required under the 'contraction and convergence' approach", *Natural Resources Forum,* 30 (4) (2006), pp 272-279

[9] Q175 [Mr Dodwell]

[10] Q175 [Mr Dodwell]

12. **We agree with the Government that it would not be right exclusively to press for contraction and convergence in current international negotiations, given the political difficulties that could be created. However, contraction and convergence should be used as a guide to the level of effort required by each country to avoid dangerous climate change. We are encouraged that the Government is modelling the impact of probable domestic commitments in other countries and that it is seeking to identify where further action might be achieved. It must find a way of ensuring this information is used to shape negotiations.**

13. **The post-2012 agreement will have to be nuanced in its approach. Absolute emission reduction targets, based on the IPCC scenario that leads to atmospheric concentrations of greenhouse gases not exceeding 450 parts per million CO_2 equivalent, will have to be adopted by developed countries. Developing countries will also have to play their role by adopting actions that will reduce their future emission trajectories.** We explore the likely actions in the next chapter.

14. **During these complicated negotiations it is critically important that our negotiators do not lose sight of the science of climate change. The 450 ppm CO_2-eq IPCC scenario, or the EU's two degree target, can not be traded-off. They represent the minimum that we can accept.**

3 The negotiations

Parallel processes

15. The complexity of the UN process will make it challenging to come to an agreement. In Australia we met Jan Adams, the Australian Ambassador for the Environment. She stressed the importance of engagement and dialogue outside the Kyoto process as such activities could provide an opportunity to reach a consensus that could then be brought within it. Phil Woolas MP, Minister of State, Defra, highlighted the benefits of two such parallel processes: the Major Economies Meetings (MEM) and the G8. He pointed out that the countries that attend the MEM constitute 80 per cent of global emissions, and that as informal process it could help to develop better understanding between countries. He believed that it was important that the MEM engaged prime ministers and presidents rather than just environment ministers.[11] He also told us that a US official had said that Bali would not have been possible without the G8 process. The G8 is hosted by Japan this year, and climate change is on its agenda. Those giving evidence to us were hopeful that this meeting would provide an excellent opportunity to engage with Japan over the need for mandatory emissions cuts, as well as giving the G8 the opportunity to discuss Japanese proposals, such as those on energy efficiency.[12]

16. A European Commission official agreed that parallel processes could be helpful, but argued that it was important not to become distracted by such meetings and to ensure that any declarations or conclusions from these processes lead to outcomes that moved the

[11] Q148

[12] Q69

whole UN debate forward.[13] Dr Müller cautioned that it would be important to avoid the temptation to agree a G8 position on actions needed by certain developing countries without giving them any say; otherwise the UN negotiations could be undermined.[14]

17. **Parallel processes such as the Major Economies Meeting and the G8 can be invaluable in moving forward the UN process for securing climate change mitigation measures. But the UN negotiations are key and any agreements or conclusions reached in parallel processes will only be helpful if they support the UN process. They should not prescribe a way forward for countries excluded from participating in them.**

Diplomacy

18. Using diplomacy to influence the domestic climate change debate in other countries might aid the UN process. Phil Woolas MP told us that the Government was aiming to do this.[15] Scott Wightman from the FCO argued that the negotiations currently did not have sufficient political momentum to deliver the result that the UK and EU would like, and the FCO was focusing on activities likely to change the political conditions in key countries in a way that would enable negotiations to proceed. In particular, they are seeking to reframe the economic debate.[16] He told us:

> We are engaged in a pretty systematic effort to map influence around climate policy in the key countries, understand who the key decision-makers are, how they are influenced and who influences them, which constituencies influence them and then we are trying to build alliances with those constituencies to try and exert leverage over the decision-making process in those countries. In some countries that means working with faith groups, in the US for example. In the case of Japan it means very much a focus on the Keidanren, the business organisation. It varies from country to country.[17]

19. The Minister argued that the diplomatic effort given over to climate change negotiations was unparalleled since the Second World War. He told us that they were currently doubling the number of people directly engaged with climate change in the FCO, that they were trebling the number of people that deal with this issue in overseas posts and that the programme resource for this issue was quadrupling.[18]

20. **We commend the FCO and Government's diplomatic efforts. It appears that this has helped to move forward the climate change debate in a number of countries. It has been particularly successful in reframing the economic debate surrounding climate change through its promotion of the findings of the Stern Review, as we discovered first-hand in China and Australia.**

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[13] Annex 2

[14] Q82 [Dr Müller]

[15] Q179 [Mr Woolas]

[16] Q154 [Mr Wightman]

[17] Q155

[18] Q167

21. Witnesses argued that changing the stance of many countries would require the engagement of business.[19] Professor Burke thought that an effective way to do this would be through the building of peer-to-peer links between businesses in the UK and elsewhere.[20] This appears sensible given the robust stance taken by the Corporate Leaders' Group on Climate Change (CLGCC). This group, comprising the leaders of 150 global companies, has called for a 'comprehensive, legally binding United Nations framework to tackle climate change' and said that 'in order to avoid dangerous climate change, the overall targets for emissions reduction must be guided primarily by science'.[21] It would appear as though the UK has already had some success in engaging with business overseas. A European Commission official told us that work by the FCO at promoting emissions trading as a response to climate change had contributed to increased business engagement in the US.[22]

22. **Diplomatic efforts must continue to target key stakeholder groups, in particular the business lobby. We recommend that the Government seek to build links between the UK business lobby and its counterparts overseas where this will contribute to moving forward the climate change debate. As part of this the Government should use Japan's presidency of the G8 as an opportunity to develop further the linkages between UK and Japanese business.**

23. The Chairman of the Sustainable Development Commission, Jonathan Porritt, recently raised concerns about the movement of resources in the FCO from sustainable development to climate change. He said that the 'Foreign Office's [sustainable development] team has been disbanded, resources axed, [sustainable development] attachés in embassies around the world have been told to focus exclusively on climate change, and the visible presence of [sustainable development] in the FCO has quite simply been eliminated'.[23] He further argued that climate change was simply one (albeit the most serious) of a number of environmental problems that need the attention of the FCO, and asked what will become of the 'excellent work' that the FCO used to do on sustainable tourism, biodiversity, forestry and other issues.[24] These concerns mirror those that we raised in our Fifth Report of Session 2006–07, in which we pointed out that the FCO needs to have the resources available to it to address those international environmental challenges where strong diplomacy will be part of the solution.[25] The links between climate change and sustainable development are such that they need to be tackled in concert rather than in isolation. For example, continued environmental degradation will make the impacts of climate change more severe and environmental degradation often contributes to the emission of greenhouse gases.

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[19] Q8

[20] Q69 [Professor Burke]

[21] "170 companies call on world leaders to tackle climate change", *Corporate Leaders Group on Climate Change*, 19 May 2008, princescharities.org

[22] Annex 2

[23] "Foreign Office Strategic Framework", *Jonathon Porritt*, 25 March 2008, www.jonathonporritt.com

[24] ibid

[25] Environmental Audit Committee, Fifth Report of Session 2006–07, *Trade, Development and Environment: The Role of FCO*, HC 289

24. **We welcome the increase in resources given over to climate change diplomacy, although it is not clear to us that these are additional rather than resources that have simply been diverted from sustainable development and other environmental work.**

25. **The loss of sustainable development from the FCO's strategic objectives is unwelcome. We are concerned that as a result there might be inadequate integration of sustainable development into climate change negotiations and therefore that any agreements might not be sustainable in the long-term.**

Key challenges for key players

The UK: leadership

26. We have found in a number of reports that UK influence in climate change negotiations has to a large part been determined by how the Government has pursued its own domestic policies on climate change.[26] We concluded that the UK must meet its domestic commitments on greenhouse gas emissions to demonstrate leadership.[27]

27. The theme of leadership has arisen during this inquiry. Witnesses argued that the Government needed to do more to align domestic policy with its international aspirations. Professor Burke argued that the Government needs to start taking difficult decisions. One policy that he believes could be an exemplar of this might be making the approval of Kingsnorth coal-fired power station conditional on carbon capture and storage (CCS) being installed when it is available. Such a decision would 'transform the politics of climate change very considerably'.[28] Others believed that the Government should demonstrate leadership by supporting the hypothecation of a percentage of EU ETS auction revenues for adaptation and mitigation in developing countries, and that such a policy would help negotiations. The UK Government has objected to such hypothecation.[29]

28. It would appear that UK domestic climate change policies have started to garner international criticism. The annual UN Human Development Report included a critique of UK action on climate change. It described the Climate Change Bill as 'bold and innovative', but argued that there were 'serious questions' about the UK's level of ambition both because the 60% target was not consistent with avoiding dangerous climate change, and because the framework failed to include aviation and shipping. It also questioned the UK's capacity to meet its own carbon reduction targets; over recent years emissions from the energy and transport sectors have increased and emissions from industry and the domestic sectors have not changed significantly. It concluded that if the rest of the developed world followed the UK's example, global temperatures would increase by up to 5°C—far in excess of the 2°C currently thought to be the safe limit. It argued that meeting the (possibly inadequate) 2020 target of 26-32% would take 'radical new policies' across the economy.[30]

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[26] Environmental Audit Committee, First Special Report of Session 2007–08, *Government Response to the Committee's Ninth Report of Session 2006–07: The structure of Government and the challenge of climate change*, HC 276

[27] Environmental Audit Committee, Fifth Report of Session 2006–07, *Trade, Development and Environment: The Role of FCO*, HC 289

[28] Q61 [Professor Burke]

[29] Annex 2

[30] UN Development Programme, *Human Development Report 2007–2008* (New York, 2007), hdr.undp.org/en/

As the use of coal is increasing in the UK, the report recommended that 'regulatory mechanisms could be deployed to initiate the rapid retirement of highly polluting plants, with a commitment to the accelerated introduction of zero-emission coal plants'. It also pointed out that the UK 'lags far behind best European Union practice on renewable energy: it currently produces only 2 percent of its overall energy from renewables'.[31]

29. We asked the Minister whether he accepted that adopting policies that appear to contradict the need for radical action on climate change, such as airport expansion or the construction of a new coal-fired power station, might hinder efforts to persuade other countries to take urgent action. He accepted that this might be the case, and recognised that having an exemplar 'obviously strengthens our hand'.[32] With regard to Kingsnorth, the Government was trying to define what it would mean for a power station to be 'carbon capture ready', and pointed out that it would be difficult to apply CCS planning conditions on a power station without knowledge of how the technology will eventually work.[33] The Government plans to have a demonstration plant in place by 2014. Lynn Sheppard from the European Commission told us that although the technology is not particularly novel, it would be difficult to bring CCS further forward than 2014 due to certain technological issues.[34] The Environmental Audit Committee is conducting an inquiry into CCS in order to shed some more light on this issue.

30. **It is clear that we need to display greater commitment to tackling climate change domestically if we are to have a credible voice in international climate change negotiations. The leadership demonstrated in the commissioning of the Stern Review and bringing forward the Climate Change Bill is in danger of being undermined by policies such as airport expansion plans or an over-reliance on international credits in meeting domestic emission reduction commitments.**

31. **The government should take steps to minimise the impact of domestic policies that run counter to climate change objectives. For example, the Government should reappraise its policies on airport expansion. The Government should also demonstrate leadership by reconsidering its opposition to the hypothecation of EU ETS auction revenues for climate change mitigation and adaptation in the EU and in developing countries. Failing this, the Government must explain why it opposes hypothecation.**

The EU

32. To avoid dangerous climate change, developed countries will be required to reduce emissions by 25-40% by 2020. However, the EU has adopted a unilateral target of 20% by 2020. This target is inadequate and contradicts the EU negotiating position at the Bali conference. **Although the EU has said that it will increase its target to 30% if a successful international agreement is reached, it has undermined its negotiating position and displayed poor leadership by failing to base its unilateral target on the science. The**

[31] ibid

[32] Q183

[33] Q183

[34] Annex 2

Government should press for the unilateral target to be increased to at least 25% by 2020. The final target agreed might be more than 30% by 2020.

33. The European Union's approach to carbon leakage could undermine its negotiating position prior to the conclusion of the UN process. Carbon leakage is the term given to the movement of production from countries with greenhouse gas controls to countries with less stringent regulation, due to the difference in production costs. Such an outcome could be bad for the economy of countries with greenhouse gas emission controls, and it might even result in an increase in greenhouse gas emissions overall if production moves to countries with less efficient technology. In our Second Report of Session 2006–07 we found three ways in which carbon leakage might be addressed:

- increasing the number of abating countries;
- border adjustment taxes; and
- excusing certain industries from environmental protection measures.[35]

34. Border adjustment taxes create political difficulties as they could damage international relations[36] and, if set at the wrong level, might be used for protectionist reasons.[37] Excusing industry from environmental protection measures (such as by the free allocation of emission trading scheme credits) might be the politically convenient response to carbon leakage, but it creates its own problems. It fails to generate the incentives required to improve efficiency in those sectors and fails to make polluters pay for their environmental damage.[38] The most effective response to this issue would be to increase the number of abating countries, ideally through a comprehensive international agreement in which there is a global carbon price. Failing this, the second best solution would be sectoral agreements in the form of agreements between countries to apply the same carbon price to sectors at risk of carbon leakage.[39]

35. Taking a decision now about how to address carbon leakage could affect the outcome of the UN negotiations. For example, should free allocations be confirmed as the EU response, there would be less pressure on non-EU countries to agree to the sectoral agreements that could provide a more effective solution. It is therefore of concern that the European Council has called for carbon leakage measures to be included in the new ETS Directive by 2009, prior to the culmination of UN negotiations.[40]

36. **The optimal approach to carbon leakage is to maximise the number of abating countries, either though a comprehensive international mitigation agreement or through sectoral agreements. We accept that reaching such agreements might be**

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[35] Environmental Audit Committee, Second Report of Session 2006–07, *The EU Emissions Trading Scheme: Lessons for the Future*, HC 70

[36] EV 57

[37] "EU warned of trade war over climate measures", *EurActiv.com*, 28 January 2008, www.euractiv.com

[38] "Questions and Answers on the Commission's proposal to revise the EU Emissions Trading System", *Europa*, 23 January 2008, europa.eu

[39] "Garnaut Climate Change Review: Interim Report", *Garnaut Climate Change Review*, February 2008, www.garnautreview.org.au

[40] European Council Presidency Conclusions No. 7652/1/08

challenging and recognise that other policies might be required to address carbon leakage, such as a border adjustment tax. However, the Government should ensure that the EU does not take a decision on carbon leakage measures prior to the completion of the UN negotiations. Such a decision might hinder the agreement of a more satisfactory post-2012 outcome.

Developed countries

37. Dr Müller explained to us that towards the end of the Bali conference there came a point where developing countries only agreed to measurable, reportable and verifiable (MRV) mitigation actions if they were mirrored by MRV financing and technology transfer from developed countries.[41] **A key challenge for Annex 1 countries will be finding the resources required to help developing countries to adapt to and mitigate climate change. Developing countries will not take on commitments if developed countries do not offer substantial binding commitments to financing and technology transfer.** We explore the level of funding required and how it might be delivered in the next chapter.

Developing countries

38. Non-Annex 1 countries (predominantly the developing countries) will necessarily need to undertake some form of mitigation if we are to avoid dangerous climate change. Even if developed countries' emissions reduced to zero, the predicted developing country emission increases alone would be enough to exceed a 2 or 3°C increase.[42] Emissions are also growing fastest in the developing world, with China now being the largest emitter of CO_2 from fossil fuel use. India is thought soon to become the third largest emitter. When all greenhouse gas sources are counted (such as those from land use change), India, Indonesia and Brazil are among the five largest emitters.[43] Cédric Philibert argued that developing countries will also have to participate in mitigation as the US was 'unlikely to accept a significant effort to cut emissions if major developing countries do not take part as well'.[44]

39. It should not be forgotten that climate change is likely to have particularly severe consequences for developing countries. The UN Human Development Report recently concluded that 'failure to respond to [climate change] will stall and then reverse international efforts to reduce poverty'. [45] It went on that the poorest countries and the poorest people are the most vulnerable to climate change and that they will suffer the earliest and most damaging impacts.

40. One of the key challenges for Non-Annex 1 countries is how they should take into account their diversity. These countries range from the larger industrialising nations such as China and India, to the Least Developed Countries such as Angola and Cambodia, to nations that have similar levels of GDP per capita as Annex 1 countries such as Singapore

[41] Q73

[42] Q142

[43] Ev 5

[44] ibid

[45] UN Development Programme, *Human Development Report 2007–2008* (New York, 2007), hdr.undp.org/en/

and the United Arab Emirates. E3G argued that any equitable post-2012 agreement will need to take into account these differences on the basis of historic responsibility for emissions and a country's capacity and potential to mitigate. These differences would then be reflected in the degree of action taken by each country.[46] Jennifer Morgan thought that four country groups could be developed, each one of which would adopt different policy responses: poorest countries excluded from new commitments; advanced developing countries required to begin reducing emissions; newly industrialising countries that would accept non-binding targets to encourage the reduction of emissions; and, developed industrialised countries with commitments to absolute emission reductions.[47] Cédric Philibert also recognised the need to differentiate between countries, and suggested that this could be done on the basis of per capita GDP. Like Ms Morgan, he thought that different policy responses would be adopted by each new group, such as non-binding targets, sectoral agreements and indexed targets. The more wealthy the country the more stringent their commitments would be.[48]

41. We were cautioned by a range of witnesses that our negotiators had to be very careful when discussing new country groups. Dr Müller said that we should not try to impose differentiated treatment otherwise it would not happen.[49] Chris Dodwell, Head of International and EU Policy on Climate Change, Defra, made a similar point to us. He thought that it would be important to enter into a dialogue with these countries to explore what they might be willing to do.[50] **In order to facilitate negotiations the Government and EU should work closely with developing countries to explore mitigation options in a cooperative fashion without prejudice. The actions to be adopted by developing countries should be allowed to grow out of dialogue. The actions will vary according to the individual circumstances of each country but might extend to policy measures, sectoral agreements, or non-binding targets. The FCO and Government have a lot of work to do in relation to this nuanced diplomacy.**

42. Dr Müller pointed out that the Clean Development Mechanism (CDM) could help in transferring measurable, reportable and verifiable (MRV) funds to developing countries to pay for mitigation.[51] He told us that some developing countries believe that there should be an explicit link between MRV action and MRV financing, i.e. that developing countries should only mitigate when it is directly funded by developed countries. Damien Meadows, from the European Commission, said that CDM had to be an incentive for developing countries to join an international agreement—but that they would also have to undertake some mitigation work themselves. This indicates a possible area of conflict between the Commission and some developing countries. It might be argued that this developing country stance is not in the spirit of the UNFCCC, which states that non-Annex 1 countries have 'common but differentiated responsibilities' to protect the climate system. As part of these they are required to have regard to climate change in the development of a

[46] Ev 29

[47] Ev 32

[48] Ev 7

[49] Q82 [Dr Müller]

[50] Q175 [Mr Dodwell]

[51] Ev 48

range of their policies, and to develop national climate change programmes.[52] Differentiated responsibility is not no responsibility.

43. There might be ways to address this divide. For example, MRV financing could avoid funding win-win projects or policies in which climate mitigation might have substantial domestic energy security or pollution control benefits. In such cases the developing country might be expected to undertake this work itself, albeit with assistance. To ensure that action is taken in these areas global targets could be adopted. Japan's Prime Minister, Yasuo Fukuda, recently called for such a target—to improve energy efficiency across the globe by 30% by 2020.[53] The European Commission has already proposed that the EU adopts a 20% increase in energy efficiency by 2020.[54]

44. **Although there will be a link between measurable, reportable and verifiable action in developing countries and measurable, reportable and verifiable financing by developed countries, non-funded action will still have to be taken by developing countries if climate change is to be addressed. In addition, some developed countries are unlikely to agree to a Convention that does not require some non-financed action by developing countries.**

45. **The Government should explore with developing countries opportunities for mitigation activities that might not directly be funded by developed countries. Key to this will be the stressing of the substantial co-benefits of certain climate policies in relation to energy security or pollution control. Such non-funded activities could be stimulated using global agreements such as the energy efficiency target proposed by Japan. Nevertheless, it is clear that substantial developed country financing will be required in order to help shift developing countries onto a low-carbon path.** We discuss financing in later chapters.

China

46. Climate change action in China provides an insight to what commitments might be adopted by non-Annex 1 countries as part of a post-2012 agreement. We found that China recognises the need to address its greenhouse gas emissions. We met officials from a range of governmental levels in China and each stressed the need for mitigation of greenhouse gases. They all expressed concern about the impacts of climate change on China. In addition to climate change, China is also facing energy security and supply problems, making it imperative for it not only to secure new sources of energy but also drastically to increase energy efficiency. It also faces extensive and economically damaging pollution.

47. These challenges and concerns have led to the development of China's National Climate Change Programme and a raft of policy measures. On our recent visit to China, Mr Rubai Mao, Chairman of the Environment and Resources Protection Committee of the National People's Congress, told us that there had already been significant achievements in reducing China's climate change impact. He said that by restructuring the economy and

[52] UN Framework Convention on Climate Change, *Essential background*, 2008, unfccc.int

[53] "Japan wants change to 1990 emissions baseline", *Industry Week*, 28 January 2008, www.industryweek.com

[54] European Council Presidency Conclusions No. 7224/1/07

improving energy efficiency, China had avoided the emission of 1,800 Mt CO_2 between 1990 to 2005. He also told us that their current 5 year plan includes a policy to reduce energy consumption by 20% per GDP unit from 2006–2010. Mr Xu Huaqing, Director of the Centre for Energy, Environment and Climate Change, pointed out that there had been problems but also real successes in reducing emissions per GDP unit. Such emissions had declined by 50% between 1990–2006. China, we were told, is pressing forward with energy efficiency measures by targeting business and industry through the introduction of energy efficiency benchmarks, improved monitoring and increased accountability at the local level.

48. Under the current five year plan China is closing many inefficient coal-fired power stations. We were told that new power stations were built to higher standards, used better technologies and were more efficient than those that were closed. One built last year used some of the most advanced and efficient coal technology available.

49. China also claims to be focused on increasing the use of renewables. Mr Mao told us that renewables currently supply 8% of China's energy. There was 1.29 million KW in 2005 and 6 million KW in 2007. If these figures are accurate they indicate that China has more installed renewable energy than the UK.[55] The Chinese government is aiming for renewables to supply 10% of primary energy in 2010 and 20% in 2020. The 2020 target is more ambitious than the UK's.

50. Economic growth remains the Chinese government's over-riding domestic priority. Although it is tackling greenhouse gas emissions it perceives mandatory limits on greenhouse gases as being a threat to growth. It is therefore unlikely to be willing at this stage to adopt either a cap on emissions or measures that it fears might slow economic growth. An official that we spoke to in China told us that they do not expect China's per capita emissions to stabilise until 2030, but that it will reduce unit GDP emissions. This emission increase is not necessarily incompatible with avoiding dangerous climate change. What is key is that China's emissions must be significantly less than they would otherwise have been. Therefore, technology and effective policies to change the emissions trajectory of China will be critical.

51. **The domestic actions taken by China give an indication of what actions a number of developing countries might be willing to commit to as part of an international agreement. The Government should ensure that China is aware of how it could use its position in the negotiations to ensure a better outcome. If China were to adopt international targets as part of a post-2012 agreement on the basis of its existing domestic targets, it would be an extremely provocative move that could give real impetus to the negotiations. We are hopeful that, given its extensive climate change programme, China will do this.**

[55] "UK wind power reaches milestone", *BBC News Online*, 9 February 2007, news.bbc.co.uk

4 Kyoto instruments

Adaptation and mitigation funding

52. Given the likely impacts of climate change, substantial funding will be required to help developing countries to lower their emissions and adapt to the change that the world is already committed to. As described earlier, such funding will make or break a global deal. Adaptation costs alone will run to some $86 billion by 2015. With mitigation costs as well a total of $155 billion will be needed per year. [56] Although these are vast sums of money, they should be put into perspective. $155 billion is less than 0.5% of developed countries' GDP.[57] Existing adaptation funding mechanisms have only delivered $26 million so far—this is around the same amount that the UK spends on flood defence each week.[58]

53. The difficulties involved with ensuring the delivery of such sums are made apparent when they are considered alongside Official Development Assistance (ODA). A commitment to give 0.7% developed country GNI as aid to developing countries has been in place since the 1970s. It has not been delivered. The UK provided 0.56% in 2007,[59] up from 0.26% in 1997.[60] At Gleneagles the G8 committed itself to increase aid by $50bn by 2010, but this only translated into 0.36% of the GNI of the G8—approximately half of the 1970 target.[61] The UN recently commented that the signs regarding the delivery of aid commitments are 'not encouraging' and that aid has actually decreased since 2006.[62] It should also be remembered that the levels of climate change funding described above would have to be in addition to currently committed ODA.

54. Under the UNFCCC and Kyoto Protocol, $26 million is currently available each year for adaptation work in developing countries. Dr Huq told us that these would not deliver the scale of action required.[63] He argued that it will be important to agree new and innovative funding mechanisms able to generate regular and large sources of capital. He pointed to the Adaptation Fund of the Kyoto Protocol as an example of such an innovative funding mechanism. As it draws money from a 2% levy placed upon CDM credits it is essentially a global tax on an international transaction, and the tax is held by an international fund rather than going into national treasuries. This fund might generate US$160-950 million by 2012, depending of the degree of trade and the costs of transactions. Jennifer Morgan told us that deeper emissions cuts in developed countries could mobilise increased CDM credits. She pointed out that an advantage of using the international carbon market is that much of this investment comes from the private sector.

[56] Ev 36

[57] UN Development Programme, *Human Development Report 2007–2008* (New York, 2007), hdr.undp.org/en/

[58] ibid

[59] "Keeping promises to the world's poor", *Department for International Development*, 9 October 2007, www.dfid.gov.uk

[60] Department for International Development, *Statistics on international development 1998/99–2002/03*, October 2003

[61] "Gleneagles: What really happened at the G8 summit?", *Oxfam*, July 2005, www.oxfam.org.uk

[62] UN Development Programme, *Human Development Report 2007–2008* (New York, 2007), hdr.undp.org/en/

[63] Ev 10

However, she also made it clear that the international carbon market alone will not provide the necessary funding.[64]

55. Given the size of the shortfall, there is a need for further funding sources. One potential source could be the partial auctioning of international emissions credits rather than their free allocation as at present. Jennifer Morgan told us that $150 billion per year could be generated if 40% of emissions credits were auctioned at 30 to 40 $/ton, thereby generating enough money for both adaptation and mitigation in developing countries. An alternative to auctioning at an international level could be the use of revenues raised from auctioning within emissions trading schemes. The UN Human Development Report calculated that an adaptation levy set at US$3/tonne CO_2 on the EU ETS to 2012 would raise US$570 million.[65] Another source could be through direct taxation. It is claimed that an international aviation levy of 5 euros per ticket could generate 10 billion euros per year.[66] Another source of funding could be from the potential border adjustment taxes that might be introduced to protect domestic industries at risk of carbon leakage. The hypothecation of such revenues might make the introduction of such a tax more politically acceptable.

56. The Minister thought that 85% of the money required would have to come from the private sector. He also thought 'funding should be multilateral; that recipient countries should have a major say; that the World Bank should be a major conduit, if not the major conduit'.[67] Chris Dodwell told us that the Office of Climate Change had been charged to undertake a project looking at 'ways of meeting this gap—[…] looking at the costs and benefits of auctioning, versus ODA, versus other forms of finance'.[68] He said that through the Strategic Climate Fund they would work with the World Bank and others to pilot some different approaches and 'actually try to work out how you can best get the right blend of public and private finance into solving the problem'.[69]

57. **The scale of funds required for adaptation and mitigation in developing countries might run to some US $150 billion each year by 2015. Given past failures to meet commitments on Official Development Assistance it is unlikely that conventional funding sources will deliver the funds required. Existing mechanisms such as the international carbon market are also unlikely to be able to mobilise the scale of funds required. The Government has commissioned work to identify appropriate funding mechanisms. We welcome this and urge that the work should be published at the Government's earliest opportunity.**

Technology transfer

58. As we found during our visit to China, technology transfer is a top priority for developing countries. An agreement on this will be required if we are to secure a successful

[64] Ev 35

[65] UN Development Programme, *Human Development Report 2007–2008* (New York, 2007), hdr.undp.org/en/

[66] Benito Muller & Cameron Hepburn, "IATAL—An outline proposal for an International Air Travel Adaptation Levy", *Oxford Institute for Energy Studies*, October 2006

[67] Q190

[68] Q194 [Mr Dodwell]

[69] Q194 [Mr Dodwell]

conclusion to the negotiations However, there appears to be confusion about what technology transfer means. Dr Müller described it as a 'euphemism which can be used by both sides to talk to each other thinking that they… agree', but in actual fact 'in the north we mean exports and in the south we mean gifts'.[70] He said that given the significance placed upon this issue by developing countries it would be best to let them decide what they would like in this regard.

59. Some developing countries have argued that intellectual property rights (IPR) are a barrier to the diffusion and transfer of low-carbon technology. However, Mr David Hone, Group Climate Change Adviser for Shell International, described such concerns as a 'red herring'.[71] He argued that technology is already successfully deployed around the world—from computers to mobile phones, and that companies will develop links with developing countries, especially those where they wish to produce their goods. He could not think of concrete examples of technology that needed to be transferred.[72] Professor Burke agreed, and pointed out that wind technology was being deployed quickly in developing countries and that it was likely that other renewable energy technologies, such as photovoltaics, were going to be built in China and India for the same reasons that other goods were produced there. He cautioned that there might be demands for certain technologies, such as nuclear, or even technologies that might not necessarily have anything to do with climate change.[73] Dr Müller pointed out that CDM projects involve the transfer of technology and that other mechanisms do the same, such as bilateral agreements.

60. We asked a number of Chinese officials about technology transfer. There was a general view that more advanced technology is required to reduce emissions. Yu Qungtai, Chinese Ambassador and Special Representative on Climate Change Talks, told us that they do not possess the most efficient technologies and urged western governments not to turn climate change into a money-making exercise. He told us that China was not looking for charity or gifts, but was instead looking for companies to make technologies more affordable and available. Yu Qungtai said he was encouraged by the UK Government's stance on technology transfer. He welcomed the agreement made between the Prime Minister and the Chinese Premier in January 2008. Chinese officials were hopeful that this would lead to closer working on clean coal technology, carbon capture and storage, capacity building, environmental technologies, wider research and development, and also public awareness strategies. However, a note of caution was raised by Xu Huaqing, Director of the Centre for Energy, Environment and Climate Change, who told us that in the past there had been a failure to ensure that bilateral agreements resulted in the diffusion of technologies across the country.

61. E3G also stressed the importance of technology diffusion.[74] It said that the establishment of Low-Carbon Economic Zones between the EU and China could facilitate the required technological diffusion and also provide 'testing grounds' for low-carbon

[70] Q96 [Dr Müller]

[71] Q55 [Mr Hone]

[72] Q56

[73] Q96 [Professor Burke]

[74] Ev 29

policies.[75] This option was also put forward by Chatham House in a recent report, which concluded that the common interest of the EU and China in a low carbon future could mean that, working together, these countries could become the 'global powerhouse' of low-carbon innovation.[76] It recommended the creation of Low-Carbon Economic Zones as a way to focus EU energy and climate cooperation with China 'to demonstrate the real possibility of large-scale transformations to other regions and countries'.[77] Chatham House also recommended trade reforms involving joint agreements on the energy efficiency of goods and also an agreement on free trade in low-carbon products. In our Eleventh Report of Session 2005–06 we recommended action on the removal of trade barriers to environmental goods and services. Bilateral agreements would seem to be a way to take this forward.

62. **There appears to be a widespread perception in developing countries that they are missing out on certain key technologies due to the expense of intellectual property rights. This view has not been supported by the evidence that we received. However, given the significance of this issue for developing countries the Government is right to allow them to develop their own proposals.**

63. **Low carbon technologies will have to be deployed in developing countries. To facilitate this, technology transfer will need to include the direct funding of projects through mechanisms like the Clean Development Mechanism, as well as bilateral work on research and development. We welcome UK-China and EU-China commitments to closer working in relation to climate change, environmental technologies and research and development. It is critically important that these lead to advances in the deployment and diffusion of low-carbon technologies. Parties should explore the concept of Low-Carbon Economic Zones as a way to focus joint-working opportunities. In addition the Government and EU must seek to establish bilateral, low-carbon, free trade agreements, and also to define stringent joint standards for energy efficient goods. In order to aid the diffusion of low-carbon technology globally, trade barriers to low-carbon goods and services must be removed; efforts must continue on this issue in the Doha trade round.**

International credits

64. The Kyoto Protocol created three 'flexibility mechanisms' in order to lower the overall cost of reducing greenhouse gas emissions: the Clean Development Mechanism (CDM); Joint Implementation; and emissions trading. These mechanisms enable countries to access opportunities to reduce emissions in other countries where it might be cheaper to do so.[78] Damien Meadows explained that a significant benefit of the CDM has been that it has engaged some 150 developing countries in the international carbon trade.[79] Dr Müller said

[75] Q71

[76] Bernice Lee, Antony Froggatt et al, "Changing Climates: Interdependencies on Energy and Climate Security for China and Europe", *Chatham House*, November 2007

[77] "China and EU could lead the low-carbon economy", *chinadialogue.net*, 22 November 2007, www.chinadialogue.net

[78] "The Mechanisms under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation", *UNFCCC*, May 2008, unfccc.int

[79] Annex 2

that the CDM might have helped to pave the way for action in developing countries. He thought that as the CDM was now trusted by developing countries it might be used to encourage them to take further action.[80] Flexible mechanisms lower the incentive for developing countries to free-ride as non-participants would not have access to the funding that they provide.

65. Nevertheless, CDM credits can cause problems. To begin with, credits have to be proven to be 'additional' i.e. that a project would not have gone ahead without flexible mechanism funding. There have been concerns about the true additionality and sustainability of certain projects[81]—although witnesses to this inquiry thought that the robustness of CDM rules lowered this risk. There is also a fear that permitting the use of too many international credits in the EU might mean that the necessary action and investment does not take place domestically. For example, it could undermine investment in renewables making it more expensive to deliver the renewables targets.[82]

66. Recent European Commission proposals have sought to limit CDM credit use within the EU ETS. In order to balance the risk that use of CDM credits would undermine domestic efforts, and to ensure that the cost of compliance was not too high, it proposed that no new credits should be permitted in the third emissions trading period. Instead, credits can be carried over from the second period. As the second period allocation was so generous this equates to more than a third of the total reduction effort by 2020 within the EU ETS.[83] A Commission official told us that there had been pressure to both increase the proportion of credits that could be used in the scheme, [84] and also pressure from NGOs to ban the use of these credits.[85]

67. The Minister indicated to us that the Government might be happy for a greater proportion of international credits to be used than has been proposed by the European Commission. He argued that it makes little difference where emissions are reduced and that credits generate useful investment in developing countries. He would be happy for a significant proportion of Britain's commitment to be met internationally, although he accepted the need for 'balance'.

68. We are concerned by this view. As we noted in our Second Report of Session 2006–07, the Government's 'endorsement of and reliance on making up shortfalls in… national targets by buying carbon credits from other countries' is not consistent with the fact that substantial emissions cuts in developed countries are required alongside challenging caps on emission growth in developing countries.[86] We argued that developed country reliance on overseas credits could mean that global emissions will not actually be reduced. We felt also that the Government must face up to the fact that 'ultimately neither the UK, nor any

[80] Q71 [Dr Müller]

[81] Annex 2

[82] Annex 2

[83] Annex 2

[84] Annex 2

[85] NGOs argue that such credits should only be permitted in the ETS if the overall emissions reduction target increases to 30%

[86] Environmental Audit Committee, Second Report of Session 2006–07, *The EU Emissions Trading Scheme: Lessons for the Future*, HC 70

country, nor any industry, can simply buy its way out of meeting its carbon commitments'. Further to this, in our Seventh Report of Session 2006–07, we said that we had concerns about 'the practical feasibility of relying… on finding significant volumes of surplus carbon credits to buy from other countries, when all nations will surely find it very challenging to meet their domestic emissions targets for 2050 under any post-2012 regime'.[87]

69. **We urge caution about the use of international carbon credits. The argument that a tonne of carbon reduced abroad is the same as a tonne of carbon reduced at home is an over-simplification of a complex issue. Permitting the use of too many international credits will drive down the cost of carbon, but this will also make renewables and air pollution targets more expensive to reach and potentially slow down the long-term shift to a low-carbon economy in the UK.**

70. **The Minister argued that the market in flexible mechanisms will help to provide investment in developing countries. We accept this but we caution that current flexible mechanisms will only provide a proportion of the funds required for mitigation and adaptation in developing countries. The post-2012 negotiations will have to identify additional sources of money to supply the tens of billions of pounds that will be required.**

71. **Nevertheless, we feel that there is still a role for flexible mechanisms in transferring funds and technology to developing countries. They will also provide a 'carrot' to developing countries to play their part in a post-2012 agreement. We agree with the European Commission that the current level of credits proposed to be permitted in the EU ETS should not be expanded further under current emission reduction targets. Only when the EU adopts a target of at least 30% by 2020 could their use be increased, and only to a level that does not undermine the carbon price in the EU.**

CDM reform

72. Benito Müller argued that developing countries should be rewarded through the CDM for implementing policies that reduce emissions below business as usual.[88] Jennifer Morgan agreed with this proposal and said that the CDM could also be reformed to deliver sectoral emission reductions.[89] The aim of such reforms would be to encourage wider action in developing countries through the creation of no-lose mechanisms. The Government said that it was exploring how the CDM might be applied to sectors. It pointed out that a potential benefit of a sectoral CDM approach could be that it reduces the risk that a project might have gone ahead anyway (in other words, additionality concerns). It was hopeful that CDM improvements would be possible in the negotiations.[90] Eric Bettelheim thought that the safeguards applied to the CDM process were so stringent that they were preventing business investment.[91] Benito Müller recognised that business had found it difficult to get

[87] Environmental Audit Committee, Seventh Report of Session 2006–07, *Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill*, HC 460

[88] Q59

[89] Q60

[90] Q62 [Ms Thompson]

[91] Ev 88

approval for projects, but asserted that the rules were required to prevent inappropriate projects from receiving credits. He thought that due to these rules most approved projects were authentic.[92]

73. **We believe that there is a good case for sectoral and policy-focused CDM. We recommend that the government explores the desirability and feasibility of its introduction. The government should also explore whether CDM project approval rules need to be reformed.**

International regulatory body for carbon markets

74. The Market Mechanisms Working Group of the Global Legislators Organisation for a Balanced Environment (GLOBE) recommended in February 2008 that a new international independent regulatory body for carbon markets be established. It said that this would be required to 'oversee all carbon transactions, develop clear guidelines for transactions, [and] provide technical advice to countries that operates under standards associated with commercial law and operations'.[93] It indicated that this would be needed to create a stable and predictable regulatory framework. Eric Bettelheim thought that the creation of such a body was 'absolutely essential' and that it was unrealistic to expect the UN to serve as a regulator of 'what is essentially a financial market'.[94] The Scientific and Business Congress on Protecting the Climate agreed with the above, and suggested that this body would be needed to encourage private companies to invest in solutions to climate change.[95]

75. **We recommend that the Government explores with existing market participants and other interested parties the creation of a new independent regulatory body to manage and develop the international carbon market.**

Deforestation

76. Emissions from deforestation are immense. It currently contributes more than 18% of annual man-made greenhouse gas emissions.[96] Without prompt action deforestation emissions between 2008 to 2012 will be more than the total emissions from aviation since its invention until at least 2025. The Stern Review concluded that 'curbing deforestation is a highly cost-effective way to reduce emissions; large-scale international pilot programmes to explore the best ways to do this could get underway very quickly'.[97]

77. We received written evidence from Sustainable Forestry Management (SFM), which stressed the critical need to address emissions from deforestation. SFM argued that flexible mechanisms have failed to take advantage of the potential for land use, land use change and forestry (LULUCF) projects in mitigating climate change. It concluded that this has

[92] Ev 51

[93] Market Mechanisms Working Group, GLOBE International, *Submission to GLOBE Brasilia G8+5 Legislators Forum*, February 2008, p4

[94] Q106

[95] "Climate Protection Congress calls for a World Carbon Authority and World Joint Strategy", Tyndall Centre for Climate Change Research press release, 30 March 2008, www.tyndall.ac.uk

[96] HM Treasury, *Stern Review on the Economics of Climate Change*, October 2006, p 537

[97] HM Treasury, *Stern Review on the Economics of Climate Change*, October 2006, p 537

had a negative impact on deforestation rates. In particular, SFM argued that the EU ETS ban on the use of forestry credits, and EU policy on biofuels, have combined to create market signals that promote deforestation.[98] It also stressed that limiting the use of LULUCF credits is not economically sound as it unnecessarily increases the carbon price in the EU. Eric Bettelheim made the point that mitigation actions are focusing on technological change rather than taking advantage of the natural biological mechanism that LULUCF projects represent.[99] These strong, market-centred, views went further than other witnesses to this inquiry, who stressed the need to restrict the use of these credits to prevent carbon prices from being too low.[100]

78. We received conflicting evidence about how deforestation should be tackled in the negotiations. Proposals included:

- a fund-based mechanism in which developed countries pay agreed amounts to developing countries not to deforest land;
- a standalone market-based system rewarding avoided deforestation; and
- the full integration of LULUCF credits into existing market mechanisms.

79. Eric Bettelheim called for improved regulation in the sector and for LULUCF credits to be integrated into existing carbon markets.[101] The European Commission rejected this in its recent EU ETS proposals, arguing that deforestation should be addressed through other instruments. It suggested that part of the proceeds from auctioning allowances in the EU ETS could generate additional means to invest in LULUCF activities both inside and outside the EU.[102] A number NGOs agreed that LULUCF activities should not be permitted in the EU ETS because: there is uncertainty about permanence and additionality; they are simply a cheap way to avoid reducing emissions from industry; allowing such credits would flood the market with cheap credits.[103] There are also questions about the use of such credits in the absence of appropriate data to make them verifiable. These concerns led one European Commission official to describe such credits as being 'sub-prime'.[104] A recent OECD report appeared to confirm this view, but also indicated that there might be ways to address forestry credit data and verification concerns in the future.[105]

80. The Minister told us that if the technical issues surrounding data, monitoring, sustainability and additionality can be dealt with, he thought LULUCF projects should be part of the carbon market.[106] Allowing their use in the EU ETS would, he believed,

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[98] Ev 56

[99] Q106

[100] For example, see Ev 40

[101] Ev 60

[102] "Questions and Answers on the Commission's proposal to revise the EU Emissions Trading System", *Europa*, 23 January 2008, europa.eu

[103] Ev 40

[104] Annex 2

[105] Katia Karousakis and Jan Corfee-Morlot, *Financing mechanisms to reduce emissions from deforestation: issues in design and implementation* OECD, December 2007, www.oecd.org

[106] Q200

destabilise it at this stage, but he stressed that the Government's policy is to work towards their eventual inclusion.[107] Ms Jan Thompson, Head of Negotiations on International Climate Change at Defra, pointed out that if these credits were permitted to be used in the EU ETS in future, there would have to be deeper emission reduction commitments to balance out their relative cheapness. She also highlighted that the Government has provided funding for the World Bank's forest carbon partnership facility which might help to reduce deforestation:

> In Bali the UK Government announced a contribution of £15 million to the [facility] which has a couple of funds in it—a readiness fund which looks at building capacity in developing countries so that they can measure these emissions properly and try and address issues of leakage and that sort of thing; and a carbon fund which looks at testing out incentive mechanisms and how payments are to be made and whether or not this comes through carbon markets, through public finance and to whom those payments would go and so on. Those pilots are getting underway now through this year and next so we can see where we get to by the time we are looking to include an international agreement.[108]

81. **Deforestation and land use change will have to be tackled as part of the post-2012 negotiations. It provides an effective natural option for mitigating greenhouse gas emissions. However we have received conflicting evidence as to how this could be done without undermining the EU ETS. We intend to return to this issue at the earliest opportunity. In the meantime we welcome Government contributions to 'avoided deforestation' pilot studies. These studies will need to report as soon as possible to be able to inform the negotiations.**

[107] Q201

[108] Q202 [Ms Thompson]

Conclusions and recommendations

1. International negotiations must be guided by the best science we have available. This indicates that to give us a good chance of avoiding dangerous climate change, atmospheric concentrations of greenhouse gases should be stabilised at no more than 450 parts per million CO_2 equivalent. To make this happen developed countries, such as the UK, will be required to reduce emissions by some 25-40% by 2020 and 80-95% by 2050. Developing countries will have to limit their emission growth. Given that these reductions appear likely to only translate to a 50-50 chance of avoiding dangerous climate change the international community should aim for more stringent reductions. (Paragraph 7)

2. We agree with the Government that it would not be right exclusively to press for contraction and convergence in current international negotiations, given the political difficulties that could be created. However, contraction and convergence should be used as a guide to the level of effort required by each country to avoid dangerous climate change. We are encouraged that the Government is modelling the impact of probable domestic commitments in other countries and that it is seeking to identify where further action might be achieved. It must find a way of ensuring this information is used to shape negotiations. (Paragraph 12)

3. The post-2012 agreement will have to be nuanced in its approach. Absolute emission reduction targets, based on the IPCC scenario that leads to atmospheric concentrations of greenhouse gases not exceeding 450 parts per million CO_2 equivalent, will have to be adopted by developed countries. Developing countries will also have to play their role by adopting actions that will reduce their future emission trajectories. (Paragraph 13)

4. During these complicated negotiations it is critically important that our negotiators do not lose sight of the science of climate change. The 450 ppm CO_2-eq IPCC scenario, or the EU's two degree target, can not be traded-off. They represent the minimum that we can accept. (Paragraph 14)

5. Parallel processes such as the Major Economies Meeting and the G8 can be invaluable in moving forward the UN process for securing climate change mitigation measures. But the UN negotiations are key and any agreements or conclusions reached in parallel processes will only be helpful if they support the UN process. They should not prescribe a way forward for countries excluded from participating in them. (Paragraph 17)

6. We commend the FCO and Government's diplomatic efforts. It appears that this has helped to move forward the climate change debate in a number of countries. It has been particularly successful in reframing the economic debate surrounding climate change through its promotion of the findings of the Stern Review, as we discovered first-hand in China and Australia. (Paragraph 20)

7. Diplomatic efforts must continue to target key stakeholder groups, in particular the business lobby. We recommend that the Government seek to build links between the

UK business lobby and its counterparts overseas where this will contribute to moving forward the climate change debate. As part of this the Government should use Japan's presidency of the G8 as an opportunity to develop further the linkages between UK and Japanese business. (Paragraph 22)

8. We welcome the increase in resources given over to climate change diplomacy, although it is not clear to us that these are additional rather than resources that have simply been diverted from sustainable development and other environmental work. (Paragraph 24)

9. The loss of sustainable development from the FCO's strategic objectives is unwelcome. We are concerned that as a result there might be inadequate integration of sustainable development into climate change negotiations and therefore that any agreements might not be sustainable in the long-term. (Paragraph 25)

10. It is clear that we need to display greater commitment to tackling climate change domestically if we are to have a credible voice in international climate change negotiations. The leadership demonstrated in the commissioning of the Stern Review and bringing forward the Climate Change Bill is in danger of being undermined by policies such as airport expansion plans or an over-reliance on international credits in meeting domestic emission reduction commitments. (Paragraph 30)

11. The government should take steps to minimise the impact of domestic policies that run counter to climate change objectives. For example, the Government should reappraise its policies on airport expansion. The Government should also demonstrate leadership by reconsidering its opposition to the hypothecation of EU ETS auction revenues for climate change mitigation and adaptation in the EU and in developing countries. Failing this, the Government must explain why it opposes hypothecation. (Paragraph 31)

12. Although the EU has said that it will increase its target to 30% if a successful international agreement is reached, it has undermined its negotiating position and displayed poor leadership by failing to base its unilateral target on the science. The Government should press for the unilateral target to be increased to at least 25% by 2020. The final target agreed might be more than 30% by 2020. (Paragraph 32)

13. The optimal approach to carbon leakage is to maximise the number of abating countries, either though a comprehensive international mitigation agreement or through sectoral agreements. We accept that reaching such agreements might be challenging and recognise that other policies might be required to address carbon leakage, such as a border adjustment tax. However, the Government should ensure that the EU does not take a decision on carbon leakage measures prior to the completion of the UN negotiations. Such a decision might hinder the agreement of a more satisfactory post-2012 outcome. (Paragraph 36)

14. A key challenge for Annex 1 countries will be finding the resources required to help developing countries to adapt to and mitigate climate change. Developing countries will not take on commitments if developed countries do not offer substantial binding commitments to financing and technology transfer. (Paragraph 37)

15. In order to facilitate negotiations the Government and EU should work closely with developing countries to explore mitigation options in a cooperative fashion without prejudice. The actions to be adopted by developing countries should be allowed to grow out of dialogue. The actions will vary according to the individual circumstances of each country but might extend to policy measures, sectoral agreements, or non-binding targets. The FCO and Government have a lot of work to do in relation to this nuanced diplomacy. (Paragraph 41)

16. Although there will be a link between measurable, reportable and verifiable action in developing countries and measurable, reportable and verifiable financing by developed countries, non-funded action will still have to be taken by developing countries if climate change is to be addressed. In addition, some developed countries are unlikely to agree to a Convention that does not require some non-financed action by developing countries. (Paragraph 44)

17. The Government should explore with developing countries opportunities for mitigation activities that might not directly be funded by developed countries. Key to this will be the stressing of the substantial co-benefits of certain climate policies in relation to energy security or pollution control. Such non-funded activities could be stimulated using global agreements such as the energy efficiency target proposed by Japan. Nevertheless, it is clear that substantial developed country financing will be required in order to help shift developing countries onto a low-carbon path. (Paragraph 45)

18. The domestic actions taken by China give an indication of what actions a number of developing countries might be willing to commit to as part of an international agreement. The Government should ensure that China is aware of how it could use its position in the negotiations to ensure a better outcome. If China were to adopt international targets as part of a post-2012 agreement on the basis of its existing domestic targets, it would be an extremely provocative move that could give real impetus to the negotiations. We are hopeful that, given its extensive climate change programme, China will do this. (Paragraph 51)

19. The scale of funds required for adaptation and mitigation in developing countries might run to some US $150 billion each year by 2015. Given past failures to meet commitments on Official Development Assistance it is unlikely that conventional funding sources will deliver the funds required. Existing mechanisms such as the international carbon market are also unlikely to be able to mobilise the scale of funds required. The Government has commissioned work to identify appropriate funding mechanisms. We welcome this and urge that the work should be published at the Government's earliest opportunity. (Paragraph 57)

20. There appears to be a widespread perception in developing countries that they are missing out on certain key technologies due to the expense of intellectual property rights. This view has not been supported by the evidence that we received. However, given the significance of this issue for developing countries the Government is right to allow them to develop their own proposals. (Paragraph 62)

21. Low carbon technologies will have to be deployed in developing countries. To facilitate this, technology transfer will need to include the direct funding of projects through mechanisms like the Clean Development Mechanism, as well as bilateral work on research and development. We welcome UK-China and EU-China commitments to closer working in relation to climate change, environmental technologies and research and development. It is critically important that these lead to advances in the deployment and diffusion of low-carbon technologies. Parties should explore the concept of Low-Carbon Economic Zones as a way to focus joint-working opportunities. In addition the Government and EU must seek to establish bilateral, low-carbon, free trade agreements, and also to define stringent joint standards for energy efficient goods. In order to aid the diffusion of low-carbon technology globally, trade barriers to low-carbon goods and services must be removed; efforts must continue on this issue in the Doha trade round. (Paragraph 63)

22. We urge caution about the use of international carbon credits. The argument that a tonne of carbon reduced abroad is the same as a tonne of carbon reduced at home is an over-simplification of a complex issue. Permitting the use of too many international credits will drive down the cost of carbon, but this will also make renewables and air pollution targets more expensive to reach and potentially slow down the long-term shift to a low-carbon economy in the UK. (Paragraph 69)

23. The Minister argued that the market in flexible mechanisms will help to provide investment in developing countries. We accept this but we caution that current flexible mechanisms will only provide a proportion of the funds required for mitigation and adaptation in developing countries. The post-2012 negotiations will have to identify additional sources of money to supply the tens of billions of pounds that will be required. (Paragraph 70)

24. Nevertheless, we feel that there is still a role for flexible mechanisms in transferring funds and technology to developing countries. They will also provide a 'carrot' to developing countries to play their part in a post-2012 agreement. We agree with the European Commission that the current level of credits proposed to be permitted in the EU ETS should not be expanded further under current emission reduction targets. Only when the EU adopts a target of at least 30% by 2020 could their use be increased, and only to a level that does not undermine the carbon price in the EU. (Paragraph 71)

25. We believe that there is a good case for sectoral and policy-focused CDM. We recommend that the government explores the desirability and feasibility of its introduction. The government should also explore whether CDM project approval rules need to be reformed. (Paragraph 73)

26. We recommend that the Government explores with existing market participants and other interested parties the creation of a new independent regulatory body to manage and develop the international carbon market. (Paragraph 75)

27. Deforestation and land use change will have to be tackled as part of the post-2012 negotiations. It provides an effective natural option for mitigating greenhouse gas

emissions. However we have received conflicting evidence as to how this could be done without undermining the EU ETS. We intend to return to this issue at the earliest opportunity. In the meantime we welcome Government contributions to 'avoided deforestation' pilot studies. These studies will need to report as soon as possible to be able to inform the negotiations. (Paragraph 81)

Annex 1

Environmental Audit Committee Visit to China and Australia, 28 January–8 February 2008

Participating Members:

Mr Tim Yeo, in the Chair

Colin Challen	Jo Swinson
Mr David Chaytor	Dr Desmond Turner
Mr Graham Stuart	Joan Walley

BEIJING

Wednesday 30 January

Environment Resource Protection Committee of the National People's Congress

Professor Xu Huaqing, Director, Centre for Energy, Environment and Climate Change, Energy Research Institute, NDRC

Lunch with Professor Qi Ye, Tsinghua University

NGO Roundtable with WWF-China, Climate Group and Energy Foundation

Yu Qingtai, Ambassador and Special Representative, Climate Change Talks, Ministry of Foreign Affairs

CHONGQING

Thursday 31 January

Yang Tianyi, Deputy Director-General, Chongqing Science and Technology Commission

Wang Yinmin, Director General, Chongqing Meteorological Bureau

Roundtable lunch with academics and local business representatives

Chongqing Iron and Steel

Mr Wu Bo, Chief Engineer, Chongqing Municipal Construction Commission

Chongqing Municipal Government's Energy-saving and emissions reduction leading group

BEIJING

Friday 1 February

China Meteorological Administration

Dr Wenbin Su, President, Greengen Co., Ltd.

Informal lunch with Barbara Woodward, Charges d'affaires, UK Mission in China and industry representatives

National Development and Reform Commission

Li Junfeng, Secretary General Chinese Renewable Energy Industries Association

SYDNEY

Monday 4 February

John Connor, The Climate Institute

Lisa Corbyn, Director General, Department of Environment and Climate Change; Mark Duffy, Director-General, Department of Water and Energy

Professor Matthew England & Professor Andy Pitman, Directors, Climate Change Research Centre

Boardroom lunch at British Consulate General

Suzie Barnett, Green Building Council of Australia

Martijn Wilder, Baker and McKenzie

CANBERRA

Tuesday 5 February

Department of Climate Change

Dr Peter Cook, CO2CRC

Department of Infrastructure, Transport, Regional Development & Local Government

Commonwealth Scientific & Industrial Research Organisation

Dinner with Helen Liddell, British High Commissioner & guests

Wednesday 6 February

Department of Resources, Energy & Tourism

National Farmers Federation

Australian Industry Greenhouse Network

Australian Bureau of Agriculture and Resource Economics

Annex 2

Environmental Audit Committee Visit to Brussels, 18 March 2008

Participating Members:

Mr Tim Yeo, in the Chair

Mr Martin Caton	Jo Swinson
Colin Challen	Dr Desmond Turner
Mark Lazarowicz	Joan Walley

09:30—Damien Meadows: The EU ETS and its role in building a global carbon market and incentivising an international agreement

Damien Meadows is Deputy Head of Unit, Market Based Instruments Including Greenhouse Gas Emissions Trading, DG Environment.

Mr Meadows explained that there was a lot of interest around the world in the EU ETS. The Commission would not be able to keep within the 2 degree temperature threshold without the ETS.

Mr Meadows said the Commission was working hard on linking the EU ETS internationally, with a particular focus on the US. The Commission was also looking at widening the EU ETS to cover more of the economy (as in the US proposals), and to cover policy measures (also proposed in the US). They were also considering an EU-wide target rather than NAPs, and developing a long-term trajectory in line with US proposals. Aviation was also covered by Lieberman/Warner Bill, and the Commission was looking into this area. The schemes were now recognisably similar.

Mr Meadows explained that the Commission was looking to increase auctioning (as in the US proposals). There would be three levels of auctioning in order to deal with carbon leakage. If a global agreement could not be reached there would be calls for protectionism.

In the US there had been proposals to hypothecate all auctioning revenues to tackle climate change. Mr Meadows explained that in the EU there had been resistance to this, with the UK and other countries arguing that it was up to them to decide what happened to the revenue.

The EU ETS now covered 30 countries—including countries outside of the EU such as Norway and Iceland. Mr Meadows said that although there could be ways of bringing in more countries, there would be challenges in deciding allocations and the Commission would need to ensure that there was similar stringency between schemes. The EU could link with Chile and many other countries. Japan was now shifting its position on carbon trading due to movement in the US.

Mr Meadows said that a federal ETS in the US would be preferable to the proposed regional system. The regional system was not bad in itself, but only covered energy and

there was a risk of carbon leakage between states. Mr Meadows said that there was also a need for caution if other schemes accepted sectors that the EU did not, as the ETS would end up de facto accepting credits which it would not accept directly. Forestry credits, considered sub-prime in a company-based system, were one area where there could be difficulties.

Mr Meadows said that the EU would have to wait to see how the US system functioned before it would consider linking it to the EU ETS. It would be important to make sure the system was stringent enough.

Mr Meadows explained that the US was particularly concerned about international carbon leakage, and would therefore include international emissions from aviation and shipping in their ETS to try and deal with this. The Lieberman/Warner Bill had indicated that there would be 100% auctioning in the ETS. The Commission had suggested that less should be auctioned—60% in 2013, if the Commission proposal was agreed to in the Parliament.

Mr Meadows said there could be an agreement in the US on the Bill in 2008. The EPA was already dealing with reporting requirements. It could happen quickly. There could be a global carbon market by the middle of the next decade. It was important to ensure that all the ETS linked up to get the major benefits of a trading scheme.

Mr Meadows explained that through the use of CDM credits in the EU ETS, 150 countries had been involved in the carbon market. He though this was very positive. In order to give certainty about the future post 2013, the Commission had indicated what was likely to happen. But there remained challenges:

Mr Meadows said that CDM had to be an incentive for developing countries to join an international agreement—rather than a reason for them not to (i.e. that because they received help through the CDM they did not need to undertake any action themselves). Also, it was important to limit CDM credit use to ensure that action happened in the EU, and that the EU ETS ensured there was investment in European renewables capacity. Otherwise it would cost significantly more to reach European renewables targets.

Mr Meadows explained that although the EU had been restricting credit use somewhat, it remained the most generous in the world. There had been reputational damage to the CDM due to projects on dams and HFCs. These needed to be dealt with, but the CDM could be successful. The Commission had proposed harmonisation among Member States by accepting only those projects that all Member States also accepted, to ensure only the best projects were used.

Mr Meadows said that the US was highly unlikely to accept CDM credits from competing industries such as concrete manufacturing. The US did not want to help competing companies and would probably restrict credit use to biomass projects and similar projects. In the proposals, 700 million tonnes would still go though CDM in the absence of an international agreement. But this would be expanded if there was an agreement.

Mr Meadows said that the US was including road transport in their ETS. The Commission was not, as this would involve removing fuel duties and other similar taxes. ETS would happen in the US and would include road transport, meaning that the US system would have broader coverage. It might cover 87% of emissions.

Mr Meadows explained that the Commission did not have a target carbon price—but it had been calculated that a 40 Euro cost was required by 2020 if Europe was to reach renewables and GHG emission reduction targets. These high prices were also needed to stimulate CCS and other more expensive technologies.

The US system would not include agriculture and forestry, because they shared the same concerns as the EU. The US had suggested that these matters should be covered through offset projects and related measures.

Mr Meadows said that industry was generally more supportive of 100% auctioning if the revenues were used for R&D.

Mr Meadows said although there was pressure to increase the 3% CDM figure, this was a reasonable compromise. Some NGOs thought that with a 20% target all effort should be within the EU. Mr Meadows believed this would make matters more expensive. The Commission had tried to balance effort and cost.

Mr Meadows explained that Germany was pushing for far greater auctioning and reduction targets. However, Germany was also determined that there should not be carbon leakage.

The UK was working hard at pushing ETS in the US, and this had contributed to increasing business interest in this.

Mr Meadows said that sectoral agreements would be required if carbon leakage was to be avoided, otherwise there would be problems in the post Kyoto phase. This could mean that a border carbon tax would have to be introduced, which would not be desirable.

10:20—Lynn Sheppard: International climate change, from Bali to Copenhagen

Lynn Sheppard is Policy Officer for International Climate Change negotiations, DG Environment.

Ms Sheppard explained that the EU needed to intensify cooperation with third countries in a range of bilateral and multilateral fora. In particular, there was a need to flesh out what was expected of and by other countries. The EU had set out its headline expectations in the 2007 climate change and energy package, eg for LDCs. It was also important to identify the incentives required to bring people on board and to differentiate between the developing countries. Ms Sheppard said the Commission was working on this to try and establish how responsibilities should differ.

Ms Sheppard said that an impact assessment published in 2007 had linked the 2 degree target to policy options and costs, and had modelled the contributions of other possible parties.

Ms Sheppard believed that Poznan would be key in providing a milestone for the negotiations. In advance of the Poznan talks, it would be important to narrow down what needed to be done, especially with regard to developing countries and what assistance could be made available to them. Such assistance would need to encompass financing, technology and adaptation.

Ms Sheppard explained that the EU was aiming for a 'top-down bottom-up' approach. The 2 degrees target had been identified as the main objective at the top. Meanwhile, policies at the bottom aimed to deal with the same headline target, but in an equitable way.

The Commission had three main reasons for engaging with developing countries on climate change: to build capacity, to build political will and trust and to fulfil obligations under the millennium development goals. Furthermore, climate change was integrated development aid and foreign relations. The Commission always addressed climate change in discussions with third countries.

Ms Sheppard said there was a realisation among a number of developing countries that they needed to take real action to tackle climate change, and that there were links between climate change objectives and other objectives such as energy security and sustainable development.

Ms Sheppard said that the EU also had contacts with OECD countries.

Ms Sheppard stressed that it was crucial to get emerging economies on board due to their rising emissions. Ms Sheppard said that over the next year it would be important to explore the contribution that could be made by developing countries. Part of this would involve making clear to them the costs and benefits - such as using Stern-type reports. However, India had rejected the offer of a Stern review, saying that they preferred to do this internally.

In terms of developing country cooperation, the EU-China Climate Change Partnership was the most advanced. This project aimed to improve practical capacity and improve political will and trust. Project activity included work on CDM and CCS, adaptation and market based mechanisms. Ms Sheppard explained that the NZEC project was one of the key outcomes, and the UK was very involved in this. The project was currently at phase 1 (i.e. R&D on issues such as storage and the technology), and the joint steering committee would be ready to report in late 2008/early 2009. Phase 2 would be more specific feasibility studies and phase 3 would involve actual construction and operation. Ms Sheppard explained that originally Phase 3 to be completed by 2020. However, she said the Commission was clear that that was not soon enough and was trying to bring the date forward. The Chinese had not been sure about this, but they had recently appeared to be more willing to bring it forward. Ms Sheppard hoped that phase 3 would now be complete by 2014. She said that it would be hard to bring it further forward: although the technology was not particularly novel there were certain technological issues which would take time. The Commission was currently trying to work out funding mechanisms for Chinese and EU demonstration projects. Ms Sheppard believed this would depend on the carbon price.

Damien Meadows agreed that a good carbon price was essential. The revenues from auctioning could help. The ETS was stimulating development of this technology.

Ms Sheppard said that, in terms of improving the CDM, the Commission was looking at the CDM Executive Board to ensure that it had the resources it needed, and that it worked in a transparent and coherent way. It was also important to ensure that host countries took responsibility for ensuring the sustainability of projects.

Ms Sheppard said that climate change had a high profile in discussions between the EU and China. There would be a focus on climate change during the 'Jumbo' visit in April 2008. Behind the scenes the Chinese had definitely been constructive in Bali.

It was important to avoid duplication, so it was necessary to manage and coordinate different processes. For example, it had been decided that the talks at Hokkaido would focus on the long term stabilisation target. Ms Sheppard explained that in the Major Economies Meeting, the Commission would be ensuring that the MEM supported the UNFCCC process. Ms Sheppard believed that these meetings could have the potential to be quite helpful due to those involved. The challenge for the EU was to avoid getting mired in process, and to ensure that any declarations or conclusions led to a unified conclusion further on from the previous position. Ms Sheppard admitted that it was difficult to keep up with all the meetings. She believed that the UK was best placed staff-wise to work on this. However, it remained a challenge. Better coordination was needed on all bilateral contacts—7 or 8 Member States were working in China and achieving good cohesion. But in other countries this was not always the case.

11:30—Stavros Dimas, Environment Commissioner

Tim Yeo MP (Chairman) welcomed Commissioner Dimas. He asked whether, with the increasing consensus on the need to reduce emissions, the Commissioner thought that the EU should go further than 20% unilaterally to get the required action.

Commissioner Dimas said that the EU target was 30%. The EU had fought for this in Bali, but it would only make sense as part of an international agreement. The EU was aiming for a 2 degree reduction, and this would require a 50% reduction globally by 2050. Commissioner Dimas said that it was important to fight for this in the EU and globally—and to fight not only fight for the targets but also for their implementation. Some states had expressed concern about trade exposure and this could have an impact on their ambitions.

Mr Yeo asked whether auctioning revenues should be used to pay for technology.

Commissioner Dimas said that this had been the EU's original proposal—not only for technology but also for education, adaptation in LDCs, technology transfer and other related matter, even tackling fuel poverty. Commissioner Dimas explained that the EU had encountered resistance from a number of countries, in particular the UK. Even so, the UK had said that some of this money would be used to deal with these issues.

Commissioner Dimas said that a number of states wanted 100% auctioning for the power sector—including the UK. The Commission had concluded that this was right, but for energy intensive sectors it had also been decided that they should not be required to buy so many credits. They might be given 100% free allowances or importers might be required to pay for allowances to make up for this uneven playing field. It was possible that 10% of auctioning funds could be hypothecated for developing countries.

Commissioner Dimas said that carbon leakage was bad for the environment and for employment. However, he insisted that whatever was done to address this needed to be in line with WTO rules and in the spirit of common but differentiated responsibilities. The EU's international partners would have to accept that the EU was not going to allow the

complete loss of its industries. This issue had to be addressed because if these industries were to move overseas there would actually be an increase in emissions.

Commissioner Dimas insisted that, whatever the degree of auctioning, the EU would meet its 20% target as the cap would be reduced in a trajectory.

Colin Challen MP asked whether the WTO should be made to address climate change more robustly. Mr Challen suggested that the need to tackle climate change should trump the competition rules of the WTO.

Commissioner Dimas agreed with Mr Challen. He said that there may be some difficulties if the EU required importers to buy into the US. However, the US was also looking at this matter (in the Lieberman/Warner Bill), so the EU was in line with the US on this particular topic.

Commissioner Dimas stressed that the EU could benefit from implementing climate change policies. For instance, meeting the EU's 20% target would mean that EU air quality requirements would be met as a co-benefit, at zero cost. This would be a saving of some 10 billion euros.

Commissioner Dimas explained that the EU had tried to get shipping and aviation on the agenda in Bali, but it had been unsuccessful. Nevertheless there were some hooks for addressing this at a later point. The EU had asked the ICAO and IMO to come up with proposals by the end of 2008. Otherwise some proposals would need to be moved. This was not ideal as the EU would prefer a global deal.

Martin Caton MP asked whether we had reached a stage where climate change trumped biodiversity. He gave the development of the Severn Estuary project as an example.

Commissioner Dimas said that in these cases it was important to use common sense to balance the benefit. For instance, wind farms should not be put in known bird flight paths. An environmental impact assessment would help to identify ways to balance the problem. Commissioner Dimas said that this was a difficult matter that required care.

Commissioner Dimas said that the Lieberman/Warner Bill, and other measures, indicated that the US was moving forward on climate change. However, their ETS would be slightly different from the EU ETS because it included surface transport. The EU was working with all these countries and states with a view to linking the European ETS with their schemes in the future. This had already been achieved with Norway. Commissioner Dimas said that this should be the EU's ultimate goal.

Mr Challen asked whether the EU should use contraction and convergence, and whether policy was already moving towards this anyway.

Commissioner Dimas said that it was important to have a shared goal for the long term, such as a temperature limit, a concentration limit or a targeted reduction. There would have to be common but differentiated responsibilities, like those negotiated in the EU. A similar solution could work. Another option would be to have international sectoral agreements, country sectoral agreements or other measures. The per capita emissions would be reflected in an ultimate agreement.

Commissioner Dimas said that although the US still wanted China and India to have binding targets, this was not feasible.

Commissioner Dimas said that it was important to ensure that the CDM went to the LDCs rather than fast developing countries such as South Korea or China who should be required to take on more commitments. The transfer of technology and funding would play a role in this. Commissioner Dimas insisted that these countries also needed to accept energy efficiency targets and similar measures, especially where there were large co-benefits. Commissioner Dimas thought that this was a reasonable thing to ask.

Mark Lazarowicz MP asked whether Commissioner Dimas had any concerns about biofuels.

Commissioner Dimas said that he did have concerns about biofuels, both environmental and social. He was particularly concerned by food prices. He also said there was a risk that a 10% target could end up causing the destruction of tropical forests. For this reason the EU was introducing sustainability criteria, the first targets of their kind in the world in relation to biofuels. These targets had to prevent damaging land use change and would require at least 35% greenhouse gas savings. The Commission had said that the target should not be reached if the fuel could not be sourced sustainably.

Commissioner Dimas said that the Commission was trying to promote second generation biofuels. However, the Commission still had concerns over these fuels, in particular where waste fuels were being used. It was important to assess whether biofuel was the best way of using this material. There were also a number of issues. Commissioner Dimas felt that the initial enthusiasm for biofuels had declined.

Commissioner Dimas said that it was also crucial to ensure that there was no displacement. This was a particularly difficult issue to deal with. Preventing deforestation was very important both for biodiversity and climate change. Deforestation was one of the most important aspects of the Bali negotiations, given the emissions and how cheap they were to deal with.

Mr Yeo asked the Commissioner whether there was anything he wanted to say to the Committee.

Commissioner Dimas asked the Committee to continue its good work. He said that the UK Parliament and UK Government had both played an important role in ensuring that climate change was on the agenda. The UK had been instrumental in persuading other countries in the EU, and as a consequence there was a better chance of reaching an international agreement. Commissioner Dimas said the UK had also played an important role in the US.

12:50—NGO lunch

Participants: Stephan Singer (WWF), John Hontelez (European Environment Bureau), Alexander Woolcombe (Oxfam), Matthias Duwe (CAN-Europe), Mahi Sideridou (Greenpeace).

The NGOs said that they would like agreement on a long-term goal of 2 degree Celsius, and a framework in line with the IPCC Scenario, such as reducing emissions within ten years.

It was important to ensure that the EU had a leadership role by keeping up domestic pressure on Governments. An agreement would also depend on arranging commitments to adaptation and technology transfer.

The NGOs said that more secure and long term funding sources needed to be agreed. Stern had said that $300-400 billion per year was needed to pay for adaptation and everything else that was required for the next few decades in order to keep within 550 ppm, even though this limit was already too big. There needed to be hypothecation of auctioning revenue from the ETS—this could generate some 30-60 billion euros per year. The NGOs were worried that this money could disappear if it went straight back to the states. They felt that possibly 50% should be held back to pay for adaptation. If the money was not going to come from this type of hypothecation then member states should say where it would come from and what would be required to deliver it. Funding should be built into international schemes, such as the adaptation fund.

The NGOs agreed that there was a need to shift current expenditure on energy, which was currently some trillion dollars per year, to low carbon forms and energy efficiency.

The NGOs said that action was failing to live up to rhetoric, for example on policies to reduce emissions from cars.

The NGOs insisted that EU and domestic policies needed to be decided this year due to changes in the EU Parliament and the arrival of new Commissioners coming in next year. The need to fit in with Bali was another factor.

The Committee and the NGOs discussed the balance of power in the EU. The Commission was now the main driving force for climate change policy in the EU rather than the Council of Ministers. The NGOs named some key UK MEPs in the climate change debate, including Linda McAven, John Bowis and Caroline Lucas.

A new NGO-run website would soon be launched for EU citizens, giving information about climate change action in the EU. The website could be found at www.ourclimate.eu

The NGOs said that climate change needed to be mainstreamed into aid funding. This was only just beginning to happen. Aid needed to be climate-proofed.

14:15—Walter Kennes: Developing countries and climate change

Walter Kennes is Head of Sector, Sustainable Management of Natural Resources, DG Development.

Mr Kennes presented the Global Climate Change Alliance (GCCA) and gave the Committee an information note. Mr Kennes explained that the Commission was aiming to make developing countries realise that they had to deal with climate change for development reasons. The Commission was also seeking to provide funding for adaptation.

Mr Kennes believed that dealing with deforestation could be advantageous for development, poverty and climate change reasons. Action in this area should be carefully prepared because the drivers of deforestation were complex—energy needs (charcoal and firewood), population increase, illegal logging etc. It was also important to prevent the degradation of forests. The Commission is undertaking studies on this, such as that on paying for avoided deforestation in developing countries. The Commission felt that this work should also be linked with the poverty/livelihood needs of the people living in the forest. There was also a link with biofuels, because it was important to ensure that this did not cause deforestation or an increase in food prices.

Mr Kennes said that getting forestry into the CDM was a complex matter. It is important to distinguish private sector activities in ETS from the Government activity to reduce emissions. Mr Kennes said he understood that for the non-ETS part member states could use reforestation projects under the CDM. However, private companies could not do this because these projects were not permitted in the ETS. Mr Kennes acknowledged that there were concerns about allowing these projects into the ETS. Such concerns are for example related to the possibility of destabilising the carbon market as well as to the issue of monitoring. Mr Kennes thought that, from a development perspective, it was a pity that developing countries, particularly Least Developed Countries, could not benefit from reforestation projects, which in addition to climate benefits also generate benefits in preserving biodiversity and improving livelihoods.

Mr Kennes said that the Adaptation Fund was still very small at present, but that it could build up gradually and become very large after 2012. He said that the Commission would prefer adaptation to be mainstreamed in development strategies. It should preferably be implemented by budget support rather than on a project by project basis in order to reduce transaction costs. Mr Kennes thought there could be more innovative forms of funding such as hypothecation of future auction revenue. Mr Kennes hoped that by the Poznan meeting there would be progress on adaptation funding and the GCCA.

Mr Kennes explained that commitment in developing countries to mainstream climate change adaptation and environment more in general into their strategies had been limited so far. Often the Minister for the Environment in these countries was quite weak in comparison to other Ministers, and commitment was fairly limited. But there are examples of countries that showed commitment like Mozambique and Tanzania. And there are many island states that are committed. Mr Kennes said it was important to differentiate between developing countries. It was also necessary to ensure that those countries that were poorest and that would not have any emission commitments, did make efforts to move towards a low carbon growth path and deal with their deforestation emissions. However, they would still be exempt from cuts.

15:30—Mark Major & Stefan Moser: Clean air and transport issues

Mark Major, DG Environment and Stefan Moser, Deputy Head of Unit, Clean Air and Transport, Directorate General.

Mark Major said that the IMO adopted in 2005 a decision on how to reduce emissions. The Secretariat of the IMO was pushing hard on this, but had little power. Norway and Denmark had called for a charge on bunker fuel to fund offsets and/or pay for adaptation

or fund a technology programme. This could raise tens of billions of euros per year. The EU was pessimistic about obtaining a successful agreement in the IMO. Also, the UK had a 'principled' objection to this hypothecation.

ICAO was opposed to aviation being included in ETS without mutual consent (i.e. between both countries).

In 2005 the EU launched a strategy to reduce emissions from aviation. It was decided to use the ETS.

The Commission had said that if the IMO and ICAO did not deliver proposals, the Commission would issue proposals itself. The Commission may also call for the inclusion of shipping in the ETS, or mandatory standards, variations in harbour dues or other measures. The picture would be clearer in 2008. Proposals on aviation had already been established.

Colin Challen asked whether there should be a European capacity for aviation, to put an end to arguments that countries needed to expand their airports because otherwise they would lose business to expanding airports in other European countries.

Stefan Moser said that the Commission did not support this type of intervention. The Commission was focussing on the ETS to reduce the emissions. He hoped that the US would come on board. He did not think the Commission's ETS proposals would fail—but in the event that they did, another way of dealing with emissions would need to be established.

Mr Moser said that it was not clear whether IMO and ICAO would be able to move forward—but it was important to give them a chance to take action, rather than acting unilaterally from the start.

It would be unfair to other sectors if the post-Kyoto agreement failed to address aviation and shipping. If other countries were not willing to reach an agreement then the EU would go forward unilaterally. However, action would be less substantial in this case than if all countries were in agreement, because care would have to be taken to ensure European economies were not damaged.

Mr Moser said that if a carrier rejected the fees they would not be permitted to land. This could contravene WTO rules so it would be important to ensure that all parties were treated equally. Mr Moser believed that this action was legally viable, although he recognised that the US disagreed. He acknowledged there was a risk that the EU could be found against in ICAO.

The Commission was not really looking at changing transport modes, rather it was seeking to get their carbon price reflected. It might be that, in order to reach the 2050 target, aviation would end up using all the permitted emissions.

Rail was now covered by the ETS due to its use of electricity. Cars were not covered, but the EU was undertaking work to improve car efficiency.

Mr Moser said that the Commission had a number of work programmes trying to improve rail in the EU, especially international rail.

Mr Yeo said it was quite ironic that rail was the only mode of transport fully included in the ETS even though, environmentally, it was one of the best forms of transport. Mr Yeo asked whether EU's proposal of giving a large proportion of allocations for free would simply act as a permit to keep emitting. He was concerned that the credits would simply provide a windfall.

Mr Moser explained that total emissions would be capped, and that the sector would have to stay within that cap by purchasing credits, even though the sector was expanding.

Mr Yeo asked whether there were any proposals for ensuring that vehicles were driven in a better way.

Mr Moser explained that this was possible, technically, but it was considered difficult to do. Instead, the Commission was focusing on standards based on a typical driver. There was concern that focusing on eco-driving would take the onus away from manufacturers' to improve fuel efficiency. Mr Moser said there were plans to propose an eco-label for cars. It was hoped that better standards in the EU would improve standards in poorer parts of the world.

Mr Major said there was tremendous potential for getting transport projects into the CDM. This needed to be looked at in order to help avoid the damaging transport patterns seen in developed countries. There was currently only one transport CDM project, in Bogota. Mr Major said there needed to be more focus on programmes like these. This had been mentioned in the sixth environmental action plan. The CDM could be a way of getting action on this.

Formal Minutes

Tuesday 1 July 2008

Members present

Mr Tim Yeo, in the Chair

Mr Martin Caton	Jo Swinson
Mr David Chaytor	Dr Desmond Turner
Mark Lazarowicz	Joan Walley

Reaching an international agreement on climate change

The Committee considered this matter.

Draft Report (*Reaching an international agreement on climate change*), proposed by the Chairman, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 81 read and agreed to.

Annexes and Summary agreed to.

Resolved, That the Report be the Sixth Report of the Committee to the House.

Ordered, That the Chairman make the Report to the House.

Written evidence was ordered to be reported to the House for printing with the Report.

Written evidence was ordered to be reported to the House for placing in the Library and Parliamentary Archives.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Wednesday 2 July 2008 at 2.20pm

Witnesses

Tuesday 19 February 2008

Tuesday 4 March 2008

Tuesday 11 March

Tuesday 25 March

List of written evidence

List of unprinted evidence

The following memoranda have been reported to the House, but to save printing costs they have not been printed and copies have been placed in the House of Commons Library, where they may be inspected by Members. Other copies are in the Parliamentary Archives, and are available to the public for inspection. Requests for inspection should be addressed to The Parliamentary Archives, Houses of Parliament, London SW1A 0PW (tel. 020 7219 3074). Opening hours are from 9.30 am to 5.00 pm on Mondays to Fridays.

Laurence Matthews

Cédric Philibert: Supplementary memoranda

Reports from the Committee during the current Parliament

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

Session 2007–08

First Report	Are biofuels sustainable?	HC 76-I & -II (HC 528)
Second Report	Reducing Carbon Emissions from UK Business: The Role of the Climate Change Levy and Agreements	HC 354 (HC 590)
Third Report	The 2007 Pre-Budget Report and Comprehensive Spending Review: An environmental analysis	HC 149-I & -II (HC 591)
Fourth Report	Are Biofuels Sustainable? The Government Response	HC 528 (644)
Fifth Report	Personal Carbon Trading	HC 565
Sixth Report	Reaching an international agreement on climate change	HC 355

Session 2006–07

First Report	The UN Millennium Ecosystem Assessment	HC 77 (HC 848)
Second Report	The EU Emissions Trading Scheme: Lessons for the Future	HC 70 (HC 1072)
Third Report	Regulatory Impact Assessments and Policy Appraisal	HC 353 (HC 849)
Fourth Report	Pre-Budget 2006 and the Stern Review	HC 227 (HC 739)
Fifth Report	Trade, Development and Environment: The Role of FCO	HC 289 (HC 1046)
Sixth Report	Voluntary Carbon Offset Market	HC 331 (HC 418)
Seventh Report	Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill	HC 460 (HC 1110)
Eighth Report	Emissions Trading: Government Response to the Committee's Second Report of Session 2006–07 on the EU ETS	HC 1072
Ninth Report	The Structure of Government and the challenge of climate change	HC 740 (HC 276)

Session 2005–06

First Report	Greening Government: the 2004 Sustainable Development in Government Report	HC 698
Second Report	Sustainable Timber	HC 607 (HC 1078)
Third Report	Sustainable Procurement: the Way Forward	HC 740
Fourth Report	Pre-Budget 2005: Tax, economic analysis, and climate change	HC 882 (HC 195)
Fifth Report	Sustainable Housing: A follow-up report	HC 779
Sixth Report	Keeping the lights on: Nuclear, Renewables, and Climate Change	HC 584 (HC 196)
Seventh Report	Sustainable Development Reporting by Government Departments	HC 1322 (HC 1681)
Eighth Report	Proposals for a draft Marine Bill	HC 1323 (HC 1682)
Ninth Report	Reducing Carbon Emissions from Transport	HC 981
Tenth Report	Trade, Development and Environment: The Role of DFID	HC 1014 (HC 197)
Eleventh Report	Outflanked: The World Trade Organisation, International Trade and Sustainable Development	HC 1455 (HC 354)
Twelfth Report	Transport Emissions: Government Response to the Committee's Ninth Report of Session 2005–06 on Reducing Carbon Emissions from Transport	HC 1718

Oral evidence

Taken before the Environmental Audit Committee

on Tuesday 19 February 2008

Members present:

Mr Tim Yeo, in the Chair

Colin Challen
Mr David Chaytor
Mr Nick Hurd
Mark Lazarowicz
Jo Swinson
Dr Desmond Turner
Joan Walley

Memorandum submitted by Greenpeace

1. Greenpeace

1.1 Greenpeace Ltd (Greenpeace UK) is the autonomous regional office of Greenpeace, a campaigning organisation which has as its main object the protection of the natural environment. Greenpeace has regional offices in 40 countries, 2.8 million supporters worldwide and around 150,000 in the UK. It is independent of governments and businesses, being funded entirely by individual subscriptions.

1.2 Greenpeace was one of the first organisations to campaign for action to be taken to halt anthropogenic climate change. Greenpeace's expertise and status on climate change is recognised in a number of international and national fora. At international level, Greenpeace holds Economic and Social Council NGO status at the United Nations. Greenpeace has participated in and observed the UN's Climate Change Negotiations since 1989. Among Greenpeace staff members are lead authors on reports of the many chapters for the Intergovernmental Panel on Climate Change. Greenpeace has participated in and observed at the Convention on Biodiversity, including contributing to consideration of the impacts of climate change on biodiversity, participated and observed at the Earth Summit in 1992, the 2002 World Summit on Sustainable development and the UN World Conference on Renewables. Greenpeace also has official observer status and engages in public consultations held by the World Bank, the International Energy Agency, the IMF and the Asian Development Bank.

2. Kyoto and Post-Kyoto

2.1 Bali has made it crystal clear: the Kyoto Protocol, which has been called dead many times, is alive and well. It is still the only mechanism that enables global action on climate change. It needs to be developed in order to deliver an agreement in Copenhagen, at COP15 in December 2009, which ensures that the rise in global temperature is kept as far below 2 degrees Celsius compared to pre-industrial levels as is possible.

2.2 Bali itself did not deliver key actions on climate change. But Bali did deliver what it had to: a comprehensive negotiating commitment to deliver a strengthened Kyoto Protocol in 2009.[1] Under the Kyoto negotiations, industrialised countries agreed on their work programme, which will lead to further binding emission reductions targets. Governments agreed that emission reductions of 25–40% will be necessary by 2020 (compared to 1990 levels).

2.3 The key task for 2008 is for the negotiations to be moved forward comprehensively. This will require countries such as the UK to ensure that the outgoing Bush administration does not hold up progress. The new international agreement will be signed in 2009, when a new President will be in office. All remaining leading Presidential candidates support binding emission reduction targets across the United States economy and a reengagement of the United States in the global efforts to fight climate change. This should give Britain and other countries confidence to move forward already in 2008 towards a comprehensive agreement for 2009 that delivers the emission cuts that science demands.

2.4 In Copenhagen in 2009, the following elements need to be part of the final deal—and Greenpeace is encouraged that in Bali negotiations were moved forward and started on all these elements.

2.4.1 A peak in global emissions by 2015 and put the world on track to more than halve global emissions by 2050 (compared to 1990 levels).

2.4.2 Developed countries emission reductions commitments, as a group, of at least 30% by 2020 (from 1990 levels) and virtually complete decarbonisation (greater than 80% reductions) by 2050.

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[1] See Appendix 1 for a summary of the Bali outcomes: http://www.greenpeace.org/raw/content/international/press/reports/the-bali-decisions.pdf

2.4.3 Including more countries in the Kyoto quantitative binding emission limitation regime, which means:

- Newly industrialized countries with a high per capita income such as South Korea, Singapore and Saudi Arabia should join the Kyoto system and adopt binding emission limitation targets for the next commitment period.
- New mechanisms for rapidly industrializing countries such as China, Brazil, India and South Africa to participate in the Kyoto emissions trading system (through sectoral or other quantified action commitments for greenhouse gas emission limitations and/or reductions, eg for the electricity sector). These will need to be tailored to the different circumstances of rapidly industrializing countries but must all involve additional action and not involve crediting for action that would have happened anyway.
- Establish an architecture for the Kyoto second commitment period that would enable any developing country that wishes to offer up national level quantitative emissions limitation commitments to do so.

2.4.4 A massive new Clean Technology Deployment Mechanism system aimed at kick-starting a rapid switch to clean, efficient, renewable technology in developing countries.

2.4.5 A Deforestation Reduction Mechanism that provides the necessary scale and financing to move towards zero deforestation within the next decade (for a detailed proposal, see below)

2.4.6 An Adaptation Mechanism track with a reliable financing mechanism linked to real needs and coupled to a large international effort to scale up adaptation action. The funds currently available to assess and counter the projected impacts do not begin to provide anywhere near the scale of funding required: $50bn per year should be set as a minimum. A post 2012 regime must ensure consistent and sufficient funding linked to the costs of adaptation and damages for the most vulnerable countries and should prioritise the most vulnerable communities and those with the least capacity to cope with climate change impacts.

3. Focus Resources on United Nations Negotiations Proper

The UK, the EU and other governments must focus all their resources on getting this comprehensive deal decided in Copenhagen. They should therefore not be side-tracked by other processes, such as the Bush Administration's Major Emitter process or the Asia-Pacific Partnership (APP). The Asia-Pacific Partnership illustrates just how unsuccessful a voluntary process can be. After over three years, the APP has nothing to show for itself. With no targets and no market drivers, it does not reduce emissions from the participating countries. The Major Economies/Emitter meetings are also a drain on crucial government time and resources. Despite the fact that the Bush administration entitled the first MEM meeting of 2008 in Honolulu (30–31 January: "Developing a Detailed Contribution in Support of the Bali Roadmap for UN Negotiations", it runs a great risk of undermining the negotiations taking place at the United Nations. At last year's G8 summit in Germany Bush was forced to formally accept that the MEM must contribute to the UN negotiations. But the US administration is using the MEM to push for the substitution of binding international commitments with voluntary pledges and aspirational targets. Bush's agenda of voluntarism is incompatible with the action needed on climate change that science requires. As the German Chancellor Angela Merkel observed last year, "I don't believe that it's enough to just agree that everyone will do their best. I don't believe that would yield an impressive result." She is right. In 2002, Bush set a voluntary target of reducing US energy intensity 18% by 2012. But greenhouse gas emissions are projected to increase by 12% over that period.[2]

4. Implementation at Home

4.1 One of the key contributions developed countries like the UK can make in the two years leading up to Copenhagen is to show the world that they are serious about combating climate change by acting forcefully at home. The UK must therefore strengthen its national emission reduction targets in order to meet the demands of the global scientific consensus. This means, for example, that the UK's independent Committee on Climate Change should move to at least match the lead shown by the Scottish Government's Climate Change Bill proposal and recommend a minimum 80% cut in emissions by 2050. New scientific models suggest that maybe even complete decarbonisation is required by mid century. The 60% cut mandated in the UK Climate Change Bill is certain to be inadequate.

4.2 The United Kingdom can only lead the global fight against climate change if it has a credible plan to deliver real reductions at home. Plans such as expansion of aviation capacity and specifically the proposal for a third runway at Heathrow airport, or the approval of new coal fired power stations such as that proposed at Kingsnorth, which tie the country into a carbon-intensive development path for many more decades, is simply incompatible with climate leadership. Facilitating and underwriting investment in new nuclear power stations which will at best achieve a very small reduction in emissions sometime after 2020 is also no way to show global environmental leadership.

[2] www.pewclimate.org/policy_center/analyses/response_bushpolicy.cfm

5. Action by other Key Players

5.1 Many in the UK think that whatever we do against climate change pales into insignificance compared to whether countries such as India and China change their development path and model. Such an interpretation is misleading on many levels. Over 80% of the emissions already in the atmosphere today are from the G8 countries alone. The Tyndall Centre has shown that about one quarter of China's emissions are due to the manufacture of goods for export and consumption in western countries, directly implicating western consumers with rising emissions there. UK-financed institutions, such as the World Bank and the Asian Development Bank also still contribute to the carbon-intensive development path of growing developing economies. The UK, for example, recently failed to object to a coal-fired power plant being financed by the Asian Development Bank with British taxpayer's money in Vietnam.

5.2 Remaining well below a two degree average global temperature rise will require a rapid decarbonisation of the growth in countries such as China and India. One of the most positive aspects of the Bali negotiations was therefore the pro-active attitude that China, in particular, took in the negotiations, making concrete proposals and agreeing to "Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner".[3] This commitment needs to be built upon and supported. China is already taking concrete action on climate change[4] and has ambitious targets on energy efficiency and renewable energies. The UK must support these plans with bilateral support and initiatives. Helping China and other developing countries to decarbonize their economies creates an enabling environment for all countries to commit to the additional action needed in 2009.

6. Combating Climate Change as Investment Opportunity

"Future energy infrastructure investment decisions, expected to exceed 20 trillion US$ between 2005 and 2030, will have long-term impacts on GHG emissions" (IPCC, page 18).[5]

Investing in a renewable electricity future makes good economic sense. It will save 10 times the fuel costs of a "business as usual" scenario based on fossil fuels; saving $180 billion USD annually and cutting CO_2 emissions in half by 2030.[6] As has been widely shown, we can double the efficiency with which we use energy. This is the most effective way to address rising demand for energy.[7]

7. Mechanism on Addressing Emissions from Deforestation

Greenpeace has made a detailed proposal, in the form of the Tropical Deforestation Emission Reduction Mechanism, on how emissions for deforestation can be addressed without cheap credits from such a mechanism undermining the carbon markets and without, for example, undermining the rights of indigenous peoples.[8]

7.1 Tropical Deforestation Emission Reduction Mechanism: Hybrid Market-Linked Fund.

7.1.2 The Tropical Deforestation Emission Reduction Mechanism (TDERM) attempts to fund sustainable and lasting reductions of emissions from tropical deforestation in participating countries to meet both climate and biodiversity objectives in the second commitment period of the Kyoto Protocol and beyond.

7.1.3 The TDERM would provide funding for forest protection driven by a mandatory minimum contribution from Annex I Parties to meet a percentage of their emission reduction obligations. A new unit for Annex I countries to be used for compliance with emission obligations would be created—"Tropical Deforestation Emission Reduction Units (TDERUs)" set at a market rate by the Tropical Deforestation Emission Reduction Mechanism. The proceeds of the sale of TDERUs would be used by the TDERM to fund and reward reductions in emissions from participating developing countries and provides a reliable source of funding to reduce deforestation. In order to guarantee a volume of funds, Annex I Parties would be required to meet a fixed part of their emissions obligations (X%) using TDERUs purchased from the mechanism. No strong recommendation here is made for 'X' except that it needs to be set at a level that ensures sufficient funds to significantly reduce deforestation and that the setting of this number needs to be done in conjunction with the establishment of the post-2012 emission reduction targets on industrial greenhouse gases for the Annex I as a whole. This is essential to avoid the negative scale effects on the carbon market (which would likely lower the overall price of credits and undermine efforts to invest in cleaner energy technologies).

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[3] http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf, Para I b) ii.
[4] http://www.greenpeace.org/raw/content/international/press/reports/briefing-China-and-climate-change.pdf
[5] http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf
[6] This is the conclusion of Greenpeace's joint study with the European Renewable Energy Council: Future Investment, which is available at: http://www.greenpeace.org/international/press/reports/future-investment
[7] See Greenpeace energy revolution scenarios: www.energyblueprint.info
[8] Tropical Deforestation Emission Reduction Mechanism (See Appendix 2): http://www.greenpeace.org/raw/content/international/press/reports/TDERM.pdf

7.1.4 In addition to the mandatory minimum level of contributions (X%), Annex I Parties could elect to purchase and hold up to a maximum of Y% of their base year emissions by purchasing TDERUs from the Mechanism. The setting of an upper limit on the amount of TDERUs that can be used towards compliance with emission obligations by Annex I Parties would transparently address the scale effect issues discussed previously. The Mechanism would be required to disburse its funds for verifiable reductions in deforestation emissions by developing countries, who participate according to their differentiated capacities.

7.1.5 The major elements of the proposed Tropical Deforestation Emission Reduction Mechanism are:

7.1.6 A new international trading unit. A new Tropical Deforestation Emission Reduction Unit (TDERU) would be created for use in the Kyoto trading system by Annex I Parties to meet their emission reduction obligations. The new units (TDERUs) would be issued by the proposed Tropical Deforestation Emission Reduction Mechanism.

7.1.7 Mandatory minimum. Annex I Parties would be required to purchase and to hold a minimum amount of TDERUs, equivalent to X% of their base year emissions (times the number of years in a compliance period—5 years). This would ensure that the Mechanism has a significant level of funding.

7.1.8 Limit on supply. The supply of TDERUs would be limited to an agreed maximum percentage (Y%) of Annex I base year emissions to be issued annually. The Y% limit would need to be set to ensure sufficient funds were available to substantially reduce deforestation. A carbon price in the Kyoto second commitment period of €20/t CO_2e, and Y = 3% limit could generate around €14 billion/year.

7.1.9 Sale price set by auction. The price of TDERUs could be determined by auctioning or by setting a price linked to the world market price for Kyoto units.

7.1.10 Proceeds of TDERU sales used to reward or incentivise reductions in all eligible countries. The Mechanism would use the proceeds from the sale of TDERUs to reward and incentivise deforestation reduction activities in all eligible developing countries, through modalities tailored for the wide range of different capacities of countries, including those with low deforestation rates. The modalities and rules for rewarding and incentivizing countries would ensure that funds would be distributed to the appropriate stakeholders to ensure both equitable benefit sharing and that they are provided with the right incentives to maintain forests over time.

7.1.11 Portfolio performance approach to overall emission reductions. The Mechanism would be required to reduce deforestation emissions (measured in CO_2 equivalent tonnes) by a multiple of the total TDERUs issued and as a portfolio of its overall activities. The portfolio performance approach should permit the Mechanism to tailor investments to the widest range of countries, capacities and circumstances, whilst ensuring that overall emissions are reduced substantially. A discount factor is used between TDERUs and the emission reductions from deforestation as a proxy for pragmatically resolving several kinds of uncertainty such as emissions estimation, baseline, and permanence concerns. It is very likely that there will be significant difference between the price obtained for a TDERU (€/tCO_2e) and the average cost of reducing deforestation: if €20/tCO_2e were the price of TDERU then a factor three discount would imply that average costs of reducing deforestation by the mechanism would need to be around €6-7/tCO_2e. Within the portfolio performance approach the use of discount factor would enable the Mechanism to expend resources on preventing deforestation in countries where it is not yet a large problem, yet still yield an overall substantial reduction in emissions from the entire portfolio of activities.

7.1.12 Pre-2013 incentives. In order to provide incentives before the end of 2012 the TDERM could be established at the latest by 2009 and be authorized to issue for sale a limited volume of TDERUs ahead of the beginning of the second commitment period in 2013. For example forward sale of TDERUs equivalent to 0.5% of Annex I base year emissions at a price of €20/tCO_2e could raise over €2 billion/year. If these were spent on activities that reduced deforestation at a cost of *circa* €7/tCO_2e this could reduce deforestation in the period before 2013 by about 0.6 million ha/year. Sufficient progress could be made in developing the mechanism within a year that could justify holding an initial auction of TDERUs by the end of 2008.

7.1.13 Governance structure. The complexity of the deforestation issue and the volume of funds that is required dictates that a robust governance system under the authority of the COP and/or COP/MOP is established to make decisions on policies, procedures, guidelines and criteria for incentivizing and rewarding reductions in deforestation emissions. Hence the TDERM proposal needs a governance structure which will support the operationalization of the Mechanism. Overall policy would be established by the COP and/or COP/MOP.

7.1.14 Equitable benefit sharing. To implement the TDERM at the national level, appropriate governance structures and participatory processes are required that include recognising the rights of all indigenous and forest peoples. Incentives for reducing deforestation need to be distributed to the appropriate stakeholders to ensure equitable benefit sharing.

7.1.15 Different Capacities and States of Development and Governance. The Mechanism would establish different modes of funding for rewarding deforestation reduction efforts depending on the ability to report, monitor and verify emission reductions reliably. The performance portfolio approach, and separate funding windows for countries with different capacities and states of development and governance, would allow the Mechanism to fund activities that prevent deforestation from expanding in places with currently low

deforestation rates, as well as achieve substantial overall reductions in deforestation. Funding should not be limited to countries where reductions in deforestation emissions is cheapest, nor countries with greater monitoring capacities and associated lower risks of impermanence.

8. Linking ETS with other Trading Systems

The European Trading System does not yet deliver the emission reductions needed, mainly due to flaws in the present design of the scheme. The EU should fix its own ETS system—and we would welcome steps by EU governments and the European parliament in this direction over the coming months after the Commission's legislative proposal of January 2008—before engaging in any major programme of linkage with any other trading system. If any links to other systems are made, it must be ensured that the schemes are comparable in all respects (such as their ambition and means of setting caps, allocation methodology, monitoring, verification, reporting and compliance).

9. Conclusion

The next two years are crucial for the future of global efforts to protect the climate. The Kyoto Protocol is not perfect, but it is the only viable basis for a comprehensive agreement for the post 2012 period. It needs to be strengthened to ensure that mean global temperature rise is kept as far below 2 degrees compared to pre-industrial levels as possible.

11 February 2008

Memorandum submitted by Cédric Philibert, International Energy Agency

1. I am employed by the International Energy Agency, but I want to make clear that I am not speaking on behalf of the IEA or its member governments. No implication of agreement by the IEA or its 27 member States with the views I express here should be made.

2. Over the last 15 years the International Energy Agency has conducted extensive research on many aspects of climate change and climate change mitigation, providing statistics and projections of current and future energy-related CO_2 emissions, offering perspectives on climate-friendly energy technologies, developing recommendations for energy efficiency policies, and analysing policy tools for greenhouse gas reductions from both theoretical and practical perspectives.

3. Over the last 10 years the Energy Efficiency and Environment Division at the IEA has also assessed various options for further engaging developing countries in the post-2012 climate mitigation effort, and facilitating the elaboration of a global mitigation framework that should include as many countries as possible, starting with all major emitters.

4. The concentration level and the timing of emission reductions in the ultimate objective of the Convention have not been spelled out. As the IPCC says, "determining what constitutes "dangerous anthropogenic interference with the climate system" in relation to Article 2 of the UNFCCC involves value judgments", but "science can support informed decisions on this issue." If long term temperature change is to be limited to any level below 3C, global emissions should return to 2000 levels by 2050, and preferably lower. If long term temperature change is to be limited to 2°C, CO_2 emissions would need to peak before 2015 and then decrease to 15% to 50% of 2000 levels, by 2050.

5. For these two scenarios to remain achievable, reducing or even eliminating greenhouse gas (GHG) emissions of developed countries is not enough. Under the most likely scenarios, the unabated emissions of developing countries would alone exceed global levels compatible with these stabilization scenarios. For example, energy-related CO_2 emissions alone, from developing countries only, would reach 32 Gt CO_2 by 2050 under the Baseline Scenario of our *Energy Technology Perspectives 2006*—that is 12.5% higher than global emissions in 2000. The world would most certainly exceed the 2 or 3°C temperature change mentioned above.

6. Emissions are growing most rapidly in developing countries. China is now the largest emitter of CO_2 from fossil fuel use, with the USA as second. India will soon rank third. Taking in account all greenhouse gases and sources, including agriculture and deforestation, India, Indonesia and Brazil are among the fifth largest emitters.

7. Developing country participation in a future framework to reduce GHG matters for other reasons than their emissions growth rate. Some of our energy-intensive industries face constraints that their competitors in developing countries do not. It is politically difficult to envision a framework that could, in the end, encourage re-location to the developing world, at the expense of our industrial output. Such re-location could also hamper the environmental goal if it leads to a relative increase in emissions, or leakage. Finally, the United States is unlikely to accept a significant effort to cut emissions if major developing countries do not take part as well.

8. I will consider the need for various options for future action by developing countries, and what these options might be. I will then suggest a possible progression from the softer and narrower ones to the harder and broader ones. I will finally offer some concluding thoughts.

The Need for New Options

9. Developing countries have adamantly refused to take on binding commitments on their emissions during the negotiations that led to the Kyoto agreement. In most developing countries, *per capita* emissions and, more importantly, *per capita* income, are significantly lower than those of most industrialised countries. Hence the distinction between developed countries—and among them countries in transition—and developing countries among Parties in the Kyoto Protocol, based on the Climate Convention's principle of "common but differentiated responsibilities and respective capabilities". While all countries have accepted the commitment to provide emission inventories and to adopt policies and measures to mitigate emissions, only developed countries have accepted binding commitments relative to their GHG emissions.

10. These commitments have themselves been differentiated amongst developed countries. Further, within the European Union itself, the burden-sharing agreement was an essential ingredient of the solidarity and unity amongst all Member States.

11. Future mitigation action by developing countries as part of a future mitigation architecture could require further differentiation in addition to the emission target. The nature of their commitments could also be diversified, to fit their national circumstances, including their economic and emissions evolution since 1992, when the distinction between developed and developing countries was cast in the Climate Convention. The notion that binding emission caps may represent a significant constraint on economic development is still strong in developing countries, and cannot be dismissed easily, given the many uncertainties on unabated emission trends and emission reduction potential. Alternative options must be explored, including those that may be transitory. This is why, since 2000, we have identified five broad options:

- policies and measures;
- sectoral targets;
- non-binding targets;
- indexed targets; and
- binding targets.

12. These options are still today the most-frequently mentioned, although sometimes under different names. Furthermore, over the years the issues of adaptation, financing and technology transfer have progressively been given a higher profile in the negotiations, alongside mitigation. Nevertheless, mitigation will remain the focus of this testimony, while obvious links with financing and technology transfers will be outlined.

13. The Bali Action Plan, adopted at COP-13, calls for the consideration of "nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner".

14. My own view is that, wherever appropriate, the various options that are compatible with quantitative objectives and flexible mechanisms such as those in the Kyoto Protocol can be tailored to satisfy, at least in part, the requirements of the Bali Action Plan. For example, flexibility mechanisms directly reward emission reductions below an agreed target, in a measurable, reportable and verifiable manner.

Policies and Measures

15. All Parties under the UNFCCC are supposed to introduce policies and measures to curb their greenhouse gas emissions. Current trends suggest that this element of the Convention is far from effective. Some policies and measures could conceivably be made "mandatory" in a future agreement. Having taken part to the negotiations of the Berlin Mandate in 1995 I can testify that, at that time at least, the developing countries were as strongly opposed to this possibility as they were to binding emission targets.

16. Another option would be to ask developing countries to commit themselves to various policies and measures. For some analysts, these policies should primarily aim at meeting the (sustainable) development needs, and curb the growth in GHG emissions as a secondary benefit—hence the often-quoted label "SD-PAMs" (for Sustainable Development Policies and Measures).

17. Commitments to implement specific policies and measures that lead to lower emissions could thus be made binding, with some commitment by developed countries to assist developed countries in the process of implementation. As an example, there are large possibilities for reducing emissions from energy efficiency improvements that would be self-rewarding due to energy savings, but may require help from more advanced nations.

18. Another possibility is to reward such policies through some new form of "carbon credits", which developing countries could sell on the international carbon market. However, "crediting" policies and measures is analytically complex because of difficulties in estimating the effects of such policies.

Furthermore, crediting emission reduction policies will encourage developing countries to select "good policies", leaving out those that lead to rising emission levels. A better option might be to leave the countries committed to various policies with the option to seek for further reward through the flexible mechanisms with sector-wide or country-wide non-binding targets.

19. Commitments to some policies and measures could provide a useful starting point for developing countries to collect and document relevant policies in a systematic and harmonised manner—and offer an opportunity for these types of actions to be officially recognised.

Sectoral Targets

20. Sectoral targets could be of different types, but I focus here on country-specific quantitative sectoral targets. In this model, a country's initiative limited to a sector is recognised by the international community (eg UNFCCC Parties). Here, one could envision the possibility to credit greenhouse gas emission reductions on a sectoral basis. Sectoral targets of this kind could be binding or not.

21. A strong argument in favour of sectoral targets may come from the recognition that when it comes to energy/CO2 performance, the frontier between developed and developing countries becomes blurred. While on average OECD countries' industry tends to use energy more efficiently, the most efficient plants are sometimes found in developing countries. If capacity and technology are available in these regions, the central question is how to promote their broader diffusion. Another possible advantage of sectoral targets is to allow a focus on the most advanced sectors in a developing country, and those that operate in the same markets and face the same price as their developed country counterparts.

22. There are various possibilities for setting sector-wide targets. Companies usually favour benchmarking, objectives set per unit of output. The data needs are not trivial, and the definition of output may be difficult in some sectors—not to mention the monitoring aspects of such policy instruments, in countries where government capacity is lacking.

23. Interestingly, the proposal for the revision of the EU emissions trading scheme refers to such sectoral approaches, in its discussion of trade-exposed industries that may suffer from emissions leakage if outside competitors do not bear the cost of CO_2 emissions. Sectors possibly at stake include cement, iron and steel, aluminium, paper and pulp, glass, oil refining, to name a few. This option is drawing a lot of attention, although no obvious solution exists to bring together actors facing hard emission constraints in our countries, with those enjoying a free ride in the rest of the world. I would note that the risk of trade measures is never far.

24. If sectoral targets is the main driver of emission reductions in the developing world, the energy supply and energy consuming sectors (heat and power, buildings, industry, transport), but also, depending on the country, the agriculture and forestry sectors, could be considered more broadly. One obvious candidate may be power generation, the largest and most rapidly growing source of CO_2 in the developing world. Emissions and output are relatively easy to monitor and there is good experience in setting baselines, thanks to the Clean Development Mechanism.

Non-binding Targets

25. A country subject to a non-binding target would be allowed to sell emission allowances for any reduction below its target—but not forced to buy allowances if emissions were higher. No constraint on emissions could thus risk constrain the economic development. This is why they are often named "no-lose targets".

26. Various levels for non-binding targets can be identified. A first level would be that of future unabated emissions, following business-as-usual trends. All emission reductions would be rewarded through the flexible mechanisms, ie at the expense of other countries. A second, lower level would be that of future emissions when "win-win" reduction possibilities—energy savings, ancillary benefits—are taken in account. Only emission reductions below that level would be made at the expense of other countries.

27. The non-binding nature of the target may provide a different negotiating atmosphere. For it is non-binding it cannot be perceived as a threat for economic development. Developing countries will be negotiating the size of an advantage, not the level of a constraint. The perspective of their partners in the negotiating process would also evolve. Stringent targets always look better. But too stringent a target increases the risk that it ends up overtaken by actual emissions and ignored. There is thus a kind of common interest of all negotiators in negotiating in good faith a realistic, achievable target.

Indexed Targets

28. Indexation would allow for revising assigned amounts as economic growth deviates from shared expectations—with a great variety of possible rules and importance of revisions. It would be wrong to state that indexed targets are weak by their sheer nature. A fixed target can be set at high levels and bring hot air. Indexed targets can be exactly as ambitious as fixed targets—or more, as they remove part of the cost uncertainty.

29. "Intensity" targets, where the targets are expressed in emissions per GDP unit, represent an extreme form of indexed target. I would favour partial indexation only. If growth was more rapid than expected it also drove more rapid rotation of capital stock and provided more opportunities for abatement. If growth was less rapid than expected, reducing allowed emissions may become a double pain in sluggish economies, since some emissions are relatively independent from economic activities.

Binding Targets

30. I consider here "fixed" binding targets like those currently taken by Annex I countries in the Kyoto Protocol. Parameters that might be considered in this option include country ranking, timing, thresholds, and stringency of commitments. These parameters might be developed individually, or in the framework of burden sharing of a specified global emission or concentration target. We will also briefly discuss here the possible introduction of price caps in the international commitments.

31. Procedures have been suggested for negotiating legally binding absolute targets for non-Annex-I countries. They usually recognise that these targets would be "growth targets": a developing country commitment would likely be set at some level above the country's current emission level. This was already the case of some Annex-I countries in the Kyoto Protocol, and some others through the European joint-fulfilment agreement, even though industrialised countries' emissions are, on aggregate, capped at 5.2% below their current levels.

32. An important subset of proposals tries to draw countries' commitments from a global objective for emissions, concentrations or even temperature change, largely in an effort to promote equity. This is notably the case for the "Contraction and Convergence" scheme. Other allocation approaches start also from the need to achieve convergence but distinguish among the various sectors of the economies. Under the "Global Triptych Approach", for example, one would base allocation on the convergence of greenhouse gas intensity for the power generation; on the convergence in energy efficiency for the energy intensive industry; and on *per capita* GHG emissions for the domestic sector that includes transportation and the residential/small business sector. Other analyses have extended such approaches to more sectors and more gases.

33. Developing countries accepting fixed and binding targets will recall their legitimate need to develop their economy and likely seek for an allocation that binds but does not bite—ie over and beyond the highest projections of future unabated emissions. Uncertainty in unabated trends and technology developments, is at stake here. While industrialised countries may still benefit from extending the mitigation framework to developing countries through accessing large potentials of presumed cheap emission reductions, the obligation of making large payments to other countries—not only for actual reductions but also for hot air trading—can raise political difficulties.

34. One possible way for alleviating the risk that binding targets entail unexpectedly high costs is to introduce price caps ("safety valves"), ie the possibility for a country (or emission sources within a country) to acquire additional allowances at a set price. Indeed, this possibility could be open to industrialised countries as well. Provided the price level is set sufficiently high, ie in the upper range of cost expectations resulting from a given target, the option may help countries adopt targets relatively more ambitious than in its absence. It may prove an essential ingredient for bringing some countries, industrialised or developing, into the international mitigation architecture. For climate change is driven by the accumulation of greenhouse gas in the atmosphere, the precision in achieving a given objective in any specified short period of time may be less important than the overall ambition of the mitigation scheme—as well as the breadth of its coverage.

35. Developing countries accepting binding targets could conceivably allow their economies some protection against possible high carbon prices with price caps that could be lower, although the level of efforts will likely be differentiated in the allocation process. Trading amongst areas with uneven price cap levels remains possible—one simply needs to make sure that a country ends up a net seller only if it is in full compliance ie does not "use" its price cap. A prerequisite for this option, though, might be that industrialised countries too face financial consequences if their emissions exceed their target, whether these consequences take the form of financial penalties or of price caps (with no obligation to restore their target)

Possible Graduation

36. The future GHG mitigation framework could incorporate various types of quantitative objectives. I would like to suggest a possible progression. UN agencies often distinguish "low-income", "middle-income", and "high-income" developing countries.

37. In the large group of low-income countries, with *per capita* GDP below USD 1,000, they further distinguish the "least-developed countries", characterised by a "human resource weakness criterion"—and a relatively small size. These 50 countries currently total about 750 million inhabitants. Commitments on various policies and measures, with the help of the rest of the world, might be the more realistic option for these least-developed countries.

38. There are 15 low-income developing countries that are not LDCs. Seven—China, India, Indonesia, Pakistan, Nigeria, Philippines and Vietnam—total more than three billion inhabitants. The emissions from some sectors of three of them would rank higher by size than the overall emissions of various other countries. Heat and power generation in China and India, Industry in China and India, Agriculture in China all emit each year more than half a billion tonnes CO_2-Eq. Sectoral targets and/or non-binding targets could offer realistic possibilities to these countries.

39. Indexed targets could be an option for the 50 "middle-income" developing countries, with GDP *per capita* below USD 4,500, which is close to the *per capita* income of the less-wealthy Annex-I countries by 1997 at the time of the Kyoto Protocol. Brazil, Egypt, Iran, Thailand and South Africa are the most important ones. Note that Agriculture and Land-Use Change in Brazil also emit each year more than half a billion tonnes CO_2-Eq each.

40. Binding targets—not excluding the possible inclusion of safety valves—could be an option for the 50 "high-income developing countries", whose *per capita* GDP is today higher than the level of wealth reached in 1997 by the less-wealthy industrialised countries having accepted such commitment in the Kyoto Protocol. The largest are Mexico, Korea, Argentina, Saudi Arabia and Venezuela.

41. I must underline a few aspects of this suggestion. First, though it does include some elements of human resources and size (for LDCs), it is mostly based on per capita income levels. This I believe is more relevant than *per capita* energy consumption or *per capita* CO_2 or CO_2-equivalent emissions, which are too much dependant on a wide range of national circumstances—even more so than total CO_2 or GHG emissions, which primarily reflect the size of a country, only one possible dimension of its capacities.

42. If the forthcoming framework is based on some flexible mechanisms as one may wish, then what matters first is the level of wealth—the willingness to pay for climate stabilisation, the financial and technological capabilities, the purchasing power of the various populations. To some extent this indicator also captures elements of historical responsibility and capability.

43. The grouping of countries mentioned here is that of the UN system, and is based on exchange rates. Purchasing power parities (PPP) would elevate many developing countries, including China and even India, to the level of wealth of the less-rich industrialised countries by 1997. This does not seem entirely realistic to me, in particular as mitigating climate change will require the development and transfer of internationally tradable lean carbon emitting technologies. PPP do not adequately reflect the capacity of a country to be present on international markets, as exchange rates do. However, as this is only one dimension of climate mitigation, one may seek for more complex indicators mixing these two measures of income.

44. Let me also outline the very rough nature of the progression I have suggested here. Whatever the level of development of a given country, a non-binding target set at a relatively low level might be preferred to a binding one set a too high a level. Good policies might be preferred to too generous binding sector targets. In a nutshell, no option can be deemed superior until numbers have been agreed, and details worked out.

Concluding Thoughts

45. First, on the issue of technology development and transfer, and financing. If the international mitigation framework is based on some form of differentiated quantitative emission targets and flexible mechanisms, financing and technology development and transfer will come along. This does not mean that other forms of international cooperation are not useful—we at the IEA host about 40 implementing agreements about energy technology, from end-uses to renewable to carbon capture and storage, and we welcome developing country participation.

46. This does not mean either that new specific mechanisms could not help, in particular in the framework of policies and measures. One example of particular relevance would be the energy efficiency partnership currently under discussions. It means that climate negotiators should always remind or be reminded that accepting some form of an emission targets in itself may bring its counterpart in financial and technological terms.

47. Second, on the Clean Development Mechanism. It suffers from various limitations. Nuclear power has been excluded, carbon dioxide capture and storage has not—not yet?—been included. Halting deforestation is not in, reforestation projects are limited. Energy efficiency projects have difficulties finding their way in the additionality assessment procedures. Low demand and low prices do not favour renewable energy projects either. While the CDM would remain a useful tool in countries with no emission cap of any kind, its greater merit may be to have paved the way for broader mechanisms.

48. Third, on the issue of reducing emissions from deforestation in developing countries (REDD). Except for possible methodological uncertainties I would see no specific reason to exclude emissions or removals from land-use change and forestry from a country-wide target of a developing economy, as is the case for industrialised countries in the Kyoto Protocol.

49. Finally, I would like to draw your attention to some specificities of energy use in developing countries. About 2.4 billion people in developing countries depend on biomass for cooking and (water) heating. Collecting this biomass is time-consuming and often not sustainable. Its combustion is often inefficient, incomplete and polluting—with large health damage from in-door air pollution. While biomass use can be

made more effective and healthier, its substitution with cleaner fossil fuels, such as kerosene and, preferably, LPG, is often an easy way to rapidly improve the living standard of the poor. Negotiators must take care that country-wide GHG targets in developing countries, binding or not, do not result in halting the transition from dangerous biomass uses to cleaner fossil fuel use, whose aggregate impact on GHG emissions will likely remain marginal.

January 2008

Memorandum submitted by Saleemul Huq, Head, Climate Change Group, International Institute for Environment and Development

ADAPTATION AND TECHNOLOGY

5.1 *Is there adequate support for developing countries to adapt to climate change?*

The current funding available to support adaptation in the developing countries under the UNFCCC (ie the Least Developed Countries Fund and the Special Climate Change Fund) and the Kyoto Protocol (ie the Adaptation fund) currently have several million Pounds available which are utterly inadequate compared to the estimated demand (which is likely to be many tens of Billions of pounds a year) as estimated by the World Bank and UNFCCC). It will therefore, be necessary to agree on new and innovative funding mechanisms which are able to (i) generate the magnitudes of funding required and (ii) do so on regular year-on-year basis.

The Adaptation Fund under the Kyoto Protocol is a new and innovative funding mechanism based as it is on an "Adaptation Levy", ie 2% of certified emission reductions (CERs) approved under the Clean Development Mechanism (CDM). This does not involve national development assistance funds but is a global tax (or levy) on an international transaction. It is estimated that this "adaptation levy" on CDM transactions will generate several hundred million Pounds by 2012.

There are already proposals by a number of countries (including the least developed countries group) that the "adaptation levy" be applied to the other flexible mechanisms under the Kyoto Protocol, such as the Joint Implementation (JI) as well as the European Trading Scheme (ETS). If this were to be agreed then the amount of funds generated for the Adaptation Fund would increase by an order of magnitude to over a billion pounds a year. The latter could be done by retaining a percentage of the funds generated from auctioning emission rights in the next phase of the ETS.

There are also some proposals to extend the "adaptation levy" beyond the flexible mechanisms to polluting activities, such as international air travel. Thus, for example, if the 2% adaptation levy were to be applied to international air passenger tickets it would generate in the order of 10 billion pounds a year in additional fund flows.

These are some of the avenues that will need to be explored in order to generate the amounts of funding that will be required by the developing countries to meet the costs of adaptation to climate change.

5.2 *Should there be binding targets for funding and how could these be decided?*

It is possible for Annex I countries to also agree on binding targets for funding. These could be either agreed on a voluntary basis by each Annex I country, or (admittedly more difficult to achieve) on an agreed proportion based on levels of emissions of each country.

The most important point to agree on ways of generating the amounts needed on a regular basis, whether by innovative funding mechanisms or by binding targets by Annex I countries.

5.3 *How will funding for climate change mitigation or adaptation interact with existing aid budgets?*

The Annex I countries under the UNFCCC are committed to finding new funding mechanisms to pay the developing countries for the costs of both mitigation as well as adaptation. However, that does not mean that there is not a role for Official Development Assistance (ODA) to support certain climate change related activities (including both mitigation as well as adaptation).

The first thing that development funding agencies, both bilateral as well as multilateral, need to do is to examine their own investment portfolios in the developing countries and screen them for climate sensitivity as well opportunities for mitigation actions. For the projects that exhibit such opportunities for both "climate proofing" (or adaptation) as well as being more "climate friendly" (ie mitigation) they can be funded from the regular budgets of those projects (the costs are unlikely to be increased by more than a few percent in most cases).

However, for the bulk of the technology transfer needed (primarily for mitigation) and "climate proofing" (for adaptation) under the auspices of the UNFCCC, new and non –ODA funding will need to be found.

5.4 *Will such funding contribute to wider sustainable development goals?*

The utilisation of such funding (both for mitigation as well as adaptation) will need to be linked very closely with sound sustainable development policies and practices in the developing countries. Here, we are beginning to find ways of ensuring that both mitigation as well as adaptation is carried out in ways that are compatible with sustainable development. This will not be too difficult a challenge to meet.

6.1 *Is there effective international coordination on technology R&D?*

Technology R&D on mitigation has been going on for a number of years and there are already a number of efforts to ensure effective international coordination.

On adaptation, however, it is still early days with respect to technology R&D and there are still no effective efforts to coordinate at the international level. One feature to bear in mind with regard to adaptation technology R&D is that it is less to do with hard technology (as in mitigation) and more to do with soft technology which incudes knowledge, practice and experience, etc. It is also less likely to follow the path of technology R&D and dissemination for mitigation where the technology is developed in the richer countries of the North and disseminated or transferred to the poorer countries of the South. Adaptation is so site specific in its nature that there is more value on South-South transfer of knowledge and technology than North-South.

There are, as yet, very few such South-South knowledge and technology dissemination efforts.

6.2 *How might technology transfer to developing countries be improved?*

In the case of adaptation technology (more broadly defined to include knowledge and practice as well as hard technology) the case is for promoting South-to-South exchange of knowledge and information, rather than only North-to-South. Indeed, given the fact the least developed countries have been the first to carry out national adaptation plans of action (NAPAs) there may even be a case of transfer of know-how and technology from the poorer countries of the South to the richer countries of the North.

February 2008

Witnesses: **Mr Charlie Kronick,** Senior Climate Advisor, Greenpeace UK, **Mr Cédric Philibert,** Principal Administrator, Energy Efficiency and Environmental Division, International Energy Agency (IED), and **Dr Saleemul Huq,** Head, Climate Change Division, International Institute for Environment and Development (IIED), gave evidence.

Q1 Chairman: Good morning and welcome. I have suggested that when our third witness arrives he just joins as soon as he can. We are quite strictly time limited ourselves. Would you just like to introduce yourselves to the Committee and just explain who you are and where you are from?
Mr Kronick: My name is Charlie Kronick. I am the Senior Climate Advisor for Greenpeace UK.
Dr Huq: My name is Saleemul Huq. I head the climate change programme at the International Institute for Environment and Development.

Q2 Chairman: Thank you. The latest IPCC report gives the strongest indication so far about what is needed if we are going to avoid dangerous climate change. Do you think that the international negotiations have enough urgency about them to reflect the conclusions that the scientists are now producing?
Mr Kronick: I was not at the last round, but I have been to a number. I think there is a sense of urgency around the process just by the sheer weight of numbers of interest that have come to bear on it. As for within the actual negotiating process itself, no, I do not. You only have to look at the exclusion of even guiding targets from the main tests about declaration for 2020 to see that not only could they not agree on targets to negotiate towards, they could not even agree to get them in for a very, very short period of time. I would say that urgency is lacking from the core of the process. In terms of the general circus itself, I think it is building a lot of speed. It might be more heat than light.
Dr Huq: I was in Bali and I would agree with Charlie's analysis. However, I would put a slightly better spin on it in that Bali was never going to be a decision-making process. It was to set us a timeline and we did, we have Copenhagen as a timeline. Countries are not going to reveal all their cards until the end of that timeline. To expect them to put all their proposals on the table this early in the process I think was unrealistic. They are keeping their cards close to their chest. They are going to be in very intense negotiations. We now have a two-year timeline up to Copenhagen in December 2009, which was a major outcome of Bali. I agree with Charlie, not getting certain words into the agreement from the IPCC was not a good sign but, nevertheless, it was not fatal to the process.
Mr Kronick: I would agree with that.

Q3 Chairman: And you are happy that the IPCC dates and targets that are in the latest assessment are the right starting point for the negotiations?
Dr Huq: Absolutely. The advantage of them is that they are consensus driven; no country can disagree with them. Some of us might disagree with them being not enough, but at least at the level they are at countries cannot disagree with them.

Mr Kronick: One of the important things to remember about the IPCC is the rear view mirror. It looks at the peer reviewed literature from the period before which it was published, which means inevitably it is not the most current. Climate science moves so fast that the most current data is not included and that sense of urgency even came out from the IPCC meetings, that certain things could just not make it into the papers.

Q4 Chairman: Without wanting to be too gloomy about it, it seems to me that the science is getting stronger and stronger and the threat is more and more urgent and more serious, but even the most forward looking countries are struggling to get anywhere near the current targets, which has almost universally meant not one will be prepared to touch it. That is quite a gloomy background if we say that no one, even the best countries, is going to reach what we thought was needed five years ago. We now know much more is included. You would have to be a pretty optimistic person to think that is the starting point from which a satisfactory conclusion is going to be reached, would you not?

Mr Kronick: You would not do this work if you were not quite an optimistic sort of person! That is a reasonable analysis. I guess what I would add to that or try to unpack a little bit is the way the process has been led since 1997 in the Kyoto Protocol that has been around what seemed at the time almost peripheral mechanisms, which were the flexible mechanisms of the Kyoto Protocol, the CDM and the provisions for emissions trading. They were included for a very particular purpose and that was to get the United States and other big market economies to participate. Unfortunately, for the people who took that gamble—and that includes the NGOs who supported it post-1997—it has not worked in that way and yet the kind of incredible momentum of the market and the idea of carbon markets being able to deliver all the results that we need mean that it is not surprising that we are not anywhere close to achieving a sense of urgency or the level of engagement that is needed. Greenpeace is very happy that carbon markets are a part of this process, but the idea that a market mechanism and a price on carbon was ever going to be enough to completely shift away infrastructure investment across the developing and developed world was very optimistic and I think totally unrealistic.

Dr Huq: I think during Kyoto and just post-Kyoto there was still a prevailing view that we needed to make an incremental change and tinker with the system and we would be able to deliver. That view is now shattered. It just is not going to work that way. We will need quite a severe paradigm shift in terms of legislation, policies, technologies and business involvement. More and more of the public in general, even the business community, are becoming aware that that is what is going to be needed. What we therefore need to do is to get the political will amongst the leadership to come to an agreement that does deliver that. It will not happen on its own; it will require a top-down political agreement at the global level with all countries on board.

Q5 Mark Lazarowicz: The UN process is obviously crucial, but it certainly has been suggested that it is equally important to have progress in negotiations and other fora. Do you agree it is important to take that forward? If you do, what do you think is the objective that we should be taking forward in the Japanese presidency of the G8?

Mr Kronick: I think the G8 has obviously taken climate change as a bit of core business for them. In terms of the Japanese presidency, until the US presidency changes and there is someone different in the White House in 2009 there is going to be very little likelihood of a big resolution on these issues by the end of the Japanese presidency. I guess it depends on which other processes you mean. I think the G8 is powerful because of the power of the economies. Some of the parallel processes that have been put forward by the US administration, for example, or Australia pre their election, like the Asia-Pacific partnerships, are a genuine distraction from the Kyoto and post-Kyoto process. We would encourage any national governments that are positively engaging with the Kyoto process not to be distracted by the things that the Bush administration has put forward. Having said that, there are other processes that are pretty important, eg the Convention on Biological Diversity, which has big impacts on global deforestation, which in turn has a very important role to play in avoiding dangerous climate change, and could be very, very powerful, but it is being marginalized at the moment. There are some processes that are getting no attention that could be much more important and there are some that are getting lots of attention that are, frankly, nothing but a distraction.

Dr Huq: The climate change issue or problem is such an over-arching and all-encompassing one that it is not going to be solved by one particular process alone. It does require engagement by different actors, including the summit meetings of the G8 leaders and the G8 plus five leaders as well as processes led by the Secretary General at the UN General Assembly, for example, or even meetings like Davos where the business community come together. They all have a role to play in bringing together, but fundamentally they must support the UNFCC process because without a global deal—and that is the only binding treaty we have—voluntary agreements amongst the big emitters are not going to deliver. The UNFCC is the only place where 100 of the poorest most vulnerable countries, the countries in the Sub-Saharan Africa, the least developed countries, the small island states, who are not big emitters but who will suffer the consequences of climate change and the lack of action by the big emitters, can hold the big emitters to account. They are not invited to the G8 plus five.

Q6 Mark Lazarowicz: Equally, if the G8 plus five were pressing hard in this area then it would obviously, one would assume, lead to a greater possibility of progress, but as you suggest, if we cannot expect much from the Japanese presidency that is not very encouraging, is it?

Dr Huq: We should try and get as much as we can. As Charlie says, I think the general consensus of most people following this is that the Bush White House is not going to change its tune. The post-Bush White House will almost certainly change its tune. The major contenders right now are all on board with climate change and the US is coming back on board. Negotiating with them perhaps around the Bush White House might be the way forward with the US. The others can take action or at least agree on certain things that they need to do. They should all reinforce an agreement under the UNFCC process.

Q7 Mark Lazarowicz: Do you see any possibility of a Japanese government during the G8 process adopting the 25–40% reduction target?
Dr Huq: Not by consensus. The US will not agree to that. The Japanese may do it voluntarily. The Japanese Prime Minister has proposed something similar along those lines himself.

Q8 Dr Turner: It is not only the science that has moved on at a great pace since the start of the Kyoto process, but some of the developing countries have been growing economically very fast and becoming very major CO_2 emitters in their own right. How do you feel about the attitude of developing countries in accepting that climate change is an issue that they have to contribute towards the mitigation of?
Dr Huq: I sense a change in attitude. It used to be the case that the G77 in general and particularly countries like India, China and Brazil said, "It's an Annex 1 country problem. You solve it. Don't ask us to do anything about it." I sense that they have changed their attitude for two reasons. Firstly, there is a lot more analysis being done within countries like India, China and Brazil about the potential impacts of climate change on them and it is not good news for them. Their own scientists are telling them that this is a severe problem for their own populations, particularly the more vulnerable populations within those countries and therefore they need to become part of the solution and not just leave it to others. That has not necessarily moved them to changing their negotiating positions, although it has softened it a bit. The Chinese, for example, in Bali are no longer saying they will not do anything; they are saying, "We are willing to do our bit, but we need technology and we need funding and so on." The debate goes into technology transfer and funding for technology transfer and not unwillingness on their part to take action but willingness provided they are given support. In India it is a bit more confused. The Indian government tends to be a bit more intransigent. Even so, within India there is a growing debate amongst civil society, amongst the scientific community and amongst the private sector in India that has been very much involved in the CDM, for example. It is a very small but strong and growing cohort of business people in India that like the carbon market and CDM want more of it and want India to be part of that post-2012 regime where there are more CDM opportunities available. There is a growing sense within these countries that they need to become part of the solution and the governments ought to take on some form of commitments. What those form of commitments will be remains to be seen. There are a lot of hard negotiations needed to do that.

Q9 Colin Challen: Could I just take on this issue of India's alleged reluctance because at the UK-India summit last month the two prime ministers agreed that a future framework might well be the convergence model on a per capita basis. Does that not show that India is engaged but wants to be so on a basis which is fair and equitable?
Dr Huq: Absolutely. The Indians have always pushed for the notion of equity to be fundamental, which it had not been in Kyoto. Kyoto was grandfathering rights to pollution, whereas the Indians have always championed the cause or at least incorporating an element of equity in terms of per capita emissions to be recognised. India's per capita emissions are very, very low. China, on the other hand, will reach the global average fairly soon, but India has a long way to go.
Mr Kronick: You have to drill down a little bit into that. India is around 1.2 billion and growing. 750 million of those people live on less than a dollar a day and then there are about 300 million people, roughly the size of the EU 15, who live roughly at a European level of consumption and sometimes higher level of consumption. Greenpeace India, did a very interesting report, which I would happily submit to the Committee, which is called "Hiding behind the poor", which says that at least the 'global consumer' class that is resident in India—and that includes the government—does need to get a grip on infrastructure investments, which is what is really driving emissions in India, not poverty eradication, sadly. It is more complicated than saying India has low per capita emissions just as in China the averages are growing up. It is where there can be a genuine attempt to develop a solution to that problem which has got to be about infrastructure and not about accounting that will begin to address the problem. Greenpeace feels very strongly that that is where the real opportunity for commitments from those big emerging economies in the developing world will come from, which is focusing on particular sectors where not only technology and money can be shared but you can set up a genuine political objective, which is not just about the science, it is an awful lot about the politics.
Chairman: Can I just welcome Mr Philibert to the Committee. It is a very informal session with people just throwing questions out. If there is one that you want to answer, do not wait to be called, just jump in.

Q10 Dr Turner: Phil Woolas MP, our own Climate Change Minister, recently criticised India for not seeming to wish to address climate change because he thought that India saw the question as a trade-off and a choice between either economic growth or mitigating climate change. Do you think that is a fair analysis of Indian attitudes and, if so, how do you think we can address that one?

Dr Huq: I think it is a fair description of the attitude of some people and perhaps also fair of the attitude of the Indian government in the past. In India now there is a growing sense of debate and different attitudes arising amongst civil society and the scientific community, the business community and even within different parts of the government where they are looking at a much more nuanced view of this issue. The view that it does not necessarily require compromising development and improving quality of life, particularly of the poor, by taking a cleaner pathway to the future energy and infrastructure requirements of the country is something that is becoming a part of that argument as well. I do not think it is a monolithic view any more, if it was at any time. The Indian government and people will take a much more sophisticated view of this in future, particularly in the negotiations.

Q11 Dr Turner: Do you think that developing countries now recognise that in the likes of their different circumstances they need to adopt different responsibilities and to take account of those circumstances in their approach to climate change mitigation?

Dr Huq: Absolutely. That is already happening. If you look at some of the debates that occurred in Bali, they were not all between north and south, there was also quite a lot of internal debate within the G77 with country groups, eg the small island states and the Least Developed Countries Group, challenging India, China and Brazil and saying, "You cannot continue to say you will not do anything. You are big emitters. You have to become part of the solution. You have to offer something on the table." To some extent I think the change in the nuance and tone of these large countries came from pressure from other countries in the south for them to become more amenable to taking action or at least being more open to the possibilities.

Q12 Dr Turner: Presumably this is being driven to a large extent by the realization amongst developing countries that they are going to be first in line for suffering adverse consequences.

Mr Kronick: I think they have known that for quite a while! The realization may be growing. If you look at the initiatives of the small island states, from very early on in this process they have been the ones who have taken the most progressive positions.

Q13 Dr Turner: Do you think we need to evolve different country groupings to take account of these circumstances? What sort of mitigation actions do you think would be appropriate to these new groupings?

Dr Huq: The G77, which is the negotiating group of the developing countries, is a very broad church, it has over 140 countries and with a huge differentiation amongst them and a lot of subgroups within them as well. They are already differentiated internally. Within those subgroups there are several that are of particular significance: the Alliance of Small Island States, about 40 island countries, the least developed countries, about 50 of the poorest countries and the Africa group as a whole, another 50 countries. There are overlaps between them, but these are significant subgroups within the G77. For these countries the problem of climate change is how it is going to impact them and how they are going to deal with the impacts, it is not about their emissions. Their emissions do not amount to much at all. Therefore, the question for them is, "What are the big emitters, including the big developing countries, going to do about this?" They are raising these issues. To the extent that countries like the UK and the EU can recognise these subgroups and deal with them, which they have not done very well in the past—Prime Minister Blair invited the five big emitters to the meeting in Gleneagles. He could have invited the Chairman of the LDC Group but he did not do that. They say, "When you want to talk to developing countries all you want to talk about is reducing their emissions and you invite the big emitters. What about us 100 countries who are going to suffer? Are we not part of the problem? Are we not eligible to be invited to the table to talk about this issue? It is going to affect us more than it is going to affect you or them."

Mr Kronick: These groups are not mandates, they are self-selecting and it is a fluid process. For example, there is no question that some of the newly industrialised, high income countries, ie South Korea, Singapore, Saudi Arabia, should be some of the people with obligations to mitigate and reduce emissions, but they are still in there with Malawi and Saudi Arabia and still arguing for compensation for loss of petrol sales down the road. We need to be a bit more robust amongst ourselves in differentiating between the interests of these groups.

Dr Turner: Especially given that some of these developing countries have per capita incomes as high as any of the G8.

Q14 Mr Hurd: Can I just bring you back to this dream of a global deal and probe you a little harder on this because this is the roadmap we are on and we have been on for a very long time. You are painting a vision of some optimism, that now a timeline is established and people are keeping their cards close to their chest there is going to be a mother of all negotiations and everything is going to click into place in Copenhagen. Can I put it to you that the process is tremendously flawed because it is allowed to proceed at the pace of the least ambitious. Let us just pick Saudi Arabia, for example. Saudi Arabia is not going to get us to where we need to get. Is it not time to get a little less visionary and much more pragmatic and recognise the fact that 80% of emissions come from 20 countries? Something like five industrial sectors are responsible for three-quarters of emissions. Is it not time to get very pragmatic and concentrate the conversation around those main players to get a deal done, around the smaller set of people that are actually going to make a difference?

Dr Huq: Let me answer in two ways. Firstly, that small set of countries are the ones that will have to make the major concessions or changes to reduce or solve the emissions problem. If we just leave it to

them to make the decision then in my view it is akin to the slave owners getting together and agreeing, "We don't like slavery, we're going to abolish it, but we will do it in a manner that does the least harm to us. We will phase it out, we will take it easy and it does not matter about the slaves, they're not invited to that decision-making process." For a billion people living in the poorest countries it is not about their emissions, it is about the big countries doing what is right to prevent the kind of dangerous climate change that the others will face. The consequences are not going to be borne by these few countries for their inaction. So being pragmatic may be one way to go but it is not going to solve the problems, it is not going to deliver. The only delivery will come under an agreed treaty, which is the only thing we have under the Framework Convention and that has to be done in Copenhagen. It is a window of opportunity. One has to be optimistic that we can get it there, perhaps unrealistically optimistic, but nevertheless I think that is the only place it will happen. Voluntary action by the big emitters is not going to deliver that.

Q15 Chairman: I think the purpose of the question was that the present process is not going to achieve what is necessary. Some of us have just been in Australia and we talked to the head negotiator for the Australians. I came away from the meeting profoundly depressed. It was mired in process discussions and there was absolutely no focus at all on the urgency or the scale of the problem. I think this is a paralysis which allows the more backsliding big countries to hide. They are saying that it is not their fault, that it is all mired in this ridiculous paraphernalia. The only chance of making a substantial action is to narrow it down to a much smaller group.

Dr Huq: I would put it slightly differently, if I may. I would say that what you are describing is the mindset of the negotiator. What we need is not the negotiator making these decisions but the Prime Minister making those decisions and he has to be visionary.

Mr Kronick: I would agree that if you put all your eggs in the Kyoto basket you would be bound to be disappointed. It is excruciating, it is glacial—actually, it is not as fast as some glaciers. It is not an either/or proposition. There has to be an overarching framework. I think there is a real opportunity for some of those big countries, including the UK, to claim some of the first mover advantage. I do not want to tread off into domestic politics, but as long as the countries that are supposed to be at the forefront of solving the problems of climate change are still contemplating building new tens of gigawatts of unmitigated coal fired power stations and expanding airport capacity in already the busiest airport in the world it is very hard to see how that process is going to move forward in a way that has anything like goodwill or good faith or even due diligence. The process has lots of flaws, but until there is some real leadership shown not just by the UK but by the significant, highly leveraged economies the process is bound to be tied up in this painful negotiating because it will be a race to the bottom, it will be the slowest.

Q16 Jo Swinson: I want to pick up on the point you raised about the tension in that you have got these much better developed countries now like Singapore and South Korea that are not being treated in that sort of category. In Australia we heard that there seemed to be very little prospect from this negotiating mindset that there could even be a change and that countries that have developed their economies can be moved into different categories for the purposes of this. What scope is there to take account of what development is taking place and re-evaluate what the responsibilities of different countries should be, and how might that impact on us achieving the goal of halving emissions by 2050?

Dr Huq: One of the windows of opportunity that we have now in the post-2012 negotiations which we did not have in Kyoto was that Kyoto was a one-size-fits-all solution, it was a target minus from 1990 and that was it. I think we can be more nuanced now. Countries, developing countries in particular, can take on programmatic targets, other kinds of commitments which are not a minus target from a 1990 level. I think that is a good thing. There are opportunities to do that. There are sectoral opportunities, there are many kinds of technology-led opportunities, renewable commitment opportunities and so on which can lead to a much more nuanced regime of commitments that will deliver what we want in terms of a cleaner pathway and less emissions associated with them than just taking a minus X%, which is what they have had to do in Kyoto.

Mr Kronick: There are some really specific examples one could point to. Clearly the electricity sector in rapidly developing economies is one which always gets pointed to, China and India, what about China and India? Let us develop mechanisms that allow us to support—when I say "us" I mean the developed economies—to support that transformation. It is clearly in our interest to do so. Stern onwards will say that those costs and those investments will be of huge benefit to developed as well as developing countries. Something that Greenpeace also feels is very important is the potential to develop a mechanism for avoided deforestation that allows countries which at the moment are not rapidly emerging economies but if we can avoid their emissions from deforestation it could make a really significant difference and add to the development pathway of those countries. There are mechanisms that I think need to be much more creative than we have been heretofore which genuinely has benefits for those developed countries and an incentive for them to get in as well as the nuanced approach to how you measure the progress.

Q17 Jo Swinson: When we were in China they were powering ahead with energy efficiency, they were very keen to cut their emissions per unit of GDP, but they are obviously a rapidly developing economy. They have still got great strides forward they want to

make for the quality of life of their population. They said that they were expecting their per capita emissions to rise and not stabilise until 2030. Do you think that kind of scenario can fit with the IPCC goals?

Dr Huq: The Chinese and the developing countries by and large will have to be allowed a certain period of rising emissions. There is just no way they can turn around their ship that quickly, which means that developed countries may have to take on a bigger responsibility in the overall arena. If there is this major shift towards a cleaner development path globally then I think their ability to turn around will also become quicker because the technology drives for cleaner technologies to replace the old fossil fueling burning and dirtier technologies will be much, much more rapid and the deployment of that will become much more easy for those countries in particular. That is my feeling on that. It may be over-optimistic, I am not sure.

Q18 Jo Swinson: So you think they might be able to revise that down from 2030 with more technology?

Dr Huq: I think so, yes. What we have to get the developing countries, particularly the rapidly industrialising ones, to think about is to rethink their development paths, whether they can de-link quality of life improvements and poverty alleviation for the poor people in their countries without taking a very dirty fossil fuel dependent pathway. There are a variety of technologies that can be deployed to do that and if they can be scaled up they can deliver that within a few decades, yes.

Q19 Jo Swinson: Let us say they are right and they will keep rising to 2030. What does that mean for overall global emissions? Does that throw it off course?

Mr Philibert: It all depends on what is meant by rising. You can start controlling the growth rate. What you will do before stopping and reducing emissions is to have a slower growth rate and this is compatible with the objective of halving global CO_2 emissions by 2050. There is still a little room for an increase in these emissions in the developing countries in the next ten to 15 years, but then we ought to enter into an era where global emissions decrease. I have just received the results of our last modeling exercise which will be published in the next few months on what is needed to achieve a halving of global energy related CO_2 emissions by 2050 below 2000 levels and basically half of it will be energy efficiency improvements. So it is very important, it needs to start now and there is a lot to do in this arena. The other half is decarbonising the fuel mix. Basically we found that we could achieve that with about half of electricity production being renewables and the other half being shared in almost equal shares between nuclear and carbon dioxide capture and storage. Of course, if you can think up and implement big changes in the way people live and consume energy you will find different results, but we at the IEA are looking more at the technological aspects of it, not at the ways to reduce energy services, but with energy services kept constant at the baseline we have found that we can achieve this half with energy efficiency and the other half with a mix of renewable, nuclear and CCS.

Mr Kronick: Greenpeace has also done lots of energy modelling and scenarios which enables you, not surprisingly, to achieve those goals without nuclear and without carbon capture and storage but with a different model for including decentralised energy distributed generation as well as ambitious targets for energy efficiency. I do not think it is all about technology and Greenpeace does not either. An over-emphasis on technology will lead us into a situation where the power politics of the market will determine. Whether it is a global commodity in carbon or a global commodity in coal, gas or even palm oil or biomass, the powerful players will drive it. There is inevitably a tension between ongoing global economic growth --- Nobody is willing at the moment, in the context of the discussion we are currently having, to challenge their right to economic growth and that includes the rich countries as well as the poor ones. So I think it comes back to what Saleemul referred to, how do you describe a quality of life this is not based solely on GDP? That makes it very difficult to square the circle that you have raised here. Why would the Chinese not want to have a quality of life that they would consider broadly comparable with ours? It would be insane and also unjust to insist that they were not allowed to do so. At the moment there is no equity or global justice mechanism within the current set of negotiations on Kyoto Plus and one will have to emerge. I know certain members of the Committee are enthusiastic about some frameworks. Greenpeace is not endorsing a particular framework, but there is no question that a framework will have to come into place. You only have to look at the most recent modelling to realise the fact that there is not very much room for growth in emissions in developing countries. A smooth—and I use this word advisedly—convergence of emissions pathways is not going to happen in the time available so we have to find another mechanism, whether it is the Greenhouse Development Rights that some people have put forward, there is a climate action Network International has put forward, a combined sort of framework, whether it is contraction and convergence or a combination of all of these things with elements, but until that becomes absolutely central to the way we talk about responding to climate change we are not going to solve the problem and China will not limit their emissions because why would they?

Q20 Jo Swinson: Japan has recently suggested changing the baseline year to 2000 to encourage China, India and others to sign up. Do you think it matters when the baseline year is as long as there are emission reductions from that or do you think that will just lead to a weakening of the targets and not achieve the severity of the cuts that we need?

Mr Kronick: What matters is the carbon concentrations to the atmosphere. It does not matter when you start counting. It is like Weimar Germany

with wheelbarrow loads of cash. It does not buy you any more. It does not matter when you start counting as long as we actually achieve the reductions and achieve reductions in concentrations in the atmosphere. I think it is disingenuous and probably not very helpful.

Q21 Colin Challen: Just on that contraction and convergence point, the World Resources Institute also does not support C&C but they do recognise that convergence is an arithmetical certainty. Why not just hop on the bandwagon? I will leave that point. The Government says that the CDM is essentially sound. Do you agree with that?

Dr Huq: I think the CDM in general has been, from the developing country's perspective, a relative success story in that it has brought opportunities for carbon reduction activities, particularly in a number of the large emitting countries like China, India and Brazil. It has brought a new cohort of private sector people in those countries that are involved in these projects that are pro doing more on mitigation based on the incentives that CDM provides. There are a couple of problems that have arisen which are sort of second generation problems or they could have anticipated but they are now arising: one is inequity and distribution. There are only a handful of countries that are getting CDM projects. The vast majority of the poorest countries, particularly in Sub-Saharan Africa are not getting CDM projects. This inequity of access to this particular market is something that is not good for the negotiations because these countries had anticipated they would get some benefits out of CDM. If they are not getting them it may turn them off in a future negotiation if we want to rely on more market-based activities like the CDM. The twin objective of the CDM along with carbon reduction was to promote sustainable development. In practice it has not done very much on that. It has left it to countries to define. Countries have not defined it very well. Most projects are of a scale that they really do not benefit poor communities and poor people, particularly in the land use sector. There may be a need for tinkering with or expanding the CDM regime to allow more access to smaller scale projects. There are some opportunities there, but that might be something that would need to be tweaked. My view is that on the whole it has been relatively successful, but it has had some problems that need to be addressed in the second generation, in the post-2012 agreement.

Mr Philibert: I would be even more severe and say that even with respect to the first objective it fares relatively poorly. Nuclear is not in, CCS is not in and certainly at the IEA we support the inclusion of carbon dioxide capture and storage. We have analysed that very recently in detail. Energy efficiency improvements have difficulties finding their way in the complex additionality procedures for a very good reason, they are almost always profitable and therefore they should be considered part of the baseline even if they do not happen because of different barriers. It is difficult for energy efficiency improvements to be approved as CDM projects. Renewable projects, at the opposite end of the spectrum, are too costly to find their way into the CDM where they have to compete with relatively cheap forestry projects or industrial gas projects. At the end of the day, it takes a very narrow spectrum of what we need and it does not take the big chunks of emission reductions that are needed in the future. It has a very important feature, which is to educate people on both sides, in developing and developed countries, on the virtues of the flexible mechanism, on the fact that there are plenty of relatively cheap options in developing countries that could be undertaken provided there is someone willing to pay for them in the industrialised world and that is a good thing because it will help narrow the viewpoints in future negotiations. At the end of the day, as happened in the past when people and governments have moved from regulation to market mechanisms, they usually tend to start with project-based mechanisms and they usually end up with full market-based mechanisms. I would suggest that we must find ways to incorporate developing countries in broader market-based mechanisms, such as emissions trading. The virtue of the CDM would have to pave the way for this to happen.

Q22 Colin Challen: You mentioned at the very beginning nuclear and CCS. Is it the IEA's view that nuclear should be included in some kind of flexibility mechanism? I had understood the nuclear industry to be saying that it is going to be building 400 new nuclear power stations around the world anyway. Where is the additionality that the CDM should bring to carbon reduction if that is the case?

Mr Philibert: The view is that we need a big diversity of emission reduction technologies and arenas and they have to be accounted for in a mechanism that needs to be global and not necessarily project based. I am not necessarily expressing the views of all IEA governments here. Secondly, the IEA is not having views on the CDM, it is having views on the bunch of things that will be needed in the future and we must find ways to have them deployed in all countries when it is safe, when it is reasonable and when it is necessary. I am not necessarily talking about all countries of the world going nuclear or all countries in the world going CCS or whichever, it depends on the local and national circumstances, but we must find ways to have a mechanism that is powerful enough to bring in all types of emission reductions. Halting deforestation is not in the CDM either, reforestation is limited, nuclear is not in, CCS is not yet in but it may be in in the future, energy efficiency is difficult and renewable energy is too costly. What does that leave us? HFCs and basically that is it. It is very narrow.

Mr Kronick: Which is the big problem with the CDM. The bit that is sound is the name, Clean Development Mechanism. Unfortunately, the incineration of HFCs is not contributing to development nor is it particularly clean. The real issue is not whether or not the CDM should include this technology or that technology but actually to look to development and the development pathway and trajectory and then develop that mechanism to support those objectives. Under those circumstances

it would be unlikely to include CCS. It almost inevitably would not include nuclear. It would include bottom-up changes in particular communities that were suited to those communities to aid development and to take them off a development pathway that is going to be carbon intensive which will then have to be decarbonised later. One of the biggest problems has been referred to, which is that at the moment there is a financial mechanism that implies there is a functioning global carbon market when there is not. So the reality is that the EU ETS, for example, which has a very relaxed cap on its emissions and lots of jiggery-pokery on allocations, has the potential to buy in enormous amounts of avoided emissions from the developing world in the future, which could actually discourage countries within the EU ETS from making emissions reductions at home. There is a real confusion in that the illusion that there is a functional global carbon market, combined with the poor targeting of the way the CDM has worked, is not leading to particularly good outcomes either for us as contributors to it, or for the countries that are getting money. I accept Saleemul's provisos for that, but I think the problem is not just the mechanism, it is what we are expecting it to do.

Q23 Colin Challen: What needs to be done to prevent in future the kind of scams that we have seen operated under the CDM? I am particularly thinking of HFCs. There seems to be a whole number of other scams where people are not producing the goods. How should it be tightened up?
Dr Huq: Obviously it needs tighter regulation and scrutiny. CDM is actually well regulated compared to the voluntary market which has no regulation whatsoever. The HFCs in China are low hanging fruit which have been plucked so we do not need to worry too much about more of them coming on-stream. Obviously as we learn the process for different kinds of technologies and we get better at understanding them and monitoring them the regulations will follow. I am not as pessimistic about some of the flaws in the system that have been identified so far overturning the benefits that have come out of it so far, accepting that it is a narrow band of activities that are allowed at the moment.

Q24 Colin Challen: You do not think the system is simply prone to some of these flaws? There are people who take that view. Cornerhouse, for example, whose analysis you might be familiar with, seem to suggest that you cannot improve these things because they will always be prone to failure.
Mr Kronick: I would never criticise my colleagues at Cornerhouse, but I think they are in danger of throwing out the Kyoto baby with the trading bath water. I would agree almost entirely with their analysis that global carbon markets are not delivering what they were supposed to deliver, which is emission reductions. What is important about the CDM is the recognition within the Kyoto framework that there is an opportunity for climate change being the vehicle for investing in a genuinely sustainable development pathway in itself. I just do not think that the CDM is currently doing it. One of the things that would change the nature of how we in the north or developed countries look at the CDM would be if we had to meet our emission obligations domestically first and this has been the Greenpeace position consistently for a long time. If the agreed minimum target to stay under two degrees is 30% reductions by 2020 from developed countries, that we deliver 30% reductions from developed countries at home and then invest on top, I think it would change fundamentally the nature of the kind of investments you would make in terms of getting those benefits there in the developing countries and not actually trying to bank them here.
Mr Philibert: I tend to disagree. If you do everything at home you will just not put a cent in the CDM and in emission reductions in developing countries. You need to think of mechanisms when you set targets. If you build a flexible mechanism after you have set targets you will almost always find that your target is too weak, it is too easy because you start with a target that seems very difficult and then you build a number of mechanisms that bring you in a lot of cheap emission reductions and so you end up thinking you could have done better. So you have to set targets in the light of the overarching framework you have been building. If we want to go to deep cuts in emissions we will have to find the mechanisms that embrace what is possible in both developing and developed countries. My guess about CDM is that it would have to move from a project-based mechanism to a market-based mechanism that is some form of country target for developing countries. Of course, not all, not the first time, not bidding for all in the next period, but moving from project base to broader mechanisms is probably a key to success.

Q25 Colin Challen: Could we have your two views on this issue of how it could be broadened? I guess nuclear has already been ruled out, but CCS and deforestation projects, should they be included in a CDM?
Mr Kronick: Greenpeace has put forward a possibly over-complicated but fairly complete proposal for how avoided deforestation could be tackled. We feel very strongly that 20% of the global climate problem should not be bolted on to another mechanism. There needs to be both global governance and a global fund specifically for avoided deforestation. There has been a consistent view that project-based deforestation and reforestation projects are not robust enough in climate accounting terms, they should not be part of it at all. We have got a very clear view on that. I do not, and we do not, have a view about carbon capture and storage in principle, but there seems to be a very strong consensus, certainly from the power generating sector and from the industry, that as a viable proposition, never mind globally but in the developed world, it is not going to be contributing significantly to our power sector emission reductions before 2020, maybe 2025 or maybe 2030. That is the wrong horse to be backing. If the sector itself and the industry wants to put money into carbon capture and storage because they

believe it is going to deliver sooner, by all means, but this mechanism is intended to facilitate economically efficient action now in the short term in the developing world. We would not favour including carbon capture and storage for those reasons, not because it could never work or for any other kind of principle proposition, but, like nuclear, it is largely too little and is largely going to be too late.

Q26 Chairman: You were talking earlier on about the fact it is deplorable, everyone is burning their coal and building more coal fired power stations. That is what is happening and it is going to happen. It is no good pretending China is not going to burn its coal; it is going to burn its coal. Is not the priority that should be attached to CCS much higher than it actually is? If we are not going to have CCS, an awful lot of other things we do are not material, they are not big enough.

Mr Kronick: I would make a counterproposition and I think it goes back to what Cédric said earlier about the way we look at energy. If we want to maintain globally and expand globally more or less the same energy system we have got now, which was devised in the 1920s, which was to build enormous power stations which waste two-thirds of their energy as wasted heat, yes, I would agree with you, if that is the model we are going to propose for the global development of the energy sector. I would say it would be mad to do that. It is unbelievably wasteful in resource terms, it locks us into a development pathway that is unbelievably resource intensive and does not make use of current technologies that are available in terms of combined heat and power never mind future technologies.

Q27 Chairman: Which are the countries with abundant coal reserves that are not setting an example by not developing more coal—

Mr Kronick: It is not surprising that they are not. The US is not setting an example. Their projected rate of increase in coal fired power stations is even faster than that of China proportionally as is the UK. If we are going to challenge that paradigm we need to do it here first.

Q28 Mr Chaytor: I want to come back to the question of avoided deforestation. Why does Greenpeace feel so strongly that this issue cannot be dealt with within the CDM? Could you just say a bit more about the mechanisms that you have devised separately?

Mr Kronick: I did not write this paper. Although I am a very keen supporter of it, I do not know every detail of it. What we tried to do with our avoided deforestation mechanism—and again it is an example of a model that could work, it is not a prescription—is to say that the only way that it can significantly contribute to reducing emissions globally is for it to take national baselines. It is not a project-based system, it is one that looks at countries which are already engaged in deforestation as well as ones that are not because you have to be able to include the ones that have large intact forests, like the Congo Basin and the countries within the Congo Basin. There has got to be an incentive for them not to cut their forests down. That immediately takes it out of the range of the CDM and has to put it into an external mechanism. I think it is also largely a question of scale. It is a big, big part of the problem and potentially a big part of the solution and we think that it merits a robust mechanism that stands alone. We are pretty clear that, whatever else you think of global carbon markets and I know there is a wide range of views, avoided deforestation credits should not be part of that system for the simple reason that the sheer bulk of that can overwhelm the system, bring the unit costs of emission reductions way down and have absolutely the wrong effect, which would not be to encourage reducing emissions at home as well as deforestation emissions. At the risk of inventing yet another global bureaucracy, we think this is one that is worth taking a chance on.

Q29 Mr Chaytor: Is not the issue about flooding the market with cheap credits best dealt with by making the emission reduction targets more stringent? If you have tough targets then that deals with the question of cheap credits.

Mr Kronick: I think it is both. As well as tough targets at home we need to protect not just the biomes where these forests are but also the livelihoods of people who live in them. So "yes" would be my answer.

Mr Philibert: If you can shape country-wide targets for a number of developing countries presumably everything will count exactly as is the case for industrialised countries today. If you deforest the UK this will count in your emissions and you will have to reduce other emissions, so if it is cheaper not to deforest you will not deforest and that will be the same for other developing countries. Of course, not all will have country-wide targets very soon and therefore any specialised mechanism --- I have nothing against specialised mechanisms, but the ultimate purpose should be to account for every emission and put a cap on all of these emissions. This way what you do with nuclear or CCS or renewables or energy efficiency will be counted the same because it will impact on your emissions and therefore if you have a cap on emissions everything is included at the outset.

Mr Kronick: That is true. What is important to remember is that this mechanism is likely to target countries to a large extent which are not likely to have emission reduction targets any time very soon. It is more than just about emissions. It also includes issues around biodiversity and it includes issues around the livelihoods of people who depend on forests for those livelihoods and who actually live there. I think it is important to remember that just as climate change is not only about emissions and it is about some of the tensions between what our aspirations are nationally and internationally in terms of development, avoiding deforestation is not just about keeping the carbon locked up. For the people who live in those countries it includes that, but quite a lot more as well.

Mr Philibert: Before considering incentives to halt deforestation we should halt our incentives to deforestation. The 10% objective for biofuels at the EU level is a real incentive to deforestation. Maybe we should start with that.

Q30 Chairman: You are preaching to the converted here about that!
Mr Kronick: This had better be noted down because we could not agree more!

Q31 Mr Chaytor: I want to ask Dr Huq about the negotiations over deforestation. Dr Huq, do you feel that progress is being made over the practicalities of it, the questions of verification and ownership rights and the distribution of benefits?
Dr Huq: The progress that has been made in Bali is on the principle that it needs to be incorporated, but the devil is always going to be in the details and we have not dealt with them yet. Perhaps I could also answer your previous question in terms of whether or not it should be part of the CDM. My own view is that it complicates the CDM too much and the CDM cannot bear avoided deforestation as a project-based mechanism, it is not compatible. I would agree with Charlie that it needs to be dealt with as a separate entity and it is big enough to warrant being dealt with and coming up with rules and regulations that deal with it and recognise the importance of it, finding ways of providing incentives to countries to avoid deforestation, but doing it in a manner that is sensible for that particular problem and not lumping it into a project-based CDM. It is one of the reasons why the land use restrictions on CDM were there in the first place. It was very difficult to include these other issues like deforestation and conservation.

Q32 Joan Walley: How are we going to get the technology transfer to do everything that is needed in developing countries? Given the amount of money that Stern said would be needed per year by 2015 and given where we are at, which is way short of that, how are we going to close that gap between the amounts of money that are needed for adaptations?
Dr Huq: One of the building blocks of the Copenhagen Agreement that has been agreed in the Bali roadmap to Copenhagen is, on the one hand, mitigation and, on the other hand, adaptation and then crosscutting themes, including innovative financing and technology transfer. I think there is a lot of new thinking going on about the need for innovative financing both for mitigation technologies as well as for adaptation in that the amounts of funding that are going to be needed are still not exactly known, but the ballparks are in the many tens of billions of pounds a year, which are simply not going to be available out of development assistance-types of funds so we are going to have to find new and innovative ways of raising them. One interesting and, I would say, fairly innovative mechanism is something called the Adaptation Fund under the Kyoto Protocol, which is not based on contributions from rich countries but is based on a 2% levy on all CDM transactions. The reason I say this is innovative in that it is a transaction between an entity in a developed country that has a Kyoto target and an entity in a developing country that enter into an agreement for the purchase of CERs, Certified Emission Reductions. They go to the CDM Board, which is an international body sitting in Bonn, to get the certification. Once the CDM Board certifies them, for every 100 CERs they certify they keep two CERs and they put them in the Adaptation Fund. This money has not gone through any national Exchequer, it does not belong to any particular country. It is an international transaction and an international tax on an international transaction. In my view that is a very innovative mechanism that could be emulated and expanded. There are already arguments being made by a number of countries that the 2% adaptation levy which is now imposed only on the CDM should also be imposed on other flexible mechanisms, including joint implementation and the European Trading Scheme, which would increase the levels of funds that would flow on a regular basis into this Adaptation Fund by probably an order of magnitude. With the 2% levy on CDM alone it is estimated it will generate a few hundred million pounds over the next few years. If it were applied to the other flexible mechanisms that would go up by an order of magnitude to several billion. One could think of going beyond applying this kind of an adaptation levy on simply mitigation activities alone. Why not apply them to polluting activities? One example of such a proposal that has been put forward is by Benito Müeller in Oxford and it is called the International Air Travel Adaptation Levy, which is essentially putting a 2% levy on all international passenger flights, which would then put in the order of £10 billion a year into such an Adaptation Fund.

Q33 Joan Walley: Has Stern not said that we need $69 billion a year up to 2015?
Dr Huq: That is the order of magnitude that is being estimated, yes. I am building up from where we are rather than where we ought to be and finding ways of getting to where we ought to be. Where we are right now is at a few hundred million put into the LDC fund and the special climate change fund by rich countries. It is nowhere near the order of magnitude that Stern suggests. I am arguing that rich countries will not put in development assistance by many orders of magnitude bigger than they have done already. They have had a 30-year old target of reaching 0.7% and most of them have not met it. It is simply not going to come out of development assistance. It is going to have to out innovative ways of taxing the pollution itself. These are what I am arguing are some ways of thinking of doing that.

Q34 Joan Walley: Do you see any indication of money coming in from auction permits?
Dr Huq: Absolutely. I think that is a very good way. The Norwegian government has already allocated a percentage of their next allocation of permits which

are going to go into avoided deforestation. I think that is certainly worth pre-allocating from the governments when they do their allocations.

Mr Kronick: Let me go back to our proposal for avoided deforestation. If such a percentage was agreed for developed countries to apply to their emission reduction commitments we are talking of the order of €10-14 billion a year in terms of payments for avoided deforestation. I think the point that Saleemul has made so well is that it is not going to come from one big pot. There is going to have to be a variety of mechanisms that deliver funds in particular ways. One of the things that colleagues of mine are now pursuing, in relation to these ideas of sectoral targets from developing countries in terms of emission reductions from their electricity sector, is the possibility to develop the equivalent of feed-in tariffs for premium prices paid for the development of renewable infrastructure in those countries, particularly in places like China and India where there is going to be infrastructure development with a lot of money spent on it in the short term. It targets the money specifically to partially where your question came from because it is not just for adaptation, but how do we make sure that in the very limited timeframe available the investment in infrastructure for energy goes the right way and not the wrong way? Those kinds of mechanisms, such as a feed-in tariff, which have been very powerful in driving the development of renewables where they are applied, could work in those developing countries as well. It is going to take quite a lot of creativity and a willingness not to depend solely on a single mechanism. I am going to start to sound boring here, but it cannot just be about the carbon price, it is going to have to be more directed than that.

Mr Philibert: I agreed with everything you said before, but now I have to disagree on your very last point! Carbon pricing and flexible mechanisms will probably be the most powerful technology and finance transfer mechanism we can build and for one good reason, it is because it is not only public money, which is getting scarcer and scarcer. It is using the money of the rich societies, putting targets on all activities and allowing all sources to buy emission reductions wherever they are cheapest. I think these will be the largest providers of funds in developing countries due to climate change. This does not mean that other mechanisms will not be useful and a specific mechanism for halting deforestation, specific funding for capacity building, things that carbon mechanisms cannot easily support will be needed from government support. The bulk of the money would probably have to come from a big framework for emission reduction with targets in almost all countries, as many countries as we can.

Q35 Joan Walley: Looking at the other side of the coin in terms of the developing countries in receipt of the adaptation funds, what do you think the prospect is of getting very tight sustainability standards so that they are only going to be going forward with projects which have tight sustainability objectives embedded in them?

Dr Huq: On that particular front, I would say it is perhaps not a great worry because from most of the developing countries' perspectives they see both mitigation and adapatation activities, or any general activities to deal with the climate change problem, as part of their development problem as well. They are the ones who want adaptation and mitigation to be compatible with sustainable development, so it does not have to come as a conditionality from the north; it is something they have always argued for in any case. I do not see that as a problem where they are going to spend on things that are not going to be promoting sustainable development. Almost by definition, climate change activities in developing countries have to be done in a manner that does promote sustainable development as opposed to short-term development.

Chairman: Thank you very much indeed. This has been a very interesting and useful session. We are grateful to all three of you for coming in. Thank you.

Witnesses: **Mr Craig Bennett,** Facilitator, Corporate Leaders Group on Climate Change, University of Cambridge, and **Mr David Hone,** Group Climate Change Adviser, Shell International, gave evidence.

Q36 Chairman: Good morning. Welcome to the Committee. We are very grateful to you both for coming in. Would you just like to briefly introduce yourselves and explain what your roles are even though some of us probably know that, but it is helpful to the Committee generally.

Mr Bennett: My name is Craig Bennett. I am Development Director at the University of Cambridge for Programme for Industry. That is a department within Cambridge University that specialises in working with senior executives to help educate them more on sustainability issues and then to work with them on helping to put those lessons into action. Within that department, my role is principally about facilitating the Prince of Wales' Corporate Leaders Group on Climate Change, which is a group of 20 companies that are advocating bold and urgent action from governments on climate change. Crucially, companies are calling for regulatory frameworks to give that long-term certainty for companies so that they can invest in their own carbon technologies, and also really calling for a whole range of policy interventions to drive that low carbon economy. I facilitate the UK Corporate Leaders Group and also the EU Corporate Leaders Group, which is a group of 17 companies across Europe that have a similar agenda but more on a European basis.

Mr Hone: My name is David Hone. I am the Group Climate Change Adviser at Shell. I work for Shell International BV in the Netherlands but also I work here in London. My role in Shell as Climate Change Adviser principally is around development of Shell's policy positions on climate change, in particular

around emissions trading, the international mechanisms and broad policy change across the economy.

Q37 Chairman: Thank you very much. The Corporate Leaders Group made a strong call before Bali for a legally binding framework on climate change. Would you just like to explain why that call was issued?

Mr Bennett: Yes. I think in both the UK Group and the EU Group, as Bali was approaching, in the months running up to it, we felt we had to do something to really engage with the international agenda and do what we could as business groupings to really ensure that there was a strong business voice going to the Bali negotiations, calling for an international legally binding framework. So we took it upon ourselves to put together the rather boldly called Bali Communiqué and I understand you have had copies of this distributed in advance of this meeting. It was really just one page of text making the business case for why a bold international legally binding framework is necessary. We realised, of course, that for this to really have an impact we would have to get support from the international business community and not just the companies that were members of the UK and EU Groups. We were delighted with the results of that. Maybe I should just talk through some of the key messages that were in that Communiqué. The first was to say very clearly that the scientific evidence of climate change is now overwhelming. We thought it was important to do that although certainly within the European Union that argument has been put to bed for quite a while now, but that is not necessarily the case in every part of the world so we thought it was important to say that. The second was really to emphasise that as business leaders it is the belief of these Groups that the benefits of strong, early action on climate change outweigh the costs of not acting. What you see then is the Communiqué really emphasising some of the key messages of the Stern Report. We did not mention the Stern Report by name here but the messages in the Communiqué are exactly those that were in the Stern Report, highlighting there are all sorts of reasons why acting sooner rather than later will be better for business in terms of reducing the long-term costs and the negative consequences of climate change, but also highlighting that for many companies there are significant business opportunities to be gained through the creation of markets for low carbon technologies and products. In summary, we summarised that tackling climate change is a pro-growth strategy while ignoring it will ultimately undermine economic growth, and we are familiar with Sir Nicholas Stern's projections that it could be around 20% of global GDP that could be at risk if we do not act. Then the companies go on to say it is their view that a sufficiently ambitious international comprehensively binding UN agreement is needed to reduce greenhouse gas emissions and crucially, also, that it will be the developed countries that will have to put in the biggest effort to reduce emissions. There is also a statement in the Communiqué which I think is very significant, which is that the overall targets for emission reduction must be guided primarily by science. Let me explain here that in some of the discussions around this there are lots of different targets bandied around, whether it is 60%, 50% or 70%, but within the discussions we had amongst the Group there was a recognition that the job to be done is very big and it has to be guided primarily by science in setting those emission reductions and, of course, when we talk about whether it is 50% or 60% there is always a little bit of politics coming in about rounding up to a figure. What we wanted to do here was really emphasise the key principle of this is that an agreement has to do the job that the climate scientists say will be necessary to avoid dangerous climate change. Those are really the key points in the Bali Communiqué and I have to say I think we were absolutely overwhelmed with how successful it was in attracting business support. We really only started a month or so before Bali but over the course of four or five weeks we ended up gaining the support of over 170 global companies in support of this document. That included many from the United States, a whole surge of companies from Australia in the last week or so and, indeed, five Chinese companies signed this Communiqué as well, so we were thrilled with the strong global consensus that there seemed to be within a large part of the international business community in support of a strong international framework.

Q38 Chairman: It is clear from all of that that the business community in many parts of the world is probably ahead of the politicians and public opinion, and I very warmly welcome that. Clearly the emphasis you put on the policy is that it should be based on the scientific evidence, do you think there is anything like the sense of urgency in the negotiations now, both at Bali and what is going to happen over the next 18 months or so, that there needs to be to reflect what science is now telling us?

Mr Bennett: I will say something and then I am sure David will want to comment. I think some of the previous witnesses put this very well in suggesting that around the negotiations there is an emerging sense of urgency and the way in which the negotiations went into the night on the last day and many blocs like the European Union did hold firm indicates that there is that sense of urgency growing amongst the countries negotiating this. Of course, crucially we need to see that sense of urgency really being driven by political leaders. What the Corporate Leaders Group has time and again emphasised is to call on that leadership from political leaders to really drive that sense of ambition to make sure there are the appropriate mechanisms in place to move the world towards a low carbon economy, and there is clearly a lot more to be done there yet.

Mr Hone: Let me just reflect a bit on that. First of all, from a business perspective the Bali Communiqué puts forward an important point. This issue can unfold in two different ways. One is that we can build the structures and frameworks necessary

to start making reductions and business can respond to that, or the second is we can let this issue just roll on and roll on and at some point in the future somebody will have to take what will amount to a knee-jerk and quite severe response to events as they unfold. The former is in the interests of business to see a framework there, to see what the rules are and to start operating within those rules and delivering the products and services necessary for society as it moves forward. In business where we are making multi-billion dollar investments, to have the rules suddenly change at some point 10, 15, 20 years down the future, is not in our interests at all. That is one of the key reasons that underpins our desire to see policy move forward and these various frameworks established. In terms of urgency, the people around the table certainly had a sense of urgency. I do not think the outcome fully reflects the urgency of the people participating and I presume that is down to the negotiating process. Although the Bali Communiqué sets out a pathway for the next two years, it does not go nearly far enough in setting out some of the specifics that are required and setting out timelines within which they have to be delivered. Those specifics, that tight frame of reference within which the negotiating process should operate and deliver, were absent from the final Communiqué.

Q39 Dr Turner: I think this Committee would totally concur with the sentiments you have expressed in your Communiqué. The IPCC scenarios, which are themselves quite cautious, indicate that global emissions have to peak within the next ten years, that developed country emissions have to reduce by 25–40% by 2020, and that overall global emissions have to reduce by at least half by 2050. Does the Corporate Group accept that emission progress framework?
Mr Bennett: I think the first thing to say is that in the Bali Communiqué although we did not want to, if you like, choose a specific target ourselves, where we have then put that principle that emission reductions must be guided by science we do note the IPCC's findings there, so we say: "Even an immediate peak in global emissions would require a subsequent reduction of at least 50% by 2050 and a later peaking would require a much greater reduction". In the Communiqué we have clearly recognised the work that the IPCC have done in their fourth assessment report and made it clear that we are aware of that when saying that the overall targets for emission reductions need to be guided by science.

Q40 Dr Turner: In your view, does the big business community now work under the assumption that that emission reduction framework is going to be adopted and does the business community, the corporate community, see it as a practical proposition?
Mr Hone: Certainly from this corporate's perspective we take the view that the world is moving on to a footing to reduce emissions. That is our underlying assumption going forward and it is increasingly becoming the working procedure within developing a strategy within Shell and so on. From my observation of other corporate organisations that we have contact with, that is becoming much more mainstream than even a year or two years ago. As to the magnitude of the task at hand, I think that is a very separate issue. Having emissions peak by 2015 one might argue is perhaps on the scale of almost impossible, in part because there is a built-in lag now in the system that even if everything we imagine came out of the Copenhagen Process and the Bali Process it would not really start kicking into action until 2013, which is the end of the Kyoto Process, so there is a natural built-in lag in the system anyway. How far we move ahead and how quickly we can reduce emissions is going to depend on the policy, but the challenge is certainly there and at Shell we take the view that this is coming, this is happening, the question is how fast it can actually be done without severe disruption to society.

Q41 Dr Turner: Do the Kyoto negotiations as they have been proceeding in Bali give business reassurance that Kyoto and its international carbon markets will continue beyond 2012?
Mr Hone: Yes. There is certainly no doubt in our minds that the carbon markets will continue to evolve and will expand. That is led by two things. One is that there are national policy structures starting to appear in a number of countries around the world who support it, all of which indicates they are prepared to link with other systems. That is so in the US, it is certainly so in Australia, it is true in New Zealand and it is abundantly true in the EU. That in itself sees the carbon market evolving further than it is today. Whether or not the Kyoto and Bali Processes can pull that together more tightly and more rigorously remains to be seen. I think one of the issues is that there is a lot of focus initially on reduction targets at an international level whereas I think the focus from an international level needs to be on the totality of the target, in other words where is the world going, and, secondly, providing the necessary instruments and frameworks to facilitate all of the linkage that countries are clearly willing to engage in, that is beginning to develop the equivalent of the global currency markets but in terms of carbon.

Q42 Dr Turner: What confidence does the corporate community have in carbon markets as a means of actually delivering the kind of emission reductions we need?
Mr Hone: Very high. I think it is the only mechanism we can see that fits clearly within the mandate that business has in society, in other words to respond to markets. That is principally the mandate that business is given by society. We do not believe that voluntary initiatives are going to solve this issue. The better thing is to put in place the necessary constraints but let the market deal with those constraints in the way that the market deals with many other constraints in existing society that are put there for equally good reasons. We have a high confidence that this will work. You have got to realise that these carbon markets will not evolve in one or two years. This is a 20–30 year solution and

the markets will evolve over that period as currency markets have taken many years to evolve. On the flipside of that, of course, you will recognise that the time we have for these markets to evolve is very limited.

Q43 Chairman: Just on the question of the EU offering to go further than 20% in emission cuts by 2020 if other countries do that, what is the way to stop leakage of very energy intensive industries simply moving to the countries which have got much less demanding regimes?

Mr Hone: I think the best way for that to happen is for regulatory frameworks to develop in other countries. It is unlikely that there will be wholesale shutdown of European operations and rebuilding them in other countries. I think that is a story which we should put to one side, largely because of the huge capital investments required and the capital already sunk. I think the worry is over time as decisions are made about new facilities, there could be a tendency to put them in other places and really the only way to do that is to see that carbon markets evolve as fast as possible. That means not only developed countries using carbon markets but developing countries using them as well. The key there is to encourage developing countries to see this as an emissions management task. We are too quick to throw in the words "emission reduction" when we know developing countries are going to have a rising emission profile for some time, but a rising emission profile that is managed and certainly ends up less than what the unmanaged case would be is really how we should be pitching this for them so there is an incentive to move into more managed carbon economies.

Mr Bennett: There is a point to put here which also relates to the previous question, which is the Corporate Leaders Groups have been quite consistent in saying that although a strong international carbon market is crucial as the foundation for delivering change there will, of course, be a number of other policy interventions needed as well, particularly around stimulating new markets for new technologies. We could talk about a whole number of issues, and government procurement would be one, where if we saw much stronger forward procurement commitments, say from European Union Member States, that in itself would really drive some of the markets that are needed to enable and support new low carbon technologies to come on to the market and in turn that would provide some of that stimulation that is needed for companies here in the EU. It really is the point that we need to see a package of policy measures, and a strong carbon market would be the absolute foundation to it, but a package nonetheless.

Q44 Chairman: Looking at the banking crisis at the moment some people are saying the private sector is taking the profits and the taxpayer is taking the losses. Is there a danger that carbon markets might develop in a similar way?

Mr Hone: I think markets will develop according to the regulations and rules under which they are governed. Yes, if it is poorly governed and poorly managed there is always the possibility that will happen but we are learning rapidly from things like the EU ETS, from the Clean Development Mechanism, to ensure that will not happen. Certainly over time there will be examples and we will learn from them as well and take corrective action, as has been the case in currency markets and all the other markets that have developed over time. There will be a learning process and there will almost certainly be upsets along the way, but we will correct for them.

Q45 Colin Challen: I get the sense perhaps from the Bali Communiqué and, indeed, previous communications from the Corporate Leaders Group, the letter to Tony Blair MP before Gleneagles and so on, that these very large businesses feel a bit constrained and held back, that they would like to do more but feel that the political framework has to be in place so there is a level playing field. I wonder whether or not some companies actually could do a hell of a lot more, and perhaps are doing more, and whether it is your view that they should be doing more themselves. The reason I ask is because some developed countries clearly are going to have great difficulty meeting some of these very severe targets. The 80% target in the United States does look to be quite a test. Could companies not stiffen the backbone of politicians by actually demonstrating in a practical, active way that it can be done and that the business community is not always kicking and screaming against extra measures but are prepared to leapfrog where it can and say, "Look, we did it, you can easily manage to achieve these targets or exceed them"?

Mr Bennett: I will make a very broad comment on that. If you look at the 170 global companies that have signed the Bali Communiqué, many of those companies will have a number of initiatives in place that are demonstrating in quite a bold way what can be achieved by individual companies in reducing their own emissions. In many cases I do think those provide examples that give a very clear indication to policymakers about the level of ambition that could be achieved. We could look at a whole number of examples of that but one on my mind at the moment is one of the construction companies, Skanska, it has achieved some very strong reductions and has strong targets in place in terms of the grams per kilometre that it seeks to achieve from its car fleet, which at the moment go way beyond the European Union's proposals on this. There is an extent to which looking at what individual companies might achieve in particular areas can help guide what might be achievable from the policy frameworks. Of course, if you are talking about a list of 170 companies it would also be easy to find examples of where those companies might be able to do more in particular areas. The common message that comes from the Bali Communiqué is that it will be so much easier for business to make bold steps forward in their own operations if there is that common framework in

place and if there is that leadership from government both in terms of the politics but, crucially, also the policy frameworks to enable that to happen. What business wants more than anything is certainty about the future, about what policy frameworks will be in place and broadly what strategic direction we are going in. If it sees politicians and policy frameworks providing that, certainty it will be far more confident to invest the money necessary in improving its own operations and, indeed, developing the new technologies needed to move us to a low carbon risk economy.

Mr Hone: Can I just say something on that? You need to look really at the bigger picture here, and the bigger picture, and I said this earlier, is the mandate that business is given by society is to respond to society's needs through markets. That is broadly what we do. If the market circumstances allow for a certain activity to happen you can be absolutely certain it will happen and by somebody, somewhere, the activity will take place. We may not like this activity for other reasons, in which case the way forward to address this issue is to put in place the constraints so that these activities stop. That is the only way this is ultimately going to steer on a different course. We have seen plenty of examples of this in the past. For years there was concern about clean air in the US and it was all too hard, it was difficult, "We can't really do that, it will put the price of the car up too much, the coal-fired power stations will all shut down". Every reason that you could possibly imagine was given until the Clean Air Act came in, the emissions from vehicles were managed, the sulphur reduction programme was put in, the constraints were put in and the market was allowed to function and the results show for themselves. The businesses are all still there and they are all still doing very well, they have responded to the market. This is about changing the fundamental rules within the marketplace and then allowing business to respond to that.

Q46 Colin Challen: Is it possible since the Corporate Leaders Group was formed to put a figure on how much the core group of 20 companies have reduced their carbon emissions over the last four years since you were formed? Is that an activity which the Corporate Leaders Group engages in?

Mr Bennett: No. There are many initiatives out there that focus on best practice and aspects of corporate performance. The role of the Corporate Leaders Group is to focus specifically on looking at policy interventions that are needed from government and from regulators to drive the change forward and that is the focus of the Group. Many of our companies will be involved in other initiatives that look more at best practice but we have not done that, no.

Q47 Colin Challen: I was just thinking that it might help if you could say, "This is what we have done, please give us more help", but anyway. Moving on, whilst we were in Australia the Committee was made aware that there is a growing controversy about a report being prepared by Professor Ross Garnaut who is advising Kevin Rudd, the Prime Minister, on climate change, and he perhaps started this controversy by talking about cumulative emissions by a certain period and everybody was leaping up and down saying he is now ignoring short-term targets and we must have these short-term targets if we are going to make a dent on cumulative emissions. I just wonder what your view might be on that kind of approach, looking at cumulative emissions, and whether or not within that period of time when we are trying to reduce it, different countries in the developed world might have different pathways to achieving that ultimate objective. Clearly, if we are saying we are going to have a real tough target in the EU and Australia goes for something else, that could have competitive issues and a whole range of things emerging from it.

Mr Hone: Broadly speaking, there is a job to do which is relatively clear. At some point in the next decade we have to see global emissions peak one way or the other and start to decline. At best, we can allow that to stretch maybe a few more years into the future but we know the risks involved if we do. The process that is now going on is finding an equitable way to slice up that task internationally. Whether you look at current emissions, cumulative emissions, whatever, all it does is shift that burden slightly one way or the other but it does not change the nature of the task. What concerns me is that we could spend another ten years arguing about the ways of slicing up the pie and meanwhile it rots on the shelf. I understand the principle but really we need to focus on how to move ahead with this job. There are some major takeaways that we can start to put in place that will deliver the outcome and the big ones are around what is the goal that we are heading for collectively, how do we implement the carbon markets to start changing investing flows, how do we implement and expand the project mechanisms so that they assist in clean development pathways for developing countries. These are things that we could be getting on with and doing rather than arguing about the pathway. The US is going to pick its pathway, the US Congress will decide what that pathway is irrespective of what the US cumulative emissions are or have been, might be or will be, similarly in the EU, and that will be replicated around the world.

Q48 Colin Challen: If we assume that these different countries will have all these different pathways and perhaps different ideas about what the ultimate objective is, it is going to make getting global agreement quite difficult, is it not, because people will say, "They are trying to freeload on our efforts" and you will see a whole range of suspicions creeping in that some countries are just not pulling their weight.

Mr Hone: I think it depends on what we think of as a global agreement. If we think of a global agreement where we have decided that emissions have to peak by year X and every individual country has a particular percentage then I am pretty pessimistic. If we think about a global agreement as putting the tools in place such that the markets that I have talked about can start to be created, I think that is

something we can do in the next two years. Given the society that we have and the way in which money moves around the world, that is probably the best way of starting this and recognising that countries are going to pick this up at different rates. That may not be the ideal solution but it is probably the one that more rapidly gets us to some sort of outcome.

Q49 Jo Swinson: Turning to the Clean Development Mechanism, which we discussed with the previous set of witnesses, we visited one of the CDM projects in China, which was a very interesting visit, but what was particularly noticeable was that there was not necessarily in place robust accountability standards to prove that this would be genuinely additional and investment might not have been made otherwise and there could be a potential in some projects that it might just be abused. What do you think about the CDM and its future and do you think it would be better to be replaced with an alternative mechanism?
Mr Hone: The CDM has evolved over many years now. It was talked about as much as ten years ago. It has evolved rapidly in the last two years. Of all the various financial mechanisms that are in place around the world, whether they be environmental or not, it is certainly one of the more robust in terms of scrutiny, checking procedures and accountability. I do not think almost anything has had more written about it than the CDM and more people looking at it trying to see if it is working or not. Again, like the EU ETS, it is still in its infancy and certainly needs to develop further. It needs to broaden its scope or have other mechanisms attached to it perhaps that account for things like carbon capture and storage, deforestation and so on, whether they are part of it or separate. The foundation on which it is built, which is project-based with a clearly auditable system of scrutiny and oversight, is a good one and I do not think we should be too quick to criticise it, which is not to say that there have not been issues along the way.

Q50 Mark Lazarowicz: I think you were both here in the earlier evidence session when there was discussion about other mechanisms. I think mention was made about mechanisms to avoid deforestation, proposals for aviation tax to fund adaptation and so on. Have you got any comments on those two specific proposals? If you cannot today, you can send them in writing if you want to. What are your views on other mechanisms that could be brought into play here?
Mr Hone: I do not have any specific comments on deforestation. What we started with was the Clean Development Mechanism as it applies to individual projects under certain circumstances and there is no doubt that has to evolve and expand. It has to encompass newer technologies, for instance carbon capture and storage. Somewhere along the line we have to be able to introduce that carbon price into countries like China before they have their own domestic cap and trade type programmes, which they will at some point in the future, those days will come in countries like China. Long before that you want that carbon price to be seen there and you want it to be seen by the types of technologies that are going to be needed there to mitigate emissions. The other direction that you could go in is to be broader in terms of its application to programmes. For example, some industries, like the cement industry for instance is running with programmes where a number of cement companies are co-operating across the board in terms of emission reduction, setting benchmarks and so on, so there are talks about programmatic CDM where you could apply it to an industry sector in a country, for example. These are all areas that need to be explored. The idea of the project mechanism and defining an envelope of activities within which you can see a change relative to some business as usual projection is something that we should keep and explore as to how it can grow further.

Q51 Chairman: Just on the question of sustainability and business as usual and all that, companies like Shell, which have got substantial fossil fuel reserves, if we now accept the urgency of the challenge to cut emissions, are you starting to factor into your business plans the likelihood that you will never exploit a significant proportion of those reserves?
Mr Hone: What we factor into our business plans is a future carbon market and future constraints in society related to CO_2 emissions and that helps us see how these various reserves might be developed. One of Shell's clear goals at the moment is to develop a capacity in carbon capture and storage so that we can utilise these reserves in the future. This is really built going back on what we call three hard truths, in that the three hard truths are that energy demand is accelerating, the easy fossil fuel reserves that we have had in the past are starting to come to an end and, therefore, there is a movement into these sorts of more difficult future reserves, and the third one being that CO_2 is problematic. Nevertheless, meeting the energy demands of the future is going to force us to continue to look at fossil fuels, but we have to look at them with new technologies in mind, and carbon capture and storage is one of those. These are not necessarily incompatible goals.

Q52 Chairman: Well, what is incompatible is rising energy consumption and for fossil fuels to remain at their present proportion of the total if we are also going to get anywhere near the emission targets that science now says are absolutely essential over quite a short space of time. Again, in the previous session the Greenpeace representative was making the point that CCS might be workable in 2020, 2030 but by that time we will have used up the whole of the available carbon budget. Whatever we do after that, if we have not tackled it before 2030 we are done for. So there is a degree of incompatibility there unless CCS is available far more quickly than anyone currently envisages.
Mr Hone: I agree with that. CCS has to be available relatively soon. In terms of major roll-out, you really want to see it as an off-the-shelf technology by 2020. In other words, if I am building a coal-fired power station in 2020 onwards it is a no-brainer, that is what I am doing, the technology is there and off I go.

Even that is challenging in two respects: one, is it early enough, and that is a vexing question; second, can we even deliver CCS in that timeframe of 12 years. What you see today in the EU and the US is a very broad range of companies pressing government to help commercialise this technology. CCS is a technology that is broadly made up of a variety of other technologies, all of which are used somewhere for some purpose or other, it does not exist in an end-to-end format. There is an anxiety that we need to demonstrate this and that should be the priority in government and industry together today. Shell, amongst many other companies, has put forward a variety of approaches by which that can happen, but it is slow.

Chairman: Indeed.

Q53 Joan Walley: I would like some help in trying to square a circle. In this session and in the previous one we have talked about technology transfer and what I am not clear about is in the submission that you made to our Committee,[1] Mr Bennett, you talked about the costs of action, but I cannot quite see where the whole issue of intellectual property rights fits in. It seems to me that the innovation and the design of the new technologies that are going to be needed are absolutely critical in addressing the whole issue of climate change, but I am not quite sure where in all the international negotiations and in all the work that our own Government is doing with industry we are dealing with this whole issue of intellectual property rights. It seems to me that is something that has got to be resolved somehow or another if we are going to be able to get the technology transfer that we need. In terms of the contacts that you have with your businesses, how do you see that being addressed?

Mr Bennett: I am sure David will say more on this in a moment. The first thing to say is this is not necessarily about new technologies, it is not about having to invent new widgets tomorrow that we have not yet got. A lot of the key to this will be about scaling up the deployment and speeding up the deployment within developed countries, industrialised countries anyway.

Q54 Joan Walley: Is not a lot of it about patents that already apply to existing companies and those companies needing to be able to fund the research and development that produces the patents that they now do not want to lose the benefit from?

Mr Bennett: David might have a point to make on that specific issue. Broadly, the point I would put forward, which I am told a lot in my role as Facilitator of the group, is that many of the top technologies already exist, so it is not necessarily about a big emphasis on research and development, it is as much as anything an emphasis on deployment. Take, for example, the one that is very easy to think about, the shift to low energy light bulbs. It is not as if it is a tremendous level of patents that are involved in that. The technology has existed for a long period of time and yet here within Europe my guess would be that there are a lot more inefficient light bulbs than new ones.

Q55 Joan Walley: Putting the easy, low-hanging fruits to one side, there will be issues, will there not, about intellectual property rights. How does that fit into this whole equation of how we deal with the technology transfer?

Mr Hone: I think it is a red herring and I do not think there will be issues about technology transfer and intellectual property rights. This is a process that already exists and already works quite satisfactorily. IT technology, which is guarded by many companies because of the extremely competitive nature of the industry is spread throughout the world. The Internet is available all over the world, mobile phone technology is available all over the world, PCs sell all over the world. Companies take their technology, find partners in their developing countries, invest with them and build factories to produce the goods and services that those countries need and all the while intellectual property rights are protected by a system that is already functioning and I do not see that should be any different for the energy technology industries. We already license technologies in China for advanced chemical process technologies and so on, coal gasification technologies, and we find partners in China, we do technology deals with them or invest with them, the facilities get built and we meet our business needs. I am not entirely sure that it is the issue that many people make it out to be.

Q56 Joan Walley: What would you say to China's suggestion that technology transfer should be mandatory for developed countries?

Mr Hone: I cannot think what the technology is that they are looking to be transferred. There is no shortage of high efficiency vehicles in China. Toyota is building a Prius factory there quite successfully under existing circumstances. I really struggle with the issue, not with your question, I think it is a good question because it is worth having a debate about it, but personally I have struggled with this issue as to exactly what is it that people are looking for. I know in Bali, which I think was of great concern, some people likened it to the technology behind AIDS drugs, for instance. It is not an example that is mirrored in the energy sector.

Q57 Joan Walley: Finally, again when we were in China it was suggested that it was not so much about the actual technology transfer but it was really about skills. From the links that you have which bring together business and the university, what scope do you think there should be or what scope is there for getting skills up to speed and readily available wherever they are needed?

Mr Bennett: There are actually a number of things we do within my department on that. We run a programme specifically for Chinese leaders around climate change and work closely with the Foreign and Commonwealth Office in that regard. As the Corporate Leaders Group we were obviously

[1] Not printed.

delighted that there were five Chinese companies that signed up to the Bali Communiqué, including some very significant ones like Shanghai Electric. We have not just let that sit there, we have now gone back to them and had discussions with those companies and we are now in the early stages of thinking about how we can move together in partnership on this issue. The kind of possibility we are thinking about is maybe having a conference in China in a year's time with many of the companies that signed the Communiqué and, of course, as many Chinese companies as possible to really build that common agenda about what needs to be done to move forward on climate change and to have a particular focus around skills as well. We are looking to see how we can really work together to take that agenda forward.

Q58 Joan Walley: Following on from the Stern Report, what was DTI, which is now BERR, set up a commission to look at how to make the next steps in terms of implementing the Stern recommendations. Separately, for example, in the West Midlands region there is now a university which is looking at the whole issue of environmental technologies. Is your work in Cambridge just focused on the work that you do in Cambridge or is it linked to other initiatives elsewhere regionally across the country, because clearly this kind of leadership and bringing the skills agenda together in terms of the business agenda and the environmental technology transfer agenda all needs to be somehow or other connected, does it not? How is that being connected up?

Mr Bennett: The short answer is to say we try to be as linked in as we possibly can, but often there are so many links that are open to us that sometimes it is hard to exploit all of them. I would obviously accept the premise of the point that it is important to be as networked as we can on this agenda.

Chairman: Thank you very much indeed both of you.

Tuesday 4 March 2008

Members present:

Mr Martin Caton

Mr David Chaytor	Mr Ian Liddell-Grainger
Colin Challen	Mr Graham Stuart
Mr Nick Hurd	Jo Swinson

In the absence of the Chairman, Mr David Chaytor was called to the Chair

Memorandum submitted by Jennifer L Morgan, E3G

EXECUTIVE SUMMARY

The Bali Roadmap outlines the essential elements that will need to be negotiated within the next two years in order to achieve an ambitious post-2012 agreement. It does not, however, provide sufficient guidance on what warming levels must be avoided, and thus what exact emissions reductions are required to meet such a target. This will be the main core of the negotiations moving forward to be completed by 2009 in Copenhagen. If the goal is to avoid the worst impacts and keep global average temperature below 2 degrees in comparison to pre-industrial levels, the Intergovernmental Panel on Climate Change finds that global emissions will have to peak and reduce in the next 10 to 15 years along the pathway to reduce global emissions well below half of the levels in 2000 by the middle of the century. In order to keep both these goals in sight, and demonstrate that transitioning to a low carbon economy is possible, developed countries must commit to reduce emissions by 25 to 40% below 1990 by 2020.

Developed countries will now negotiate their level of effort to reduce emissions both under the Kyoto Protocol, for those ratified Parties, and under the UN Framework Convention on Climate Change (UNFCCC) where the United States is a Party. This leaves an open space for the next U.S. Administration to engage constructively and hopefully ambitiously in the post-2012 negotiations. It also includes negotiations on mitigation for developing countries to conclude in new and enhanced verifiable, measurable and reportable commitments, very closely linked to the provision of scaled up technology transfer and finance for the transition to a low carbon economy. In addition, the Bali conference made significant progress on putting deforestation and forest degradation on the Bali Action Plan. However, the issue remains a politically highly complex one and many challenges still need to be overcome before any reduce emissions from deforestation and degradation framework can be effectively implemented. Finally, adaptation provisions took a small step forward in Bali, but much more is needed.

In order to ensure that the principle of common but differentiated responsibilities is fulfilled, any meaningful post-2012 international climate regime will have to ensure that different national conditions are reflected in a country's CO_2 reduction commitments. As agreed under the UNFCCC framework, developed countries will have to take the lead by continuing with absolute mandatory caps on emissions. Based on a country's historical responsibility, capability and potential to mitigate, developing countries should take on different kinds of commitments reflecting their differentiated commitments (eg sectoral commitments, policies and measures etc). Developed countries must lead the process to a global low-carbon future by providing clear leadership and allowing the low-carbon technology development and deployment processes to become more ambitious in developing countries. Here the EU should pursue these objectives on both a bi-lateral and a multilateral level, bringing new innovative financing ideas to the table internationally and testing them in a bi-lateral framework, for example by working with China on low-carbon economic zones.

The current revenue streams for financing adaptation and technology transfer to developing countries are neither of a sufficient scale, nor of an adequate form to meet the growing challenge of tackling climate change. While a range of estimates exist on the costs of adaptation and mitigation, it is essential to ensure that international resources are additional to currently committed ODA and that private sector finance is leveraged. A carbon price alone will not ensure that innovation in every sector occurs. Different technologies are at different stages on the innovation chain and their R&D, deployment and diffusion needs will therefore also vary. Only a balanced combination of market push and market pull incentives for low-carbon trade and investments can play a significant role in creating win-win options for achieving mitigation targets and economic gains across the globe.

As such, a range of funding options exist which could include auctioning revenue from the carbon market such as is proposed by the European Commission in its updated Emissions Trading System. The financing of mitigation and adaptation technologies in developing countries must be in line with national sustainable development goals of that particular country. Purely donor driven approaches will not build confidence nor will they provide the incentives needed to interest developing countries in agreeing to a new commitment in an international treaty.

1. Question 1: *Is the Kyoto Protocol still a relevant and effective mechanism? How successful was the Bali conference? Does the roadmap contain all that is needed to lead to a post-Kyoto agreement that adequately addresses the climate change challenge? Will the roadmap focus on implementation issues or will it come to an agreement on a stabilisation level? How do we ensure that no key parties are left out of the process?*

1.1 The Bali outcome is step in the right direction. Due to the very strong opposition by the Bush Administration on a range of crucial issues, it was the most that could have been achieved at Bali. The Bali Roadmap outlines the essential elements that will have to be negotiated within the next two years in order to achieve an ambitious post-2012 agreement. It does not, however, provide sufficient guidance on what warming levels must be avoided, and thus what exact emissions reductions are required to meet such a target. These issues will lie at the heart of the negotiation process leading up to Copenhagen in 2009.

1.2 The Kyoto Protocol is still very relevant in this roadmap and effective on a series of levels. The core of the Kyoto Protocol is its cap and trade approach, requiring binding absolute caps on industrialized country emissions from the period 2008 to 2012. Emissions trading and the other "flexibility mechanisms" such as the Clean Development Mechanism (CDM) were first initiated by Kyoto and now serve as the basis for the carbon market. Secondly, negotiations have been underway since late 2005 on the second commitment period of the Kyoto Protocol. This was strengthened in Bali. The Bali decisions set a deadline of 2009 to complete the negotiations and offered some guidance on the level of effort for the next set of targets for Kyoto industrialized countries. This includes the need to peak and reduce global emissions in 10 to 15 years; the need to reduce global emissions well below half of levels in 2000 by the middle of the century; and the recognition that the lowest IPCC scenario would require Annex I Parties as a group to reduce emissions in a range of 25 to 40% below 1990 by 2020. The noting of this single scenario should provide guidance for the second commitment period targets for Kyoto Parties.

1.3 The process to agree targets for each industrialized Kyoto country for the Protocol's second commitment period is also now very clear, set out by the work plan of the AWG in great detail. Through a series of submissions, workshops, inputs from external experts, roundtables and extra negotiating sessions, countries will negotiate a new set of targets for the second commitment period to be delivered for adoption to the Copenhagen COP in 2009.

1.4 As the United States is not a Party to the Kyoto Protocol and therefore is not included in the Kyoto target negotiations, a different space had to be found to negotiate U.S. mitigation in the future. Indeed, a major challenge in Bali arose when it became time to discuss what the non-Kyoto industrialized countries would be negotiating for their mitigation for the next two years. While that group includes Kazakhstan, Belarus and Lichtenstein, the main interest is to ensure that the United States is negotiating mitigation of its emissions. Countries were not prepared to launch a new round of negotiations in Bali without a clear and ambitious negotiating process for the USA itself.

1.5 The Bali Action Plan includes negotiations on mitigation commitments for industrialized countries that are measurable, reportable and verifiable and should be comparable with other developed country negotiations, providing the link to the Kyoto Protocol track of negotiations. The text also specifically notes quantified emission limitation and reduction objectives, the same type of commitments that the AWG is negotiating for other developed countries.

1.5.1 The Bali Action Plan also includes a negotiation over mitigation for developing countries. Developing countries, along with the United States had been part of the Dialogue on Long-term Cooperative Action on Climate Change under the UNFCCC, but as this Dialogue comes to an end, and in light of growing CO_2 emissions from developing countries, it is clear that these negotiations must be more serious and ambitious than before. At Bali countries agreed to negotiate enhanced national mitigation actions that are "measurable, reportable and verifiable." The next two years will focus on negotiating new actions and approaches for developing countries to curb their emissions, linked with support in the fields of technology, financing and capacity building. While formal conditionality is not the case, it is very clear that the level of ambition of developing country mitigation will go hand-in-hand with the level of support from industrialised countries.

1.5.2 The Bali Action plan also includes a separate, but linked, negotiation framework on deforestation and forest degradation measures in developing countries. For the first time, deforestation will get the attention it requires. A separate subsidiary body decision outlines much of the work plan on this issue, with a programme of work on methodological issues that should identify the range of policy approaches and positive incentives. There is also room for demonstration activities and a focus on increasing resources. In fact, Norway made a major announcement in Bali, committing $500 million/year over the next five years to fund deforestation reduction efforts, independent of any reduction commitments by North or South or any link to the carbon market.

1.5.3 Technology development and transfer will also play a large part in the negotiation process setting standards on transferring the technologies that are needed for both the mitigation and adaptation of climate change. The increased realization of the need for a functioning set of measures to facilitate technology transfer from developed to developing countries will play a vital role in these negotiations. A much more robust set of commitments and actions around technology transfer and assisting developing countries to create favourable national conditions must be put in place if global emissions are to peak and decline in the next 10 to 15 years. Here the Experts Group on Technology Transfer (EGTT) has a very comprehensive

work programme including assessing the gaps and barriers to technology transfer, developing a set of performance indicators to monitor and evaluate the effectiveness of the technology transfer framework and bringing forth a strategy paper on how to move forward.

1.5.4 In the area of adaptation, the Kyoto Protocol's Adaptation Fund was finally made operational so that it can begin to distribute funds generated from the level on the Clean Development Mechanism (CDM). Under the UNFCCC, the Bali Action Plan decided that there should be enhanced action in the areas of risk management and risk sharing, disaster reduction strategies, and international cooperation to support the urgent implementation of adaptation actions.

1.5.5 The final element of negotiation of the Bali Action Plan is that of finance, "enhanced action on provision of financial resources and investment to support mitigation and adaptation actions". Tied closely with the three other elements, the negotiation will focus on creating innovative means of funding adaptation, positive incentives for action, provision of new and additional resources and mobilization of public and private sector funding. Investment and finance will require inputs from a range of new actors to the UNFCCC process.

1.6 The negotiation process will be organized in two different ad hoc working groups. The existing Ad Hoc Working Group of Article 3.9 of the Kyoto Protocol will continue and conclude its work in 2009. A second group, the Ad Hoc Group on Long-term Cooperative Action under the UN Convention, will also conclude its work in 2009. It shall meet as often as necessary, initially four meetings in 2008 with its first meeting taking place in March/April 2008. Chairs for the two years have already been identified and confirmed.

2. Question 2: *What needs to be done between now and Poznan? Emissions from international aviation and shipping were not included in the Bali roadmap. Why did this happen and what can be done to address these emissions?*

2.1 Poznan serves as a verification point between Bali and Copenhagen in December 2009. It will evaluate the international progress made since Bali and outline those measures still necessary to achieve a successful post-2012 agreement. It will be an important conference, although it will serve more as evaluation rather than one which sets out its own agenda. In particular, Poznan will "take stock" to assess whether there are enough meetings scheduled, what progress has been made and optimally to engage a representative of the new US Administration on how it will participate in the negotiations.

2.2 Aviation needs to be included in any post-2012 climate deal. Although it is not specifically mentioned in the Bali Action Plan, its inclusion will be part of the negotiations due to both a review of the Kyoto Protocol and the inclusion of internationally competitive sectors in the negotiations. Although it is still very disputed on how this will be done, the European Commission, for example, adopted a proposal for legislation to include aviation in the EU Emissions Trading Scheme (ETS) in December 2006. The proposal provides for aviation to be brought into the EU ETS in two steps. From the start of 2011, emissions from all domestic and international flights between EU airports will be covered. In January 2012, the scope will be expanded to cover emissions from all international flights—from or to anywhere in the world—that arrive at or depart from any EU airport. The intention is for the EU ETS to serve as a model for other countries considering similar national or regional schemes, and to link these to the EU scheme over time. The EU ETS could thus form the basis for wider international action to include CO2 reducing measures on aviation.

Emission Reduction Frameworks

3. Question 3: *How can "common but differentiated responsibilities" be decided in such a way that ensures the engagement of all parties? How can equity concerns regarding the allocation of mitigation targets and historical responsibility for climate change emissions be reconciled?*

3.1 The principle of "common but differentiated responsibilities" is the core underlying principle to the UNFCCC, particularly for developing countries. How do we forge a common response to the threat of climate change that respects the different starting points of varying countries? The current framework includes only two annexes—one for developed countries and one for developing with no long-term perspective of what the overarching goal of the climate regime shall be. The post-2012 negotiations will rotate around these issues and should be based upon the latest scientific data.

Any meaningful post-2012 international climate regime will have to include countries at very different economic stages. It is therefore vital to the success of any post-2012 agreement that these different conditions are reflected in their national CO_2 reduction commitments.

3.2 As agreed in the UNFCCC, developed countries will have to take the lead by continuing with absolute mandatory caps on emissions. In order to demonstrate leadership and have a higher probability of staying below 2°C, the level of ambition for developed countries should match the IPCC's lowest scenario equally to 25 to 40% emissions reductions below 1990 by 2020. It is clear, however, that some developing countries

must also take on ambitious, specific mitigation commitments. CO_2 emissions from fuel combustion in non-Annex I countries have increased by 38.9% over the 1990–2000 period, resulting in a 40% of annual global emissions in 2000 according to the World Resources Institute. Some non-Annex I countries have seen a rapid economic development in recent years.

3.3 While it is important for non-Annex I countries to take on CO_2 limitation and/or reduction commitments it is also vital to the political success of any such agreement that there is clear differentiation amongst non-Annex I countries as their responsibility, capacity and potential to mitigate vary greatly. The current grouping of developing countries does not reflect the different national circumstances of that block (eg from Saudi Arabia to Togo). The post-2012 regime should base the level of effort for commitments on a set of core principles that can be quantified so as to ensure a transparent process in setting commitments. Three criteria are particularly mentioned in the literature on this subject and include:

- Historical Responsibility which can be analysed in various ways but the most cities approach is to assess the cumulative per capita emissions of fossil CO_2 in the period 1990–2000 ("Brazilian proposal"). Other approaches focus on longer time periods.
- Capability of a country to reduce emissions. This might be quite different to its historical responsibility. Here two criteria need to be taken into consideration: the Human Development Index (HDI) and the GDP on the basis of purchasing power parity. This would result in countries with higher levels of national income and higher HDI ranking having to carry a higher burden of mitigation.
- Potential which can be derived by a country's emissions intensity and its emissions per capita. Thus a high value for a country's CO_2/GDP ratio would imply a high potential to mitigate emissions. The more efficient an economy already the less efficiency potential exists to mitigate further. High per capita emissions, on the other hand, could be altered by changes in lifestyles.

These criteria can then guide negotiations both on the type and level of ambition of the commitments and the level of financing a country will require to meet those commitments. This mixture is highlighted below.

Potential to mitigate[1]

High potential	→	Reductions of domestic emissions
Medium potential	→	Limitation of domestic emissions
Low potential commitments	→	No quantitative but qualitative mitigation

Capability to mitigate

High capability	→	Financial transfers for mitigation activities to "low/ medium capability" countries
Medium capability	→	Co-sharing: mitigation partly funded by "high capability" countries
Low capability	→	All mitigation activities funded by "high capability" countries

Responsibility to mitigate

High responsibility	→	Binding absolute reduction target
Medium responsibility	→	Quantitative commitments only binding if all "high responsibility" countries take on commitments and conditional on transfer of adequate financial and technological resources
Low responsibility	→	Optional/voluntary mitigation commitments

After evaluating the above criteria one arrives at a set of country groups similar to the following:

- Poorest countries, including a large part of African LDCs, will initially be excluded from any new commitments until they have reached a certain level of economic and institutional development in order for national CO_2 emission reductions to make economic sense.
- Advanced developing countries, for example large parts of northern Africa, will begin to reduce their CO_2 emissions by measures of sustainable development.
- Newly industrialising countries, such as China, South Korea, Mexico, Brazil and most OPEC states, will set no-lose targets to limit their carbon emissions.
- Developed industrialised countries will take on commitments of absolute emissions reducing measures according to the Kyoto Protocol model. Here those countries with higher CO_2 emissions per capita will have to reduce more than others.

[1] Winkler et al, "Future mitigation commitments: differentiating among non-Annex I countries", *Climate Policy 5 (2006)*; p 478.

Table 1

COMMITMENTS ACCORDING TO COUNTRIES' PARTICIPATION FOR A 450 PPMV STABILISATION GOAL[2]

	2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
Annex I		4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Brazil		3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
China		3.0	3.7	3.7	4.7	4.8	5.0	5.0	5.0	5.0
Mexico		3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
South Africa		3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Saudi Arabia		3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
Malaysia		3.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
South Korea		3.0	4.0	4.0	4.2	5.0	5.0	5.0	5.0	5.0
Rest of Latin America		2.5	3.1	3.3	3.9	4.2	4.2	4.3	4.4	4.6
Egypt		1.8	2.0	2.7	3.7	4.0	5.0	5.0	5.0	5.0
India		1.0	1.5	2.3	3.0	3.3	4.3	4.8	5.0	5.0
Indonesia		1.0	1.7	2.3	3.0	3.2	3.8	4.2	4.5	4.7
Rest of Asia		1.2	1.3	1.5	1.7	2.1	2.3	2.6	2.9	3.2
Rest of Africa		1.1	1.2	1.4	1.8	2.1	2.5	3.0	3.3	3.7

A re-evaluation of the groups must take place every 5–10 years so as to remain effective and take account of the progress made by individual countries. Step by step this will allow for a greater number of countries to actively contribute to avoiding dangerous climate change by taking on more ambitious CO_2 emissions reducing targets over time.

The final agreement may look slightly different than that above. There may, for example, only be two or three groupings within the developing country block. The point is to ensure that there is an equitable process to determine the level of effort and type of commitment developing countries must take.

4. Question 4: *How might an agreement be reached with emerging economies to ensure that their emissions trajectories move into line with the need to reduce global emissions? How might developing countries' need to expand their economies be reconciled with controls on emissions?*

4.1 The developed world holds great responsibility in leading the way to a low-carbon future. Only if their economies show clear and determined signs towards a low carbon economy can developing countries be assured that their emerging economies will not lose out by taking on ambitious actions or commitments to curb their emissions. The Western economies of Europe, the United States and Japan must therefore set clear emissions reduction targets if emerging economies are to follow suit. There are different ways to shift together to ensure a lower emissions trajectory:

4.1.1 Provide leadership: Ensure that Europe meets its 30% energy reduction target agreed by the Council in March 2007. Not only will this serve as a process by which to show emerging economies that industrialised countries are serious about climate change, but it will also present less advanced economies with the political know-how of how low-carbon economies can be achieved. Germany, which sees itself as a frontrunner in setting ambitious national CO_2 reducing targets, is seeing clear signs that its economic growth may be decoupling from its total greenhouse gas emissions. As such, not only can Europe be a leader on showing the rest of the world how to put adequate regulatory measures into place and make them work, but its companies will also have clear competitive advantage in developing low-carbon technologies.

4.1.2 Low-carbon technology deployment needs to become more ambitious in developing countries. Strengthened intellectual property protection is a necessary but insufficient condition for speeding up technology development in developing countries. Here it is vital to give every country a stake in the necessary transition, especially large emerging economies like China and India. There is a clear need for a pragmatic approach in addressing intellectual property rights (IPR) issues. Here the rights governing the technology itself are often less important, rather it is vital that the receiving country has the absorptive capacity to use them, to enable their widespread diffusion and to innovate independently on the basis of the new knowledge.

[2] Höhne, Niclas. Phylipsen, Detal. Ecofys. "Options for the second commitment period of the Kyoto Protocol"; p 33.

Negotiations in multilateral institutions between host countries and rich investing countries should include the issue of diffusion, and address the fact that genuine transfer of technology involves providing the host country with the capacity to develop and produce technology of its own, rather than merely selling a piece of equipment or blueprint. Despite risk of retaliation by trading partners, compulsory licensing can be a useful tool when environmental protection or public health is at stake. Governments can play a key role in stimulating the innovation and diffusion of climate technologies. Strategies including public provision of adequate infrastructure, subsidised research and priority public procurement are major tools to encourage such low-carbon technologies. A mix of push and pull mechanisms must be used to facilitate the transition to a low-carbon future.

Europe should be pursuing these objectives on both a bi-lateral and a multi-lateral level, bringing new and innovative financing ideas to the table internationally and testing them out in bi-lateral relations.

4.1.3 Establishing "Low-Carbon Economic Zones" (LCEZs) between China and the EU could be a bold initiative for European and Chinese policy-makers to consider. These LCEZs could be the testing grounds for policies promoting the economic transformation necessary for a low-carbon future. Their focus on attracting investment in research and high-end manufacturing would be consistent with the Chinese leadership's desire to shift away from simple processing and assembly. The EU could focus its energy and climate cooperation with China around these zones to demonstrate the real possibility of large-scale transformations to other regions and countries, from which the EU would greatly benefit. Such LCEZs could also pioneer sectoral approaches to climate change since competitiveness concerns about climate change policies have generated significant interests in global sectoral standards agreements for energy intensive sectors.

The creation of such LCEZs could also allow the EU and China to set world-class standards for energy-efficient goods and services as well as making coal more sustainable, through CCS financing mechanisms for example. The coal issue is central to both regions as future dependence on coal is expected to increase significantly in China and the EU. Both could enhance existing cooperation to deliver an agreed set of benchmarks and practices for improving efficiency and reducing the sustainability impacts across the coal fuel chain; including enhancing cooperation on development of carbon capture and storage as a potential future energy option.

4.2 In short, there needs to be a clear move from a competition to a cooperative framework if developing countries are to ensure that their emissions trajectories move into line with the need to reduce global emissions. With climate change posing new security threats to all countries, finding technological solutions is a shared dilemma and must be met by strengthened cooperation between national governments and corporations.

Adaptation and Technology

5. Question 5: *Is there adequate support for developing countries to adapt to climate change? How will funding for climate change mitigation or adaptation interact with existing aid budgets? Will such funding contribute to wider sustainable development goals?*

5.1 Increased adaptation financing in developing countries is needed in part to respond the incremental risks climate change pose to the achievement of the Millenium Development Goals (MDGs). The 2006 UK DfID White Paper recognised that climate change poses the most serious long-term threat to development and the achievement of the MDGs. Climate change is driving near term increases in climate variability and extremes. This will increase humanitarian costs from drought, floods and extreme storms. UN Security Council debate on climate change in April 2007 showed strong developing country views that climate impacts were increasing risks of crisis and conflict. Ministry of Defense and Foreign Commonwealth Office analysis supports this view.[3]

5.1.1 Climate change will impact the poorest people in the poorest countries first; all poverty reduction efforts will be affected. OECD (2005)[4] estimates 15–60% of aid spending is vulnerable to climate change. 350 million people could be displaced by climate change by 2050. By 2015, the share of DFID's budget devoted to humanitarian costs could almost double, from 12% to 23%. Increased risks of instability and conflict driven by climate change will add additional costs.

5.1.2 Financial costs to industrialized country governments to "climate proof" current investments in both middle and low income countries, assuming private sector leveraging occurs, would be $1.3 to $7.7 billion per annum (Table 2). The World Bank estimates costs of adaptation as 5–20% of development investment sensitive to climate. For 2005 ODA, this amounts to US$4.5 billion as the midrange value.

[3] MOD/DCDC, Global Strategic Trends 2006; FCO Africa Research Analysts, 2007.
[4] OECD, 2005 Bridge Over Troubled Waters: Linking Climate Change and Development.

Table 2

COST OF CLIMATE PROOFING IN DEVELOPING COUNTRIES

Cost Scenario ($ billion per year)	*Total Developing Country Cost*	*Total LICs Share*	*Total MICs Share*
Low estimate	1.3	0.2	1.1
Middle estimate	4.5	1.1	3.5
High estimate	7.7	1.9	5.8

Adapted from WorldBank, 2006[5]

5.1.3 If one wishes to estimate the total costs, including Foreign Direct Investment and Gross Domestic Investment then the total numbers are much higher eg in the range of $4 to $37 billion per year for developing country "climate proofing". Cost estimates for OECD countries, according to Stern are in the range of $15–150bn cost per year for adaptation in OECD countries. This brings the total range to $19 to $187 billion per year for the globe.

5.1.4 This, however, does not include the costs related to disaster relief; climate-proofing people has been neglected at the expense of climate-proofing investment. If climate change is left unchecked, global humanitarian costs would skyrocket.

5.1.5 In addition to finding more innovative and additional ways of financing adaptation as well as mitigation, adaptation should also take complementary actions by:

- Building adaptive capacity by investing in basic human development eg the MDGs.
- Capacity building—eg projecting impacts, planning etc.
- Institutional strengthening to plan and manage impacts.
- Technology transfer—eg building standards, drought-resilient seeds, dyke building, early warning systems.

5.1.6 The current revenue streams for financing adaptation are neither of a sufficient scale, nor of an adequate form to meet the growing challenge of tackling climate change. The scaling-up of existing mechanisms alone would not be sufficient to cover for climate adaptation. Existing instruments include two UNFCCC funds (ie Least Developed Countries Fund, LDCF and Special Climate Change Fund, SCCF), which were set up under the auspices of GEF (Global Environment Facility) to finance adaptation efforts in developing countries. Another fund, Strategic Priority on Adaptation (SAP), is financed separately by GEF's own resources. The delivery of these funds has been very limited (Table 3). Total committed finance for adaptation through multilateral funds was US $279 million. By mid-2007, actual multilateral financing delivered under the broad umbrella of initiatives set up under the UNFCCC had reached a total of US$26 million. This is equivalent to one week's worth of spending on flood defence in the United Kingdom (HDR, 2007).

Table 3

Adaptation Funds	*Operational since*	*Total Pledged (US $ million)*	*Total received (US $ million) by 2007*	*Total disbursed (US $ million) by 2007*
LDCF	2001	156.7	52.1	9.8
SCCF	2005	67.3 (56.7[6])	53.3	1.4
Adaptation	200X	5	5	—
Fund	By 2012[7]	160–950	—	—
Sub-total		**229**	**110.4**	**11.2**
SPA	2004	50	50	14.8
Total		**279**	**160.4**	**26**

Source: Adapted from HDR 2007

In Bali, there was agreement regarding the governance of the Adaptation Fund of UNFCCC. It will receive a constant flux of revenues by a 2% levy on credits generated through CDM projects. If implemented, it is estimated that the levy could generate a total income in the range of US$160–950 million by 2012.

5.1.7 HDR Report 2007–08 drawing from various methodologies, sets out its rough "lower bound ballpark" estimate of overall additional adaptation investment required as US $86 billion per year by 2015. Table 4 outlines different components of this additional funding. Updating WorldBank's figures for 2005, their cost estimate for climate proofing development investments and infrastructure is suggested to be at least US$44 billion annually by 2015 (This figure is based on the assumption that adaptation financing

[5] WorldBank, 2006
[6] Amount earmarked for adaptation only.
[7] This is an estimate therefore it is not included in the calculation; the total amount will depend on trade volumes and prices.

requirements in developing countries will represent around 0.1% of developed country GDP). Since most adaptation cost estimates are solely focusing on the cost of climate-proofing, they include other types of costs adaptation will entail. Adapting poverty reduction programmes is suggested to require a commitment of at least US$40 billion per year (This figure represents around 0.5% of GDP for low income and lower-middle income countries). Finally, increase in climate-related disaster response of US$2 billion a year in bilateral and multilateral assistance by 2015 is estimated to prevent the diversion of development aid. The existence of different estimates shows the wide range of methodologies, which themselves reflect various uncertainties over calculating the exact cost of climate risks.

Table 4

Estimated donor country cost	*Estimated Cost % of OECD GDP by 2015*	*US $ billion by 2015*
Climate-proofing development investment	0.1	44
Adapting poverty reduction to climate change	0.1	40
Strengthening disaster response	(.)	2
Total	**0.2**	**86**

Source: Estimates based on GDP projections from World Bank 2007d quoted in HDR 2007

5.1.8 Institutional aspects of funding adaptation mechanisms could include:[8]

- — expanding ODA infrastructure to accommodate the required adaptation—internalize adaptation in the existing bilateral and multilateral ODA infrastructure;
- — creating or extending a globally centralized fund—extend the Protocol's Adaptation Fund;
- — creating locally-focused funds such as Autonomous Adaptation Funds—establish funds at national/sub-national levels to respond to local adaptation needs; and
- — an insurance mechanism for adaptation—range of ideas here from compensation for the suffering from impacts to innovative market-based insurance instruments.

5.2 It is important to ensure in the medium term that international resources for climate change mitigation and adaptation are additional to currently committed ODA. Financing adaptation by multilateral development assistance has been so far characterised by underfinancing, fragmentation and weak leadership as also shown above (HDR, 2007). HDR (2007) also notes that in addition to this, "international cooperation on adaptation has not been developed as part of the wider international aid partnership on poverty reduction. The end result is that multilateral financing mechanisms are delivering small flows of finance with high transaction costs, yielding very limited results".

5.2.1 In the area of mitigation, it is very clear that existing ODA will not be enough to address the huge challenge climate change will impose. The role of the carbon market, additional ODA funding and other possible means and sources need to be further explored.

The underlying documents to Stern try to calculate the scale of additional costs that will need to be made in developing countries by 2015 in order to stabilize concentrations (Table 5).

Table 5[9]

	Costs in non OECD countries, per year in 2015	*Costs in non OECD countries, per year in 2025*
Mitigation	$69 billion	$294 billion

In order to cover these additional costs, a range of approaches exist starting with:

- — Developing countries themselves fund part of the additional investment costs. How much will depend on the level of development of each country and their technology needs. See case studies below.
- — Deeper cuts in developed countries and a transformed CDM to sectoral and policy approaches in developing countries thus allowing more carbon finance to flow south. The rapid development of an international carbon price, in particular, would mean that much of this investment could be made "off-balance sheet" from the point of view of the public sector.

[8] ECP Report, November 2006.
[9] D Anderson, "Costs and Finance of Abating Carbon Emissions in the Energy Sector," Imperial College, 2006.

5.2.2 Financing options can include expanding the carbon market by deeper industrialized country targets, and transformed CDM. Stern documents include the following calculations in regard to the potential role of the carbon market in assisting in closing the gap of additional cost (Table 6):

Table 6[10]

	Costs in non OECD countries, per year in 2015	*Costs in non OECD countries, per year in 2025*
Funding through carbon market	$24 billion (of the $69 billion total)	$173 billion (of the $294 billion total)

These results are generally consistent with those done by Baker & Mackenzie for Vattenfall (2007), which find that there are a range of mitigation options for a marginal abatement cost of 40 euros/ton in 2030, again consistent with the overall Stern economic estimates. The striking thing to note is that Stern focused on 550ppmve and Vattenfall on 450ppmve, thus showing the large ranges in the estimates.

5.2.3 It is therefore clear that a carbon price alone will not ensure that innovation in every sector occurs, or that the essential research and development occurs. Indeed, there is additional financing needed for emerging technologies along the following lines:

Table 7[11]

	Costs in non OECD countries, per year in 2015	*Costs in non OECD countries, per year in 2025*
Emerging technologies where further funding needed	$45 billion (of the $69 billion total)	$121 billion (of the $294 billion total)

Financing needs to be tailored according to the country and its specific needs. As far as where the funding is most needed, there are a range of graphs which show the different costs for the different technologies in various years. Financing mechanisms must be tailored to recipient developing countries, since they vary widely. For example, in Middle Income Countries (MIC), there should be clear funding for the transition to a low-carbon economy, while in Least Income Countries (LIC) the focus should be on adaptation and access to climate change proofed energy.

5.2.4 Additional finance can be generated through a mixture of regulatory and market mechanisms:

- Auctioning of permits:
  - on the international level, part of the national level commitments, the so-called assigned amount, would not be allocated for free to countries but rather taken out and put in a separate global fund to be monetized and allocated to technology development (and adaptation); or
  - on the national level, permits would be auctioned and part of that revenue would be placed in a national fund coordinated with other national funds or an international fund for technology development and adaptation.

  This could be a significant funding source. For example, 150 $bn/year could be generated if 40% of the emissions permits from developed countries were auctioned at a price of 30 to 40$/ton. From 2012–20 auctioning developed country carbon permits could provide sufficient funds to deliver adaptation and MIC mitigation.
- Placing a levy on the other financial mechanisms of the Kyoto Protocol; currently there is a 2% levy on the CDM revenues to finance Adaptation Fund. This could be spread to emissions trading and joint implementation in the future. The total amount available depends on the size of the market.
- Carbon tax.
- Taxing air travel.
- Doubling public support for RD&D to around $50bn/yr to reduce costs and accelerate deployment in both developed and developing countries.

[10] Ibid.
[11] Ibid.

— World Bank and Regional Development Banks' efforts to create a global Investment Framework for scaling up public and private investment:
  — potential to overcome obstacles to investment in developing countries; and
  — facilitate the transfer of finance and technology; and allow financing for different sources to be combined effectively, to catalyse the private sector investment needed to fund low carbon technology, including energy efficiency. Policy mechanisms that can assist in driving down costs and driving private sector investment to stimulate technology development and diffusion will be detailed further in Section 6.

5.3 The approaches taken in financing mitigation and adaptation in developing countries must be in line with national sustainable development goals of that country. Purely donor driven approaches will not build confidence nor will it provide the incentives needed to interest developing countries in agreeing to a new commitment in an international treaty.

5.3.1 Avoided climate change is a global public good that has strong poverty reduction benefits in developing countries. As mentioned earlier, lack of adaptation will undermine all development efforts, particularly in climate sensitive sectors (ie agriculture, forestry) which the poorest in the developing countries are most dependent on for their livelihoods, while lack of mitigation efforts would lock advanced developing countries in carbon intensive economies.

5.3.2 Adaptation and mitigation needs and opportunities differ according to the country. In MICs, adaptation funding would support the transition to a low-carbon economy while achieving MDGs. On the other hand, in LICs, reducing the vulnerability of the agriculture to climatic extremes would support food security of the poor. In addition to that, it would enable them to access energy through climate change ready energy structure.

5.3.3 A comprehensive approach to climate change adaptation (including enhanced humanitarian and disaster relief), including additional investment and improved governance/conflict prevention needs to be developed. Adaptation discussions have mainly focused on technical and investment measures, linked to international funds. This assumes governments will act to reduce climate impacts on their citizens. But in states with low governance records, climate change will magnify social stresses increasing the risk of conflict and instability. In many areas in Africa and Asia the only form of adaptation will be migration, with 200–400 million people at risk by 2050. Managing the stresses of migration between and within states will require strengthened humanitarian and political action.

6. Question 6: *Is there effective international coordination on technology R&D? How might technology transfer to developed countries be improved? How does technology transfer interact with international trade rules? How effectively do Government technology programmes, such as the Energy Technologies Institute, lead to technology development and transfer to developing countries? How effective are UK Government measures to assist developing countries to reduce emissions?*

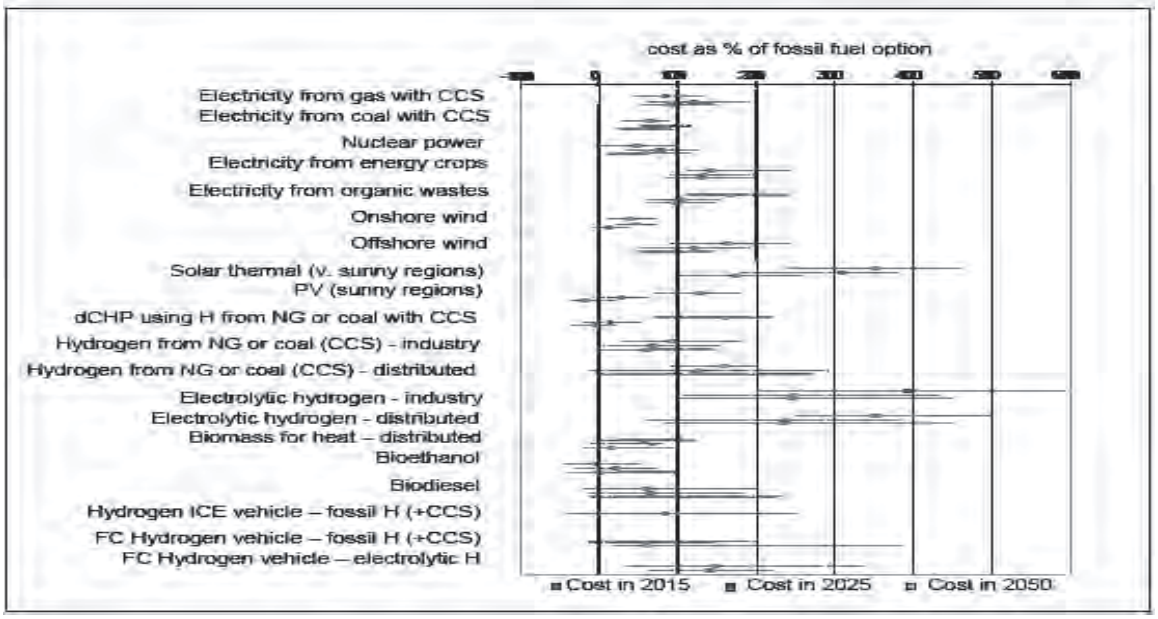
6.1 There has been only slow progress on developing the practical and effective innovation incentives needed to drive a global transition to low-carbon economy. There are considerable economic, political, regulatory barriers to overcome.

6.2 As noted above in question 5, large ranges of marginal abatement cost estimates, suggest that a carbon price alone will not ensure that innovation in every sector occurs, nor that the essential research and development occurs.

6.2.1 Different technologies sit at different stages on the innovation chain; therefore their R&D, deployment and diffusion needs will also vary. For example, one can see below that perhaps onshore wind could be funded through carbon market expansion but solar thermal would need additional funding. This will vary, however, from country to country.

Figure 1

INCREMENTAL CoSTS OF LOW CARBON OPTIONS AS % COSTS OF FOSSIL FUELS



6.3 In addition to technology push through increased resources for R&D, "market pull" with regulatory reforms is equally important for low-carbon technology deployment and diffusion. Policy mechanisms that can assist in driving down costs and driving private sector investment include:

- A Multi-lateral Technology Acquisition Fund to buy-out intellectual property rights with public funds and distribute them to developing countries.
- Energy Efficiency or Carbon Intensity Related Technology Agreements.
- Benchmarking/standard setting for technologies to drive private sector investment in more efficient and/or lower carbon intensive products such as vehicles, household appliances etc. so leading to phasing out of most carbon intensive products.
- Sectoral agreements where sectors agree to certain carbon-intensity technology standards—could be a G8 + 5/G20 agreement on key sectors.
- Technology Related Targets—Specific targets whether national, regional or global for key low carbon technologies, such as renewable energy; number of fossil fuel plants fitted with carbon capture and storage; percentage of biofuels within the transportation sector etc would be combined with Technology Cooperation Agreements with developing countries and financing for incremental costs provided.
- Removing trade and investment barriers to climate change technology transfer, eg common market in low carbon technologies between the EU and China.
- Setting technology standards: Innovation and diffusion in buildings and transport will be driven by technical standards not price. Trade and investment driven deals with dynamic developing countries can lower costs and drive diffusion. Therefore, there is a need to link tariff barrier reduction, investment policy, mutual standards recognition and joint efficiency standard policies.

6.4 The financial resources generated for technology innovation and diffusion could be used to set up a common pool of IPRs (depending on the technology). But most importantly they should encourage and make substantial steps in making the underlying knowledge available through joint R&D and demonstration collaborations. The leading companies in global power plant industry have provided licenses to developing country firms for the manufacture of equipment such as gas turbines. However, these licenses exclude the manufacture of the most "high tech" components such as the first row of turbine blades which incorporate advanced materials, cooling technologies and manufacturing techniques.[12] Although having patents to manufacture high tech is building up the capacity and skills-base, access to the underlying knowledge is a key component for innovation in those countries through knowledge transfer. Capacity building is also another important component of technology transfer.

[12] Watson et al, 2007 Technology and carbon mitigation in developing countries: Are cleaner coal technologies a viable option? Background Paper for Human Development Report 2007.

6.5 Win-win options of achieving mitigation targets and economic gains are possible through creating new market incentives for low-carbon trade and investment. In the case of EU and China, a recent Chatham House and E3G study[13] suggests that "the sheer size of the two markets means that an EU–China trade agenda will influence the global marketplace and further stimulate trading opportunities, both with each other and elsewhere. This could also help offset competitiveness concerns of EU and Chinese entrepreneurs about moving quickly towards low-carbon alternatives". To achieve this, barriers to trade and investment in low-carbon trade in goods and services would need to be removed.

6.6 The newly established Energy Technologies Institute (ETI) (operational from 2008),outlines its objectives as follows:

- increasing the level of funding devoted to R&D to meet the UK's energy policy goals;
- delivering R&D that facilitates the rapid commercial deployment of cost effective, low carbon energy technologies;
- providing better strategic focus for commercially applicable energy related R&D projects;
- connecting and managing networks of the best scientists and engineers to deliver focused energy R&D projects to accelerated eventual deployment; and
- building R&D capacity in the UK in the relevant technical disciplines to deliver the UK's energy policy goals.

None of its objectives specifically address technology transfer from the UK to developing countries. On the other hand, it does not have a UK remit, ie investments do not have to be made in the UK or into UK companies.

Given ETI's early development stage it is difficult to argue whether it can play a significant role in technology development and transfer. We believe technology transfer to developing countries has a significant role to play in mitigation and adaptation; therefore needs to be a part of the UK government technology programme.

7. Question 8: *How might mechanisms to tackle emissions from deforestation be developed? How can we ensure that such mechanisms contribute to wider sustainable development aims? Will such mechanisms deal with the need to ensure the protection of indigenous people, land use rights and governance? How might forest degradation be dealt with? Are additional mechanisms required to enable the creation of carbon sinks?*

7.1 Deforestation emissions are estimated to contribute 20% of all anthropogenic CO_2 emissions.[14] This makes deforestation the second largest cause of greenhouse gas emissions after fossil fuel burning. Therefore, we think the suggested Reduced Emissions from Deforestation and Degradation (REDD) mechanism can play an important role in addressing GHG mitigation.

7.2 At the last COP meeting in Bali, significant progress was made by putting deforestation and forest degradation on the Bali Action Plan, and a work programme for further methodological work was adopted. The so-called Bali Roadmap also included possible financial support to tackle deforestation and forest degradation, which contributed to climate change. However, given the complexity of forest governance issues and, the uncertainties about the post-2012 market and political architecture, there are considerable challenges in the design and implementation of any REDD framework.

7.3 The basic principle of a REDD mechanism is that following a baseline for emissions from deforestation and degradation for a country is agreed the emissions reductions below the agreed baseline will be rewarded ex-post. Options of financing this by a dedicated fund or by selling emission reduction in the carbon market, or some combination of the two are still being discussed.

7.4 Including credits accrued from REDD in the international trading system on a fully fungible basis has large risks. It has the potential of flooding the global carbon market with cheap compliance credits. This would have serious negative implications on the price of carbon, and in turn would undermine urgent need for transition to a low-carbon economy. A potential solution can be setting up a hybrid market-linked fund proposed by Greenpeace International. This so-called "Tropical Deforestation Emission Reduction Mechanism (TDERM)" could provide funding for forest protection that is driven by a mandatory minimum contribution from Annex I Parties to meet a certain percentage of their emission reduction targets. Compliance with national emissions reducing targets could be secured by a "Tropical Deforestation Emissions Reduction Unit", and its price could be determined by auctioning. These proceeds would go into the TDERM to fund and reward reductions of emissions. In addition to a mandatory minimum contribution, the supply of these credit units would also be limited to an agreed level, while it would be necessary to ensure sufficient funds.

[13] Bernice, Froggatt et al, 2007 Changing Climates: Interdependencies on Energy and Climate Security for China and Europe. Chatham House.
[14] IPCC, 2007; Houghton, 2005; Stern Review, 2006.

7.5 It is not yet clear whether REDD will have any obligations towards any development outcomes to be met, and how these will be integrated into a REDD design. Experience from community forestry projects emphasised the importance to make explicit any development objectives in the design phase, if any development outcomes will be achieved.[15] We agree that "REDD activities should be coupled with long-term development co-benefits to ensure permanence of avoided emissions".[16]

7.6 There are significant governance issues which will need to be addressed if emission reductions from deforestation and forest degradation will be achieved and be permanent. Tackling these will require clarity over ownership/tenure of land/trees and carbon benefits, distribution of transaction costs and benefits, clarity over the distribution of benefits, a better understanding of power relations and decision-making processes between different actors (ie central and local governments, local communities, NGOs, logging companies, unions etc), improved accountability and transparency, and increased capacity of institutions in managing the use and benefits accrued.

7.7 Causes of degradation are multi-faceted, and vary greatly between different countries and regions. There is no one-fits-all options for the design of REDD to tackle deforestation and degradation. They must be developed in the context of wider sectoral reform and institutional strengthening at the national and local levels[17] to avoid creating perverse incentives for changing land use.

8. Question 10: *What action is the Government taking to prepare for and accelerate the linking of the EU Emissions Trading Scheme with other trading schemes? Is a new institutional or regulatory framework required to enable their development and coordination? How might schemes be linked where they have different emission caps? Might the EU-ETS be undermined by linking with other schemes?*

8.1 UK Government has recently signed (28 January 2008) International Carbon Action Partnership (ICAP), a supportive initiative to UNFCCC framework to develop similar design principles for their national/regional trading schemes and markets in preparation for a global carbon market integration in post-2012.

8.2 Given the early stage development in GHG emissions trading markets, it is important that their architecture remain flexible and adaptive to learning from experiences. Some amount of innovation should be encouraged regarding their design while bearing in mind that clear rules and some degree of harmonization will be needed for a well-functioning and effective global carbon market.[18]

8.3 There are various non-exclusive arguments for linking GHG emissions markets in different countries in a post-2012 global carbon market. We believe that the balance of different objectives should be set clearly. In principle, trading systems covering as many sources and gases as possible would be more likely to achieve most economic efficiency, and would provide cheaper abatement options in developing countries. However, linking GHG emissions markets also holds the potential as a new diplomatic tool to bring more stakeholders in to reach a Global Deal, and encouraging domestic change to a low-carbon economy in both developed and developing countries. The end goal must be a global agreement with emissions trading at its heart which then will likely replace any linking agreements undertaken up to that point.

8.4 We believe that a set of criteria should be satisfied to ensure quality of the various schemes, which would be linked to EU-ETS. This would make sure that the EU- ETS is not undermined. These should include absolute mandatory caps, strong measuring and monitoring, and perhaps even auctioning requirements. A recent OECD study (2006) points out the following design features, which will require special attention if to encourage linking different GHG emissions trading markets and schemes:

- "How targets are expressed (eg fixed or indexed). For example, care would be needed to ensure that linking does not change the environmental integrity of either system by allowing more emissions than originally intended.
- Price caps. Linking a scheme with a price cap to one without a cap could reduce the incentives to deploy innovative technologies in the system not subject to a cap if the price is set too low.
- Non-compliance provisions. These can affect the environmental effectiveness of a particular scheme by encouraging (or not) its targets to be met. Stakeholders in a scheme with rigorous non-compliance provisions may be reluctant to link to a scheme with less stringent provisions, and thus a lower perceived environmental effectiveness.
- Banking/borrowing provisions, commitment period lengths and starting points. Care would be needed if linking an ETS that allows borrowing with one that does not. Different commitment periods, lengths and banking provisions might also require more sophisticated emissions accounting processes.

[15] Schreckenberg et al, 2007 A way out of poverty? A review of the impacts of PFM on livelihoods. Keynote paper presented under Theme 4 "PFM and Livelihoods: Role of PFM in Poverty Reduction" 1st National Participatory Forest Management Conference, 6–8 June 2007.Kenya Forestry Research Institute (KEFRI) HQ, Muguga, Kenya.
ODI; Luttrell et al 2007 The implications of carbon financing for pro-poor community forestry. ODI.

[16] Peskett and Harkin, 2007 Risk and responsibility in Reduced Emissions from Deforestation and Degradation. ODI.

[17] Ibid.

[18] Ellis and Tirpak, 2006 Linking GHG Emission Trading Schemes and Markets. OECD and IEA.

— Eligibility of offsets. Credits from CDM projects are accepted in several ETS. Other types of eligible offsets vary widely in terms of project types/host countries.
— Permit allocation methods in different countries. These could have competitive implications thereby affecting the political acceptability of linking different national systems".

8 February 2008

Witnesses: **Ms Jennifer Morgan,** Director, Climate and Energy Security Programme, **Professor Tom Burke,** Founding Director, E3G, and **Dr Benito Müller,** Oxford Institute of Energy Studies, gave evidence.

Q59 Mr Chaytor: Good morning. Can we welcome you to this morning's meeting of the Environmental Audit Committee. As you know, the purpose of our session today is to take evidence for our inquiry into the post-Kyoto arrangements, and the international context for progress on climate change. I am in the Chair today because our regular Chairman, Tim Yeo, is not available today. Professor Burke, I turn to you at the start. In terms of the IPCC's latest report, do you think the messages it contains are really being taken on board by the negotiators in the climate change negotiations?
Professor Burke: It is quite a big question and to answer for all negotiations. Do you mean our negotiators?

Q60 Mr Chaytor: May I amplify the question? I think the concern of some of us who have attended the climate change conferences—not only at Bali but at previous COP events—is that there seems to be a significant disconnection between the machinery of negotiation and the political will. I think this is a source of increasing frustration amongst parliamentarians and legislators around the world. How do we close that gap?
Professor Burke: I think you are exactly right about that. That is why the recent decision by the Foreign Secretary to up the status of climate change in terms of the Foreign Office's priority and to focus on helping to build the political conditions under which an agreement of a sufficient level of ambition can be reached in Copenhagen is so important. It would be very good if there were other countries that were focusing on the same thing. At the end of the day, what the negotiators can agree is determined by what the domestic constituencies in each of the key countries will actually accept. So it is a politically determined process, but not necessarily in the negotiating room. It is determined by the politics at home. I do not think everybody in this country, let alone in the rest of the world, fully understands that point. I do not think within our own government structure all the bits of the government fully understand that if you do not work hard on building the political conditions, you have pre-limited what can be agreed in Copenhagen. We have put much more effort into shaping the text and focusing on the text until very recently than we have into building those political conditions. The campaigns that the Foreign Office is now gearing up I think are crucially important to us being able to reach the level of ambition that we are looking for to meet what the IPCC certainly requires but which many people—and I am struck by Jim Hansen's statement—think is not ambitious enough and that we have to go further. Getting a broader understanding of the importance of mobilising domestic constituencies in the key countries is a really central part of achieving the objectives that we have set ourselves for Copenhagen.

Q61 Mr Chaytor: In terms of domestic political conditions, what are the two or three most important things that you think this Government in the United Kingdom could do to improve the domestic situation?
Professor Burke: The single most important thing that this Government could do is to be seen much more aggressively to walk the talk. I think this country is seen as a leading country, and justifiably, in terms of pushing the debate and the politics of climate change forward, but there is always a price to leadership. If I had to focus on one thing that would make a difference, it would be approving the Kingsnorth power station, but doing it only on the condition that carbon sequestration and storage is installed. Being willing to pay for that would transform the politics of climate change very considerably, that aspect anyway of it. So I think walking the talk is the single most important piece of what we must do in this country to shape political conditions elsewhere because every other effort we make is measured up against what we are doing ourselves. As I have said to this committee before, particularly on carbon sequestration and storage but on other things too, there are times when our approach looks lethargic.
Dr Müller: All I can give you is an anecdote. About a year ago, India had a new joint secretary who was in charge of climate change. He was brand new and he came from Assam. They rotate their officials. He did know anything of what was going on but he sat in one of the rooms where the G77 was meeting on his own. I walked by and he called me in, and he said, "Dr Müller, if this is all so urgent, why are we not doing anything? Why are we sitting here talking about commerce?" So the sentiment to some extent is not just with parliamentarians; it is even with negotiators that there is not enough political will in many cases.
Professor Burke: May I put a slight gloss on that? A large part of successful completion of negotiations in Copenhagen will depend on the belief that developing countries have that we really are willing to drive forward on things like technology adaptation and on financing those things. It is very hard to imagine that, if they look at our strength and unwillingness to finance actions domestically, they would really believe there is much expectation that we will finance things internationally.

Q62 Mr Chaytor: Jennifer Morgan, you have drafted the very detailed original submission from E3G. I am interested in your observations, particularly on other IPCC's report and the various targets that it sets. Is this a realistic set of targets and objectives as a basis of negotiation for the developed countries?

Ms Morgan: My sense is that there was a fair amount of progress in 2007 on the understanding at the national level of the intensity of the impacts and the viewing of those impacts as issues of national security and issues that are in the national interests of countries, such as China, South Africa and India less so. The new Prime Minister in Australia has read the IPCC report, the summary report of the policy makers. I think that we moved from a rather high level of abstraction into something much more fundamental. That played a large role in the politics of Bali that you had large developing countries coming forward and saying they are ready to start negotiating because it was no longer an issue of global concern but an issue of national concern. The ranges and the types of targets and whether they are voluntary or mandatory, and if you then have to go country by country to see what comes through, that the IPCC has put forward are of reducing emissions 25 to 40% below 1990 by 2020 for developed countries. I think we need to be on the higher end of those ranges to stay below 2 degrees. Those ranges are based on not that many studies. There is quite a need for further research on those ranges. The dynamics of the Bali meeting were such, which I think is important because as Professor Burke said the politics are just what can be carried home and what can be put forward in an international meeting, that things that were impossible the first week became quite possible by the end of the second week. So you have Australia and Canada coming forward and supporting those ranges. From a negotiating dynamic, I think that will be the focus for industrialised countries. The key question of course is where the United States comes in on this in the next Administration, and in my view really moving away from concentrating on this Administration and into the next.

Q63 Colin Challen: The EU like the UK was trying to take a leadership role, particularly in Bali, and has stated that it would aim for a 20% cut in emissions by 2020 and would go 30% if other countries did likewise. Should we not really go beyond that now, given the IPCC's report that we should have a 25 to 40% cut in emissions by 2020 to have anything like a chance of success?

Ms Morgan: I think so. The current proposal by the Commission that focuses first of all on 20% unilaterally should be, first of all, at 30% and then scaling that up accordingly. Those are the types of dynamics. I think that the European Union needs to start preparing itself to do more in order to get an efficient deal in Bali from looking at what every country is going to have to do in order to stay below 2 degrees to get that range. Europe is likely to have to go further.

Professor Burke: I agree with what Jennifer has said, but I think we need to add an extra note in that this is not just about pain and how you share out the pain. The fact is that if we are going to be living in a prosperous and secure world in the 21st century, essentially we have to render the global energy system carbon neutral by about the middle of the century. That is what staying not just below 2 but staying within the 2 to 3 range will require. To do that is a massive opportunity and those countries that are better adapted and better prepared to make that transition and take a lead in making that transition have the opportunity to make a very significant move or advantage now. I do not think that is an argument that will carry a huge amount of weight inside, if we are just looking at the United Kingdom because it is too small to influence global perspectives. But if you take that in the European context, the extent to which Europe is driving forward to a low carbon economy as part of that debate and as part of creating the political conditions, and that is seen as an opportunity to guarantee the prosperity and security of 450 million people, it will help make and allow for a higher level of ambition in the negotiations. So you have to see the negotiation process and the political process as running in parallel and not necessarily with the same kind of discourse. The discourse on the politics has to be about opportunity, not just about pain.

Q64 Colin Challen: If you are talking about opportunity, will that overcome the problems that we face in the developed world because recent history has shown that in trying to meet our Kyoto targets I think only two or three Annex 1 counties have done that. One could argue that one of those, ourselves, has done it by accident; one could argue that another, I think the Netherlands, is doing it by buying credits; and other countries, like Canada, have gone about 30% in the opposite direction. What are the opportunities that can overcome the rather modest scale of the challenge so far? How can we convince people that those opportunities will outweigh the cost, the investment, that is required up-front?

Professor Burke: In a sense I rather look to you about how we persuade the public to join in on these things. I am very impressed, by the way, by the way in which GLOBE and parliamentarians have played an increasingly significant and helpful role in that. If you look at what we have to do and the kind of arguments you have to make, if we are going to install carbon sequestration and storage as the norm for fossil fuel-fired generation and we are not going to avoid having fossil-fuel fired generation, and if we want the Chinese and the Indians to have carbon-neutral fossil fuelled generation, we had better do it, and then installing the infrastructure to do that is going to be exactly equivalent to installing the motorway system in the 20th century. That will provide a massive amount of jobs and opportunity creation, provided we are prepared to finance that. Nobody would have thought that road pricing would have financed building the motorway network, and nor should be think that a carbon price

on its own will finance building that infrastructure. The Secretary of State for Business, Enterprise and Regulatory Reform made a big play about the fact that offshore in Britain there is 33 GW of wind power generation available to the United Kingdom and invited people to make bids for it. Unless we put in the infrastructure to bring that power ashore, it will not happen. There is no way that an individual enterprise will want to take that risk. Once it is built, then you can start to say, "How do your re-finance it through tolls and so on?" but getting it built will not happen unless we are prepared to put in the money. If you build those kinds of infrastructures, I have no doubt at all that the private sector will play its part in terms of contributing the other sides of the investment to do it, but without that initial investment, the risk is going to be too high for most private sector enterprises to take it on. Those are the kinds of opportunities. I look at how we are getting left behind because we have been rather lethargic, as I have said before, on some of these issues. The forecast for the projected amount of wind power to be generated globally by 2012 is 252 GW. Leman Brothers made that forecast yesterday. That is their forecast for the growth out to 2012, and we are not going to have any part of that because we have been too lethargic in taking up opportunities with which we are well endowed.

Q65 Mr Chaytor: Does your argument about the state's responsibly for financing the infrastructure apply to all forms of low carbon energy?
Professor Burke: "All" is a very big word. It certainly applies to the renewables and the carbon sequestration and storage, which are the two priorities where the infrastructure is necessary. If you look at the European scale, the idea which has been postulated of building a super grid, as it were, for direct current is exactly what we need to unlock the potential that is there. It is exactly the same logic for that in a low carbon economy as there was for the TENs (Trans European Networks) in the 20th century economy. We have to see it that way if we are to have any hope of arriving at the kind of levels and targets that we need to meet inside the negotiating process. Of course the more serious we are seen about driving for that, the more we help to create political space in the negotiations.

Q66 Colin Challen: This would drive a coach and horses through the Government's stated policy of letting markets decide. The Government has said that it does not want to determine what the mix will be, whether you have 20 or 30% nuclear or 20 or 30% CCS or 20 or 30% renewables. The market will decide. What is stopping the market from deciding?
Professor Burke: I was surprised to see an account in the newspapers, which of course means it may not be accurate, that the Secretary of State for Business, Enterprise and Regulatory Reform thinks it ought to go to 30%, which is deeply inconsistent with the Government's stated policy, but it is probably not the only area where there are inconsistencies, not only indeed for this Government, but most governments have inconsistencies in their policy. I do not think it necessarily drives a coach and horses through the idea that markets have not only a role but a central one to play in doing this. What it does say is that markets do not exist unless somebody provides the fundamental conditions for them. In the case of the renewables and the carbon sequestration and storage, unless the public provides those fundamental conditions and finances the provision of those conditions, markets cannot do their job. I agree with you in the sense that I think there are some people in the policy-making community who seem to be more interested in making a market conform to some theoretical model than actually solving the problem of climate change, and that is very dangerous and silly to do that. What is much more important is to focus on identifying what exactly is the role for markets, particularly in making technology choices, but what is the role for the public sector. In a sense, the Commission proposals have given us the opportunity for that and indicated the direction in which they think the financing of that should go when they said in the package that 20% of the proceeds from auctions should be available to finance these kinds of developments. That is going to be opposed tooth and nail, certainly by the Treasury but possibly by others in government, too.

Q67 Colin Challen: When we were in Australia, we heard a bit about Professor Gardner's work and his interim report came out shortly after our visit. He seems to be of the view that we should, first of all focus, on a cumulative emissions budget and not get too bogged down in short-term targets. Clearly the two things may not be incompatible but how much freedom do we have between different countries or regions to pick and choose particular targets, which some people may say have not been properly thought through between themselves or may not go far enough?
Ms Morgan: My sense is that the issues of fairness and comparability will be the key issues at the international level moving forward and of course ambition is the primary one. I think we have learned that a bottom-up pledge and review type of approach is not going to get us where we need to go. You just need to look at the Rio Treaty and look at why we then tried to put in place the Kyoto Protocol with its binding targets and timetables. All right, some have been more successful in implementing those than others, but that gets back to your question on how to create the conditions to make this an opportunity rather than a burden. This round of negotiations will be very much, especially on the developed country side of things, needing to have a level of ambition and a consistency of the types of commitments that countries will take on. You can look at budget periods; the Kyoto Protocol currently has a five-year budget period. My view is that you need both the short term and the longer term, that we need to have a five-year budget period but also give longer term certainty of where we are trying to aim for on a longer timeframe and get to a situation where Australia can say, "these are the opportunities that we have and this is the type of

commitment target that we are ready to take on", and Japan can say, "we are able to do this". This will be the discussion over the next years, but I think we need to have a consistency in the type of commitments for developed countries. I am of the view that we need to continue the Kyoto Protocols qualified emission reduction limitation obligations, targets and timetables.

Dr Müller: I would agree with Jennifer, and in particular what we cannot have is negotiations every five years, but we need the five-year periods. What we need is a multiple result for a couple of periods. Why do we need the intermediate ones? If we do not have those, we will have countries that basically will say that there is time. By the time we have reached 15 years hence, they will be so far up that it will be: oh, no, we cannot do it now. That is happening with Canada and the US. It is too late and for them to go to minus 20 right now; to my mind that would be absolutely impossible, but we must not let it get there. We do need the intermediate flagpole positions and to have a trend so that there is certainty for investment on where we are going. Those two elements have to be combined.

Q68 Colin Challen: Do you think the major economies' conferences will help or hinder achieving a global consensus?

Dr Müller: I have a personal experience in terms of having talked to participants from China and from India. To be honest, they think it is a complete farce; it is a waste of precious time at the moment to have a monthly meeting with no expected outcomes and for the long term no expected outcomes. They go because they say it would be impolite not to go because it is the Americans who actually invite, but they do not expect anything. I am not saying that a major economies' conference would not useful but not what we have right now; it has to be substantially different from what we have.

Professor Burke: This illustrates a point that Jennifer made earlier, which it is easy to overlook, and that is the importance of thinking about the next US Administration and not the current US Administration. I think there has been something of a tendency in the British Government, partly old habits really, to pay far too much attention to the present Administration and not enough to the future Administration and, as a result, we have tended to lend rather more legitimacy to the main process than it should have. I agree with Benito's assessment of it. I think it is quite important that we should understand that it is primarily the objective of the members to create the right headlines in the United States for President Bush. That is probably not our objective.

Ms Morgan: Just to give a specific issue that is under discussion, which is the long-term targets, I know that there are a number of countries—the UK and even Germany in this instance—who want to be supportive of Japan and seemingly this White House in coming to an agreement on the long-term target this summer, which I do not see any point in doing. You have all the presidential candidates in the United Stated supporting 80%, or both Democrats, by 2050 for the US. It is one of my worries that we put ourselves in a dynamic whereby we give much more credence to this Administration and are not preparing for the next, because there are already feelers out there from the campaigns, and we need to take those up and get in early.

Q69 Colin Challen: Turning to the G8 this year, what hopes can we place on that in moving the agenda along? Japan appears to have rejected the EU's 2 degrees objective and has not agreed to emissions targets. Is the G8 this year going to be of any value at all, do you think, given this period we are in of the dying days of the Bush Administration too?

Ms Morgan: I think the most important part of the G8 this year is to change the Japanese position. That is what the G8 is about. Prime Minister Fukuda is trying, in my view, to do that. He is trying to move beyond the voluntary only approach. He is trying to change the politics within their industry. The coalition which is immensely powerful has taken a small step in doing that in Davos in a speech and will evidently give another speech in April. I think that our diplomatic efforts should be to surround him and support him in moving towards a mandatory cap for Japan. My experience of the G8, and I was quite involved last year with the Germans, is that it is mostly about the atmospherics, so to speak, the financial real initiatives that can come out and be implemented. There are some efforts on energy efficiency that could come forward. My focus would be on Japan really at the moment and the way that Japanese politics works is that international opinion will play a role in how they move forward.

Professor Burke: What that illustrates, if you look again, as Jennifer has just said, is the issue of domestic constraints on any government in negotiations. What is the conversation in our industry, which has been a leader on climate change in our major companies, that they should be having with their peers in Japan to support these efforts? My experience is that, by and large, just as politicians listen most to other politicians, businessmen listen most to other businessmen. Those peer things work in all realms. It is really quite important for us to be thinking through how we create a conversation in Japan and in Canada and in other places that is business-to-business—Jennifer is deeply involved in creating NGO-to-NGO conversations—so that you are helping to support that. That is what I think the Foreign Office is now gearing up to do and I think it is very welcome, but it needs to really drive that forward and be encouraged to drive that forward very fast.

Q70 Colin Challen: To get a little perhaps you have to give a little, and the problem with the politics I suppose is that we might end up giving too much. For example, might we have to give way on a baseline year for a post-Kyoto agreement, not 1990 but, as the Japanese I think have suggested, 2004. Is that acceptable? Could it ever be acceptable?

Ms Morgan: In my view, the 2 degrees target is not negotiable. As for the baseline, you can do the calculation; if you move your baseline, then your

target has to be much bigger. This will be one of the core elements of the negotiations over the next two years because countries like Japan feel very wronged with the 1990 baseline and the United States. This is a fairness debate but the goal, the driving force, has to be to get the level of effort high enough to stay below 2 degrees and I do not think the European Union can blink on that.

Dr Müller: My hopes for the G8 are that it is not going to be counter-productive. If you look at Heilingendamm, what happened with the G5 was a catastrophe. You do not hand round an agreement and then present it to the developing world—here, take it or leave it. It was a very bad process in that respect and I hope that was a learning process and that they will be more engaged in future.

Q71 Mr Stuart: The recent GLOBE forum in Brasilia was very useful in so far as the developing countries were brought together with the developed countries and were able to get that dialogue going. I suppose the other further good news from GLOBE is that this Thursday will see the first GLOBE CEOs forum based in London by BP bringing together some of the largest companies in the world, again, very much trying to push that dialogue among the largest companies in the world. Can I ask you about developing countries and how we bring them in? When we were in China I was struck—I do not know if all members of the committee were struck—by the fact that the Chinese Government was quite clear that it accepted the science; it was quite clear that the threat was a grave one for China and that it might be the largest loser in the world from the impacts of climate change. Although it was sticking to its desperate desire to hang on to the differentiating role rather more than the common in terms of obligations, there was a real sense that China was on the move. I wonder whether you could comment on how you think we can bring the developing counties in and will they go for binding targets? My own view is that next year with a new Administration in America, China and America, hard-headed, sitting down in their own national interest could just transform the landscape. Do you think that is possible?

Dr Müller: I did write a piece on that after the conference in Bonn about a year ago. There was a Russian proposal, which you may remember, that is precisely about non-binding targets. There was a UNFCCC workshop. The Chinese at the close of the workshop said that this was a workshop, only a workshop, the topic is closed for them and that they did not even want the report. The chair had to say that the report had been agreed. I am saying that there is such a huge distrust in terms of it being voluntary now and there is some way in which you—i.e. industrialised countries—are going to make it into a binding target, which would be completely unacceptable. To my mind, there is a type of non-binding target which we do have and which they have accepted and it is the CDM. Basically, the target is business as usual. I think, given the huge degree of distrust and the fact that after a long period of being distrustful of the CDM, this has been accepted as something, we should make use of that and enhance it and make it better because that is something which they have embraced. The non-binding target of some other forum will be flatly rejected to my mind.

Ms Morgan: I am a bit more optimistic perhaps. I was in China last week on this trying to get a sense of post-Bali. I think that they are not yet really understanding that a new US President could transform this issue and they would want to move away from hiding behind the current US Administration and much more into the spotlight. I think to move the Chinese into a place where they are ready to do more, they have to continue. They are quite worried about food security and food prices and instability in all of these things, so it is in their national interests, as you were saying. I think we have to build their confidence that they can meet their targets nationally. They have their ambitious national goals and it look like this year they will do better on their 20% of their goals than they did last year but China will never sign up to a global agreement that they do not believe they can meet or to a review. They are all very concerned about what is measurable, affordable and verifiable means. An area where there is tremendous opportunity, but we are not yet there, is the EU-China relationship and really scaling that up. We were just part of a little consortium of institutes doing some work on this, looking at whether we could create low carbon economic zones in China and between China and Europe, looking at how do we really use trade to remove tariff barriers and create investment conditions and do technology co-operation and intellectual property rights on a scale that is manageable on a bilateral level to accelerate it and build confidence in China and moving to a low carbon economy. One of the top economists was at our event last weekend; he is not in the negotiations and he was one of the most refreshing voices from China I have heard for a while. He was very bullish, very much looking at their zones and how they can make them low carbon, their challenges and implementations. I think that is how to bring developing countries in is to create the capacity for them to scale up, to build the political conditions in China and other countries so that they believe that this is possible and that it has tremendous benefits for them on the prosperity narrative and to get Europe into a place where we have this triangular conversation with the US, China and Europe and figuring out how to do that quite quickly.

Q72 Mr Stuart: Contraction and convergence: they have not bothered to sign up to that. Obviously they felt, as you said, a lack of trust that they would get diddled. Fundamentally, do you think some form of UN arbitrated global cap on a per capita basis would give short term financial and economic gain to the likes of China? The cap would bite later, in the long term, and they would see benefits in the short term.

Professor Burke: I do think that contraction and convergence is an outcome of solving the problem, not an input to solving the problem. The idea that we can solve this problem by agreeing by some

mechanism that nobody set out to share out the per capita burden is frankly very idealistic but I am not sure it is very practical. If you cannot get people to agree to the things that we are already suggesting are difficult and would take you nowhere near a contract and converge situation, why would you think that they would agree to something that is a lot more difficult and even harder to work out how you are going to deliver? Personally, I am pretty sceptical about contract and converge. Any of these ideas are fundamentally about how you share the burden. When your discourse is about burden sharing, people retreat into saying "you first, me later" and what you have to do is get into a mode where the conversation is "me too" and where we are following. That is what Jennifer was just referring to, the importance of the EU-China piece. It is really important to see solving this problem as an opera, not a song. It has lots of parts in it and lot of bits in it and they have to come together. Singing a single note song about which target you are going to have in this negotiation is not, at the end of the day, going to solve the problem. That is why that opportunity side is so important. On this idea of harnessing, there is nothing that will generate the patter of quite heavy feet up Constitution Avenue to The Hill than the fact that American business thinks that European business is stealing a march on getting into the low carbon economy because we have a good relationship with China, and we have built that. I think we have started to recognise that in this country. The Foreign Secretary visited China last week. I think this was part of the message that he was taking to the Chinese. That is not instead of the tough stuff you do in the negotiations but you have got to do it as well.

Q73 Mr Stuart: Last February, a year ago, at the GLOBE forum in the US Senate, Senator Kerry was there saying how he had got it and he ended up by lecturing the Chinese that he was going to show global leadership, that America would show global leadership but when China had gone first. It was extraordinary for a man who had apparently got it. I take on board your point about not being able to do it. I do not think this fractured, fragmented approach does not seem to be getting us anywhere either; maybe we need more idealism. Will the US accept binding targets with a new Administration if they do not see China doing so?
Dr Müller: One of the key things which came out of Bali to my mind, if you followed the negotiations, was that at the very end there was a circus almost. It ended up with the question of measurable, reportable, verified or something, but the developed countries said "mitigation actions in developing countries" in paragraph (b)(2). The developing countries said: all right, but only if they are mirrored by measurable, verifying, reportable financing and technology transfer. To me, this is the key. There is symmetry there which we forget. If we want mitigation commitments from developing countries, binding commitments, we will only get them if we take on binding commitments on financing and technology transfer, otherwise we will not. There is a route out if it is necessary. Personally I believe, with Jennifer, that large scale, bilateral joint ventures is probably the route to go, but if we think we need the international regime to come up with binding targets on major developing countries, it is only going to work if we also agree ourselves to have binding targets in terms of finance and technology transfer.

Q74 Mr Stuart: I totally take on board your adaptation point. When we went round China we were struck that the mantra for all of them was about technology transfer. It is very hard to put your finger on what exactly they mean here. You are repeating it and everybody repeats it and it is easy to repeat but it does not seem to mean anything. What sort of technology transfer are we talking about and is there something in this or should we dismiss it as a red herring?
Dr Müller: We finally managed, in the negotiations, to have technology transfer as an agenda item on the subsidiary body for implementation. So far, all we had talked about was new measurements and new studies. We were afraid to even talk about implementing the issue. I agree with you that it is very abstract term. To many people in the north it means exports, first of all.

Q75 Mr Stuart: The Chinese go on about wind energy. They are implementing wind energy on a great scale. It is not a high tech industry. Implementation is where they are going to learn; they will be selling us the technology. We have struggled to find out what it is they want that we have got that is not owned by some company that is quite happy to sell it to them.
Ms Morgan: I think China wants to move into being an innovation economy. They want to move from producing kits into actually producing high product goods, and they want to have the capacity in their economy to produce it themselves. First, we have to understand what can we do through a UN Framework Convention on Climate Change and on technology transfer and what can we not do? Thinking that we are going to be able to do everything there is not going to happen. We know that we need things like standards to drive technology. We know that we will have to look at some technologies and some stages of development where intellectual property rights do play a difference, and we need to look at the connection between, for example, how Europe hopefully gets 12 CCS demonstrations up and running and funded and what relation that has to doing that together in China. To get back to your other question, we have to change things so that the United States sees it as fundamental in security interests that China has a low carbon economy and that driving down costs for everyone will happen more likely by having goods produced in China, so that there is joint public good being done through this type of co-operation and moving things in a different way. In order to do that, we have to re-frame and engage new constituencies in the United States and in Europe, I would say, and that is about security and having US generals come out. A number have said that we have to reframe our

view of China. It is really about understanding and having a more sophisticated bay in the United States about the differences between the US and China. My view is that the second commitment period will not have a national target for China, but that is looking at a third commitment period, and that a second commitment period will need, in order to stay below 2 degrees, to have ambitious policies and measures, potentially sectoral agreements, that are as binding as we can get them, but asking China to bind themselves to a national CO_2 cap is going to be counterproductive. We need to organise the negotiations so that we show that is where they are going. If we do the politics and do our work, I think that we can get an agreement ratified that shows that China is taking significant ambition to action and the United States will as well pull them together.

Q76 Mr Hurd: The debate has been about the EU, the United States and China, for obvious reasons. Very quickly, I wanted to get your perspective on another key player, which is India, whose future relationship with China which will get increasingly interesting.
Dr Müller: I have just been to China.

Q77 Mr Hurd: I am asking because some of the comment coming out of Bali is getting increasingly concerned about India.
Dr Müller: I was slightly taken aback by one thing. I was telling my friends earlier in the corridor about this. It is the acute pessimism of the lead players about the Bali outcome in so far as they say it is basically we have agreed on the dismantling of the Kyoto Protocol. Why? Because in the Annex 1 formula we basically have the option that countries like Japan and Canada could opt out and have their own thing. That is their big fear. They feel strongly about the Kyoto Protocol and the whole UN process. This is something which I was heartened to hear. As far as what is to be done at home, they were very clear about how they interpret the Bali outcome for themselves. They will engage in these measurable actions, but only those actions which are actually measurably financed will be counted as measurable actions and verifiable ones. There is a direct link; it is not that we have actions here and we have financing here and they are separate. They insist on a direct link between the two.

Q78 Mr Hurd: Is it: you pay, we measure?
Dr Müller: One of the classical implementation instruments will be the CDM. The measurability is there of the action but also the measurability in terms of finance and technology. It is the direct link which is of importance. I think there is a growing realisation that it is going to be a big problem for India. Do not forget that if you look at people living below $2 a day, these developed counties and the small island states together have about 520 million people; India has 800 million people living below $2 a day. It is by far the biggest least developed country, although they would not admit to that because it is not part of their super-power status. We know that poor people are more vulnerable than rich people, so they have a tremendous problem in that respect, and they realise that. They will be more active in engaging, but on their terms. We should not try to force them to take on a target. That is not the way to do it, I do not think.
Ms Morgan: My sense is that the debate in India is a bit behind the debate in Brazil and China, partially because you do not have a coherent, scientific message coming out of the science community in India. It is a bit of this and a bit of that, partially because you have no real civil society engagement in a way that makes a difference. I think that engaging the business community in India and showing how climate change is an opportunity for India and its hundreds of people who are thinking about new creative ideas will be absolutely crucial. What I have seen more and more is India differentiating itself from China, that the type of commitment that it will take will be different from that of China, which in some ways goes against them always wanting to be seen as the same as China, but actually I have seen a lot of them differentiating on that side of things.

Q79 Mr Hurd: Can you give one example of that differentiation?
Ms Morgan: For example, I think in a second commitment period it would be the type of target, so whether it is a sectoral goal or a policy and measured goal and the level of ambition and the level of 'bindingness'. I think those are the key criteria to think about on that. There is something that people talk about, sustainable development policies and measurers where they might be doing things that are not as measurable and as ambitious.

Q80 Mr Stuart: Is the picture you have painted compatible with the IPCC recommendation that we are going to peak globally in 2015 if we are going to meet the 2 degrees? It does not sound like it is, basically with the developing countries not signing up to any binding commitments and what is likely from India and China collectively. Basically we are going to sail through 2015, if not quite with business as usual but—
Professor Burke: If I have understood the discourse right, I think that making a shibboleth out of binding commitments as a way of slowing things down rather than speeding things up is not that that is an important part of the mix but you have to see it in a series of dynamics moving forward through several phases and what is appropriate where. All of that needs to take place inside the context of there being a much more articulated prosperity narrative. If I came down rather strongly on contract and convergence it is because I think it plays into a misunderstanding by well-meaning people about what is actually going to move this forward. What concerns the Chinese Government is not the poor people in Africa; it is not the wealthy people so much in China; it is the next 400 million people in China that are going to go where the 300 million have gone. It is the same in India.

Q81 Mr Stuart: Can I just go back and take on board the point you are making, that you think the methodology is better away from fixed targets, is it your view that we have any chance of staying within—

Professor Burke: If there is the political will there and that is the issue. Is it technically economically possible to do this? Yes, of course it is. Are the political conditions there to do it? No.

Q82 Mr Caton: In your written submission, E3G recommend grouping developing countries. Do developing countries agree that they should be differentiated in this way?

Dr Müller: I can give you a very concrete example. At this workshop we had, there were people from the government on the panel. I was sitting in the audience and I was asked to put something controversial. If you remember in Bali, it was Bangladesh that tried to insert differentiated treatment into the article, which came out completely. I asked how the panel felt about differentiating treatment within the G77. A gentleman from the Foreign Office who was a main leader in the negotiations stood up and bombasted the Bangladeshi gentleman who actually was in favour of it and said, "We are not going to divide G77 because of differentiated treatment". It is a very sensitive point. There were other voices, like that of South Africa, which said, "We do not have to get rid of the unity of G77 by having differentiated treatment", but the way we do that is extremely important. We have to let them come to the conclusion it may be better to have differentiated treatment, not us imposing it, because otherwise it is doomed.

Ms Morgan: I think that we are moving in that direction. I do not think the G77 in China has a position on this. AOSIS, the small island nations, have already come out and said that the larger developed counties should take on significant commitment, including potentially national targets. When you get into the dynamics of the negotiations of course they will kick and scream but what we have to do in the next two years—and this is where the European Union can play a good role—is to work with them. Brazil understands that; South Africa understand that; AOSIS understand that; China I think even gets it. But the question is: can you make the other elements of the deal sweet enough that they are going to jump with confidence on it? That was in some ways the big deal about Bali. You now have a negotiation about differentiation, but it is not called that. It is sometimes very important in these negotiations not to call things certain things.

Q83 Mr Caton: We do not seem to have a roadmap on how to reach even these groupings. How do you see this taking off if there is the sort of resistance that Dr Müller has referred to?

Ms Morgan: Technically, the way that we need to organise the negotiations over the next two years is that we need a series of working groups on the key issues. For example, on the mitigation issue, you will have, hopefully, a group that has submissions of governments; the Mexicans will come and put a position on the table that they are ready to take a sectoral commitment. The South Africans will come and put a proposal on the table that they are ready to do policies and measures of a certain level. Through that process you will indeed split the G77. So you would need to do it on the basis of substance in the context of a working group on negotiations that needs to make recommendations by the end of 2009 of who is going to do what. You need to have a process that brings a level of fairness. At the end of the day, it is how does everybody feel that what they are doing is fair in comparison to everyone else?

Q84 Mr Caton: I can see that: you have different groupings and you have agreed different mitigation actions for different groupings. How do you make sure that every country in that particular group goes along with that sort of level of mitigation?

Ms Morgan: There are two things. That is deeply linked to the domestic politics. It is not just for developing countries; it is for developed countries. You can look at the Clinton-Gore Administration that signed up to something in Kyoto and did not do any work to build ratification support for that, nor an implementation plan to achieve that, which is why I think the other part of the strategy at this point in time needs to be building the infrastructure in key countries so that they can actually implement and meet their targets. At the end of the day, there will be a consensus decision. Maybe there will not be four groupings but three different groupings of that sort. Procedurally they will all have to agree but whether they meet them or not and whether they do it or not will have a lot more to do with their domestic politics and their capacity to do it.

Dr Müller: We are again in the paradigm of every country takes on a commitment. As I said, for developing countries, particularly for the large developing countries, we are not going to ask anything of the LDCs. For the major economies in the developing world the key to them is that we have binding partnerships. How are we going to address these commitments which we both take on? That is the way they see it. We have not just to promise to help and create funds which remain empty, but speak up and do what we said we would do, otherwise it will not work. The paradigm of how will they fulfil their commitment is the wrong one. How will we jointly come up with the goods is the only way forward.

Professor Burke: I do not think people are ever going to go to war with each other because they failed to meet their emission targets, at least not in the traditional sense. One of the definitions of this problem is that there are no hard power solutions to the problem of climate change, though there might well be hard power consequences to failing to solve the problem. That is why the role of diplomacy is far more important on this issue than I think we have become accustomed to. We can only achieve our objectives by diplomacy. That is a hard message to get across. At the end of the day, in those key countries what really matters is that you create a thrust in terms of the way you build a low carbon

economy that draws in the others; it draws them in through the opportunities side rather than the constraints side. At the end of the day, we are not going to have somebody policing out there some relatively small country, saying, "You failed to do your commitments and holding the whole process up because you failed to do it". The real thrust is getting people moving in the right direction and accelerate that movement. That is where what we do at home plays such an important part. The more people think that we are seriously going in a direction of a low carbon economy, the more the internal pressures will want to confirm and align with that.

Q85 Mr Caton: Say we have got the groupings. Economies change and they will change relatively. How often would there need to be a re-evaluation and how would that revaluation tie in with the need to get those carbon targets met?

Ms Morgan: If you are doing this in your optimal fashion, you would be looking ahead of two or three commitment periods and there would be what is called a graduation mechanism, so that you do get to the point where everyone has a national target at the end of the day, but you do it in a step-by-step fashion. So there are two ways you could do this. You could either create an automatic mechanism of graduation when you hit a certain threshold of capacity capability emissions, that type of thing, or you could include a scientific review every three to five years. You need to do both actually.

Professor Burke: In the real world what will happen is that events will occur and events will create panic reactions which will not always be sensible or wise, but in the real world things will happen that will impel the thing forward, just like Katrina happened and made a big difference to the way this issue was seen domestically in the United States. You cannot argue that Katrina was caused by climate change but people made that linkage in a way that had real political effect on the climate debate. There will be more of those kinds of events. Whatever process you set in motion, and Jennifer has described some of the kinds of processes you could set in motion, there will still be events that will move things on in ways it is hard to predict at this stage.

Q86 Mr Chaytor: Just following the point about events, to what extent is the EU Emissions Trading Scheme and the capacity buy in credits from developing countries with a very generous cap going to be one of those events?

Professor Burke: I think the EU Emissions Trading Scheme is absolutely essential. This debate about the extent to which EU countries can, in a sense, create a sort of approved leakage through buying in credits needs to be very carefully watched. I think the Commission is right to say it should not be an unconstrained opportunity.

Q87 Mr Liddell-Grainger: You have talked about flexible mechanisms and the way the countries meet their commitments. You have heard that the Committee has recently been in China and visited a CDM project. One of the problems I think is that there is an abuse or a potential abuse of the system. What do you see as the future of CDM if there is a problem, and, if there is a problem, where do we go from here? Is there a better way forward?

Dr Müller: I can tell you that I do not as yet know the answer, but I am involved in a project which is just starting with the Indian Government and with the Chinese Government in looking precisely at what they think the future of the CDM will be and in particular about policy and sectoral versions of that mechanism which are going to be quite different. From my point of view, it is extremely important not to come up with our own solutions and then tell them to take it. What do they think? The CDM as a mechanism has been proposed by the Indian Government as a way to fulfil what they think is the way to go forward. It is also been said by Ambassador (Scoopter) that one of the key points about the sectoral CDM for example, or a policy CDM in particular, is that instead of having just the ministry of environment involved, signing a little document that they like the project, this would have to involve the whole government and the mainstream ministries. Through a sectoral and policy approach in CDM, we actually are mainstreaming climate change mitigation into the whole of government, which is also important from their point of view. I think the CDM is going to stay with us and it is going to continue to have projects. I do not think that is going to stop simply because industry would prefer to do some projects where there is money to be made. There is also going to be a second leg, which is more general, which will have to be done through government financing. The private sector is not going to go into any of these countries and reform the whole private sector, the whole utility sector. There we may have to come up with some new innovative ways of helping. I talked about the issue of helping to manage the price risk which these governments will have to take on. After all, if you have to pay yourself, these large scale CDM activities are going to be unilateral. It is going to be domestic money which is invested, domestic taxpayers' money. What happens if the CDM price collapses at some point? There is a risk of that. We can help by instruments such as put options, which are used regularly in the financial world. We can help these governments to budget and to plan these activities. Again, it is a partnership in that respect. There are many ways in which we can go forward. As I said, the CDM is one of the instruments which I really believe will help us in the next couple of commitment periods to bring them in and to have a significant effect on their emissions. Particularly if we decide to take some of the CERs out of circulation, to retire them I think the term is, then we would really be getting somewhere.

Q88 Mr Liddell-Grainger: Do you think there is widespread abuse of it or not?

Dr Müller: There is going to be abuse with any mechanism. What we should not do is jump to conclusions and say that we have found abuse in certain projects. I am not an expert in how CDM

projects work. I know that the industry thinks that the CDM board are extremely difficult in approving projects. People have tried to put it past them and they are not very well liked in the industry, I can tell you that, but this is because they have been very stringent about the rules. In that respect, I think the system works. There have been people who have tried to pull a fast one at different levels. The projects which have been approved so far I would suggest are mostly not for fraud.

Professor Burke: Mr Challen's earlier question is quite important. All markets get 'gamed' by people; not everybody who participates in the market shares the goal and one would be very foolish not to be alert and awake to that possibility. I have no doubt that at some point there will be an Enron in carbon markets.

Ms Morgan: I think the value of the CDM has been to put CO_2 on the map in developing countries, very basically. I am of the view that we have to transform it quite fundamentally into something much larger and much more ambitious which needs to be matched with a very deep level of ambition on developed country targets as well and move into the sectors and the policies. On the flex mix, I think we need to be thinking about the ETS as a mechanism not only to put a cap but to generate revenue to re-invest into a low carbon future in the north and in the south.

Q89 Mr Liddell-Grainger: Dr Müller, I think you argued about CDM being reward based on policy. How would that work?

Dr Müller: That is one thing which we are trying to find out in the project.

Q90 Mr Liddell-Grainger: I see. It is very early days.

Dr Müller: In September I shall send you an invitation to our presentation.

Q91 Mr Chaytor: I have one further point on CDM. What is your view about carbon capture being eligible for CDM?

Dr Müller: I personally do not think it is a proven technology as of now. Re-injection in existing oil fields for enhanced oil recovery has been proven and has been done successfully. I am not an expert on this. Intrinsically, I am cautious about it. Perhaps my colleagues know more about where we are at the moment with this technology.

Professor Burke: We have to have CCS. It is not an option; it is an imperative. The coal is going to be burnt and if it is burned in the way it is currently burned. There is no prospect of staying even inside 3 degrees let alone below 2. So we have to make it work. To that extent we have to have the option of including it in the CDM, just like we have to have the other options for it, but it is by far and away the single most important technology to take forward. The reason for that is simply the geological distribution of coal and the fact you cannot achieve climate security independently from energy security.

Q92 Mr Chaytor: But, given the scale of coal burning that is likely to take place in China and India, let alone Australia, carbon capture could take up the whole of the CDM budget without the impact on Africa.

Professor Burke: There are going to be lots of mechanisms but the quicker we get on to doing the demonstration, the better. Benito is right; it is not so much that the technology is not demonstrated; it is that this particular application where you put it all together is far from being commercially available.

Ms Morgan: I just do not think the CDM is the right mechanism. I do not think that is what is going to make CCS happen, and I do not think it is what the policy says either.

Dr Müller: Do not forget that the CDM actually is not globally reducing any emissions. We are just creating permits to be used somewhere else in general. My view about CCS is also in terms of bilateral, large scale collaboration outside the CDM where we then actually reduce emissions.

Q93 Mr Hurd: Moving on to deforestation, this may be linked. We need some time in order to find out how we burn coal cleanly. The emphasis now is on policies that buy us some time and in this context deforestation and climate are significantly up the political agenda and there seems to be a growing consensus around the need to give it priority and the need to structure some financial incentives for conservation. The debate now seems to be about how. The Committee would very much appreciate your views as to whether deforestation should be tackled with a stand-alone mechanism or whether the political effort should be focused on trying to structure something that fits into existing mechanisms, such as the CDM, EU and ETS being the obvious candidates.

Professor Burke: Deforestation is an issue that is much wider simply than climate change. It obviously has a central role in climate change but you have a whole bunch of other issues around the question of deforestation, or indeed reforestation. So I am not sure that there is a single answer to the question you put; in other words, there has to be a role in the climate change negotiations to create revenue flows in particular that will help, first of all to avoid more deforestation, and then in a sense start to think about how you might create more forests, but that is not going to be as simple as some people think in terms of saying, "You can have carbon offsets and you pay for the carbon offsets and that will finance it". It is a lot more complicated than that. As you possibly know, the Prince of Wales now has a large scale project looking at this and indeed there are a number of others going on. One of the early understandings of that literature is that it is new to climate change for people but not quite so new for people who have been dealing with forestry over longer periods and that it is a lot more complicated than simply thinking there is an easy way to get the revenues in to the forests. You have put your finger on the key point: it is how to get enough revenue flows in to the forest in order that they have an economic value as standing forests and not by being

torn up. When you look at that interaction with both the intensity of pressure now for more land for food and more land for biofuels, however badly we think this problem has been up until now, it seems to me that there are major economic forces threatening to make it a lot worse. It is urgently important that we address the problem, but I do not think we should look at the climate change negotiations as the only place through which to address that problem. There are other people doing forestry issues. What is important is to align the efforts so that they reinforce each other and do not get in the way of each other.

Ms Morgan: I think this debate has moved forward in a positive fashion inside the negotiations. We have moved away from thinking about projects to avoid deforestation where leakage could never really be a concern into actually looking at the sectoral reducing emissions from deforestation and turned it into a mitigation debate for those tropical deforesting countries. Having worked at WWF you can imagine I have spent a lot of time thinking about these issues, and I have been quite taken with the proposal that I included in my written evidence that Greenpeace has put forward.[1] I think that we have to address it—that is clear; but I have yet to see really solid economic analysis of how you integrate it into a carbon market where it is fully fungible and achieve your energy goals at the same time without crashing the carbon price. The thought of requiring developed countries to meet a certain percentage of their targets through investing in reducing emissions from deforestation in a separate stand-alone stock-based kind of agreement I think is very useful for debates. I think it is a preferable way than doing it through the full fungibility. The issues of land tenure and all of those are national issues that have to work with the countries which have a lot more experience obviously in trying to figure out how you implement it; but I would keep them separate.

Q94 Mr Hurd: Do you agree with that, that we should be thinking of a stand-alone mechanism?

Dr Müller: Yes. There is a debate between: is it a fund or a mechanism tied to Kyoto or CDM? Astonishingly, if it were a mechanism of some kind it is quite clear that there is going to be the big forested countries who are the winners—like in the CDM there were China and India—and in that case it would be the Congo Basin, Brazil and Indonesia. Why is Brazil against the mechanism, because they would be one of the winners? As far as I understand, they are afraid that by potentially diluting the CDM and collapsing the price every desirable energy-based CDM project would be killed off. We are basically postponing development which we actually need to advance, namely transformation of the energy sector to a low carbon economy by introducing these forest-based CDM permits. That was the danger which the Brazilians saw, which is why they rejected the idea of a trading mechanism.

Q95 Mr Hurd: Is anyone then seriously arguing for it to be integrated within the market?

Dr Müller: Yes. Papua New Guinea and the whole alliance: it is the Congo Basin countries which are thinking of profiting. Brazil is the only large country in favour of the fund idea.

Q96 Mr Hurd: This touches on some questions which Graham Stuart was asking earlier about trying to put your finger on what we mean by technology transfer. I did not go on the trip but I got a sense that actually what was needed was skills transfer, capacity transfer, rather than hard technology. The Committee is interested on your views on that.

Dr Müller: First of all, I think it is clear that technology transfer is a euphemism which can be used by both sides to talk to each other thinking that they actually agree; but usually in the north we mean exports and in the south we mean gifts. If you call it technology transfer we continue to talk. The first thing is we basically become real about what we are talking about. Secondly, I think it is unhelpful to have technology transfer as if it is an instrument on its own. For example, CDM could, should and will involve technology transfer. Other mechanisms can do the same. It has been treated as if it is an instrument of its own technology transfer. I think that is one of the mistakes. It will happen under different collaborative efforts in these joint ventures which are bilateral, but it is not something which we should look at in isolation as a single entity. That is my view. As far as what it actually means: a) I do not know; but b) let the people who are asking for technology transfer tell us what they mean. Sometimes it is actually not even a problem. They see bottlenecks where there probably are not any, or where we could actually collaborate and have joint ventures; after all joint ventures are a win-win situation. No-one enters a joint venture if one side loses out, okay. In that context, technology transfer may be something which arises naturally for carrot reasons as opposed to stick reasons. I think that is the only way forward. Ask the Chinese, ask the Indians, ask the Brazilians when they say they need more technology transfer, "What do you actually mean?" as opposed to having academics like us in our ivory towers thinking about it.

Professor Burke: When you ask, "What technology are you talking about?" it gets down to a very limited range. Wind technology, as was already pointed out, is being deployed fast; coal technology has already been trapped. Lots of the technology has already been transferred. A lot of things, like where are the photovoltaics going to be made, they are going to be made in China and India; they are not going to be necessarily made in Europe for the same reason that other things are made there, because labour costs are lower and so on. When you get down to it the only technology I can think of where there is a serious issue is the one that we would be most sceptical about transferring, for other reasons, and that is nuclear technology; where there is the old-fashioned idea of various technologies that we have that they want that we should somehow make that available

[1] See Ev PK07

on preferential rates. There are all kinds of good reasons why we might be a bit cautious about that which are nothing to do with climate change.

Q97 Mr Hurd: Could I suggest another softer technology that might fit into the EU bilateral agreement which is around energy efficiency and the design and architecture of buildings. We spent a weekend visiting and talking to the Chinese and they are going to be moving 400 million people from the country into the cities over the next 25 years. They are going to be building half the new buildings in the world over that time period and their buildings are three times less energy efficient than those in Europe. Yet I never hear governments talking about this opportunity to export what we do know about it, which is how to design good buildings?
Professor Burke: It is not what people are thinking about. Those software things are actually part of the good governance agenda, and we have not talked about adaptation yet. If you are really thinking about what is it you can transfer in terms of adaptation other than money, it is not much point transferring the money if the money cannot then actually be applied to the adapt of measures that need to be taken. You have got to connect it to good governance. All that software thing is really part of the good governance agenda.

Q98 Mr Chaytor: How do we really get this idea that it is design skills as much as technical skills that could be the solution to China's problems? Over my two visits to China in the last two years I have just been astonished at the sheer awfulness of many of the new cities they have built and the complete car dependency, quite apart from the appalling nature of some of their buildings and the lack of energy efficiency. It is not just the design of buildings, it is the whole issue of urban design for sustainability.
Professor Burke: I do not know that we have as much to offer as we think we have!

Q99 Mr Chaytor: I suspect there is some thinking in the European Union that maybe yet has not really taken off in China. Are there ways you can think of where some of the best examples of design in the European Union could be projected into China?
Professor Burke: One of the ways to do that is actually in terms of how you create the linkages between the service sectors. In other words, when you think about building that trade and investment relationship between the EU and China you do not just think about hardware; you are also thinking about how do we make better partnerships between Chinese environmental consultancies and European environmental consultancies? We can be passive and hope there arises an opportunity to drive them, or we can become very aggressive and put some real effort into building and making those partnerships happen. I do not think we are doing that yet. That is my sense. It is not: how do you put this into an international agreement, which you are going to text; it is actually how do you, on the ground, start creating those partnership programmes that really drive that forward? There is a great desire, but I suspect the learning will be both ways. You look at what has happened, and I forget the name of the Chinese city, but the Chinese are likely to have in south China an eco-city long before we have one in Europe, and there is a serious design effort to do that and build that. How good is the mechanism to get the rest of China to learn from that? I do not know the answer to that question.
Ms Morgan: The suggestion I made earlier, looking at economic zones in China, you need to go beyond cities and we actually need to go into zones and we need to go into places where they are starting to build. Being based in Berlin and seeing Germany trying to do a 40% reduction commitment in efficiency know-how, and observing that almost every Member State has some separate little initiative with China rather than having a joint approach of Europe into China—I think if we could get two zones going, because there are two Chinas at least if not many, many Chinas, but at least one in a poorer region to deal perhaps with some of the adaptation technologies and the services, and one in a richer area and bring in some of the trade issues which are just not possible at the present time.
Professor Burke: Also the example we can set, we are going to build three million houses and if you want a carbon-neutral energy system you cannot have hundreds of millions of gas boilers; so we ought to build those houses without gas in them; showing that that could be done, would be a real way of showing what green design means.

Q100 Mr Caton: Can we move on to actually talk about adaptation funding for developing countries. Given the historical record of failure of meeting international aid commitments, how might we fund for adaptation at the sorts of levels we are going to need in the future?
Dr Müller: I have been working on this for a little while. We are talking about very rough estimates because no-one really knows exactly how much this is going to cost, but we do know orders of magnitude. It is going to be tens of billions of dollars or euros. We know, exactly as you said, the ODA would never be able to provide additional tens of billions from the OECD countries to be exported—it is just not politically feasible. That is why I was so intrigued by the adaptation fund and by the 2% adaptation levy on the CERs; because in essence it is the first international tax. It goes directly from the private firm to an international body, initially the CDM executive board in a holding account, and then for the adaptation fund. What is happening is the realisation both domestically in treasuries and ODA agencies that, since they were not politically and domestically politically able to send monies abroad, domestic taxpayers' money, we need to raise these monies directly from the individual or the firm. There are other ways. There are a couple of ways mentioned here in terms of extending the levy to the other mechanisms, but there are many other interesting ways of innovative financing in this way—aviation levies, which I proposed; and these are the only ways in my mind which would raise the sorts of monies which are needed without getting

into deep political difficulties domestically. I am Swiss originally and they were selling their gold reserves off and there was the issue of about a billion dollars being sent to Eastern Europe as a gesture to rebuild the economies. In terms of the GDP it is nothing, but it triggered a huge furore because for the average taxpayer a billion is a lot of money; it is a figure we cannot imagine; whereas from the country perspective it was 0.1%. It is politically not possible, but the taxpayers, and we see this from the French solidarity levy which is used for HIV Aids, they are quite happy to pay five euros on top of their flight ticket to New York, because no-one knows what the actual price is to book a flight to New York, five more or less; and with a levy on aviation of, say, five euros you can raise ten billion annually easily. There are these mechanisms; just forget the bilateral flows from taxpayers' money—that is not going to work.

Ms Morgan: The other one I would add to the list, as I mentioned before, is looking at the auction revenue, both on a national level and potentially on an international level, which is probably less likely politically. If you had an agreement where a certain percentage of your target was auctioned and then that went into a fund, I think that is much more likely. That is why I think the current debate in the European Union around the ETS and auctioning and how that revenue money is spent is so important, and is one of the main links into the current negotiations. I hope more Member States will put that money in. The German model right now is, 10% cent of their auction revenue is all going into climate change, with two-thirds domestic and one-third into adaptation and mitigation internationally.

Professor Burke: This is potentially a reason which Copenhagen can find. If we do not have the credible policy this issue is one which could line up all of the people, for good or bad reasons, who really do not want to make a deal. It is really important there is a credible policy. The point you well made is: why should anybody believe anything we make that is a promise for, as it were, Treasury transference, and not something along the lines that Benito was talking about, some sort of mechanism with more independence? That raises huge issues of principles. These are not light issues.

Q101 Mr Caton: You say that the Germans are advocating using the auction take from EU ETS in this way. Is that gathering momentum across the EU, or are they isolated?

Ms Morgan: The Germans are actually doing it with their current auction revenue. I do not know if they will do 100% if they get 100% auctioning in the next round. I think there is some momentum in the Nordic countries on this, but there is not really a strong political debate on these finance issues, that is my sense.

Dr Müller: I think the Commission is also thinking about using the auction revenue. The problem with doing that is, again, where does the money go from the auctions? If it goes to the domestic treasury it automatically becomes domestic money. It then competes with education and health, so it would be better if the Commission would collect the auction revenues because then it would be easier to send something abroad than if it goes through the domestic treasuries. The other thing is, it always struck me a bit funny that we have a levy on the CDM which a) is something we try to encourage; and b) it is the one with probably the most transaction costs in the first place, and only developing countries are suffering from this levy. They also get the money. Taking a part of the auctioning revenue, or even if their grandfather just asked for a fee, that is actually to some extent a pollution permit and you harden with these emissions, so you pay something for that. That is much more satisfactory to me than actually levying an activity which we try to encourage.

Professor Burke: The issue of what happens to the revenues, whether they are generated by a carbon tax or through an auctioning of permits, however you generate them, that is at the heart of the real politics of climate change. As Jennifer said, there is not really a debate going on yet about how that should be handled. The likelihood is that at the moment most of those revenues will end up in the general pot. Certainly the Treasury's view is that these revenues will be there to ensure fiscal stability; that is their view. You understand their point of view, but they just do not tell you how it squares with solving the climate change problem.

Ms Morgan: The German model is that the environment ministry has that money to spend.

Q102 Mr Chaytor: We briefly touched on aviation but could I just ask a couple of things before we finish. We have not mentioned shipping. Of course there is some debate about the practicalities of getting shipping into the EU Trading Scheme. Do either of the three of you have any observations about shipping? I think I am right in saying that the commitment is that shipping will enter the EU some time after 2013. Any observations on that?

Dr Müller: There are two issues: there are proposals around dealing with the new proposals and I am happy to send some links to anyone who wants to see them. I think we have to distinguish between maritime bunker fuel emissions from shipping and the issue about funding for adaptation. My problem with putting a levy on shipping is pretty much the same as why I did not do a levy on air cargo, because the cargo issue is much more sensitive in terms of WTO and all these things than passenger travel. We have no qualms about restricting the movements of passengers in general; but restricting the movement of goods is politically much more sensitive. It is also an issue in terms, as in Kenya, of exporting fresh vegetables and fresh flowers which, given their very low emissions as it stands and also the low emissions in which they are grown, they see they should have a right to do that and it is not simple to do that. It is something which needs to be looked into, which maybe needs different instruments.

Professor Burke: These are not the top priorities in addressing the emissions reductions. They are very important issues and they have got to be dealt with. It is quite sensible not to make them worse by facilitating a growth in those emissions; and it is

slightly bizarre that the shipping industry will be asking for a lot of money for adaptation in ports to cope with rising sea levels but seems unwilling to contribute anything by way of a cost to that. I think there are issues like that. We have got to really focus our efforts right now on how we essentially manage electricity and road transport. A carbon-neutral world is one which will be much more electricity-dependent. I do not see any way, without much more significant increases in electricity than even IEA is forecasting, you actually get to carbon neutrality. If you are going to do that for both transport and for power and communications and all the other things then that is what we have got to do. That is where the bulk of emissions come from, and we should focus on that, which is not to ignore those things but not to get distracted by them, particularly in aviation because it happens to be very high profile.

Q103 Mr Chaytor: Jennifer, earlier you referred to the importance of not becoming obsessed with the present US administration but looking forward to the next one. Of course today in the United States there is a significant moment perhaps in deciding who will lead the next US administration. I am interested in your observations about what the three people still in the field have said about climate change and its relationship to national security in a way that might be encouraging. Any comments from Senators Obama, Clinton or McCain on this?
Ms Morgan: Yes, absolutely. From a climate change perspective we have got three of the national leaders running. Certainly Senator McCain, as you know, has been a leader on this issue and was willing to hold hearings on this and to lead on legislation for binding carbon trace and fuel economy standards for some time when it was quite unpopular to do this, and he has stated that he will continue with that position if he is elected. Obama and Clinton both have very ambitious national plans as well with 80% targets below 1990 by 2050. On the international side Senator Obama actually said at a recent caucus that he had spoken with Al Gore and that if he does get the nomination he will bring together a group of international and national advisers immediately to inform the position of the United States before the November election because he understands its urgency; which to me links in our strange role of the negotiations to the Poznan meeting in getting a shadow delegation there and an engagement. I think the opportunity is that as the US emerges, as the security issue comes forward and as the need to rebuild American credibility on multilateralism is there, that climate change can indeed be the issue where the US redefines its role in the world. I think there is a tremendous opportunity that behoves diplomatic investment right now.
Professor Burke: It was the Democratic Congress after the mid-term elections that asked for a national intelligence estimate to be prepared, and not the administration. The national intelligence estimate, which will be out sometime next month, is due out and there is a very significant document in regard to climate change and security which was commissioned by the Congress.

Q104 Mr Chaytor: That is due for publication in mid April?
Professor Burke: I think April, the last I heard, yes.
Mr Chaytor: May I thank you for your evidence; that was a fascinating session. Thank you very much indeed.

Tuesday 11 March 2008

Members present:

Mr Tim Yeo, in the Chair

Mr David Chaytor
Mr Nick Hurd
Mark Lazarowicz
Dr Desmond Turner
Joan Walley

Memorandum submitted by Sustainable Forestry Management Ltd

INTRODUCTION TO SFM'S COMMENTS

If there was unanimity on one issue in Bali at COP 13, it is that tropical forests must play a central and vital role in any realistic effort to mitigate climate change. Another strong message from Bali is that payments for reductions of tropical deforestation and degradation are the key to the developing world's consent to a post-2012 treaty. Bali highlighted that virtually the only way in which most developing nations, and particularly the least-developed ones, can meaningfully participate in and benefit from the carbon markets is through land use change and forestry (LULUCF).[1] The promised benefits of the CDM have, however, largely bypassed almost all tropical and subtropical countries due to its stifling approach to LULUCF.[2] Finally, the important co-benefits of encouraging the conservation and restoration of tropical and sub-tropical forests were recognised, including protecting biodiversity and fresh water sources, and providing the best means of adaptation to climate change for many of the world's most vulnerable people.[3]

After years of controversy, much of it unjustified in our opinion, the essential ecosystem services provided by forestry in mitigating climate change were recognised as a result of the efforts of the Coalition of Rainforest Nations beginning in Montreal at COP 11,[4] the cumulative scientific work of the IPCC and the definitive economics of the Stern Review. Among other things, the Bali decision highlights the enormous damage imposed on the world's most important ecosystems and most vulnerable people by the EU ETS ban on forest carbon credits. The EU ETS is the world's largest operating carbon market[5] and thus the most important, near-term, potential source of the large-scale, long-term investment required to slow and reverse deforestation. Yet it has been made inaccessible for this purpose and to the people most dependent on forests for their survival. This inaccessibility has compounded the market failure caused by the CDM (as to which see below).

The EU ban on LULUCF credits, like the EU policy on biofuels, actually incentivises deforestation and the conversion of rainforest to agricultural use. This generates manifold perverse environmental consequences which are becoming more apparent by the day. Viewed objectively and from the point of view of developing nations, EU environmental policy is clearly designed to encourage continued tropical deforestation. The European Commission, lead by DG Environment, has now adopted two policies, the continued ban of LULUCF credits and its policy on bio-fuels, which not only fail to reflect the Bali consensus, but directly contradict the EU's expressed policies on climate, sustainable development, biodiversity and poverty alleviation. One need not be a cynic to see this as hypocritical. The Commission's recent proposal to amend the legislation governing the EU ETS,[6] in which it proposes a continuing ban on forestry credits beyond 2012, together with a radical curtailment of all other project credits, is simply unjustifiable and explicable only by European myopia and a willful disregard of the evidence.[7]

There are repeated references in Commission documents to the need for Europe to lead the world in emissions trading; to set an example. This is somewhat reminiscent of the last French administration's promotion of the French economic model; a "model" which no other economy sought to imitate. A continuing EU ETS ban on forestry combined with a phasing out of other carbon credits from the developing world, will not only discourage the participation of the developing world in a post 2012 treaty but it will, in fact, jeopardise the leading position the EU has achieved in the carbon trading markets. All other emerging carbon markets, both compliance and voluntary, in the US, Australia, New Zealand, and the post Kyoto arrangements, propose, or already include, forest carbon credits. The Commission's position

[1] See Decisions COP 13, "Bali Action Plan," and "Reducing emissions from deforestation in developing countries: approaches to stimulate action".
[2] See http://cdm.unfccc.int/Statistics/index.html, *passim*.
[3] *op cit*. Decisions COP 13.
[4] http://www.rainforestcoalition.org/eng/
[5] Point Carbon, *Global carbon market value grew 80% to €40 billion in 2007* (18 January 2008).
[6] See Commission for the European Communities, "Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community", 23 January 2008.
[7] Attached as Schedule 1 is a rebuttal to the DG Environment's various rationales for the ban's continuance.

therefore not only runs against the tide of the rest of the world, but will also render the EU ETS incompatible with all other trading schemes, directly in contradiction with its expressed desire to link with other schemes.[8] The "linking directive" has, in effect, become the "separation directive."

A further perverse effect of banning forest carbon credits will be to make European heavy industry uncompetitive to the point that, as DG Environment admits, there will be "carbon leakage" of these industries which will be forced, by the manipulated price of EU credits, to relocate to lower, or no, emissions cost countries.[9] The potential impact on employment has recently been acknowledged by leading Member States including France and Germany.[10] Recently floated remedies for this include creating tariff barriers against imported products which do not pay the cost.[11] This is not just the economics of the 1930's that lead to a worldwide depression, such a policy will lead to no net gain to the atmosphere. The losses to the tax base, the inevitable increase in unemployment and associated welfare costs will be exacerbated, in climate terms, by the inevitable loss from the EU of those companies whose management is the most capable and the most willing to focus their efforts on innovation in the very industrial sectors where it is most needed.

Finally, the ban not only contradicts the EU's policies on poverty alleviation, sustainable development and biodiversity, it actually prevents the achievement of the EU's stated goal of climate stabilisation by mid-century. The forecast EU carbon price which will result from the Commission's proposal is as high as €48/tCO_2e.[12] This is close to the price used by McKinsey in its analysis of scenarios leading to climate stabilization by 2030.[13] That analysis demonstrates that offsets from the forestry sector, particularly tropical and sub-tropical forestry, must account for a larger share of potential reduction abatement (25%) than any other sector over that time frame to achieve that goal.[14]

The Commission, in its rationale, suggests that its position might change if a successor international treaty is ultimately agreed.[15] In the meantime, it proposes to phase out virtually all project credits, thus severely damaging the market and market participants by artificially reducing demand for CERs.[16] The resulting chilling effect on the market and on investment in emissions abatement everywhere outside of Europe is already apparent. The Commission proposals are already making it clear to those who invest and develop climate change projects outside of Europe that no reliance whatsoever can be placed on European demand for carbon credits. The Commission also seeks the power to prevent Member States from meeting their Kyoto obligations with credits, such as CERs, which are excluded from the EU ETS and to determine itself whether or not any such credits will be admitted to the EU ETS (or used by Member States) in future whether or not a successor treaty is entered into.[17]

The result, of course, will be to raise the price of compliance in the EU and to EU Member States and to reduce the price of compliance to other Annex 1 countries and their industries.

As the Prime Minister and GLOBE 8 have recently suggested, it is time to take regulation of the carbon markets out of the hands of DG Environment and the United Nations and put it in the hands of a regulator with the expertise in financial markets required for an undertaking of this size and importance.[18] If further evidence were required that this war is too important to be left in the hands of those whose experience is elsewhere, the recent DEFRA proposals to limit "voluntary offset" providers to supplying CERs, which are full compliance instruments, provides it.[19] Why DEFRA thinks it makes any sense for anyone to pay the additional and redundant regulatory costs to it (for its "quality mark" approval) after all of the costs incurred to get CDM approval and then to sell the resulting CERs to voluntary purchasers, as opposed to mandatory purchasers, which are bound to pay a higher price, is beyond most rational observers.[20]

[8] See Official Journal of the European Union, "Directive 2004/101/EC of The European Parliament and of The Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms".
[9] *op cit*. Commission for the European Communities, 23 January 2008.
[10] See "France, Germany Warn EU Climate Plan Risks Jobs", at http://www.planetark.org/dailynewsstory.cfm?newsid=47167
[11] EU split over plan to levy import tax on polluters, 8 January 2008. www.timesonline.co.uk
[12] See, "Fortis Raises CO_2 Forecast, Prices Surge", at http://www.reuters.com/article/rbssFinancialServicesAndRealEstateNews/idUSL2564255920080125
[13] A key difference is that Mckinsey uses the price as a marginal cost whereas the EU Commission sees it as a base from which prices are intended to be manipulated upwards. (cites).
[14] McKinsey & Company, "A Cost Curve for Greenhouse Gas Reductions" *The McKinsey Quarterly*, Volume 1 (2007).
[15] *op cit*. Commission for the European Communities.
[16] See "Trade in Agcert shares suspected, company seeks government protection," Point Carbon 21, February 2008.
[17] *op cit*. Commission for the European Communities.
[18] See "UK PM calls for European bank to allocate EUAs post-2012", Point Carbon, 21 February 2008 and "Carbon market control should be taken off UN hands, legislators say", Point Carbon, 25 February 2008.
[19] See written and oral submissions to this Committee by SFM on voluntary markets: http://www.publications.parliament.uk/pa/cm200607/cmselect/cmenvaud/331/33102.htm
[20] Even in respect to CERs, which must cross a multitude of hurdles before approval, DEFRA imposes a further layer of regulation prior to distribution to the UK public. See "Draft Code of Best Practice for Carbon Offset Providers Accreditation requirements and procedures—February 2008," at www.defra.gov.uk

The overwhelming majority of respondents to the clearly perfunctory DEFRA consultation said that the UK voluntary market should include forest credits and credits from other projects which could either not afford CDM costs or did not come within its rules such as avoided deforestation; this has simply been disregarded by DEFRA.[21] To then demand that industry provide a single voluntary standard and prove its efficacy—by essentially creating replica CERs—is disingenuous at best. DEFRA knew that robust standards pre-existed the consultation (Chicago Climate Exchange, WWF Gold Standard and the Climate, Community and Biodiversity Alliance Standards) and that a further comprehensive standard was promulgated, with widespread industry support, during the consultative period (the Voluntary Carbon Standard). Its conclusion that none of them, despite years of wide consultation with all categories of stakeholders, are adequate to protect the UK public is arrogant to say the least. The DEFRA standards amount to no more than a reiteration of CDM rules; this is not "leadership"; it is a retrograde step indicative of a failure to understand or accept market demand and market evolution. This rigid, prescriptive, as opposed to flexible, principles-based, approach to regulation has come to typify the regulatory approach in Europe and under the CDM. It is also an approach which is failing and is destined to fail.

What seems to have been lost on these regulatory bodies, or indeed seen by them as a negative impact, is that the reason that market-based approaches were adopted to deal with climate change is to lower the cost of achieving mankind's climate goals. The persistent effort by regulations such as the EU's explicit ban and the CDM Executive Board's implicit ban, on LULUCF credits, is to rig the market to achieve a higher price than necessary. Whether the result of confusing the role of markets (which is to seek the most efficient use of capital) with that of subsidies (which is to replace profits in early stage innovation) or the result of what one informed observer has called "magical thinking", the clear intention is to command a sudden and radical change in the economy. There have been several such efforts in the past, China's "Great Leap Forward" comes to mind and the results have been uniformly destructive. The EU Commission's current effort to rig the price of carbon to administer shock treatment to the European economy is no more likely to succeed. It will certainly do nothing to mitigate climate change as no other country will follow suit in seeking higher rather than lower cost (ie more efficient) solutions to climate change.[22]

In the context of global warming a "fortress Europe" approach is futile and counterproductive. The suggestion made by some, that this is just a bargaining position to force the US and China into a successor regime, may sound clever but is, in our view, "too clever by half". It is virtually inconceivable that the United States will accede to UN regulation of its carbon market particularly given the UN's performance as a regulator thus far. It is also unlikely that China will adopt regulations which mandate high carbon prices in an economy at its stage of development. It is unlikely in the extreme that those developing nations which remain dependent on agriculture and forestry will regard being cut off from investment and the carbon market for another 5–10 years as being a signal that they will one day benefit. Their disappointment in the decade of non-delivery by the CDM was palpable at Bali. Given the economic logic of the EU Commission's proposed exclusion of virtually all project credits for the indefinite future, even if a future treaty is negotiated, the likely response of developing nations is obvious: continued response to real, as opposed to imaginary, market signals. Increased timber harvest of native forests, conversion of forests to agriculture and increased production of commodities with real demand (palm oil, beef, soya and sugar) are inevitable. Precisely what we all want to avoid.

Finally the suggestion that revenues from the auctioning of permits will be earmarked for various project sectors is, to be polite, disingenuous at best. Finance ministers have already made it clear that they will not accept hypothecation of auction proceeds and even if they did there is no structure for them to allocate such revenues.[23] Projects supported by aid will not suffice. Leaving aside the sorry history of such attempts, the billions of dollars which are required annually and for decades to come to deal just with deforestation will not be forthcoming from the public sector. The private sector, the only realistic source of such funding, will only make large long term investments if it is confident in the long-term stability and predictability of the markets for carbon credits. The persistence of political and regulatory interference, particularly with supply and demand (and hence prices) will only delay and in many cases prevent, such investment. Participants in the carbon market, which is centred in London, are already reconsidering its viability in the face of the EU Commission's proposals and the manifest inefficiencies of the CDM. Once a market collapses it is hard and often impossible to resurrect. Given that the Commission proposes to exclude project-based carbon credits for years to come it is all too likely that other trading centres, such as New York, will take its place.[24]

[21] Summary of responses to the consultation on establishing a Code of Best Practice for selling offsetting to consumers http://www.defra.gov.uk/environment/climatechange/uk/carbonoffset/pdf/cop-summary-responses.pdf

[22] By way of comparison, pending US Federal legislation proposes to limit carbon prices at US$12 per tonne (Bingaman-Specter, Low Carbon Economy Act, available at www.pewclimate.org) and prices for the Australian system are projected at up to A$20 per tonne.

[23] Council of the European Union, EcoFin 33, Env 51, "Report on the efficiency of economic instruments for energy and climate Change", Brussels, 5 February 2008.

[24] See NYMEX Green Exchange http://www.greenfutures.com/

Specific Comments on EAC Questions

How might mechanisms to tackle emissions from deforestation be developed? How can we ensure that such mechanisms contribute to wider sustainable development aims? Will such mechanism deal with the need to ensure the protection of indigenous people, land use rights and governance? How might forest degradation be dealt with? Are additional mechanisms required to enable the creation of carbon sinks?

The Mechanism

The mechanism for dealing with emissions from deforestation and forest degradation already, at least in principle, exist: the carbon trading market. No new mechanism is required although radically improved regulation is necessary. If forest carbon is made freely available for compliance purposes, as well as in the voluntary sector, of the carbon marketplace the critical problem of tropical forest deforestation and degradation will be successfully addressed and emissions from that source radically reduced. All that is required to accomplish this is the setting of long term targets for emissions reductions and structural change in the regulation of the market as recently proposed by GLOBE 8.[25]

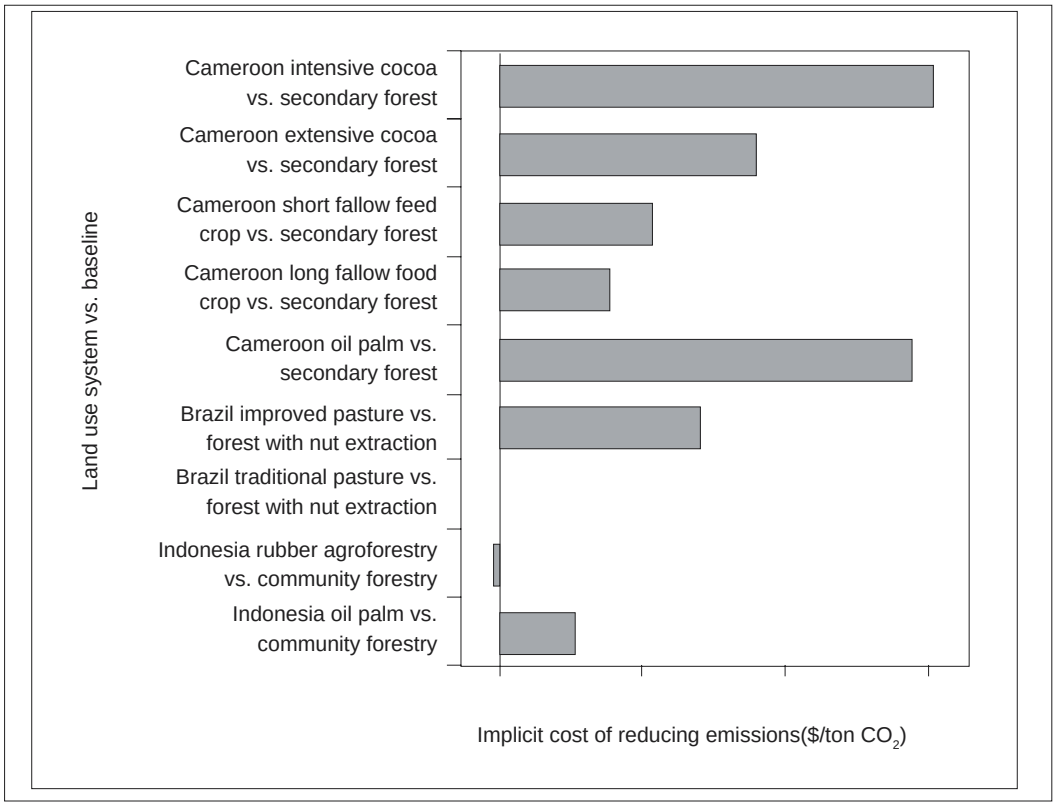
Sustainability

Deforestation and forest degradation is fundamentally about land use. The land will be used for something and the question is what affects the choice of use. Today, in the absence of any market value for forest carbon, the land is and will continue to be used to produce timber and agricultural products. These products, whether on the scale of agri-business or subsistence, have a real value to the landowners, whether public, communal or private. Unless the landowners are offered a price for an alternative land use, such as carbon storage and sequestration, which is at least equal to or higher than what they get for timber, soya, palm oil, beef, sugar or maize, what economists call the "opportunity cost", deforestation and forest degradation will continue. The demand for these products will not abate given rising population and living standards; the question is how to direct such production into sustainability. But there will be no sustainability unless there is long-term commercial sustainability. The moment that payments for carbon storage cease conversion of forest land with its attendant emissions will resume.

The requirement, therefore, is for continuous, predictable payments of the relevant opportunity cost for each forest area for decades to come. No one has yet proposed anything that can be seriously considered capable of accomplishing this aside from crediting carbon stored or sequestered in biomass for use in the compliance markets. The failure to do so for the last 15 years is a tragedy and has compounded the difficulty mankind now faces in dealing with climate change in the limited time left before it goes beyond our control. Fortunately, considerable work has been done and continues to be done to assess the opportunity cost of carbon storage in tropical and sub-tropical forests and it is affordable; that is, it can be done at a price equal to or lower than the cost of technological sources of emissions reduction.[26] The only barrier to these payments being made to landowners and incentivising change in land use is the regulatory structure thus far imposed on the carbon markets particularly by the EU and the CDM.

The opportunity cost of reduced deforestation, was the basis of a study carried out for the Stern Review. This estimated the opportunity cost{for eight countries that collectively are responsible for 70% of land-use emissions. If deforestation in these countries were to be reduced by 50%, the opportunity cost would amount to at least \$5–10 billion annually (approximately \$1–2/tCO_2 on average).[27] Although there are various proposals for public sector funding, donor governments and agencies show little sign of being able to contribute funding necessary at that level for the decades required.[28]

[25] See "Carbon market control should be taken off UN hands, legislators say," Point Carbon, 25 February 2008.
[26] Stern, N, 2006, Stern Review: The Economics of Climate and Nepstad et al, 2007, The costs and benefits of reducing carbon emissions from deforestation and forest degradation in the Brazilian Amazon.
[27] Stern, N, 2006, Stern Review: The Economics of Climate.
[28] Castro, G and I Locker. 2000. Mapping Conservation Investments: An Assessment of Biodiversity Funding in Latin America and the Caribbean. Washington, D.C.: Biodiversity Support Program.



Chomitz, K, 2007, At Loggerheads? Agricultural Expansion, Poverty Reduction and Environment in the Tropical Forests, The World Bank

Carbon credits from avoided deforestation allow a real commercial alternative value to be placed on tropical forests if they are integrated into carbon credit trading systems in a fungible and transparent manner. The carbon market can in many cases "tip" the balance of economics in favour of forest conservation. According to the World Bank's most recent study of the subject, tropical forest cleared to pasture is worth between $200–500 per hectare. Based on its average CO_2 storage per hectare of 500 tonnes, its value is between $1500–10,000 per hectare (@ $3–20/t$CO_2$).[29] Even at the low end range of carbon prices continued deforestation would become unprofitable in many land systems if it is credited in the carbon markets.[30]

The international community, prompted by a proposal from 15 developing countries,[31] now understands this and has been in dialogue over the inclusion of emission reductions from avoided deforestation and degradation in the post-2012 regime for the last two years. At COP 13 in Bali the parties resolved in their decision on "*Reducing emissions from deforestation in developing countries: approaches to stimulate action*" a number of measures to assist in evaluation and implementation of mechanisms to tackle emissions from this source.[32] In relation to specific mechanisms it was resolved "*that policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries will be considered in the context of land use . . .*[33] The role of the carbon market in this effort was recognized in the Bali Roadmap where it is stated that "*various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions, bearing in mind different circumstances of developed and developing countries*".[34] Forests, in short, are finally being recognized as a critical, "cost-effective" key to a future climate change treaty as well as being important for the other environmental services they provide[35] including services which are also essential to adaptation to climate change by the rural poor.[36] It is also now acknowledged that the carbon market is the most appropriate vehicle to deliver these policy goals.

[29] Chomitz, K, 2007, At Loggerheads? Agricultural Expansion, Poverty Reduction and Environment in the Tropical Forests, The World Bank.
[30] *op cit*. Chomitz.
[31] UNFCCC. 2005/CP/L2, "Reducing Emissions from Deforestation in Developing Countries: Approaches To Stimulate Action". 6 December 2005.
[32] See "Decision -/CP.13 Reducing emissions from deforestation in developing countries: approaches to stimulate action".
[33] See "Decision -/CP.13 Reducing emissions from deforestation in developing countries: approaches to stimulate action".
[34] Bali Action Plan http://unfccc.int/documentation/decisions/items/3597.php
[35] Point Carbon, "Japan to make forest management a priority at next G8 summit", 21 February 2008.
[36] Adaptation to climate change in agriculture, forestry and fisheries: perspective, framework and priorities, FAO, Rome, 2007.

The 26 developing countries in the Coalition of Rainforest Nations[37] have made it clear that either they receive compensation for the carbon sequestration services which their native forests provide to the world or they must continue to exploit them as sources of energy, food and wood products.[38] The implications of the latter are illustrated in that Indonesia is now the third largest emitter of greenhouse gases in the world, almost entirely the result of continued deforestation, and Brazil is fourth for largely the same reason.[39] It is only through linking emission reductions from avoided deforestation and degradation to the carbon market, and in so doing linking forests with the world financial markets, that sufficient capital will be available to ensure that a substantial reduction in deforestation globally and a shift to sustainable sources of supply actually occurs in the time remaining to us.

It is also critically important to understand that the payments to landowners, while necessary, are not sufficient to sustainability. New sustainably managed sources of timber and forest product supply must be created to meet ever increasing demand. This too was acknowledged at Bali.[40] These too require annual investments measured in the billions of dollars. The continued discouragement of such investment in the developing world by the EU ban on forest credits and the CDM rules on afforestation and reforestation compound the difficulty of reaching the goal of sustainable supply and sustainable development. We cannot just reduce or end the harvest of native forests without creating such alternative supplies; in Kyoto-speak: we cannot have REDD without A/R.

Methods

The methods of linking the land with the capital markets are now well developed and understood. The SBSTA workshop (Cairns, 2007) concluded that "*there is general agreement that methods, tools and data are robust enough to estimate emissions with an acceptable level of certainty and that the IPCC Good Practice Guidance for LULUCF and the 2006 IPCC Guidelines provide a good basis for the estimation of emissions from deforestation and their reductions*".[41]

Since the early 1990s, changes in forest area have been able to be measured by satellite with confidence.[42] Analysis of remotely sensed data from aircraft and satellites supported by ground based observations is now well developed at the national level.[43] Some developing countries have national level monitoring initiatives in place for the land use sector such as Brazil[44] and India[45]. Other countries are developing these capabilities or have successfully monitored forests with aerial photographs that do not require sophisticated data analysis or computer resources. A variety of methods that are applicable to varying national circumstances regarding forest characteristics, cost constraints, and scientific capabilities are available and adequate for monitoring deforested areas and verifying the accuracy of such measurements. Additionally, the historical remote sensing database is sufficient to develop a baseline of tropical deforestation in the 1990s.[46]

Based on current capabilities, GHG emissions from deforestation can be accurately estimated. These estimates come from changes in the carbon stocks in the above-ground biomass of trees and from other forest carbon pools using models and default data in the IPCC Good Practice Guidelines report.[47] Forest inventories can provide biomass values according to forest type and use, such as mature forest, intensely logged, selectively logged, fallow etc. Many developing countries do not have sufficient data from national forest inventories and they should be assisted in developing this information and the related administrative systems.[48] However, even in their absence, the FAO database provides a default value for national carbon stock with stratification into main ecological zones.[49] Compilation of data from ecological or other permanent sample plots can provide estimates of carbon stocks for different forest types subject to the design of site specific scientific studies.

[37] http://www.rainforestcoalition.org/eng/
[38] Stilts, Joseph, "Cleaning Up Economic Growth", Project Syndicate, 2005.
[39] See Wetlands International: http://www.wetlands.org/ckpp/publication.aspx?ID = 1f64f9b5-debc-43f5-8c79- b1280f0d4b9a
[40] Decision -/CP.13 Bali Action Plan.
[41] Second workshop on reducing emissions from deforestation in developing countries, Cairns, Australia. 7–9 March 2007. Preliminary Chairs' summary.
[42] DeFries, R, 2002, Carbon Emissions from tropical deforestation and regrowth based on satellite observations for the 1980s and 1990s, Proceedings of the National Academy of Sciences of the United States of America, Vol 99, No 22 p 14256–14261.
[43] Herold, M et al, 2006. Report of the workshop on Monitoring Tropical Deforestation for Compensated Reductions, GOFC-GOLD Symposium on Forest and Land Cover Observations, Jena, Germany, 21–22 March 2006, GOFC-Gold report series, http://www.fao.org/gtos/gofc-gold/series.html
[44] INPE. 2005. Monitoramento da Floresta Amazonia Brasileira por Satelite, Projeto PRODES.
[45] Forest Survey of India. 2004. State of Forest Report 2003. Dehra Dun, India.
[46] DeFries, R, et al, 2005, Monitoring tropical deforestation for emerging carbon markets, Tropical Deforestation and Climate Change/ edited by Paulo Moutinho and Stephan Schwartzman, IPAM and Environmental Defense.
[47] Penman, J et al, 2003, Good Practice Guidance for Land Use, Land-Use Change and Forestry. IPCC National Greenhouse Gas Inventories Programme and Institute for Global Environmental Strategies, Kanagawa, Japan.
[48] Second workshop on reducing emissions from deforestation in developing countries, Cairns, Australia. 7–9 March 2007. Preliminary Chairs' summary.
[49] FAO. 2006. Global Forest Resources Assessment 2000. FAO Forestry paper 147. Food and Agriculture Organization of the UN, Rome.

There are a variety of approaches and potential mechanisms to crediting avoided deforestation and degradation activities which reflect the variety of historical experiences of the countries which are the intended beneficiaries. A flexible combination of approaches is the best way forward whether based on mandatory or non-mandatory emissions targets being adopted by such countries. A sectoral approach based on national boundaries and national administration established under broad principle-based regulation, as opposed to the current CDM approach of prescriptive, project by project assessment, is required both because of its simplicity and its respect for sovereignty and because it eliminates many of the methodological problems, such as leakage and additionality, which have plagued development of the CDM market thus far. National forest sector emission targets adopted by developing countries are by far the most efficient way of encouraging sustainable forest management and reducing deforestation. This approach lays the foundation for the capital markets to operate in a coherent regulatory environment.

Indigenous Peoples, Land Use Rights and Governance

The Bali decision on "*Reducing emissions from deforestation in developing countries: approaches to stimulate action*" specifically recognizes "*that the needs of local and indigenous communities should be addressed when action is taken to reduce emissions from deforestation and forest degradation in developing countries*". One of the key aspects of markets that seems to elude most participants in the debate over forest carbon credits, is their requirement that land ownership and entitlement to land use rights are clearly established. Unless the buyer is confident that the carbon credits it purchases have been lawfully created and transferred he will not buy them. Exchanges and clearing houses are specifically designed to ensure that "good delivery" takes place in the commodities which they list and trade. Purchasers of carbon credits in particular, exposed as they are to public and regulatory oversight, do not want to find that the credits they buy are sourced through abuses of human rights or from stolen land. It is critical to all markets that ownership be clearly established and the market for land use rights, like carbon storage and sequestration is no exception.

Markets quickly punish and exclude those who fail to deliver what was bargained for. The carbon markets have appropriate standards for "good delivery" of forest carbon; these standards have already been developed and are being adopted by exchanges, in over-the-counter transactions and in the voluntary sector.[50] By the same token good delivery requires lawful delivery requiring compliance with both domestic and international law such as ILO 169.[51] In short, good governance is integral to well-regulated markets and is demanded by them. The opportunity to benefit from the payments such markets offer is itself a powerful incentive to improved governance including acceptable standards of land tenure and registration and the adoption of the safeguards for vulnerable communities required by long term investors of capital.

Forest Degradation

Although carbon emissions from forest degradation may not be as large per unit area as the complete removal of forest through deforestation, forest degradation occurs over large areas and can contribute significantly to overall emissions from forest loss.[52] Differences between forest and degraded forest are more subtle than in the case of deforestation, and degradation patches are generally small compared with clearings. Monitoring degradation is technically more difficult than monitoring deforestation but is now practicable. Techniques have been developed and are being steadily improved. A team at the Carnegie Institution of Washington, for example, has developed techniques for automated remote-sensing analysis of selective logging utilising Landsat satellite imagery combined with extensive fieldwork. Their work highlighted that exclusion of selective logging from a monitoring system would miss a substantial source of emitted carbon and that such activity can be monitored remotely.[53] Forest degradation therefore must and can be included in the calculation of biomass subject to emissions reduction targets and for crediting in the carbon marketplace.

Our recommendation is that countries that have the capacity and funding to measure and monitor degradation should be encouraged to do so by the opportunity to sell the carbon credits generated from reduced forest degradation in the same manner as those generated from avoided deforestation activities. We recommend that countries be able to choose the level of carbon accounting for their country (with periodic review). This would allow countries which have the funding and capacity to generate emissions reductions from reduced degradation to generate carbon credits immediately while those countries who have not reached a stage to implement this level of technological capacity are assisted to do so.

[50] Chicago Climate Exchange (CCX) http://www.chicagoclimateexchange.com/, NYMEX http://www.greenfutures.com/, Climate, Community and Biodiversity Appliance, CCBA: http://www.climate-standards.org/, Voluntary Carbon Standard: VCS: http://www.v-c-s.org

[51] Convention (No 169) concerning Indigenous and Tribal Peoples in Independent Countries http://www.unhchr.ch/html/menu3/b/62.htm

[52] Asner et al, 2005, Selective logging in the Brazilian Amazon. Science 310: 480–482.

[53] Asner et al, 2005, Selective logging in the Brazilian Amazon. Science 310: 480–482.

Additional Mechanisms for Carbon Sinks

As will be apparent from the remarks above, some developing countries, although by no means all, lack the infrastructure for full realisation of the markets' potential. The key is to provide them with the capacity to reap those benefits. Some need assistance to measure, monitor and verify their carbon stocks. Some have weak systems of land tenure and registration, others require assistance with administration and public accountability. Some need assistance with law enforcement. These are essential elements to a functioning market. It is here, in capacity building, that the public sector and multinational institutions have a key role to play and a role in which they have expertise and institutionalised experience. If the available resources from the public sector were utilised for this purpose carbon sinks everywhere can be fully valued by the market for the benefit of all concerned. If there is a role for a "fund" (which was the original intention behind the creation of the CDM) this is surely it.

Are the Clean Development and Joint Implementation Mechanisms functioning effectively? How might they be improved? How might they better be used in relation to forestry or other land use emission reduction projects? Should CDM and JI projects play a greater role in sustainable development more widely? To what extent should credits such as those from the CDM and JI be permitted to be used in emissions trading schemes, or contribute to emissions reductions targets?

It is now evident that insofar as land use and forestry is concerned both the CDM and JI have failed to make any contribution. This was, in many ways, failure by design. Despite the fact that all forestry and land use is accounted for in Annex 1 countries, at the outset of the debate over the role of developing countries, the CDM excluded deforestation entirely.[54] Then, in 2001 at COP7 in Marrakech, it adopted rules (the "Marrakech Accords") which by their terms and in subsequent interpretations by the CDM Executive Board, made it nearly impossible even for afforestation and reforestation projects to be approved.[55]

Needless to say, investment in the forestry sector through the CDM has been virtually nonexistent, despite a relatively large number of approved methodologies for CDM projects in general. Out of 106 approved methodologies, 10, or 9.4%, relate to afforestation and reforestation. However, out of 945 registered CDM projects, only 1, or 0.1%, is an A/R project.[56] Moreover, this project is projected to generate only 340,000 tCO_2 by the end of 2012,[57] in comparison to the projected 1.17 billion tCO_2 from the other registered projects. As of today, there are no forestry projects approved under JI.[58] The obvious bias against LULUCF is such that no meaningful commercial investment is likely under the present regime.

Despite being initially excluded from the CDM, deforestation in developing countries has finally returned to the agenda. The consensus in Bali on the urgent need to deal with tropical deforestation and forest degradation speaks for itself. The developing nations have also made their position clear: unless they are paid for their carbon sinks they will not accede to a post-2012 treaty. The logic of their position is unassailable. Unless they receive compensation for not converting forests to agriculture they cannot develop their economies sustainably or otherwise. They are the low cost producers of many agricultural products as well as the principal source of timber demanded by the industrial world and they will not give up that competitive advantage for nothing. They also must feed growing populations.[59]

To be understood, deforestation has to be seen primarily as a response to market forces both international and domestic. The world's growing demand for food and forest products will not abate; it can only be directed toward sustainable supplies by the same market forces that create the demand. This is the critical role which the carbon markets can play if, but only if, appropriate regulation is now introduced. There needs to be both structural and regulatory realignment before that market can have its desired effects. We suggest below seven steps which need to be taken urgently if tropical forest loss is to be arrested.

The first step is to rectify the bias against the developing world now codified in the Kyoto Protocol. Any successor treaty must treat North and South alike by extending the same comprehensive crediting of forests and agricultural land allowed to Annex 1 countries to all treaty adherents. There is no longer any justification for and many reasons against, continued discrimination against tropical carbon sinks.[60] The goal should be full carbon accounting, whereby all biomass is accounted for in measuring progress toward achieving each country's emission reduction goals. The scientific and technological techniques for this now exist.[61] The only requirement for qualifying for such treatment should be demonstration of technical and

[54] See COP7, Decision 11, "Land use, land-use change and forestry".
[55] See COP9, Decision 19, "Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol".
[56] See http://cdm.unfccc.int/Statistics/index.html
[57] See http://carbonfinance.org/Router.cfm?Page=BioCF&ft=Projects
[58] See http://ji.unfccc.int/JI—Projects/ProjectInfo.html
[59] Global Environment Outlook, The United Nations Environment Programme in 2007
[60] See Marrakech Accords Decisions, COP 7 of the UNFCCC, Decision 11/CP.7IPCC, 2000, Special Report of the Intergovernmental Panel on Climate Change: Land Use, Land-Use Change and Forestry, Cambridge University Press.
[61] See National Carbon Accounting System, Australia http://www.greenhouse.gov.au/ncas/

administrative capacity. Those countries which do not have, or cannot afford, such capacity should receive internationally funded support to achieve it such as that proposed by the World Bank's deforestation initiative.[62]

The second step is to remove from the CDM the authority to approve carbon projects for crediting. No agency in the world has, or can have, the requisite capacity, expertise and resources to make judgements as to every project in over 100 countries spanning everything from agriculture to industrial processes. Instead of the current prescriptive approach of the CDM, the successor treaty should adopt a principle-based approach to regulation such as that now adopted by the Financial Services Authority. Project approvals should be entirely devolved to participating countries whose designated agencies would take on the responsibility to conform their rules to broad principles established by or under the successor treaty. There does not need to be paternalistic second guessing by others provided that the market is then allowed to operate within a stable regime.

A necessary third step is therefore an agreement on long-term emission reduction goals which are not subject to periodic political or regulatory interference. A key structural weakness of both the Kyoto Protocol and the EU ETS are the five-year compliance periods at the end of which political and regulatory interference is virtually assured. This creates wholly unnecessary uncertainty. Investments which must perform over decades cannot be implemented in this context particularly those dealing with forest and land use. Clear overall targets for emissions reduction must be set and adhered to both in terms of the level of reduction and the period in which they must be accomplished. A realistic time period is at least until 2030 and preferably beyond. Fundamental changes in the world's economy will not take place in any shorter period and neither the capital nor trading markets can operate to facilitate that change if the challenge is compounded by periodic political and regulatory interference.

The fourth step is to increase the participation of the private sector in the regulatory process. Uniquely in recent history, the development of climate change goals, legislation and regulation has taken place without any meaningful consultation of the private sector, the capital markets or even financial market regulators. The Stern Review, the first government sponsored economic analysis was published in 2007, some 15 years after the Rio Conference which launched the Kyoto process. Until its publication virtually no economic or financial analysis was referred to in the climate debate. To the authors' knowledge no meaningful input has yet been sought, by the UN or by the EU, from those most experienced with capital and commodity markets such as central bankers, market regulators and market practitioners. This sealed box approach has lead to such recent fiascos as the price collapse in the market in Phase One of the EU ETS; the acceleration of tropical deforestation and increase in food prices caused by mandated bio-fuels standards and most recently the suppression of the market for CERs.[63]

Fifth there must be far more open and efficient decision making whether at international or national levels. The lack of transparency in decision making by the CDM is now legendary and has caused enormous harm particularly to those seeking to work within its rules.[64] Symptomatic of the causes of damage to investment is the time it takes to get a project from the period of public comment to the registration. The CDM requires an average number of 237 days for a project to progress from the start of the public comment period until a request for registration; then there is a further average delay from the request for registration until registration of 84 days. It thus takes well over a year to create a CER and the process is slowing down, not speeding up as should be the case now that the CDM Executive Board has years of experience to draw upon. In June 2005 it took an average of 70 days for a project proposal to proceed from a registration request to registration. By June 2007, this had increased to 110 days. For projects that require a new methodology, it takes an average of 305 days from the point of submission of a new methodology to its approval.[65] In other words a project developer seeking innovative solutions will be required to wait two years or more to find out if he can proceed. We simply don't have time for such a bureaucratic process if the developing world is to make a meaningful contribution to dealing with climate change. There is also substantial anecdotal evidence of political and personal bias in decision making.

The sixth step is to repeal, and certainly not to replicate or extend, the regulations and regulatory interpretations which have stifled investment in the forest and land use sector. The required use of counterfactual scenarios and the adoption of arcane concepts with no meaningful analytical underpinning have created a "parallel universe" of regulatory requirements which are completely detached from commercial reality. The first and key step, as mentioned above, is to extend to developing nations the same scope of forest project credit types as is afforded to Annex 1 countries. This leads to the second reform which is to provide for the inclusion of the full spectrum of land use: avoided deforestation, forest degradation, reforestation (natural and assisted), sustainable forest management, afforestation, low till and no-till agriculture. Third, prescriptive rules such as those created by the CDM for afforestation and reforestation should be rejected. These include such counterproductive measures as the following:

[62] See Forest Carbon Partnership Facility http://carbonfinance.org/Router.cfm?Page=FCPF&FID=34267&ItemID=34267&ft=About
[63] *op cit*. Commission for the European Communities.
[64] *op cit*. Trade in Agcert Shares.
[65] See UNEP Riso Centre at http://cdmpipeline.org/

(i) *Capping at 1% of compliance requirement the use of A/R credits by Annex 1 countries*

CDM forestry rules cap the use of A/R credits to just 1% of an Annex 1's country's annual compliance requirement over the first commitment period; equivalent to 120MtCO_2 annually. The 1% rule has clearly had a "chilling effect" on the market, discouraging investment in A/R projects, which offer the only meaningful alternative to meeting timber and fuel demand by continued deforestation of natural forests. There is no such cap on Annex 1 countries.

(ii) *A/R projects are limited in location to lands deforested or in agricultural use prior to 1990 and which remain deforested at a project's inception. Restoration of land deforested since 1990 or of degraded land is excluded*

The result of this rule has been to exclude from the system any credit for regeneration or replanting of forests destroyed since 1990. As a result between 125–195 million hectares of deforested land is now ineligible for CDM forestry (an area three times the size of France) and the area is growing (not least because of the lack of any crediting of avoided deforestation) by an area the size of Greece every year and it is happening in the most bio-diverse areas and the home to many of the world's last remaining indigenous peoples.

(iii) *Requiring the replacement of A/R credits after a maximum of 60 years*

Forests are a long-term store of carbon. They have covered vast areas of the earth's surface for millennia, and contain 60% of the carbon stored in terrestrial ecosystems.[66] CDM rules require that A/R forest credits be either temporary ("tCERs") or long term ("lCERs") and that all of them be replaced at specific intervals which are unrelated to the forest harvest cycle, with a maximum duration of 60 years. This rule not only reduces incentives for forest restoration but actually encourages the liquidation of healthy forests after no more than 60 years in order to generate cash to buy replacement credits. No other carbon market in the world finds such a rule necessary.

New rules should be principles-based and should allow for the recognition of the full value of tropical and subtropical forest land carbon storage and sequestration. LULUCF projects can bring multiple benefits, all of which are intricately linked and promote sustainable development. They include ecosystem services such as soil protection, erosion control, water purification, reduced flooding, agricultural pollination, local rainfall and biodiversity protection. They also include benefits to local communities and indigenous people by encouraging the resolution of land tenure issues, increasing resilience to adaptation to climate change, such as drought, storms, wildfires and floods.[67] New rules should encourage payment for these services in addition to carbon storage and sequestration and thus begin to fully value the multiple benefits of tropical and sub-tropical forests.

The seventh and final step is to ensure public accountability both of the regulators themselves and the efficacy of the regulations they promulgate. The CDM Executive Board, for example, is appointed by an obscure process in which those most affected by its decisions have no say. There is no requirement that its members have any relevant experience or expertise and its resources are not the subject of any budgetary scrutiny. Regulations are promulgated without any serious attempt to determine their costs or benefits, their impact on climate change or in the case of land use and forestry, their impact on biodiversity, on communities or on other critical resources such as fresh water. Neither the markets nor the general public can have any confidence in such a system of regulation.

Summary

None of the manifold benefits and none of the climate change mitigation potential of the tropical and sub-tropical forests are now being realised precisely because of their exclusion from the carbon markets by misconceived regulation. Markets, contrary to many of the underlying assumptions of these counterproductive regulations, are in fact are very good at ensuring the integrity of the products they buy and sell and in punishing bad deliveries and bad deliverers. Market discipline, supported by appropriate, not manipulative, regulation will always be more efficient than bureaucratic attempts to ensure capital formation and price discovery. Markets are excellent at distinguishing the qualities of competing products by pricing them and their associated risks. There is no need to tell them what to do and efforts to do so, to pick winning technologies or approaches, always fail at huge and unnecessary cost. The EU bio-fuels targets are just one recent example of this.

Structural change is required which removes regulatory authority for the carbon market from the UN and EU Commission and vests it in the hands of experienced and accountable bodies such as central banks and securities markets. The role of the UN should be to establish the emissions targets to be undertaken by each country and to set out the broad principles which all countries must adhere to. No attempt should be made to make special rules which discriminate against the full participation of the developing world in the carbon markets such as is embodied in the CDM. The World Bank and other multinational bodies should assemble and distribute public sector funds to capacity building in the developing world so that all countries can benefit from investment driven by the carbon market.

[66] IPCC, Land use, land-use change, and forestry: a special report of the IPCC. (Cambridge & New York. Cambridge University Press, 2000).

[67] Swingland, I, 2002, Capturing Carbon and Conserving Biodiversity: The Market Approach, The Royal Society.

We are firmly of the view that use of forest and land use credits, broadly defined to include the whole spectrum of rural land use, should be permitted to an unlimited extent in emissions trading schemes and in reaching emission reduction targets. Climate research has shown that to avoid catastrophic changes to the global climate and large scale irreversible systemic disruption temperatures must not increase above a threshold of 2% those in pre-industrial times.[68] Achieving this target requires significant emission cuts. The task of reducing and mitigating greenhouse gases on this timescale is enormous and to do so at a minimal cost to the world's economy should be a priority for policy makers. Emission trading schemes are designed to put a price on an industrial pollutant and to yield the lowest cost sources of compliance. Thus, opening the scheme as widely as possible to all sources of credits will allow the market to drive investment toward these low cost solutions. Unrestricted trading of REDD and LULUCF credits will provide a major portion, up to 25%, of the solution, will lower the cost of overall compliance and provide time for industry to implement the balance of the solution. If we do not rectify the fundamental error of excluding such credits from the carbon markets we will fail in the attempt to stabilise the climate.

Is there adequate support for developing countries to adapt to climate change?

No and there never will be without large scale private sector investment in rural land use in the developing world. Adaptation to climate change is costly, and to date it is unclear where the necessary funding will come from. According to the Stern Review in OECD countries the cost of making new infrastructure resilient to climate change could range from $15–$150 billion each year (0.05–0.5% of GDP), with their costs reflecting the prospect of higher temperatures in future. The Stern Review highlights that while there are few credible estimates of the costs of adaptation in developing countries it estimates the additional costs of adaptation alone in the developing world are $4–37 billion each year. This includes only the cost of adapting investments to protect them from climate-change risks, and it is important to remember that there will be major impacts that are sure to occur even with efforts at adaptation.[69] Needless to say, many of the key elements of adaptation for the rural poor of the developing world are integral to sustainable management of the tropical and sub-tropical forests as well as sustainable use of agricultural lands.[70] In the absence of such investment and the stabilisation of their local environments, particularly soils and sources of fresh water, tens if not hundreds of millions of the 1.4 billion people dependent on forest resources for their survival will become involuntary environmental migrants with profound negative effects on their societies and on ours.[71]

Sustainable Forestry Management (UK) Ltd
4 Grosvenor Place, London, SW1X 7HJ, +44 (0)20 7589 852

schedule 1: Rebuttal to DG Environment

29 January 2008

RESPONSE TO DG ENVIRONMENT'S STAFF WORKING DOCUMENT
IMPACT ASSESSMENT ON LULUCF AND FOREST-BASED CARBON CREDITS

In December 2007, the staff of the European Commission's Directorate General for Environment circulated a draft Staff Working Document on an impact assessment of its proposal for a Directive to amend Directive 2003/37/EC on the EU Emissions Trading Scheme (the "Staff Working Document"). This paper responds to the Staff Working Document's sweeping and unjustified assertions on land use, land-use change and forestry ("LULUCF") and in particular on forest-based carbon credits.

The crucial importance of the world's tropical forests—the second largest source of CO_2 emissions—both to achieving climate stabilisation by mid-century and doing so at a reasonable cost, has been authoritatively and repeatedly documented by the Intergovernmental Panel on Climate Change ("IPCC"), in the Stern Review and in numerous studies of other independent parties, such as McKinsey.[i] It is also widely recognized that reducing deforestation and encouraging reforestation are essential to enabling the world's poorest and most vulnerable people to adapt to climate change.[ii]

This widespread scientific, economic and political consensus was emphatically endorsed at the 13th Conference of the Parties of the United Nations Framework Convention on Climate Change ("UNFCCC") in Bali last December 2007. There is also a growing conviction among many influential scientists, policymakers, and representatives of civil society and indigenous peoples that carbon markets, and in particular the EU Emissions Trading Scheme ("EU ETS"), represent the single most important source of long-term and large scale investment that is urgently needed to protect and restore the forests of the developing world.[iii]

[68] European Commission Communication "Limiting Global Climate Change to 2° Celsius: The way ahead for 2020 and beyond". Stern, N, 2006, Stern Review: The Economics of Climate Change, Meinshausen, Malte. "On the Risk of Overshooting 2°C". *Proceedings from International Symposium on Stabilisation of Greenhouse Gas Concentrations—Avoiding Dangerous Climate Change*, Exeter, 1–3 February 2005 at www.stabilisation2005.com/programme.html
[69] Stern, N, 2006, Stern Review: The Economics of Climate Change.
[70] Adaptation to climate change in agriculture, forestry and fisheries: perspective, framework and priorities, FAO, Rome, 2007.
[71] Global Environment Outlook, The United Nations Environment Programme in 2007.

The Staff Working Document stands well outside this mainstream view. It contains many extreme and very negative allegations against the contribution of LULUCF activities to climate change mitigation and the role of forest-based carbon credits. Yet, unsurprisingly given its ideological orientation, the Staff Working Document fails to cite a single authoritative source for any of its broad assertions.

This paper will show how most of the Staff Working Document's assertions are factually incorrect, contradict international scientific and technical consensus, and reveal an unjustified bias against the contribution of sustainable forestry to climate change mitigation.

Thus, for the reasons explained below, we urge policy markers to set aside the Staff Working Document in formulating the EU's approach to the revision of the ETS as it relates to LULUCF and forest-based carbon credits.

1. Emissions from LULUCF Activities

DG Environment's Staff Working Document
Allegation

Land Use, Land Use Change and Forestry (LULUCF) activities can lead to emissions of greenhouse gas and their removal from the atmosphere. These processes are inherently reversible, and carbon stored can at some point be released.

The Facts

"Risk of financial loss from a damaging natural event surely exists in timberland investments. Yet, 12 years of historical loss data reinforce what we have believed all along/that the risk of loss from a natural event has been very small, averaging 0.04 percent (4 basis points) of loss per year". (Hancock Timberland Investor)[iv]

Forests are a long-term store of carbon. They have covered vast areas of the Earth's surface for millennia and contain 60% of the carbon stored in terrestrial ecosystems.[v] Their duration exceeds that of any industrial facility.

Robust methods are also available to address and account for permanence, including maintenance of adequate reserves or buffers to cope with unforeseen losses in carbon stocks, insurance, discount factors based on the assessed risk of carbon loss and general strategies to reduce risk to carbon stocks, such as pest control and fire management. The risk of loss from a natural event in managed forests is also very small, averaging 0.04% of loss per year.[vi] In fact, it is so small that most large forest enterprises self-insure.

2. The Carbon Sequestration Potential of Forests

DG Environment's Staff Working Document
Allegation

The capacity of carbon sequestration by forests diminishes with time, and climate change will have further negative influence on a natural carbon uptake by the terrestrial biosphere.

The Facts

"*Experiments have unequivocally shown that plants can grow faster and larger in a CO_2-enriched atmosphere, and the mechanisms of response are well understood*". (Proceedings of the National Academy of Sciences)[vii]

"*A series of carbon budgets based on data from forest inventories have shown that carbon is accumulating in northern mid-latitude terrestrial ecosystems*". (Woods Hole Research Centre)[viii]

In a study recently published in the *Proceedings of the National Academy of Sciences*, an international team of 19 researchers states that "experiments have unequivocally shown that plants can grow faster and larger in a CO_2-enriched atmosphere, and the mechanisms of response are well understood".[ix] Attention to the global carbon cycle over more than 30 years has focused on the so-called "missing sink," missing because the accumulation of carbon in the atmosphere that would be expected has not been observed. In the last few years, several independent analyses based on geochemical data (ie, data from the atmosphere and oceans) and a series of carbon budgets based on data from forest inventories have shown that carbon is accumulating in northern mid-latitude terrestrial ecosystems.[x]

In addition, the Staff Working Document's allegation is entirely irrelevant for credits from Clean Development Mechanism ("CDM") and Joint Implementation ("JI") projects, and only serves to set a negative and biased tone. CDM and JI rules require that changes in carbon stocks over time within the project boundary be accounted for in the project's monitoring system. As a result, credits can only be issued

for ex-post verified carbon sequestration above an established baseline, based on scientifically accepted monitoring techniques (See eg, the IPCC's Good Practice Guidance for LULUCF and the nine approved A/R CDM methodologies).

3. Proceeds from Auctioning for Avoided Deforestation

DG Environment's Staff Working Document
Allegation

Proceeds from the auctioning of allowances within the EU ETS should be used to mitigate greenhouse gas emissions, in particular to fund measures to avoid deforestation.

The Facts

"*A study carried out for this [Stern] Review estimated opportunity costs on the basis for eight countries that collectively are responsible for 70% of land-use emissions (responsible for 4.9 $GtCO_2$ in 2050 under BAU conditions). If all deforestation in these countries were to cease, the opportunity cost would amount to around $5–10 billion annually*". (Stern Review)[xi]

The resources required to combat forest degradation and encourage forest restoration are very substantial, measuring in the tens of billions of Euros and will be required for decades to come. There is no likelihood that any fraction of the proceeds from auctioning will generate sums of this magnitude. Avoided deforestation activities will have to compete with a variety of other climate change adaptation and mitigation activities for a share of the proceeds resulting from the auctioning of emission allowances. The Commission's proposal for a Directive amending the EU ETS Directive provides for only 20% of the proceedings to be destined to climate change mitigation and adaptation activities, which include, in addition to avoided deforestation, contributions to the Global Energy Efficiency and Renewable Energy Fund, the development of renewable energies, capture and geological storage of greenhouse gases ("GHGs"), facilitation of developing countries' adaptation to climate change, addressing social aspects in middle and lower income households, and administrative expenses of the EU ETS.[xii]

In contrast, carbon markets and forest-based carbon credits are efficient market based instruments that can mobilize the huge amount of resources that are so necessary to encourage developing countries to meaningfully engage in sustainable forestry.

4. Approved CDM LULUCF Projects

DG Environment's Staff Working Document
Allegation

Only nine LULUCF methodologies have been so far approved for CDM use, resulting in only 2% of all CERs for the first phase. The official registry pipeline (UNEP Risoe) identifies only one JI LULUCF project as registered. The reason for this relatively small occurrence is primarily to be found in the complexity of solving inherent inconsistency of the LULUCF projects: ensuring permanency, verification and adequate monitoring of carbon storage.

The Facts

In fact, to date no JI LULUCF project and only one CDM afforestation and reforestation ("A/R") project has been registered.[xiii] Contrary to the Staff Working Document's allegation, however, the key reasons for this are the following:

(i) The modalities and procedures governing LULUCF were discussed and decided only at COP 9 in Milan.[xiv]

(ii) The slow bureaucratic process of the CDM Executive Board has meant that there has been considerable policy uncertainty compared to other sectors, with only the first CDM A/R methodology approved in December 2005 and the first (and so far only) project registered in December 2006.

(iii) The fact that LULUCF is excluded from the EU ETS has been a disincentive for investors to develop projects and methodologies in this sector as the market is limited.

(iv) With the exclusion of LULUCF credits from the EU ETS, governments have been the only possible buyers of CDM LULUCF. This means that minimal experience has been gained with respect to forestry credits and governments have been wary to utilize credits with which they have little experience. Thus, market liquidity, which is necessary for the efficient functioning of any market, has been denied to the forestry sector.

In essence the EUTS ban of forestry credits has become a self-fulfilling prophecy which is now used to justify its continuance.

5. Effective Solutions for the Temporary and Reversible Nature of LULUCF Activities

DG Environment's Staff Working Document
Allegation

All options under consideration pose problems concerning the temporary and reversible nature of LULUCF activities. As forests and cultivated land are dynamic ecosystems, changes in carbon capture are not only linked to the developer's influence, but are subject to temperature, weather conditions, outbreaks of transmissible tree diseases and pests as well as fires. [. . .]

The problems related to the temporary and reversible nature of LULUCF have not yet been solved and no effective solutions are in sight at the moment.

The Facts

"*The EU notes that non-permanence is not an issue when possible reversals are compensated. Approaches to deal with non-permanence include (a) using temporary credits in a manner similar to the current A/R CDM projects, (b) reducing future financial incentives to take account of deforestation emissions above the agreed level, (c) bank credits and debits from one period to another, or (d) by mandatory banking of a share of the emission reductions. The transition from unsustainable to sustainable land use management reduces the risk of increases in emissions from deforestation*". (Submission of the European Union to the SBSTA)[xv]

Forests and natural ecosystems are in dynamic equilibrium. For many ecosystems, exposure to fire, changing weather conditions, pests, and so forth are part of their natural disturbance and successional regimes.[xvi] In the case of CDM A/R projects, CERs are only generated ex-post at various intervals during the project lifetime, and therefore, credits are only issued for carbon which has been physically measured on the landscape.[xvii]

The risk of non-permanence of forests can in fact be addressed in many different ways. These include insurance products, pooled buffers, risk discounts, project rating services, and the ton year approach, which takes the life time of a molecule of CO_2 in the atmosphere as a measure if permanence.

The CDM's creation of temporary credits (ie, tCERs and lCERs) is yet another approach to the risk of non-permanence of forests. However, this approach, while technically adequate, is not optimal because it does not remove the perception of non-permanence from potential buyers.

Other mandatory and voluntary schemes have addressed the "temporary" nature of LULUCF in different ways. For example, the New South Wales Greenhouse Gas Abatement Scheme, which is the precendent for the announced Australian Emissions Trading System, has designed measuring and accounting systems that insure the permanence of forestry credits in the scheme.[xviii] As a result, sequestration credits from forestry are considered permanent in the New South Wales Greenhouse Gas Abatement Scheme, and there is no differentiation on the compliance buyer's part of a forestry credit from any other type of credit in the system. The New Zealand Emissions Trading System likewise has no difficulty in accounting for fluctuations in forest carbon accounting.[xix]

In the voluntary sector, the Voluntary Carbon Standard requires a buffer of credits that are held in reserve in the case of non-performance of the project. Project developers can draw on this buffer if the project does not deliver the required amount of credits.[xx] The Chicago Climate Exchange rules for forest-based carbon credits are well established and similarly require a buffer stock approach.[xxi]

6. Liability Risks of Temporary Credits

DG Environment's Staff Working Document
Allegation

Temporary credits create significant liability risks. For example, companies that consider closing down might be tempted to use temporary credits. If the company ceases to exist, it can no longer replace the temporary credits hence requiring that carbon cuts are made elsewhere to meet emissions targets. As a result, the Member State in which the company operated would have to cover for the expired credits. A key reason for not allowing the use of credits from LULUCF in Phase I and II would be to avoid the risk of liability falling on State where such credits have been used by companies. A company that intended to close its operations would have a clear incentive to use such credits and transfer liability to the State, since these credits—owing to the need for repeated surrender—will be less valuable than permanent credits. Council

and Parliament also excluded any possible JI credits relating to LULUCF from the EU ETS because, as mentioned above, no modalities have been developed in relation to the non-permanence and other issues arising in relation to JI LULUCF projects.

The Facts

The temporary nature of credits does not affect the treatment of any liability of EU ETS operators in the case of insolvency. The obligation to surrender allowances forms part of the liabilities that belong to the legal estate of an operator. All suppliers of carbon credits sell them for forward delivery and, in the event of their insolvency, the liability for failure to make delivery will be the same whether the credits are "temporary" or not and regardless of how they were supposed to be generated.

It is extremely unlikely that an EU ETS operator would purchase any EU allowances (and not only forest-based carbon credits) in the face of bankruptcy. The liability to surrender any allowances to the government is under most insolvency laws not a liability that is given high priority. Certainly, an operator would first have to pay taxes, salaries or service senior financial obligations before it would have to fulfill EU ETS obligations. The same applies in the case of liquidation. The liquidator would also service more senior liabilities first.

Furthermore, in the extremely unlikely case that an operator would go out and purchase tCERs to meet its EU ETS obligations in the face of bankruptcy, the obligation to replace the tCERs would form part of the legal estate of the operator and the outstanding liabilities that would have to be liquidated.

Consequently, the purchase of tCERs does not change the liability situation or the treatment of a bankrupt EU ETS operator in case of liquidation.

7. LULUCF Monitoring Technologies Available

DG Environment's Staff Working Document
Allegation

Current monitoring methodologies are still not reliable enough to fully measure the actual net carbon capture of LULUCF activities.

The Facts

"*In the EU's view the IPCC guidance for greenhouse gas estimation should be a basis for monitoring emissions. The approaches to land identification developed by IPCC allow for both ground-based and remote sensing methods. The most cost effective combination depends on national circumstances but in all cases it is very likely that both remote sensing and ground-based data will be needed, and that there will always be a requirement for an appropriate monitoring system*". (Submission of the European Union to the to the SBSTA)[xxii]

Concerns over measurement of carbon biomass have been comprehensively addressed over the years following the Seventh Conference of the Parties of the UNFCCC in Marrakech in 2001. Strong scientific and technical capabilities are now in place for accurately assessing long-term gains and losses of bio-mass carbon and other emissions from the forestry and land use sector. Landholders and government agencies now measure and monitor forest status and growth using a combination of techniques including direct field measurements, satellite and aerial photography, and computer modeling.

Many protocols for measuring and monitoring carbon project benefits also exist.[xxiii] The Good Practice Guidance for Land Use, Land-Use Change and Forestry ("GPG-LULUCF")[xxiv] produced by the IPCC provides methods and guidance for estimating, measuring, monitoring and reporting carbon stock changes and GHG emissions. The GPG-LULUCF's guidance is consistent with that of other sectors and can be used to quantify changes in GHG from a diverse range of forestry and land-use management practices. This guidance assists in measuring inventories for the sector that neither "over" nor "under" estimate. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources.

The currently approved CDM A/R methodologies have been developed, reviewed and approved by some of the leading experts in the field of forest carbon accounting and monitoring (see the UNFCCC's Roster of Experts, available from the Secretariat), and are all based on the IPCC's GPG-LULUCF.

In stark contrast, the above Staff Working Document's allegation is not based on any such references or credentials.

8. Interdependencies in Ecosystems

DG Environment's Staff Working Document
Allegation

Furthermore, interdependencies in ecosystems are far from being fully understood, making it very difficult to assess the actual change in GHG emissions. Whereas emissions reductions in industry can be quantified by measuring input and output values, ecosystems are inherently prone to leakage. They are often referred to as flux rather than sinks.

The Facts

"*Some methodological elements like baseline, additionality, leakage and permanence have already been addressed in the context of the Kyoto Protocol Clean Development Mechanism*". (Submission of the European Union to the SBSTA)[xxv]

The Staff Working Document's allegation shows a clear misunderstanding of GHG quantification in the LULUCF sector. Indeed, interdependencies in ecosystems are well studied and actual changes in GHGs can be assessed.

First, carbon flux and sinks are distinct terms. Carbon flux refers to "the transfer of carbon from one carbon pool to another".[xxvi] Carbon sink is a carbon pool that, during a given time interval, has more carbon flowing into it than out of it.[xxvii]

Second, contrary to what the Staff Working Document suggests, measurement uncertainties are very manageable in the LULUCF sector. Measuring carbon pools is straightforward and scientists have developed clear guidance and protocols for this (See the IPCC's GPG-LULUCF). Furthermore, where uncertainties exist, all methodologies require taking a conservative approach that favors lower-end error margins and results so that projects are more likely to be under-credited.

Third, the Staff Working Document's suggestion that measurement uncertainties are equal to leakage is also incorrect. Leakage is commonly defined as the emissions of GHGs not taken into account because they occur outside of a project's accounting boundary as a result of project activities.[xxviii] Such leakage has often been raised as a major challenge associated with avoided deforestation projects. However, methods are readily available for avoiding leakage. These include providing economic opportunities for local communities that encourage forest protection; providing replacement products that are less carbon intensive, such as timber from plantations rather than native forests, and improving the productivity of agricultural lands. The Executive Board of the CDM has now approved methodologies for the control and measurement of leakage, and other practical methodologies have also been adopted under various other standards.[xxix]

Real projects have also demonstrated that leakage can be controlled and measured when it occurs. For example, the Noel-Kempff Climate Action Project has demonstrated that active management can reduce leakage, and that which cannot be eliminated can be quantified and deducted from the project's total carbon benefits.[xxx] Société Générale de Surveillance ("SGS"), an internationally accredited CO_2 certifier and Designated Operational Entity of the UNFCCC, validated the project design, and verified and certified emission reductions for the project.[xxxi]

Finally, the Staff Working Document's suggestion that non-forestry projects are not prone to leakage is also incorrect.[xxxii] In fact, leakage is often overlooked in most non-forestry CDM methodologies.

9. LULUCF and Technology Transfer

DG Environment's Staff Working Document
Allegation

Currently, the LULUCF sector is mainly driven by voluntary emissions reductions, although a future increase of their share in CDM and JI projects may become economically attractive, as these projects can offer emissions reductions at a low cost. [. . .] LULUCF in CDM slows down technology transfer and low-carbon technology development, as credits from forestry and land use will be much more competitive on price and hence crowd out other project types.

The Facts

"*A substantial share of the overall opportunities, including a large potential to reduce emissions by protecting and replanting forests, lies in developing economies*". (McKinsey Quarterly)[xxxiii]

"*To control climate change effectively it will also be essential to halt tropical deforestation completely within the next two decades and then reverse it through afforestation or reforestation schemes. Deforestation currently contributes around 20% of global greenhouse emissions, more than transport. Discussions are taking place under the UN climate change convention aimed at creating appropriate incentives for reducing deforestation*". (The European Commission)[xxxiv]

There is absolutely no evidence showing that LULUCF in the CDM has slowed down technology transfer or the development of low-carbon technology. On the contrary, inclusion of LULUCF will allow the acceptance of stricter commitments, and therefore, the achievement of climate stabilization goals. Without the inclusion of LULUCF, however, climate stabilization simply cannot be achieved at a reasonable cost.[xxxv]

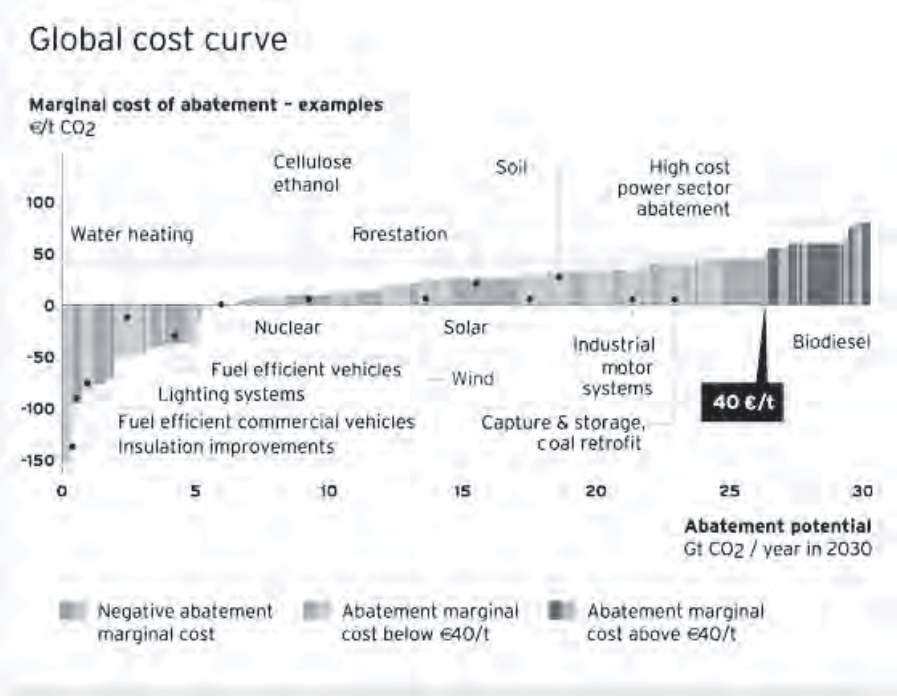
It would be a mistake to exclude the forestry sector simply because one favours other sectors. First, it cannot be ignored that 20% of global anthropogenic GHG emissions are from the LULUCF sector. Second, reducing the rate of emissions does not reduce the concentrations of GHGs in the atmosphere, but only the increase of those concentrations. The world is already suffering the increasing impacts of climate change. A/R activities are therefore essential to remove as much CO_2 as possible while mankind transitions to a low-carbon economy.

Climate research has shown that to avoid catastrophic changes to the global climate and large-scale irreversible systemic disruption, temperatures must not increase more than 2 degrees Celsius above those in pre-industrial times.[xxxvi] There is a medium likelihood of staying below this temperature increase if GHGs are stabilized at a concentration around 450 ppm,[xxxvii] but this would entail maximum cumulative emissions of around 2100 Gt CO_2e between 2000 and 2100.[xxxviii] In turn, this would require limiting emissions to 32 Gt CO_2e/yr by 2030,[xxxix] a significant emission reduction in comparison with the business as usual scenario.

Emission reductions of this scale require the participation of the forestry sector. Offsets from the forestry sector account for a larger share of potential reduction abatement than any other sector, including potential reductions from the power sector over that period.[xl] This was also proved by a McKinsey study, which examined potential abatement scenarios for achieving the necessary emission reductions at a cost below €40/tCO_2e.[xli]

As the McKinsey report makes clear, assuming a price of €40/tCO_2e forestry accounts for 25% of the additional reduction potential in emissions required to achieve this target. It is clear that to achieve climate stabilisation by mid-century requires both avoided deforestation and reforestation (see Figure below).[xlii] Without the inclusion of forestry offsets, achieving these emissions reductions targets at an acceptable cost is impossible. In other words, the Staff policy makes it impossible to achieve the EU's own key climate policy goal.

IPCC research has also demonstrated that the potential of biological mitigation options is in the order of 100 GtC (cumulative) by 2050, equivalent to about 10 to 20% of projected fossil fuel emission during that period.[xliii] The analysis, however, also shows that emission reductions from the forestry sector, while essential to achieving medium term abatement goals, are also biologically constrained in their ability to mitigate climate change beyond a certain point.[xliv] This, amongst other considerations, should dispel fears that offsets from forestry will "flood" the market and reduce incentives to technological change. Forestry carbon credits and offsets are necessary but are not, by any means, sufficient, to achieve climate stabilisation goals. There is absolutely no reason to believe that they will crowd out other projects. There is, however, significant evidence that without them the cost of compliance will be so high as to force the emigration of industrial plant and employment to countries without binding emissions reductions commitments.[xlv]



Source: Vattenfall, 2007, Global Mapping of Greenhouse Gas Abatement Opportunities up to 2030

10. The Role and Impact of LULUCF in Least Developed Countries

DG Environment's Staff Working Document
Allegation

Another issue is that EU ETS aims at long-term emissions reductions in energy production and industry, the guideline being to foster the development of a low-carbon economy. Currently, the LULUCF sector is mainly driven by voluntary emissions reductions, although a future increase of their share in CDM and JI projects may become economically attractive, as these projects can offer emissions reductions at a low cost. While LULUCF projects offer a potential for the least-developed countries to benefit from the carbon market and profit from formerly unpriced carbon sequestration assets within forests and agriculture, they neither lead to technology transfer nor to carbon-conscious economic practices, thus hindering development towards a less carbon intensive economy by diverting financial resources from more promising projects with long-term benefits. LULUCF in CDM slows down technology transfer and low-carbon technology development, as credits from forestry and land use will be much more competitive on price and hence crowd out other project types.

The Facts

Sustainable forestry promotes sustainable development and technology transfer in least developed countries. In addition, CDM A/R rules require project developers to follow carbon forestry "best practices," which in turn require sustainable development and provide for technology transfer.

Sustainable forestry's contribution to sustainable development and technology transfer are well explained in the positions taken by the IPCC and other bodies as explained below:

"*No single policy instrument will ensure the desired transition to a future secure and decarbonized world. Policies will need to be regionally specific and both energy and non-energy co-benefits should be taken into account*". (IPCC)[xlvi]

"*Forestry can make a very significant contribution to a low-cost global mitigation portfolio that provides synergies with adaptation and sustainable development. However, this opportunity is being lost in the current institutional context and lack of political will to implement and has resulted in only a small portion of this potential being realized at present*". (IPCC)[xlvii]

"*Forests and trees cover nearly one third of the Earth's surface. Sustainable forest management of both natural and planted forests and for timber and non-timber products is essential to achieving sustainable development as well as a critical means to eradicate poverty, significantly reduce deforestation, halt the loss of forest biodiversity and land and resource degradation and improve food security and access to safe drinking water and affordable energy; in addition, it highlights the multiple benefits of both natural and planted forests and trees and contributes to the well-being of the planet and humanity*". (World Summit on Sustainable Development of Johannesburg)[xlviii]

"*Technology deployment, diffusion and transfer in the forestry sector provide a significant opportunity to help mitigate climate change and adapt to potential changes in the climate. Apart from reducing GHG emissions or enhancing the carbon sinks, technology transfer strategies in the forest sector have the potential to provide tangible socio-economic and local and global environmental benefits, contributing to sustainable development (IPCC, 2000b). Especially, technologies for improving productivity, sustainable forest management, monitoring, and verification are required in developing countries. However, existing financial and institutional mechanism, information and technical capacity are inadequate. Thus, new policies, measures and institutions are required to promote technology transfer in the forest sector*". (IPCC)[xlix]

"*R&D and technology transfer have a potential to promote forest sector mitigation options by increasing sustainable productivity, conserving biodiversity and enhancing profitability. Technologies are available for promoting mitigation options from national level to forest stand level, and from single forest practices to broader socio-economic approaches*". (IPCC)[l]

"*The development of suitable low-cost technologies will be necessary for promoting thinning and mitigation options. Moreover, technology will have to be developed for making effective use of small wood, including thinned timber, in forest products and markets. Thinning and tree pruning for fuelwood and fodder are regularly conducted in many developing countries as part of local integrated forest management strategies*". (IPCC)[li]

"*Globally, hundreds of millions of households depend on goods and services provided by forests. This underlines the importance of assessing forest sector activities aimed at mitigating climate change in the broader context of sustainable development and community impact. Forestry mitigation activities can be designed to be compatible with adapting to climate change, maintaining biodiversity, and promoting sustainable development. Comparing environmental and social co-benefits and costs with the carbon benefit will highlight tradeoffs and synergies, and help promote sustainable development*". (IPCC)[lii]

"*LULUCF activities can reduce dependence on fossil fuels primarily by providing a source of biomass that can be used as a renewable alternative to fossil fuels in generating energy and by supplying wood products that can substitute for other products requiring more energy to produce. Fossil fuel substitution will generally require investments in technology and infrastructure to enable the adoption of biofuels and less carbon-intensive products and processes*". (IPCC)[liii]

"*Savings in the emission of GHGs can also be achieved through material substitution. Typical building materials-such as steel, plastics and aluminum-have large energy requirements for mining, processing, smelting, and, with some materials, reduction of oxidized ore. These energy requirements lead to corresponding CO_2 emissions. Cement production also leads to additional direct CO_2 release during manufacturing. Wood leads to the lowest emissions because it requires only minor energy inputs in harvesting and sawing. Hence, any substitution of wood for other materials could reduce energy requirements and associated GHG emissions (Kirschbaum, 2000). Moreover, the production of metals and plastics generates higher volumes of air, water, and solid waste pollutants than wood products such as lumber-particularly so with toxic chemicals (USEPA, 1997)*". (IPCC)[liv]

"*Carbon forestry and agriculture are the only meaningful methods of offering sustainable livelihoods to the rural poor and the only way they can participate and benefit from the carbon market*". (Wangari Maathai)[lv]

An analysis of the potential to increase carbon stocks in the Kakamega National Forest of western Kenya concluded that: "*The East African indigenous rainforest found in Kakamega supports high levels of biodiversity and provides sundry ecosystem services to Western Kenya. In addition, as a high carbon density land cover type, it can provide a global service as carbon store helping to mitigate climate change. While past human disturbances have reduced forest areas and depressed forest carbon densities, the results of this illustrates the potential to increase carbon storage in the Kakamega National Forest at a scale that is economically, and perhaps ecologically, significant for the region*".[lvi]

11. LULUCF Projects and other More Costly Measures

DG Environment's Staff Working Document
Allegation

The risk of LULUCF projects crowding out more costly measures, such as projects aiming at CO_2 emissions reductions (especially in the case of Option 3.15) is considerable, taking into consideration that EU ETS is the most dominant buyer of CDM CERs at 86% market share in 2006 (ENTEC 2007b). Thus, the use tCERs and lCERs for compliance in the ETS would conflict with creating sustainable emissions reductions.

The Facts

As of 17 January 2008, the CDM Executive Board has approved only one CDM A/R project.[lvii] This project is forecast to generate only 327,000 tonnes CO_2e of emission reductions over the first commitment period,[lviii] or just 0.27% of the amount allowed under the Marrakech Accords. In fact, it is expected that all CDM A/R projects combined will generate only between 7 and 14 million tCO_2e reductions in the first commitment period (2.8 million tonnes CO_2e per year),[lix] or about 1% of the total predicted CER market of a billion tonnes.[lx]

In contrast, the average daily trading volume in the EU ETS in 2007 was over 6.0 million tonnes CO_2e.[lxi] Therefore, at the high end of forecasts for credits from A/R (2.8 million tCO_2e), annual reductions from A/R would be less than one half of the average daily trading volume in the EU ETS or less than one half of one percent of the annual EU ETS trading volume. Thus, the volumes of forestry credits in the trading markets are currently negligible compared to the sector's contribution to 20% of global greenhouse gas emissions.

12. Practical Implementation of LULUCF Projects

DG Environment's Staff Working Document
Allegation

Lastly, some issues relate to the practical implementation of LULUCF projects. The potential use of non-native or genetically modified species that are faster growing could pose threats to local ecosystems. Furthermore, there are concerns that indigenous or local populations could be denied access to their traditional resource lands or access to subsistence-use logging due to LULUCF projects.

THE FACTS

"*We need a mechanism that will assist people in developing countries, certainly in Africa, to protect their standing forests and plant trees, to protect their soil, protect biodiversity and protect livelihoods while reducing carbon emissions for everyone*". (Wangari Maathai)[lxii]

The CDM rules require project developers to document and analyze environmental impacts associated with a project (all projects including A/R). Furthermore, project developers must also undertake a detailed environmental impact assessment if the environmental impacts are considered significant. The CDM rules also requires stakeholder consultations.[lxiii]

All of the leading voluntary sector codes, including the Voluntary Carbon Standard and the Climate, Community and Biodiversity Standards also require the assessment of environmental and social impacts before credits are certified.[lxiv]

Potential corporate social responsibility ("CSR") issues may apply to any CDM or JI project and not only to LULUCF activities. These concerns are not a reason to exclude any sector from the EU ETS, and should be addressed by taking the appropriate care in the project design, as is the case with LULUCF projects.

Furthermore, the overwhelming majority of indigenous people organizations supports forest-based carbon crediting. There are clear and simple reasons for this. Carbon crediting is based on verifiable land title and verifiable reduction in forest deforestation and degradation, and this will serve to enhance indigenous peoples' title to land and also provide them with direct benefits to reward them for preserving the ecosystems on which they depend.[lxv]

13. THE COMMISSION'S APPROACH TO ADDRESS DEFORESTATION

DG Environment's Staff Working Document
Allegation

It is clear that very substantial action needs to be taken to address deforestation in the coming decades, and auction revenues could contribute towards such action. The Commission has also proposed that proceeds from the auctioning of allowances within the EU ETS be used to mitigate greenhouse gas emissions, in particular to fund measures to avoid deforestation. Investments made in this way would be in line with government's priorities, rather than necessarily reflecting the market's natural incentive to find the lowest-cost potential for crediting.

THE FACTS

As mentioned above, the scale of funding needed to reduce and halt deforestation is estimated in the tens of billions of Euros.[lxvi] It is inconceivable—and disingenuous to suggest—that this level of funding would be earmarked for avoided deforestation measures from auction proceeds not least because of competing demands for these funds.

14. ADDITIONALITY AND DOUBLE COUNTING OF LULUCF PROJECTS

DG Environment's Staff Working Document
Allegation

The additionality and double-counting of projects is a serious issue which can undermine the environmental credibility of emissions trading systems. As broader initiatives advance to tackle deforestation, the likelihood of potential double counting and lack of additionality increases as regards the crediting of project activities in this area.

THE FACTS

The CDM itself is such a "broader initiative." The CDM process requires every project to demonstrate additionality through its "Additionality Tool," both for projects in the industrial sector and the LULUCF sector.[lxvii] This tool could also be extended to REDD projects.

Double-counting is a registry issue. The EU has addressed this issue in the EU ETS through its national registries' interaction with the International Transaction Log. A similar system could be designed for credits from REDD projects.

15. Monitoring under the EU ETS

DG Environment's Staff Working Document
Allegation

Allowing already existing CDM credits from LULUCF in the ETS (Option 3.16) adds an additional monitoring burden on the EU and the ETS, although monitoring is already covered by existing UN CDM regulation. The main problem is that UN CDM targets state-level trade of tCERs, whereas the EU ETS aims at firms. Thus, while the ultimate liability would lie at the Member State level, the benefits would accrue to firms. Such a situation represents an indirect subsidy of LULUCF developers, as they would receive all benefits, while a share of the liability risk would be borne by the public.

The Facts

The project developer of LULUCF projects bears the costs of monitoring just as with any other project developer. This does not represent a subsidy.

Moreover, the EU already needs to monitor compliance of operators under the EU ETS. This is because the EU ETS itself is designed to transfer the liability of governments' Kyoto commitments to private operators. In the case LULUCF credits, their expiration would simply result in a debiting of the account of the holder of the LULUCF credits. The EU ETS' penalties and enforcement rules, however, ensure that liability always stays with private operators, and this would not be different in the case of LULUCF credits.

16. LULUCF Domestic Offset Projects

DG Environment's Staff Working Document
Allegation

Allowing domestic offset projects ("DOPs") from LULUCF could be based on adopting existing monitoring guidelines for CDM projects. However, as the existing guidelines prove to be insufficiently satisfactory compared to EU standards, further development is needed before credits generated from LULUCF DOPs can be used for compliance in the EU ETS.

The Facts

The EU is free to impose stricter standards than the CDM. The project developer can make the decision whether or not invest in a project.

17. Monitorability of LULUCF

DG Environment's Staff Working Document
Allegation

Including the forestry sector in the ETS (Option 3.18) poses major questions concerning the monitorability of all forests included in the trading system. This would mean that a large number of forest owners would need to report and verify the change of the carbon content of their forests. The costs for monitoring would have to be covered by all the participating forest owners. Proportionally, the monitoring costs would be higher for smaller forest parcels.

The Facts

The EU ETS currently covers around 12,000 installations,[lxviii] all of which require monitoring. To limit monitoring and compliance costs, the EU ETS excludes installations that do not meet specified thresholds (eg, in terms of minimum power generation). Similar criteria could be designed for the forestry sector by including in the EU ETS only forests meeting certain thresholds (eg, in terms of land area). This approach, like that in the industrial sectors, would limit the amount of forestry "installations" covered by the scheme.

In addition, EU countries already engage in monitoring land use change in their calculations of national inventories for reporting to the UNFCCC. In fact, the land use sector is projected to account for about 12% of the reductions needed for the EU 15 to reach its Kyoto targets.[lxix]

As for monitoring costs being greater for smaller forest parcels, economies of scale apply to the forest sector like any other industry.

18. Future International Treatment of LULUCF

DG Environment's Staff Working Document
Allegation

Uncertainties are high concerning the future treatment of LULUCF on the international level. Currently, the use of LULUCF credits for compliance with Kyoto targets is only acceptable in the first Kyoto period. Therefore, a recognition of LULUCF in the ETS now would increase the uncertainties about future supply. This contradicts one of the main objectives of the ETS: predictability of carbon credit supply. Any solution to this problem is likely to incur considerable higher costs compared to the current situation.

The Facts

In terms of the Kyoto Protocol, there is, at present, only one commitment period for all Kyoto credits as the Protocol's trading periods ends in 2012. Therefore, future supply of credits is equally uncertain among all sectors, not specifically for LULUCF.

However, one of the main results of the UNFCCC COP 13 at Bali is the consensus on the increasing importance and certainty of LULUCF,[lxx] particularly in relation to reducing emissions from deforestation and forest degradation ("REDD").

A cap and trade system functions through the demand being set by the cap, and the market responding to the cap to meet the targets. One of the consequences of this arrangement is an inherent uncertainty of supply. This is best illustrated in the EU ETS by the number and volume of HFC-23 projects, particularly from China which accounted for 61% of the volume transacted in the CDM market in 2006, of which HFC-23 projects contributed 34% (down from 67% in 2005).[lxxi]

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Witness: **Mr Eric Bettelheim,** Founder and Executive Chairman, Sustainable Forestry Management Ltd, gave evidence.

Q105 Chairman: Good morning and welcome to the Committee. Thank you for coming in at relatively short notice.
Mr Bettelheim: My pleasure.

Q106 Chairman: Would you just like to introduce yourself—we do not all know you—and tell us a little bit about your background.
Mr Bettelheim: Yes, of course, Mr Chairman. My name is Eric Bettelheim and I am the Executive Chairman of a company called Sustainable Forestry Management, which was established about nine years ago. My co-founder in that effort was Richard Sandor, who is now the Executive Chairman of Chicago Climate Exchange and I think widely regarded as the father of emissions trading, particularly having established the efficacy of emissions markets through the sulphur dioxide market, which solved the acid rain problem in the United States. Our company is focused entirely on forestry in the tropics and subtropics, particularly on the environmental services they provide, the key one of which, I suppose, for current purposes is carbon sequestration and storage. I think the regime that we have had to operate under has not exactly been the most encouraging and I would like to say, if I may—I know the Committee has a number of questions but just by way of opening remarks—that I think this topic that the Committee is now addressing could not be more important and could not be more timely. What is clear is that over the nine or ten years of experience that we have had in this is that the architecture for the post-Kyoto world has to be very different from that which has prevailed up until now, if we are really to solve the problem of climate change over the next few decades. I have asked that your staff hand up to you a document which I would like to refer you to. I would like to commend this to the Committee. It is a working paper—not my testimony—prepared by your colleague, Stephen Byers MP, in his capacity as Chairman of the Working Party on Market Mechanisms for Globe 8. This came out following their recent meeting in Rio. If I can just draw the Committee's attention to a few of its recommendations, if you would turn to the third page in the document, there are four recommendations which I think are of the utmost salience in this discussion. The first—and this is recommendation number one at the bottom of page 3—is to start any new regime with a level playing field. In our context what I would emphasise is that it is a level playing field between the developed world and the developing world. The Kyoto Protocol, as I think the written evidence which I submitted demonstrates, is biased against the developing world, certainly against that part of the developing world which is not rapidly industrialising. Almost all the benefits of the Clean Development Mechanism have accrued to just a handful of countries, basically, China, India and Brazil, and the rest of the developing world, and in particular the least developed countries, have received virtually nothing and are outside of the system and do not benefit from it. Of course, that has significant implications for any new treaty which needs their support as we look forward into those negotiations. So I think the bias against the South needs to be removed. The second of the recommendations is to set clear long-term targets for carbon dioxide emissions or greenhouse gas emissions reductions. The systems now in place, particularly EUETS and the Kyoto Protocol process, have a little bit of the old Soviet five-year planning approach to this. Investments that are to pay off over decades cannot possibly be made if there is regulatory and political interference every five years, changing the goalposts, moving the target. I think in the next round of negotiations it is critical that the world set long-term targets, hopefully 30 years or 40 years into the future. Of course, those targets could be revised, made more stringent, as time goes on but it would at least give a clear, simple direction to the market which investors can rely on. The third item is number four in the document, which I think is very important to change for any new architecture if a treaty is to be successful, and that is to move from prescriptive regulation to principles-based regulation. This is the evolution which I am sure members of this Committee have seen in the Financial Services Authority over the last ten years or so. This has made a significant difference; indeed, the United States financial regulatory system is now seeking to imitate the development towards principles-based as opposed to prescriptive regulation in financial markets. The fourth item is number five in the document, which I think is absolutely essential for any new architecture, which is the creation of a new independent regulatory body for the carbon markets. The Prime Minister, as you know, has suggested this and I think it is an opinion increasingly shared by those of us in the markets that the Clean Development Mechanism is not functioning as an effective regulator, that it is unrealistic to expect the United Nations to serve as a regulator of what is essentially a financial market, and that there are other bodies, like the European Central Bank in the case of EUETS, and like securities regulators and central bankers, who are more appropriate regulators for such a market and are experienced in that. There are two last items I would add, and then I will finish my introductory remarks. Although they are implied in this, they are also dealt with in other papers published by Globe 8 at the same time, in particular Lord Jay's report. One is to create a multilateral fund of some sort, whether run by the World Bank or otherwise, which will build capacity in those countries, particularly in the developing world, in the least developed countries, which do not have the infrastructure necessary for private sector investment and participation in the carbon markets. They need help with measuring, monitoring and verifying their carbon and their emissions; they need help with administration and so on. These are not particularly expensive items but they are essential to the countries, many of whom cannot afford this capacity. That is a vital area, I think, for public

sector involvement. Finally—and this, I suppose, leads on to my particular focus, which is carbon sequestration—it seems to me essential that the developing world be given credit for their biomass if we are to have a successful negotiation. I notice that very recently India and China have made it clear that they will demand that increases in their biomass through reforestation and afforestation be included. By the same token, those countries that have existing forests that are being degraded or deforested will also demand such compensation if they are to participate in the market, all of which I happen to think would be a very good thing. In conclusion I would say—and I know this may sound heretical—that I think we have our priorities wrong. I think we are trying to force technological change before it can happen and we are not taking up the biological mechanisms which are available now. We seem to have got that inverted. We are delaying in dealing with the one system we know works, which is photosynthesis, and trying to force an early transition technologically. It is probably more logical at least, even if politically difficult, to take up the opportunity which the forests of the South offer us in terms of mitigation of climate change while industry makes the adjustments which the investments over time that it can to take up the running thereafter. Mr Chairman, thank you for that. I am sorry if I have overstayed in my initial remarks but I thought it was very important for this Committee and for political leaders generally to start focusing on a new regime and not simply an extension or modification of the old regime.

Q107 Chairman: Thank you. We would like particularly to focus on forestry and forestry-related issues this morning but, just responding to a couple of things you said, I am interested in your view—I think I have got this right—that you think central bankers might be better regulators than the UN of a new system. That I find interesting given your concern about recognising the importance of developing countries. I did not realise that central bankers were particularly expert in that area, or indeed that developing countries would necessarily see them as a better holder of the ring than the UN. In relation to long-term targets, the question that arises in my mind is that since the science is changing steadily, long-term targets that might have been set five years ago are clearly going to be grossly inadequate in the light of our present knowledge, and it seems to me that what we actually want is tougher short-term targets. The problem is we set all these targets for 2050 and keep making them tougher, and actually that ignores the fact that we may use up the whole of our budget by 2030 in terms of emissions, and even if we had a 100% cut by 2050, it might be too late. I would slightly take issue with this prescription.

Mr Bettelheim: Let me respond to the second point first. As I said, I think if you set a long-term target, that does not mean you cannot make it more stringent over time as science improves and as urgency may become more manifest. Climate effects may come faster than we expect them to; they also may be delayed longer than we expect. I think what is important for business is to know that there is at least a minimum line, if I can put it that way, which is a trajectory which will not be changed. It may be to make more stringent but it is not going to be relaxed, and that gives integrity to planning. As for the point about central bankers and the United Nations, I was not suggesting that central bankers understand the developing world. I think the rules, the principles, need to be set by a United Nations-type negotiation and discussion. That would be the principles base, but when it comes to implementation of those principles, it seems to me firstly, we should be able to allow nation states to regulate their own affairs in meeting their national targets, whatever those are, as agreed under a new treaty. Secondly, that when it comes to the detailed, day-to-day management of the market place, of the regulation of the market place, that should be in the hands of financially trained and market-trained individuals as opposed to those who do not have that kind of background. One of the fundamental flaws has been that regulations have been impossible to comply with, at least, certainly in my sector.

Q108 Joan Walley: May I just follow that up? I was interested in what you are saying about an independent regulatory body for the carbon markets and, just adding to what the Chairman has just said really, how that would fit in. I would not see bankers as the right people to do that but presumably you would have to work out very clearly as well how that sits with the WTO specifically. I was interested in your thoughts on the interface with the WTO.

Mr Bettelheim: Let me take that in two parts, if I may. The first is the reality that there is not going to be a single global market called Kyoto or anything else. The reality is that there are regional and national markets emerging all over the world: in Australia, New Zealand, the United States, and Europe of course, and that will continue. It will be just like other commodity and financial markets. It is like that now. It increasingly means that different countries are taking different trajectories to reaching whatever targets they set themselves or which will be set in a treaty context. Therefore, you have to look at any international oversight or any international role in that as being one essentially of connecting those things up in a fungible way, that is, creating a common standard against which they will measure themselves. Some credits will meet that standard and some will not. I think it is naïve to continue a debate on the basis that the entire world is going to sign up to a single carbon market run by the United Nations. That is not going to happen. It is not happening. If you accept that, then you have to look at how those national regimes should be regulated and how there should be common principles of regulation for those regimes. I am suggesting that the common principles should be established by, say, the United Nations international treaty obligations, but that the implementation of those should be left to national regimes which are capable of handling those issues. That includes, by the way, adding other expertise, not just financial expertise. I did not mean to exclude

other participants. Right now we have the reverse situation, where no financial expertise and very little private sector expertise is being brought to bear within the regulatory system. As for the WTO, I think there are some very serious issues as to how that will integrate, particularly if you are talking about carbon being a commodity that is available to everyone. You are talking about affecting the fundamentals of each country's economy—you cannot escape that—and you start to get into debates such as the one in the European Union, which I find extremely troubling, where the view is taken that "If we have a high price for carbon and other countries have a low price or no price for carbon, we will impose a tariff law; we will create a trade barrier." As I mention in my written submissions[1], that is the kind of thinking that I would have thought became obsolete in about 1935, but it has reared its head again because the European view seems to be that a high carbon price is the solution. My view—and I understand people may think that that will work—is that whether it will work or not, it is not going to work in the real world, that the rest of the world is not going to impose a high carbon price, is certainly not going to enforce €40 or €50 or €60, which is what the European Union is now suggesting by its recent stance, on carbon. If you look at what is being proposed in Australia or the United States, you are talking about $10 or $15, which I appreciate has depreciated somewhat recently. There is no chance that the rest of the world is going to go the extremely high carbon price route. Therefore, you do end up with very serious potential trade issues and I think you will find debates which could be extremely destructive, not just about climate but about international trade generally, which would naturally be something the WTO would become involved in, and there would be a very complex series of disputes as a result.

Q109 Chairman: Do you not think that one consequence of a lower carbon price might be to delay or deter investment in low carbon technologies?

Mr Bettelheim: On the contrary, I think that everyone realises that markets have a tendency to take the low-hanging fruit first but, once they know they can calculate that, they also know what is coming further out and they take steps to anticipate that. In the example I mentioned to you, in the sulphur dioxide market experience, which is the precedent for carbon trading, the predictions by all the think-tanks—Harvard and others—was that what companies would do when they were given a trajectory of reduced emissions over a decade or so was to track just below that line, to just meet compliance obligations. In fact, they did nothing of the kind. The curve of compliance went like this *(indicating)*. In other words, they over-achieved by having a lower price of compliance. I have a feeling that, if you look at the global situation and the global demand for this under potentially a new treaty and a world in which the Americans—which I believe they will—will have a carbon programme, I think you will find that what business will do is it will over-achieve; it will anticipate what is coming five or ten years from now, even if the low-hanging fruit helps them cope in the short term, which I think is the right approach to market economics. To create a spike in the price now does nothing except encourage business to seek evasion, and even the European Commission in its recent recommendation says, "If we do this, industry is going to leave." All right, it will leave. Where will it go? It will go to those places where they are effectively unregulated. I think it is wiser to have industry stay and innovate under a current low but gradually increasing cost, because the low-hanging fruit is being exhausted, than to have it effectively being told "If you stay here, you are uncompetitive." I think that is foolish and I do not think it stimulates the kind of investment that you consider worthwhile. Businessmen are not as short-sighted as they sometimes are depicted. In the sulphur dioxide market they over-achieved dramatically. Once they knew what the cost was going to be over a decade, they knew how to cope with it and they cut costs much faster, because that is what businessmen are very good at, than anyone ever predicted and I think you will find the same thing in the carbon market.

Q110 Mark Lazarowicz: On that point the Chairman has raised, do you really think, for example, technologies like carbon capture and storage are really going to be driven forward without a fairly high carbon price to encourage investment, one in which there is a fair degree of certainty behind a relatively high carbon price fairly soon and which will stay at a high level over a period of time?

Mr Bettelheim: There is a lot of debate about carbon capture and storage. I am not a technology expert but those in the energy industry who have been involved in it are pretty much of the opinion that this is 15 to 20 years away in terms of commercialisation. In that ten, 15 or 20 years that it takes not only to develop into a commercial product that can be distributed but actually to distribute it, which also takes enormous investment, I think you are going to waste a lot of time waiting for it, and the price is not what is going to drive it. What is going to drive it is the expectation of a rising price, the expectation that coal is going to be used until the end of the century. They know that; we all know, if we are rational, if you look at the International Energy Agency predictions, that coal is going to have to be used by mankind to meet its energy needs for as far as anyone can see. There may, of course, be a technological breakthrough of some kind—fusion or what have you—but if you are not betting on that, if you are betting on relatively gradual increases in efficiency and introduction of technology over the coming decades, you know that coal has to be dealt with, whether you call it clean coal or you call it carbon capture and storage, but in both cases that technology is not going to happen tomorrow, no matter how high the price is.

[1] See Ev 56

Q111 Mark Lazarowicz: It is going to take even longer to start, is it not, if the price is low?
Mr Bettelheim: No, I disagree. Businessmen and financial markets anticipate what the price is going to do. They know it is going to rise. They know this is coming, so they will invest now to be prepared in ten or 15 years to roll out that technology. I think it is unwise to try and force technological change by a price mechanism. What you are doing is you are inverting the priorities of businessmen to look for low-cost solutions. Carbon capture and storage in coal-fired power plants may not be a good solution. It may sound like it now but it may not be. What you really want people to do—and this is what I find rather odd about this debate—the purposes of markets, the reason emissions trading has been adopted by everyone is to drive down the cost of compliance, not to increase it. This is somehow being lost in this debate, particularly in Europe. If there is a better technology, a cheaper technology than carbon capture and storage, we should adopt that, not carbon capture and storage. This kind of debate smacks very much of picking industrial winners. We have had a long track record of governments betting on this or that technology and finding out, lo and behold, that there is someone in a garage in California who wipes the floor with IBM. I think that impulse should be resisted. In the last ten years in which I have been deeply engaged in this I have seen a fashion for about a dozen different technological solutions and if you really examine them, if you really examine how fast they can develop, how much they will cost to distribute, you find out that there are enormous difficulties and they are very unexpected. A recent study by Berkeley University Department of Economics showed that solar power in California, where the sun does shine, is 600 times more expensive to distribute to households than natural gas-fired power plants. That is not intuitively obvious, and a lot of the solutions that people find fashionable at any particular time in the debate—solar, wind, tidal, carbon capture and storage—will not be the technologies that actually solve this problem, and in fact innovation will occur because people anticipate that steady price rise over time and will adjust themselves to that. Trying to force this or that technology as the solution I think would be a bad mistake. It will be a mistake for any economy that adopts it.

Q112 Chairman: Let us get back on to forestry, if we may. Do you think it is getting the attention that it should have in relation to the negotiations on post 2012?
Mr Bettelheim: I think, Mr Chairman, since Bali—and Bali was quite a turning point when it comes to forestry, and tropical forestry in particular—it is attracting much more attention than it had prior to that. Whether or not some of the proposed solutions or approaches to dealing with it will be effective I think remains to be seen. Certainly I am very sceptical of some of the approaches that have been floated of parallel markets and separate treaties and so on and so forth. As far as forests are concerned, it is really very simple. You just need to integrate them into the market place, where they have been excluded previously by regulation, and once that happens, you will find they are credited and that the benefits of tropical and subtropical forests accrue not only in terms of carbon sequestration but in all of the other co-benefits, not least of all adaptation by poor people, who are dependent on those forests. When their environment deteriorates, they become migrants. They become internal migrants and also international migrants. When the soil has gone, you do not eat; when the fresh water has gone, you do not drink. Those are pretty fundamental needs, and I think that is beginning to be appreciated, but again, we seem, in the Kyoto context at least, to be drifting into a CDM-like negotiation of detailed prescriptive rules, of the same sort of approach to regulation which I am afraid will probably have the same effect: it will kill the investment in that sector and we will again have a broken promise to the developing world, particularly that part of the world which is not rapidly industrialising, and I think you probably will not have a treaty at all because it will become obvious that no-one is going to invest in the sector. I think it is relatively common ground that private sector investment is essential and that the public sector is not going to pick up the burden of $15-$30 billion a year of investment in this one area.

Q113 Chairman: Even before Bali, of course, Nick Stern had highlighted the contribution that curbing deforestation could make in part of the solution.
Mr Bettelheim: Indeed he did.

Q114 Chairman: Given that we have pretty broad agreement that global emissions are going to have to be reduced to half 1990 levels by 2050, do you have any sense of what contribution avoiding deforestation could make to that?
Mr Bettelheim: Yes. Mr Chairman, you may recall the last submissions I made to this Committee when it considered the voluntary market[2]. The McKinsey cost curve and the Stern report are more or less aligned and subsequent studies confirm that it is about 20 – 25% of emissions reductions which can be contributed and it is about a 50-50 split between afforestation and reforestation on the one hand, growing new trees, and avoiding deforestation and forest degradation on the other. It is about 3 billion gigatons per annum by each sector, so 6 billion tonnes altogether, and that roughly accumulates to the percentage reduction in emissions that forestry can contribute.

Q115 Dr Turner: You are in a particularly good position to assess the costs involved in achieving the reduction and elimination of deforestation, and reforestation as well preferably. Have you any handle on what the global cost of doing this really effectively, achieving the sort of carbon reductions that you have just been talking about, are and how they can be raised and delivered?

[2] The Voluntary Carbon Offset Market, Sixth Report from the Environmental Audit Committee, HC 331, Session 2006–07.

Mr Bettelheim: Yes. I think you will find in recent research done by the Woods Hole Institute in the United States on what is essentially the opportunity costs for avoiding deforestation and forest degradation, prices vary but I think, to be conservative, and our experience would verify this, you have to anticipate an opportunity cost of $5 a tonne. So you have to pay forest owners, whether they are public or private or communal owners, about $5 a tonne to avoid converting tropical forest into agricultural or timber use. If you take the three billion tonnes that is probably available per year—and that is, of course, the maximum, which is probably not achievable in the real world—the Woods Hole analysis in Brazil shows that you can probably get 90% of deforestation compensated at $5 a tonne. The remaining 10%, of course, is the area which has a much higher marginal cost because it has much higher value uses, maybe in an urban area, for example, that will have development opportunities, so you get a 90–10 return, and if you assume it is $5 a tonne, you are something in the order of three billion tonnes, $15 billion for avoided deforestation and reduced degradation of forests. That is consistent with Nick Stern's analysis of that subject. When you come on to afforestation and reforestation, of course, that is more expensive because it is much cheaper to hold something intact than it is to actually prepare land, to plant it and so on, which is a significant part of our business. Even under the best circumstances, you have to assume that the minimum cost of that is about $10 a tonne, so if you take that multiple times three billion, you are at $30 billion for the other half of the six billion tonnes per year of avoided deforestation and re-absorption of carbon that is potentially possible. You can make some more sophisticated analysis of what land can be used in spatial terms and so on, but I think the order of magnitude is something north of $30 billion a year, and that has to be maintained. It is very important to understand that it is not a one-off payment; it is an annual payment, it is a rent, because as soon as the rent stops being paid, the land is going to be converted again or the investments are not going to be made. Certainly, in most terms of international aid flows, you are talking about quite a significant flow and of course, it has to be managed into these economies, many of which do suffer governance problems, do have high political risk and so on, and some of them are in extremely remote areas. That having been said, it should be calculated that you are looking at something north of $30 billion, probably closer to $40 billion a year flow of capital from North to South essentially in order to make forests make that contribution of 20–25% to emissions reduction. In my view, and I think that of most objective observers, there is no source for that kind of payment and, more importantly perhaps, no more efficient source, than the private sector, and that means carbon markets. Generally speaking, businessmen are better at allocating capital than governments to this kind of investment, and they are more likely not to get involved in activities which are opaque, because they cannot deliver opaque credits. If the credit is from bad land, if it is illegal, if it is not traceable back to its source and to a property register and so on, it cannot be sold; it is worthless. If you want the inefficiency of that $30-$40 billion a year to be at its highest, it needs to come from the private sector. With the proviso I mentioned in my opening remarks, many of these countries do need capacity building in order to get private sector investment. They do need land registration systems, they do need administrative systems and so on, which the private sector is not good at implementing. You have a free rider problem that the private company that pays for that benefits everybody, so this is a public sector issue. There is a transitional period. This is one of the points I would like to make that I think is very important. When I was at law school I was always taught by my trial practice seminar that when your opponent gets to the "floodgates" argument, you know you have won. The floodgates are not going to open because it is going to take five to 10 years to prepare many of these countries to the point where they can actually measure, monitor, verify, and reliably deliver to the carbon market credits from their forests because there are serious infrastructure issues that have to be addressed, so this is going to be a gradual process. Even if you agreed that everything will be credited today in the forests, only a very small proportion of that would actually be available over the next five to ten years.

Q116 Dr Turner: So you think that basically this will be delivered through market mechanisms. Which market mechanisms in particular? Do you see this as a function of an international emissions trading scheme? Can you be more specific?

Mr Bettelheim: Yes, I do, but not *a* scheme. This is what I was trying to explain. We are participants in these debates and in these developments around the world. National and regional markets are developing independently of Kyoto. The countries may or may not be an annex one country already bound by Kyoto. I am absolutely confident, working closely with Congress, that the United States will have a carbon trading system under the next administration. My bet is 2010. Maybe it will be delayed by politics or maybe accelerated by politics. I do not know, but, in one form or another, the Lieberman Bill will be adopted, and I do not think there is much doubt about that when you review any of the presidential candidates. That system will not be Kyoto but it will include forestry, both domestic and international forestry. The precise rules as to that are still being worked out and are being debated by Congress and by regulatory authorities but I have absolutely no doubt that that is the case. In Australia and in New Zealand it is already clear that forestry will take the lead position in their trading markets. You may have observed that Australia is only meeting its Kyoto target because of forestry. It is way over its industrial emissions. The reason it is meeting its somewhat increased cap—I think of 103% over 1990—is because of forestry. These countries understand the enormous impact that forests can have in meeting whatever targets they have set themselves or which they have agreed to under the Kyoto process. So yes, I think those

markets will be the place at which money will be generated and transferred for the preservation and restoration of forests around the world. That is where the demand will come from.

Q117 Dr Turner: But clearly, regulation of this activity is going to be absolutely crucial, otherwise somebody will make a lot of money and nothing will actually happen.
Mr Bettelheim: That is absolutely right.

Q118 Dr Turner: Mechanisms like the Clean Development Mechanism do not seem to be adequate to this task. Greenpeace suggests that a brand new stand-alone mechanism should be set up to regulate this process. What are your thoughts on how it should be regulated?
Mr Bettelheim: The reason I am smiling, sir, is that I am delighted that Greenpeace has come to the view that these forests are important. Greenpeace is one of the organisations that has spent the last decade fighting tooth and nail to keep them out of the Kyoto system and to keep them out of the European Union system, so I am delighted that they have joined in our opinion that these forests are worth preserving and restoring. Secondly, I am also pleased, reading their position paper and their proposal that they realise that the markets have some role to play in this. However, if you go on and look at their proposal, you will see that they are going over the same ground yet again that we had with the CDM, a whole list of issues which have been resolved long ago, some of them under CDM analysis but most of them independently but, even worse, you are creating another unaccountable body like the CDM which will go through a CDM-like process and stifle just this kind of activity. I am afraid that creating things out of whole cloth at this stage in the game is too late. It is 2008. We have 40 years. If you are going to get this kind of investment, $30-$35 billion moving every single year for the next three decades to these countries, we do not have time for another five years of negotiating what is a forest: is it additional, and will it be permanent? All of this mediaeval theology that has developed under this process needs to be done away with. Let us get rid of it and let us move on. That is why I think it is so important that the next treaty, if it is to be acceptable and if it is not to be immediately obsolete, does approach this in a much simpler fashion: set long-term targets, admit biomass as long as it is verified, let national governments and nation states make their own decisions about the sovereign use of their land, and allow the capital markets and the financial markets to finally start spending money where it is really needed and where you get a very quick return on the money in terms of climate mitigation. You do not have to wait ten years for a forest to do its work.

Q119 Dr Turner: How would you audit this process?
Mr Bettelheim: First of all, as in any commodity market—and I think it is high time we looked at this as a commodity market or a hybrid between financial and commodity markets—the way in which things are audited is through exchanges and clearing houses and securities regulators, in the ordinary way. Buyers and sellers are very sensitive to what they are delivering and what is being delivered and the price they are paying for it. Market discipline is remarkably efficient, and they can tell the difference and adjust the price for the quality of the thing being delivered and, if there is doubt that the carbon credit came from a place that is legitimate or from a legitimate system, that credit is either unsaleable or at a very steep discount. So you can have pretty good confidence that self-interest, not to mention the profit motive, of businesses and investors is going to impose governance and rules which are already being developed substantially in the voluntary sector. This Committee will be aware of the number of regimes, including most recently the Voluntary Carbon Standard, which was developed under the auspices of the International Emissions Trading Association, with wide consultation with the NGO community and developing countries, which is a very rigorous process of regular intervention by third parties to determine the veracity and the permanence and the additionality of each credit that comes out of a particular area or project. So we have the tools. We do not need to invent anything new. The tools have evolved over the last ten years and are ready for use.

Q120 Mr Hurd: Can I just probe a little on the fundamental assumption that is underlying this exchange, which is that this is inevitably going to be done through some sort of market mechanism? I happen to agree with you because of the flows of money that are involved but what I want to probe is this. I have just come from a meeting with the head of Friends of the Earth in Brazil and the Prime Minister's envoy on forests, and we were talking about Brazil's position. What I understood was that actually Brazil's position is that they are not a believer in a market mechanism, and in addition to that they continue to peddle the fantasy that somehow this is going to be done through a flow of funds from government to government, and actually the international process of trying to reach a deal here is going absolutely nowhere, or is certainly not going much further beyond the rhetoric, and that the chances of getting a deal done in Copenhagen are frankly pretty faint. Do you have any comment on that?
Mr Bettelheim: First of all, Brazil is a very interesting situation. It is very much a federal state, rather like Australia, and what you will find if you look below the surface of the Foreign Ministry's position—and it is pretty isolated even at the federal level in its position about this topic—is that the states are moving ahead anyway. This is what has happened in the United States; the states moved ahead regardless of Bush in California, New Jersey, all over the United States. In Australia the states did the same. Under the previous administration New South Wales and Victoria started moving ahead on this regardless, and that is what is happening in Brazil. Then you find the federal system moves because it is a kind of grassroots effort. The Brazilians have also moved considerably from their

original position, which was that they did not want anything to count, because the Amazon is regarded as an important natural resource for their development, there are issues of political sovereignty and security and so on, but we are doing business in Brazil on a very large scale and everyone in Brazil assumes, including, may I say, the head of Greenpeace in Brazil, who asked us to help develop the carbon market to save the forests that it will accept a market solution. So yes, there are negotiating postures here but the fact of the matter is that Brazil, chief among, I think, all countries, is a huge net beneficiary from these flows and to suggest, as has been its position over the last year or so, that it should come from some grand international fund generating $35-$40 billion a year is a fantasy, first of all, no-one believes that money would reach the right people if that were the case, that it would not reach the communities on the ground, it would not reach indigenous people but would end up in general government proceeds and there would be endless debates about whether it was or was not meeting its targets. I think that approach can be summarised and was summarised very eloquently by Kevin Conrad of the Rainforest Nations Coalition, when he said that approach is "ODA and pray". I think that sums up that kind of an approach in terms of its realism or its efficacy.

Q121 Dr Turner: We have all had our vocabulary extended this morning by a word that is new to us but is apparently fashionable in your business: "fungible". It has been suggested to us that there would be a problem with how fungible, or interchangeable, which we understand rather better, avoided deforestation credits would be and therefore a suggestion that it would be better to keep forestry in a separate market. Do you agree?
Mr Bettelheim: I could not disagree more. A separate market for forestry is a hopeless enterprise. The demand from business is compliance credits. They need to meet their compliance obligations and they are not going to have any patience with the development of a parallel credit which may or may not comply in the same way as another credit that they can purchase. Inter-exchangeability as opposed to fungibility is essential if you are going to deal with this in a market-based way. Credits from avoided deforestation and for afforestation, reforestation, sustainable forestry management and so on, do need to be identical in value and in use to other credits such as other kinds of energy or other derived credits. These concept proposals are on a hiding to nowhere.

Q122 Dr Turner: See, you calculate everything by the tonne of carbon?
Mr Bettelheim: Exactly. A tonne of carbon is a tonne of carbon anywhere in the world and everybody buys it and sells it, and as long as it has been subject to an appropriate regulatory system—I take your point exactly; there is no such thing as an effective financial market without regulation, and appropriate regulation—then businessmen need to know and investors need to know it does not matter where it came from.

Q123 Dr Turner: Do you think a mechanism to prevent carbon leakage in avoided deforestation should be done on a national basis rather than as it is now, on a project base?
Mr Bettelheim: Firstly, avoided deforestation is not subject to anything right now, projects or national baselines. It is not recognised. I think it is almost inevitable that you have to set national targets. Any treaty negotiation is not going to go forward unless nation states undertake either binding or other targets for their emissions reductions, and I think it is up to each nation state to decide how they are going to do that. I do not think they can be dictated to and I think it is unfair to try, and it is probably counterproductive to try. Once that is set, any nation state, except perhaps a totalitarian dictatorship, has to find ways to implement, to achieve its targets, and that invariably means finding people willing to invest in projects, whether they are forestry or otherwise, which will help them do that, to stimulate business to make those investments and stimulate markets to provide the capital necessary. I think it is a false dichotomy: once a national target, or baseline, if you want to talk in Kyoto-speak, once it is established, then it has to be projects or business investments, discrete investments in projects that actually implement it, unless of course everything is state-owned and it is a state responsibility, and I suppose there are still countries in that position but they are very rare. So I think it is a combination of both, is the answer; it is not one or the other.

Q124 Dr Turner: Do you think there is a minimum critical mass for the market to operate properly in terms of numbers of countries signed up? Are there going to be start-up problems?
Mr Bettelheim: I think those are probably passed. The Kyoto Protocol did the world a great service in that it convinced just about everybody that this is a problem that has to be dealt with. Its failure is as a market mechanism, and that is understandable. I do not know why anybody expected the United Nations to understand how to regulate a market place. That is passed, I hope, and what we need to do is to take the lessons we have learned from Kyoto, from the various failures of the European Union trading system, biofuels policy and all of that, and apply those lessons to a new regime. What we have learned is you have to keep it simple, you have to have principles-based regulation, and you must let nation states independently decide how they are going to meet the targets they agree. That is all that is necessary. You do not need any new mechanisms. You do not need anything other than a change in approach to regulation and respect for nation states' choices. I think part of the problem with the CDM is that it is dictating: "You can do this but you cannot do that." The atmosphere does not care where the carbon goes up or where it comes down. All it cares about is the level in the atmosphere. As long as countries are making their targets, whether

they do it through forestry or whether they do it through energy projects does not matter, it has to change from place to place because they are all at different levels of development. You cannot skew the marketplace and say avoiding deforestation is valuable because we like forests; we like rainforests and they are important, but we are not going to pay for afforestation or reforestation. To put it in simple political terms, that is the dichotomy between Brazil, which has huge intact forest, and India and China, which are reforesting. Both serve the climate, and it is pointless, in my view, to try to create a set of rules, as the CDM did, that say "That has no value, that has some value, and that may have value in the future." It is a pointless exercise. If it is a tonne of carbon coming out of the atmosphere, it should be the same as a tonne of carbon that is kept in the ground, and it should be the same as a tonne of carbon avoided from some industrial installation. That is my view. That will mean there is—and I know this phrase has been used many times; we confront these people every day as potential investors and so on—a wall of money for this. There are billions of dollars ready to come into this kind of investment as soon as the regulations are settled, are predictable and are user-friendly from an investor's point of view. If we can achieve what I have just described, complete fungibility—I am sorry to use that phrase but it is the phrase known in the markets—for all these credits, you will find much greater investment than has been achieved so far and very much faster.

Q125 Joan Walley: Can I just turn to afforestation and reforestation and look at the CDM mechanisms that there are. I would like you to explain for me how you think that the current CDM mechanisms can make sure that we have enforceable standards, not just of sustainability but of issues to do with human rights, land use and all of those issues. Obviously, if you are going to plant monoculture plantations, that is not necessarily going to have regard to sustainable communities and where people live.

Mr Bettelheim: Let me shock you—although it should not. You should not try to dictate. Do you tell a farmer that his wheat field has to have other plants in it? You are not going to get avoided deforestation, which is the vast majority of timber in the world—it comes from native forests, 80% of it without plantations. You cannot change the laws of supply and demand about timber products and forest products.

Q126 Joan Walley: No, but you have to have regard to human rights.

Mr Bettelheim: I am sorry. Let me come back to human rights, because that has nothing to do with afforestation. Afforestation is planting trees on farmland, on wasteland. There are very few indigenous people living in such circumstances.

Q127 Joan Walley: You referred earlier on to Australia. There has just been a recognition and an apology that has been given by the Australian government about rights to land, and just because land has no forest on it, you have to start somewhere with your human rights aspects. You cannot just discount them.

Mr Bettelheim: Yes, let me address that. We are engaged in probably the most important aboriginal programme in Australia, so we are exquisitely sensitive to that situation. It is a programme of 40 million hectares, putting aboriginal people back on to their land to manage their forests in a traditional way which reduces the amount of carbon dioxide which is emitted. Do not allow what I am about to say to distract you from the question of human rights, which I will come back to. The critical point to understand is that you cannot stop harvesting from native forests unless you massively increase the amount of afforestation and reforestation. Afforestation is fundamentally farming; it is the production of timber on agricultural land, wasteland, in order to provide supply. That is supply for the paper and pulp industry, it is supply for the building industry, it is supply for the furniture industry. Just because we stop forests being harvested, or if we stop forests being harvested that we think are very valuable, every tree that is grown in afforestation has an enormous value because it allows us to have policies which keep people from cutting down the native forests. If there is no alternative supply, if there is no afforestation or reforestation, the conversion of natural forests will continue because the demand by human beings in a rapidly growing population is not for less timber and forest products; it is for more. There is nothing wrong with farming timber. It is essential that we farm timber in an efficient and, may I say, sustainable way.

Q128 Joan Walley: Can I just ask, does that include biodiversity?

Mr Bettelheim: It may or it may not. My point is that biodiversity will never be recreated by mankind. We cannot create a forest. If you ask Wangari Maathai, she will say you cannot do it. A forest is an intricate ecosystem that human beings barely understand, let alone could possibly recreate. If your question is can you do afforestation and reforestation in ways which enhance biodiversity beyond being a wheat field, the answer is yes, and we do that, but you have to do it in a way that is cost-effective. You cannot rebuild a rainforest. No-one knows how and I do not think anyone will as long as we are alive.

Q129 Joan Walley: My question was what safeguards are in the CDM to ensure that plantations do not damage local communities?

Mr Bettelheim: To tell you the truth, there are none, but then the CDM rules have made it impossible for afforestation and reforestation to occur. There is one AR project approved in the entire world. One afforestation programme in the world approved by the CDM—one!—and it is for 320,000 tonnes—meaningless!

Q130 Joan Walley: What about reforestation?
Mr Bettelheim: Not one. There is only one AR project in the world which has been approved by the Clean Development Mechanism. You ask me what does the Clean Development Mechanism do about human rights? Absolutely nothing. It has created safeguards that are so stringent that no-one can invest, aside from the World Bank, and that includes me. We have tried. So when we move on, I do think the question of human rights is critical in all of this, and it is critical in a number of ways. First of all, no-one wants credits that have been stolen. No-one wants credits that have the result of dispossessing people or in conflict with their rights to the land. As a matter of principle, we will never engage in any activity where there is a dispute over land ownership, and there is a very simple, hard-nosed commercial reason: the credit is no good. I cannot sell it. Even if I were crass enough to try and steal such credits from indigenous people or native communities, which we are not; on the contrary, we work everywhere in the world with indigenous people with communal land rights, with the Maori people in New Zealand, with the aboriginal people in Australia, with black communities that are recovering land under the post-apartheid regime in South Africa, and with indigenous Amerindians in the Amazon Basin. All of these people are encouraging us to help them get their land back, because we will help them establish title, because until they get the title, I cannot sell the credits. By the way, just to be absolutely clear, we always have a sharing arrangement of the profits and proceeds of the carbon sales with those indigenous people, who, by the way, are pretty sophisticated bargainers. My point is that nothing in the CDM deals with this because the CDM has killed afforestation and reforestation. This is one of the reasons, I hope, that the post-2012 settlement will in fact create rules which will allow investment, which do respect the rights of indigenous people and communal people and insist on making sure that the land owner is entitled to transfer to create the credit which is in fact being transferred. This is part of the regulations' integrity which is essential to us and, I think, to the world at large. I have the utmost respect for that. Indeed, we are doing our best in a world in which CDM will not give us any credit even if we are working with indigenous people. We can get them nothing right now from the Clean Development Mechanism.

Q131 Joan Walley: If I can come back to that, my point was about sustainable development in its entirety. I see that as including human rights issues and indigenous peoples issues, but also the biodiversity aspects. You referred just now to post 2010. Are you saying that between now and post 2010 we should be looking to see how we can get a set of standards for the wider aspects of sustainability incorporated into any future CDM mechanisms and, if so, what is your view of what that baseline should be? Presumably, whatever it was, there should then be provision for it to be enforced.
Mr Bettelheim: I think that is correct. By and large, there are already internationally accepted standards for human rights, for example, ILO 162, which deals with the rights of indigenous people and how they are to be treated. We consult, for example, with NGOs around the world who represent these people to ensure we do not do any harm. Our first principle is not to do any harm; it is a kind of Hippocratic oath. Some indigenous people are prepared for this and some are not. We have uncontacted tribes within reasonable distance of some of our projects and the advice is to leave them uncontacted. There are a whole variety of different issues which arise but I agree with you; any new mechanism, any new set of rules—and I beg you not the CDM; anything else—that actually allows investment in these areas must have regulations both in respect of human rights and in respect of sustainability. There are plantations—I know they seem to have a bad name, for some reason, because of the debate—in which you can enrichment plant. You can help remnant vegetation recover. We have such a programme in South Australia whereby by replanting eucalypts we are also preserving and allowing the re-establishment of remnant vegetation that has otherwise been wiped out. Those kinds of standards can be created but, as I say, they should be created as matters of principle with differing approaches to implementation in different places and under different regimes.

Q132 Mr Chaytor: If I can return to the question of quality and the audit mechanism that Desmond raised earlier, to what extent is the issue of auditing a question of the availability of satellite data, and do we have in all countries, i.e. across the world, the appropriate infrastructure and the right quality of satellite data?
Mr Bettelheim: The satellite data has improved enormously. If you want an example, look at the sequence of improvements in the FAO reports. The technological capacity is now not only to be able to measure deforestation but also forest degradation, which is much more subtle because the canopy is still closed, but new satellite technology allows us to even register reductions that are short of deforestation. The answer to your question is the satellite information exists but satellite information usually also, particularly in countries that have intense cloud cover or do not have an infrastructure of carbon or forest inventory, requires ground proofing. You have to go out there and you have to check that the information has not been distorted. This is why there is a series of steps, which includes everything from groundproofing, overflights and satellites technology and very sophisticated computer modelling, which allows us to come very close to an understanding within a very small margin of error of exactly what is happening on the ground. In terms of audit and so on you still need infrastructure in these countries to make sure for example that the credit is not sold twice. This is what I was referring to earlier as an important role for the public sector, which is to provide the money to pay for the consultants and computer engineers and the

others to create the infrastructure in countries which cannot afford it or do not otherwise have it. Brazil for example has a very sophisticated monitoring system and there is very little going on in the Amazon that we do not know about. The same is not true of The Congo; it is an entirely different situation.

Q133 Mr Chaytor: How long would you anticipate getting all countries with tropical forests to the appropriate level of monitoring? Given the political instability in Congo where you have got countries recovering from a long period of civil war, where there may well be a further civil war in the future and given the fragility of the government, can you say, hand on heart, that within five years or ten years all countries with tropical forests will have these systems in place and the quality of their governance will be up to international standards?
Mr Bettelheim: The experience today is that that is expensive.[3] The experience of Papua New Guinea, which is not a situation of war but a situation of very large and complex forest areas that have not been disturbed, is that the Max Planck Institute was retained to do the inventory for that country and the total cost was hundreds of thousands of dollars. Even spread around 100 countries that is an enormous amount.[4] I appreciate that there will be some countries, for example The Congo, in which far greater expenditure will be required simply because of the difficulties of conflict areas and governance and so on, but how fast can it happen? It can happen as fast as the public sector provides the funding for it, because those countries otherwise cannot pay for it in most cases. Of course in the case of Brazil and India they can, but in many countries, particularly the least developed countries, they do not have the funds and they certainly do not have the internal expertise in their country and it needs to be brought in from Europe or America or from neighbouring states. If the public sector, if the world, decided to take a proper inventory of the entire planet in terms of carbon, it could certainly be done within five years.

Q134 Mr Chaytor: Earlier you drew the analogy with other commodity markets in terms of the verification of quality and suggested that this would apply to carbon as it develops as a commodity market, but surely there is a distinction here between the point at which the commodity is consumed, because if you are buying copper or sugar, you understand pretty quickly at the point of consumption what the quality of that copper or sugar is and that will underpin the price, but in terms of emissions avoidance, we are talking about a timescale of 30, 40, 50, 100 years, so how do you explain the discrepancy there? Surely it is less easy to verify because we are verifying the quality of something many, many years in the future?
Mr Bettelheim: All commodities are priced into the future. If you have a copper mine or if you have a coal mine, you are valuing it and you are selling forward delivery, sometimes over decades. Typically mining or other products like that require—

Q135 Mr Chaytor: But the commodity that is being consumed is being consumed in the here-and-now, is it not?
Mr Bettelheim: Well, there are short-term deliveries, that is all you are saying. There is delivery over long periods of time, which is what a mining or similar natural resource project is. When people buy copper a year forward, they cannot touch it or feel it until delivery is made. I appreciate the carbon market is an intangible and that makes it different in a sense, but we have lots of intangibles. We trade interest rates, there is a huge market in all kinds of stock market indices and so on. You cannot touch them, you never get delivery of the shares. What you get is regulatory confirmation, typically verified by third parties, that you are entitled to something, and that you can get it when you want it. The same way with carbon in forests, yes, it is a commodity-like thing, except you do not actually physically deliver it, you deliver verification of it. You can call it a certificate if you like, although this is all done by computer now. You are not given the bricks of a company when you buy shares in it, you are not given the bricks of a factory, you are given a certificate that says you own a proportionate interest in this, and in the same way you are being given a certificate that you own a proportionate interest in a forest measured in terms of its carbon. The certificate can be forged, it can be fraudulently obtained, but it is still just a certificate of ownership. That is what this fundamentally is all about; this is about the transfer of ownership of carbon in a forest.

Q136 Mr Chaytor: But you accept that the monitoring and the verification would need to continue throughout the lifetime of the forest?
Mr Bettelheim: That is absolutely right. Just as payments have to continue throughout the lifetime. That is what I am saying. This is an annual process, it is an annual counting, it is an annual audit, if you like, and it is an annual payment process. When there are problems with any of that, payments usually stop or are reduced or improvements in regulation have to occur for those payments to resume.

Q137 Mr Chaytor: Can I ask you what you think about the World Bank's project, the Forest Carbon Partnership Facility? The UK has contributed £50 million to that. Is that worthwhile and likely to be effective?
Mr Bettelheim: My feeling is that part of it may be and part of it not. The part of it which is focused on capacity building I think could be very effective and is very much needed, as I have said and, whether it is the World Bank that does it or someone else, I

[3] *Note by Witness:* The witness meant to say "The experience today is that it is not expensive", not that it is expensive, as stated during the evidence session.
[4] Note by Witness; The witness meant to refer saying that it is not an enormous amount, not that it is an enormous amount.

think that is a very valuable contribution because it creates the infrastructure for private sector investment, for markets to operate. The other part that it has been pursuing is trying again to re-create the wheel of how do you regulate this kind of forest activity, and it is CDM gold-plated. It is completely unworkable. Everyone who has examined it and been briefed on it in the private sector just throws up their hands and says that is the World Bank doing CDM again and they are not interested. There is that sense about the European Union and there is certainly that sense about any continuation of the CDM. No-one will have any confidence in it and the markets will simply move on. The national and regional markets will simply go right past all this, which I think would be a pity.

Q138 Mr Chaytor: Finally could I just ask about temperate forests. Everything you have said has been with reference to tropical and subtropical forests. Do the same arguments apply to temperate forests?

Mr Bettelheim: Under the Kyoto Protocol all temperate forests count. This is one of the discrepancies that I find very disturbing. What the Kyoto Protocol did is it divided the world in half, basically north and south, and if you are an Annex One country all your forestry, reforestation, afforestation, stable forestry management, avoiding deforestation, count for your Kyoto obligations. If you are in the South none of it counts and none of it has any value. As a result—you might not be surprised to hear—although there are other drivers for this and I am not trying to oversimplify—temperate forests are increasing, they are growing. If you look at the FAO report you will see that what we have done by way of policy (and certainly carbon is a driver for this although not the only one) is we have created incentives to regrow northern forests, which are the least important in terms of biodiversity, and to continue to rapidly deforest in those areas which have the highest biodiversity, which is the tropics and subtropics. This is a perverse outcome if you ask me. So temperate forestry does indeed (just like tropical forestry but at a slower rate) absorb carbon dioxide through photosynthesis, it stores it in the mass of the plant and it transfers the carbon into the soil in exactly the same scientific way as a tropical tree does, like a eucalypt or a mahogany or whatever. It just does it more slowly and it is not as interesting or as important biologically. In terms of climate value a tonne of carbon absorbed by a pine tree is as good as a tonne of carbon absorbed by a dipterocarp. The critical thing is that those forests in the north do not have the other values and they certainly do not have as many poor people dependent on them. Forestry in North America is hobby farming to the extent it is not industrial; in the south it is life and death, it is fresh water, it is food and it is fuel. In Africa most fuel comes from wood, they are not even in the fossil fuel age. We are now getting into the charcoal business (sustainably) to stop people going into the native forest to cut down the trees to turn into charcoal so they can heat their houses and cook their food. There is no point talking about giving them solar energy; they do not even have an electric appliance. In those circumstances what does it mean, what is the value of growing temperate forests increasingly and allowing these people to exhaust the very resource on which they survive. This to me is madness and that is what the Kyoto Protocol encourages under its current terms and that is what the CDM encourages under its current terms. Everything biological in the North counts, including agricultural land, and everything in the South is valueless. If I was a southern land owner (and in some cases I am) my reaction is very simple: I will continue to convert that resource into what I need until somebody pays me enough money to stop doing it and to get that resource whether it is food, fuel, medicine, or whatever it may be, from another sustainable source. That is the dilemma that has not been addressed in any way by the Kyoto Protocol and is completely rejected by the European Union trading system. As I said to the European parliamentarians, in my view, whatever your concern about the climate, that is fundamentally immoral.

Chairman: Okay, we have covered a lot of ground in an hour and 10 minutes. Thank you very much for coming in.

Tuesday 25 March 2008

Members present:

Mr Tim Yeo, in the Chair

Colin Challen	Mr Graham Stuart
Martin Horwood	Jo Swinson
Mr Nick Hurd	Joan Walley

Memorandum submitted by the Department for Environment, Food and Rural Affairs

INTRODUCTION

1. The 13th Conference of the Parties to the UN Framework Convention on Climate Change (COP13) and the third meeting of the Parties to the Kyoto Protocol (COP/MOP3) took place in December 2007 in Bali, Indonesia.

The UN framework Convention on Climate Change decisions

2. Under the Convention all Parties reached an agreement to start a two year process of negotiations on a comprehensive and broad climate deal post-2012 (Decision 1.CP/13 on the Bali Action Plan) which would be completed at COP15 in Copenhagen in 2009. In effect this turned the non-negotiating "Convention Dialogue" into a formal negotiating "Ad-hoc Working Group on Long-term Cooperative Action under the Convention" which includes all countries.

3. Key elements of the negotiation process will be:

(a) A shared vision for long-term cooperative action, including a long-term global goal for emission reductions, to achieve the ultimate objective of the Convention.

(b) Enhanced national/international action on mitigation of climate change, including, inter alia, consideration of:

(i) Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, by all developed country Parties, while ensuring the comparability of efforts among them, taking into account differences in their national circumstances.

(ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.

(iii) Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries.

(c) Enhanced action on adaptation.

(d) Enhanced action on technology development and transfer to support action on mitigation and adaptation.

(e) Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation.

4. The Bali Action Plan also contains an indicative timetable for meetings of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention in 2008. Indicative session dates are:

— Session 1—March/April 2008.

— Session 2—June 2008, in conjunction with the 28th session of the subsidiary bodies.

— Session 3—August/September 2008.

— Session 4—December 2008, in conjunction with the 14th session of the Conference of the Parties.

5. For the first session Parties are asked to develop the work programme for the AWG. They are invited to submit their views on this to the UNFCCC secretariat, by 22 February 2008.

6. The Ad Hoc Working Group shall report to the Conference of the Parties at its fourteenth session on progress made and take stock of the progress made on the basis of that report.

7. An important stipulation of the Bali Action Plan is that the process shall be informed by, inter alia, the best available scientific information, experience in implementation of the Convention and its Kyoto Protocol, and processes there under, outputs from other relevant intergovernmental processes and insights from the business and research communities and civil society. This means that there is a relationship with

the work under the Kyoto Protocol, in particular on the Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol, as well as with external processes such as those under the G8 or the Major Economies Meeting as organised by the US.

8. In addition to the Bali Action Plan, some other positive decisions were made on technology transfer and deforestation under the Convention:

— On technology, there was agreement on an ambitious work programme covering both mitigation and adaptation. A UNFCCC expert group will examine ways and means of speeding up technology development and transfer, and its funding.

— On deforestation—which is responsible for about 20% of global emissions—the agreement in Bali will pave the way for incentives to reduce these emissions, and these will cover both wholesale deforestation and more gradual damage. The agreement will set the rules for projects which can be piloted to common UN-approved guidelines, so that what is learned can feed into a future climate framework.

Kyoto Protocol decisions

9. The key decisions under the Kyoto Protocol were the following:

— In the *Ad-hoc Working Group on Further Commitments for Annex 1 Parties under the Kyoto Protocol* Parties agreed the end-date of 2009 for the negotiations they had started in Montreal in 2005. Parties also recognised the need for global emissions to be reduced by at least 50% by 2050 compared to 1990 levels and for developed countries to reduce their emissions by 25–40% by 2020.

— A decision was also reached on the governance of the *Adaptation Fund*, which will support developing countries to adapt to the climate change that is already inevitable. This is funded by a 2% levy on the Clean Development Mechanism (CDM).

— Parties agreed the scope of the *review of the Kyoto Protocol* which will take place at COP/MOP4 in Poznan (Poland) in December 2008.

— On *carbon markets*, it was agreed to abolish registration fees and levies on Clean Development Mechanism projects in the least developed countries, and to approve the use of non-renewable biomass CDM which means that projects such as encouraging small cooking stoves will now be possible through the CDM. Changes were also agreed to improve the way the CDM and its Board functions.

The Environmental Audit Committee invited comments on specific questions. The UK Government's response is given below.

QUESTIONS

1. *Is the Kyoto Protocol still a relevant and effective mechanism? How successful was the Bali conference? Does the roadmap contain all that is needed to lead to a post-Kyoto agreement that adequately addresses the climate change challenge? Will the roadmap focus on implementation issues or will it come to an agreement on a stabilisation level? How do we ensure that no key parties are left out of the process?*

10. The Bali Conference was very successful as all Parties to the Convention agreed under the Decision on the Bali Action Plan to engage in negotiations on a post-2012 framework. This decision will make it possible to develop a broad and comprehensive framework post-2012. Broad, as it would cover all Parties, including those that have not ratified the Kyoto Protocol, and comprehensive, as no topics have been excluded from the negotiations and therefore in principle the door is open to an accord that covers all essential issues, including a long term goal, deforestation and international maritime transport and aviation. The Kyoto Protocol will remain a crucial part of this framework. First and foremost, many features of its ground breaking architecture will form the basis for the development of the post-2012 agreement. No less important, the level of mitigation actions to be taken in the second commitment period (the length of which is yet to be negotiated) by Annex I Parties who have ratified the Protocol will continue to be determined through the work of the Ad Hoc Working Group on Further Commitments for Annex I parties to the Kyoto Protocol. The outcome of this negotiation will form part of the overall outcome on the mitigation section of the Bali Action Plan.

11. The principal focus of the Bali Action Plan is the negotiation of a post-2012 agreement and for that reason it does not deal directly with implementation. One of the issues that will need to be addressed in the next two years is that of a shared vision, including a long term goal for emission reductions. The UK and EU have repeatedly said that a long-term goal should be to limit global average temperature increase to no more than 2 degree centigrade above pre-industrial levels which is associated with cutting global emissions by at least 50% from 1990 levels by 2050. All developed countries should aim to reduce their emissions by 60–80% by 2050.

12. The conclusions adopted by the Ad Hoc Working Group on Further Commitments of Annex I Parties under the Kyoto Protocol noted the usefulness of the ranges referred to in the contribution of Working Group III to the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) and that this report indicates that global emissions of greenhouse gases (GHGs) need to peak in the next 10–15 years and be reduced to very low levels, well below half of levels in 2000 by the middle of the 21st century, in order to stabilize their concentrations in the atmosphere at the lowest levels assessed by the IPCC to date in its scenarios. The footnote of the Bali Action Plan decision refers to the same information and is therefore likely to form the basis for negotiations on a long term goal.

13. The negotiations on the implementation of the current obligations of Parties under the Convention and the Kyoto Protocol will continue and take place in parallel to the future action discussions at the meetings of the Subsidiary Bodies in May/June and December.

2. *What needs to be done between now and Poznan?*

14. As explained in the introduction, there will be four sessions on the Bali Action Plan this year. The specific work programme will have to be agreed at its first session.

15. The Ad Hoc Working Group on Further Commitments of Annex I parties under the Kyoto Protocol will meet in conjunction with the AWG on the Bali Action Plan. In Bali the AWG agreed a timetable for the remainder of its work programme, as well as an end-date of 2009.

2a. *Emissions from international aviation and shipping were not included in the Bali roadmap. Why did this happen and what can be done to address these emissions?*

16. Consideration of aviation and shipping is included in the Bali Road Map. The EU sees the inclusion of aviation and shipping as a key element of a future framework and argued extremely hard for this in Bali. As a result, in the face of strong opposition from all other Parties except Norway, the final text now includes references in Paragraph 1 (b) (iv) that ensure that emissions from aviation and maritime transport can be included.

Emission Reduction Frameworks

3. *How can "common but differentiated responsibilities" be decided in such a way that ensures the engagement of all parties? How can equity concerns regarding the allocation of mitigation targets and historical responsibility for climate change emissions be reconciled?*

17. Under Article 4 of the Convention all Parties already have commitments under the Convention in respect to the mitigation of greenhouse gas emissions which reflect the principles of common but differentiated responsibilities. The commitments for developed country Parties are further worked out under the Convention's Kyoto Protocol while those of the developing country Parties are specified in Article 4.1 of the Convention and relate, for example, to the formulation and implementation of national and regional programmes containing measures to mitigate climate change. In addition, as developing country Parties always correctly point out, they reduce greenhouse gases emissions in their countries by participating in the Clean Development Mechanism (CDM).

18. It is clear however that the actions that all Parties are currently taking are not sufficient to avoid dangerous climate change, and more engagement is required from both developed and developing countries. Some simple mathematics demonstrates this clearly. For example, the world currently emits around 27 billion tonnes of energy related CO_2 per annum. In 1990, the figure was around 20 billion tonnes. According to the IEA's World Energy Outlook 2007, without new action, by 2030 annual global emissions may rise to about 42 billion tonnes, 55% of which will be emitted by developing countries, 36% by OECD countries, and 8% by transition economies. To stabilise atmospheric concentrations at somewhere between 450ppm and 550ppm, EU analysis and the Stern Review suggest global emissions should be less than 50% of 1990 levels by 2050. Given the current emissions projections, it is clear that neither developed or developing countries acting alone can achieve the large reductions thought to be necessary. Much greater efforts are needed by all parties, taking account of historical responsibility for the problem and equitable principles such as capability to act and requirements for economic growth in developing countries.

19. One of the great successes of the Bali conference was securing global engagement in a negotiating process going forward that focuses on the types and levels of mitigation efforts that Parties can make as well as finance, technology and capacity-building that is necessary to support these increased efforts by developing countries in particular.

20. Paragraph 1 (b) (ii) of the Bali Action Plan (see above), which is particularly focussed on the enhanced contributions that will be made by developing countries, outlines these pre-conditions: that action must be seen in the context of sustainable development, and must be supported by technology, and must be enabled by financing and capacity building.

21. However, more needs to be done to continue to build on this global consensus for more action and detailing these financial, technological and capacity building requirements. This requires a deep understanding of the science and economics, of which the IPCC and the Stern Review are two major contributors to date. More research to improve the evidence on the costs and benefits of action on climate change in emerging economies will also be crucial in the coming months and years as we move towards a post-2012 regime.

4. *How might an agreement be reached with emerging economies to ensure that their emissions trajectories move into line with the need to reduce global emissions? How might developing countries' need to expand their economies be reconciled with controls on emissions?*

22. As explained under question 3 the key to reaching an agreement is to move forward on the conditions set under the Bali Action Plan, particularly those of technology and finance. The biggest emitters within the group of developing countries have made clear that they recognise their responsibilities and that they are committed to taking further action, provided these conditions are met and provided, developed country parties demonstrate their credibility by living up also to their current commitments on emissions reductions, finance and support for technology and adaptation.

23. The UK and EU believe that a critical part of the discussions to come will be with regard to new specific proposals for mitigation action that combine all these elements in a way that recognises the range of capabilities within the group of the developing countries, and puts in place sufficient incentives for different sets of countries to take action. Parties will need to consider whether reform of existing instruments and new instruments might also be required. Support in the areas of finance and technology will also require the engagement of a wider set of participants than to date, including International Financial Institutions such as the World Bank and Regional Development Banks, and the private sector. More evidence will be required to inform the design of this supportive framework to ensure it achieves a balance of action from developed and developing countries that is equitable and hence acceptable to all.

24. The UK is already beginning to make important contributions in these directions. For example, in the 2007 Budget the then Chancellor Gordon Brown announced a new international window of the Environmental Transformation Fund which will total £800 million over 2008–11. We aim to use this fund, in partnership with other donors to develop a multi-lateral fund administered by the World Bank, that will support developing countries own efforts to respond to climate change and create investment frameworks for attracting carbon finance etc and at the same time catalysing the changes that are necessary within the international institutional framework sufficient to meet the climate investment challenge.

Adaptation and Technology

5. *Is there adequate support for developing countries to adapt to climate change? Should there be binding targets for funding and how could these be decided? How will funding for climate change mitigation or adaptation interact with existing aid budgets? Will such funding contribute to wider sustainable development goals?*

25. It is widely acknowledged that the current level of financial support to assist developing countries adapt to climate change is inadequate, although estimates vary widely. Under the Bali Action Plan (paragraph 1(e)), there will be discussions by the parties on the necessary financial and technical support for capacity building in the assessment of costs of adaptation in developing counties, and in particular the most vulnerable ones, to aid in their determination of financial needs.

26. The Bali Action Plan (paragraph 1(e)) recognises the importance of enhancing the provision of financial resources to support action on adaptation both from private and public–sector sources. The Bali Action Plan work programme in 2008 will cover discussions between Parties on how to improve access to adequate, predictable and sustainable financial resources, the provision of new and additional resources, including official and concessional funding for developing countries.

27. Incentives to implement adaptation actions on the basis of sustainable development policies through the provision of financial resources and investment to support adaptation technology cooperation, is a key aspect of responding to climate change, and how to enhance this effort will feature in discussions in the Bali Action Plan.

6. *Is there effective international coordination on technology R&D?*

28. International coordination of technology R&D is undertaken in a number of ways. For example, through the work of the International Energy Agency and its implementing agreements, the EU R&D Framework Programmes and EU-China Partnership and the EU-India Initiative, as well as a large number of multilateral and bilateral R&D agreements.

29. The Stern Review acknowledged the need for greater R&D collaboration and this will be a key feature of negotiations on the Bali Action Plan.

30. We should also acknowledge the major role that the private sector plays in the development and deployment of technology. It is important that all countries work to create national and international investment frameworks to attract private sector investment and channel financing away from high carbon towards low carbon technology options.

31. The challenge now is how to build an international framework which supports the adoption of pathways that can enable existing technologies, particularly for improving energy efficiency, to deliver their full potential and for development and deployment of new technologies to be accelerated. Technology related agreements and mechanisms will therefore need to be differentiated for:

- Deployment—where technologies are well known and already cost-effective but other barriers may exist to their deployment.
- Deployment—where technologies are well known but currently more expensive than high carbon alternatives and therefore need incremental cost support to drive down their costs.
- Demonstration—where technologies are unproven at commercial scale and therefore demonstration support is necessary.
- R&D—where new technologies need developing and associated skills improved.

6a. *How might technology transfer to developed countries be improved?*

(It is assumed that this question relates to developing countries, not to developed countries).

32. Under the UN Framework Convention on Climate Change, a technology transfer framework already exists. Following the Bali conference, there will be a focus on developing a strengthened technology transfer framework as a key building block of a post-21012 agreement.

33. From Bali, the UN Expert Group on Technology Transfer (EGTT) now has an ambitious work programme covering a wide range of issues but including enhancing the existing technology framework.

34. The UN is also considering the role of new financing mechanisms and tools for scaling up the development and transfer of technologies. It is also intended to elaborate a strategic programme to scale up the level of investment for technology transfer.

35. The carbon market can play a certain role too in facilitating transfer of cleaner technologies. It is also important that developing countries develop national strategies and plans that establish the policies and measures that are necessary to attract investment (both public and private) into technologies for low carbon and climate resilient development. Countries that are working towards this will be likely to attract increased levels of public and private finance, including carbon finance.

6b. *How does technology transfer interact with international trade rules?*

36. The main interaction between technology transfer and international trade rules takes place under the World Trade Organisation (WTO) TRIPS (trade-related aspects of intellectual property rights) Agreement. The agreement sets out the minimum standards of intellectual property protection WTO members must provide.

37. According to Article 7 of the TRIPS Agreement, "the protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations". In addition under Article 66.2, developed country Members are obliged to provide incentives to enterprises and institutions in their territories for the purposes of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base.

6c. *How effectively do Government technology programmes, such as the Energy Technologies Institute, lead to technology development and transfer to developing countries? How effective are UK Government measures to assist developing countries to reduce emissions?*

38. The Energy Technologies Institute (ETI) has only recently been established and is a public/private partnership, backed by companies including BP, Caterpillar, EDF Energy, E.ON, Rolls-Royce and Shell. Its mission is to accelerate the development, demonstration and eventual commercial deployment of a focused portfolio of energy technologies, which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals.

39. The objectives of the Institute are to:

- accelerate the deployment of new low-carbon energy technologies, including the efficient production and use of energy, in support of the UK's energy and climate change goals;
- provide a strategic focus in the UK for low carbon energy R&D;
- increase the level of funding in the UK for low carbon energy R&D;

— promote international technology collaboration;
— increase UK R&D capacity; and
— promote people, skills and knowledge sharing.

40. Industry funding contribution, along with Government, provides the Institute with a potential budget of over £600 million over a lifetime of a minimum of 10 years. Additional private sector partners are being identified to match the Government's commitment of £550 million over the next decade.

41. The UK is working to promote technology and investment cooperation through a range of initiatives, including: supporting the World Bank-led Clean Energy Investment Framework for accelerating and scaling up public, private and carbon finance for investment in low carbon energy and adaptation; EU-China initiative to demonstrate near zero emissions from coal in China; the Renewable Energy and Energy Efficiency Partnership; the UK-Brazil-Southern Africa Taskforce on Biofuels and the IEA technology platforms and initiatives amongst others.

7. *Is the Asia-Pacific partnership a complement or a rival to the Kyoto Protocol? How is it likely to develop and what is it likely to achieve?*

42. The Asia Pacific Partnership (APP) on Clean Development and Climate is made up of seven countries: Australia, US, China, India, Japan and South Korea and Canada (joined on 15 October 2007). The Partnership aims to "develop, deploy and transfer cleaner, more efficient technologies and to meet the national pollution reduction, energy security and climate change concerns" of the Partners. The US has previously emphasised that it sees the APP as an action-orientated "informal" process designed to complement, not compete with, the UNFCCC. Insomuch as it has the potential to advance discussions on technological development in key sectors, the APP should be able to positively contribute to the UNFCCC process, although there is little evidence so far that the partnership will itself result in substantial emissions reductions. It is certainly clear that, because of its narrow focus on seven countries, the APP simply doesn't have the capacity to rival the UNFCCC process in developing a future climate change framework involving all countries.

43. In practice, Congress has not yet agreed to US funding for the APP so it is unclear how it will develop in the future. The focus has largely moved onto the Major Economies (ME) meeting convened by the US, which met in September 2007 and again at the end of January 2008. The Major Economies builds on the approach taken by the APP. President Bush emphasised the need to advance negotiations under the United Nations Framework Convention on Climate Change at the first meeting, making it clear that the ME would support the UNFCCC process. The UK agrees that the Major Economies meetings can play an important role in supporting negotiations under the Bali Action Plan by focusing on certain key areas that can feed into the process, such as financing and technology development. The recent second ME meeting went well, with commitments to make progress on areas the UK supports such as a long term goal, technology and sectoral approaches and finance. Discussions about how the ME will be progressed in practice are ongoing.

Mechanisms

44. The UK Government believes a global carbon market is an essential element of the future framework, engaging public and crucially private finance in mitigation effort. Our vision is to build a global carbon market based on a series of linked trading schemes engaging private sector in mitigation. For this to occur we need to see strengthening of existing, and the evolution of, new carbon market mechanisms. We need to build on experience with the EU ETS, and work with others on the development of robust trading schemes. We also need to provide for a transition from crediting to trading approaches in key sectors internationally, providing options and incentives for broader participation. This means the future framework should deliver improvement to the Clean Development Mechanism, upscaling investment, and moving away from a project by project approach to assessment of emissions reductions towards a more comprehensive approach. We also need to explore new instruments which could include options and incentives for participation in trading and crediting in new mechanism based on national sectoral targets. We recognise that the market cannot deliver everything and will need complementary and supportive policy frameworks to be successful.

8. *How might mechanisms to tackle emissions from deforestation be developed?*

45. It may be possible to tackle emissions from deforestation by building on the basis provided by the decisions reached by the UNFCCC Conference of Parties in Bali and by using the Forest Carbon Partnership Facility established by the World Bank to gain experience by pilot schemes.

46. The Bali decisions on deforestation:

— provide rules for pilot projects to incentivise reduced emissions from deforestation in developing countries; and
— agree to include deforestation in the agreement to be reached in 2009 on future action by developing and developed countries to achieve the deep cuts in global emission needed to tackle climate change.

47. The pilots will need to build capacity for developing countries to plan policies for emissions reduction and build the institutional capacity to monitor emissions relative to an agreed reference level. During the Bali conference the World Bank launched the Forest Carbon Partnership Facility which will support capacity building in these areas and also test out how best to incentivise emission reductions. A 2009 agreement could either provide incentives from the carbon market or from bilateral or multilateral funds. As discussed in the Stern Review, the carbon market may be the most likely source given the magnitude of funding required, but since reduced deforestation will introduce new credits into the carbon market this would require sound monitoring and an understanding of the relationship between supply and demand, so as not to undermine the carbon price. The accounting rules will need to assign long term responsibility for forest carbon stocks so that emission reductions are not subsequently undermined.

8a. *How can we ensure that such mechanisms contribute to wider sustainable development aims?*

48. By linking decisions on deforestation under the UNFCCC to relevant provisions of other international treaties and agreements, including the United Nations Forum on Forests, the United Nations Convention to Combat Desertification and the Convention on Biodiversity, so that the mechanisms developed under the UNFCCC take these agreements into account. The Bali decision on reducing emissions from deforestation makes this linkage via the rules in the indicative guidance for pilot projects. More generally, policies to support avoided deforestation generate significant co-benefits, for example, for communities dependent on forests and for biodiversity. Forest resources are among the primary assets of the poor and creating a revenue stream that allows them to conserve the forests and diversify their livelihoods will help improve their income and well-being and support broader sustainable development.

8b. *Will such mechanisms deal with the need to ensure the protection of indigenous people, land use rights and governance?*

49. Yes, through recognising (in the Bali decision on reduced emissions from deforestation) that the needs of local and indigenous communities need to be taken into account when action is taken to reduce emissions from deforestation and forest degradation, and through the rules and safeguards being developed for pilots under the Charter of the World Bank's Forest Carbon Partnership Facility (FCPF). Civil society, including representatives from indigenous people's groups will have observer status for the decision making body of the FCPF.

50. The FCPF should build on existing underpinning work to bring forest carbon to market effectively in the long run. This includes initiatives such as Forest Law Enforcement and Governance (FLEG) and the EU Forest Law Enforcement, Governance and Trade Action Plan (FLEGT) which DFID supports. These initiatives can provide insights on legal clarity, tenure, stakeholder participation, verification and monitoring for designing and implementing a REDD mechanism.

8c. *How might forest degradation be dealt with?*

51. By including emissions from forest degradation with deforestation emissions, so that both are taken into account. The Bali agreement already does this. The Intergovernmental Panel on Climate Change has developed methodologies that allow monitoring of the effects of forest degradation on total forest carbon stocks.

8d. *Are additional mechanisms required to enable the creation of carbon sinks?*

52. Yes, as part of the broader consideration of land-use, land use change and forestry issues under the UNFCCC and the Kyoto Protocol. We have already agreed that sustainable forest management and enhancement of forest carbon stocks needs to be taken into account when addressing deforestation under the Bali Action Plan.

9. *Are the Clean Development and Joint Implementation Mechanisms functioning effectively? How might they be improved? How might they better be used in relation to forestry or other land use emission reduction projects? Should CDM and JI projects play a greater role in sustainable development more widely? To what extent should credits such as those from the CDM and JI be permitted to be used in emissions trading schemes, or contribute to emissions reduction targets?*

53. The Government supports continuing improvement in the Clean Development Mechanism (CDM) and Joint Implementation (JI). At the COP/MOP1 in Montreal, the UK led the EU in seeking strengthening of the CDM and there have been significant signs of progress in the past two years, both in terms of projects coming through and the way in which the Executive Board is overseeing things. There are over 900 registered CDM projects and a further 1900 in the pipeline (January 2008). It is true that there have been criticisms of projects and the processes involved and there is always room for improvement. Nevertheless the Government believes the mechanism is essentially sound. We will continue to work within existing

international rules to ensure that the Board is effective and its support structures are strengthened and improved so that it focuses on delivery of projects and associated emission reductions that are robust and environmentally sound.

54. We recognise that the Clean Development Mechanism can be improved and will be looking to agree international rules that deliver more robust and comprehensive approaches to emissions reduction assessment. This could occur perhaps through greater use of benchmarking, which though there are significant challenges to its implementation, may provide an alternative to the difficult process of project by project assessment of additionality. We recognise how the mechanism might better deliver emissions reductions at least cost and better address the development priorities of developing countries; this may require more focused carbon incentives, engaging both government, and public and private finance in emission reduction efforts, through greater use of policy, sector and programme approaches to CDM.

55. Joint Implementation is a newer mechanism, not having benefited from the same early start as the CDM, but good progress has been made since the Supervisory Committee was established two years ago at COP/MOP1. The Government welcomes the first determinations on projects. Projects can only deliver credits from 2008, so we will have to wait to see more of how this mechanism functions in practice.

56. We also need to consider how we can build experience with trading, the CDM and JI and the ongoing improvements we are making to their operation, to provide us with a suitable set of mechanisms for the international framework post-2012. This will inevitably involve a certain amount of continuity, as we seek to improve the mechanisms we already have, and maintain investment in the future and a certain amount of change, as we develop new instruments designed to engaging and directing new and higher levels of investment It will certainly be necessary to scale up the level of our response to climate change including through the mechanisms: carbon markets clearly have the potential to help deliver substantial reductions, but to realise this may mean moving in some cases away from a purely project approach, to more programmatic and sectoral approaches. In considering the future, we will need to ensure that all Parties can be engaged appropriately, from the larger emitters through to the Least Developed Countries.

57. CDM projects that cover land-use, land-use change and forestry (LULUCF) are currently restricted to afforestation and reforestation (A/R) project activities. To date there is only one A/R project registered by the CDM executive Board. This is due to many reasons, the main one being demand—CDM A/R projects are currently excluded from the EU Emissions Trading Scheme (EU ETS). The EU Commission have indicated that they will only consider new credits for inclusion that are capable of meeting the current standards of monitoring, recording and verification, but that forestry and land use projects do not currently meet these standards. These projects are also expensive and time consuming to set up and this was reflected by Developing Countries Parties' submissions to the UNFCCC ahead of COP/MOP3 in Bali. In Bali, Parties agreed to raise the threshold for small scale A/R projects (which have reduced administration fees) from 8 ktCO2e to 16ktCO2e per year. The UK position is that credits from A/R require a robust monitoring system, an understanding of the potential impact on the EU ETS allowance price, and assurance that non-permanent credits would not damage the environmental integrity of the scheme, before they can be included in the EU ETS. It is not currently possible to credit projects that seek to avoid deforestation as this is not provided for within the scope of the Kyoto Protocol. The UK recognises the importance of addressing this issue and is working through the international climate negotiations for an agreement on reducing emissions from deforestation for post-2012. In reviewing our approach to the mechanisms we will need to consider how best to address the LULUCF sector to ensure that appropriate consideration can be given to projects that result in real, measurable and additional emission reductions.

58. The project mechanisms explicitly provide flexibility for countries in meeting their commitments under the Kyoto Protocol, as does emissions trading. As such it makes sense to allow use of credits not only by countries at national level but also in emissions trading schemes, as has been provided for under the EU Scheme. The current framework rightly recognises though that this flexibility should be supplemental to domestic action to mitigate climate change. The Government supports this principle of supplementarity. The Government also believes that developed countries should continue to take the lead in reducing emissions post-2012 and that arrangements for use of mechanisms should appropriately reflect this.

10. *What action is the Government taking to prepare for and accelerate the linking of the EU Emissions Trading Scheme with other trading schemes? Is a new institutional or regulatory framework required to enable their development and coordination? How might schemes be linked where they have different emission caps? Might the EU ETS be undermined by linking with other schemes?*

59. The Government has been working with other governments at national, regional and state level to communicate the lessons learned from design and implementation of the EU ETS and the key considerations for designing linkable trading schemes. The UK Government is a founding member of the International Carbon Action Partnership, which is a grouping of 23 national and state level governments committed to collaborating to develop emissions trading schemes that are compatible, scaleable and linkable. Progressive linking of trading schemes will provide the basis for moving towards our aim of a global carbon market.

60. On 1 January 2008 the Norwegian Emissions Trading Scheme joined the EU ETS. There are currently no other mandatory greenhouse gas emissions trading schemes operating, but the UK along with other Member States and the European Commission are actively considering the measures necessary for inclusion in the revised EU ETS Directive. We welcome the interest in emissions trading that is shown by other countries who are setting up voluntary trading schemes which we hope will develop into mandatory schemes. There is growing interest in cap and trade in the US, as evidenced initially by the voluntary Chicago Climate Exchange, but now more valuably by the development of Regional Greenhouse Gas Initiative (RGGI—starting in 2009), the California-based Western states initiative, and other linked state-level schemes. Australia and New Zealand are also now developing mandatory emissions trading. However, we would only link with mandatory cap and trade schemes in other developed countries. Before any arrangements are made to link with other schemes the impact of linking will be assessed.

Witnesses: **Mr Phil Woolas MP,** Minister of State, **Ms Jan Thompson,** Head of Negotiations on International Climate Change, **Mr Chris Dodwell,** Head of International and EU Policy on Climate Change, Defra, and **Mr Scott Wightman,** Director of Global and Economic Issues, Foreign and Commonwealth Office, gave evidence.

Q139 Chairman: Good morning and welcome. Thank you very much for coming in. Do you want to introduce your team?
Mr Woolas: Thank you very much, Chairman. I am the Minister of State for Environment. One of my main portfolios is the international climate change agreements and negotiations. Chris Dodwell is the Head of Strategy for the international climate change unit within Defra, Jan Thompson is the Chief Negotiator for the United Kingdom in the Bali process and Scott Wightman is Director of Global and Economic Issues at the Foreign and Commonwealth Office with lead responsibility for international climate change. I have my A team, Chairman.

Q140 Chairman: Good. We have our A team here too. This is a fairly broad-ranging inquiry we are conducting now. Your officials will be aware of the witnesses we have had in previous sessions. We have also visited both Australia and China in connection with this inquiry in view of their potentially important contributions to the Kyoto negotiations and what comes out of them. I think you described Bali as a "turning point for the world". Would you like to explain what you meant by that?
Mr Woolas: At the end of the conference we had a conversation with Hilary Benn, our Secretary of State who is obviously the Head of Delegation and we were very conscious that it was possible, if not probable, in such situations to allow it to go to your head somewhat. Conversations had been going on through the night and people were pretty exhausted. We were very conscious not to indulge ourselves. We looked back at the statement that we had made trying to describe what we thought would be a success. The key point was that all countries should be committed to the process under the United Nations umbrella because the United States had been outside of that and had come in gradually. I am very conscious that the content of that will be scrutinized and is subject to further discussions. We felt the fact that there was such commitment to that international process under the United Nations was the turning point. I think we used the phrase "historic" in our press release.

Q141 Chairman: I am sure people would recognise that as very important progress. What seems to be happening in all this is that the science is getting more and more urgent. Both the scale and the urgency of the threat of climate change are far greater than would have been understood even five years ago. I think there is a concern that I and other members of the Committee feel which is that we are sort of trying to play catch-up. Although what you describe was an advance, we actually need to be advancing faster because of the better understanding of the problem. Efforts by the EU to get more specific dates and targets for emission cuts into the conclusions were obviously thwarted. Is that not rather a grave concern for us?
Mr Woolas: I think as we go forward in the next 18-20 months that will be of grave concern. I think that is the biggest question facing us. There is a sense of urgency within the negotiations about the 2012 timetable and not to have a gap between the Kyoto protocol and commitments in the future. I think what is sometimes frustrating in those discussions with colleagues from overseas is that it must relate to the real world because emissions are cumulative. If there is a gap in action then the scale of the problem that we are having to solve gets worse. I think you are absolutely right that that is where we should be focussed.

Q142 Chairman: I am much encouraged to hear you make that last point because I think one of the dangers in focusing on a long-term target like 2050 is that it ignores the danger that unless progress is front-end loaded the concentration in the atmosphere will be so high that we might have zero emissions in 2050 but it will still be too late.
Mr Woolas: It is very important that all of us point out that this is not a case where you can do nothing until 2050 and then you have a cliff and you can drop your emissions because, as I say, this problem is cumulative. We made the point in Bali and in the other forums—and the Secretary of State is particularly keen to emphasise the point—that even if all of the developed countries and specifically all of the Kyoto ratifiers were to reduce greenhouse gas emissions to zero tomorrow the temperature would still go up and that is just the plain science.

Q143 Chairman: How far, particularly after Stern, is there an acceptance that this is also an economic issue, that the longer we delay responding to the threat of climate change the more costly the necessary action is going to be?
Mr Woolas: I believe that governments across the world accept the logic of the Nick Stern argument. I think they intellectually accept it. I do not think they emotionally act on it yet. I think they fall back, and to some extent so do we, into the comfort zone of the sloppy logic that says it costs too much to adapt and to mitigate, whereas what Nick Stern has taught us is that it costs too much not to. I think it is one of those situations where there is a paradigm change going on around the world. The scientific paradigm, as you rightly said, Chairman, has changed in five years. I think there is an economic paradigm change going on, but we are in the foothills of that.

Q144 Chairman: Was that one of the arguments that was used to try and persuade America and some of the other resisting countries to sign up to specific targets?
Mr Woolas: Yes. The way in which we see the United States situation is that the United States is not homogenous with their system of government being as it is. We always point out to people that the United States did sign the Kyoto protocol; they just did not ratify it. In the current debate we try not to portray the situation as being black and white because it is not. Secondly, I think the major argument for that point of view on the economics comes from corporate America, it comes from particularly the energy companies who I think see the danger of a lost opportunity to European and other corporations if they are not part of the act. The third thing is the pressure within the United States from the Congress, the Senate and from the individual states. I think policy there is in a state of flux. The answer to your question is yes, we do use that argument.

Q145 Martin Horwood: Obviously you are right that politics in the United States is in a state of flux at the moment and we have three possible candidates for the presidency who have now emerged. Has the Department made any contact with the three candidates to try and stiffen their resolve in this while they are still in pledge-making mode rather than presidential mode because it might be rather late if we leave it to after November?
Mr Woolas: We have taken a policy decision, which I hope would be supported across the House, to be open and transparent, to treat all parties equally and to try to use the UK's undoubted—and I hope this does not sound arrogant because it is not meant to be on behalf of the Government—scientific expertise and influence, the undoubted contribution from Lord Stern's report, from the resources that we have allocated in the Foreign and Commonwealth Office and to make our influence and our arguments and our policies available to all organisations, including presidential candidates' campaigns. I am not aware of any specific meetings by ministers with campaigns, but obviously our embassies and our consulates are making information publicly available. We are relatively optimistic as to the position of the three candidates, but the Congress and the Senate are equally important.
Mr Wightman: Firstly, our principal focus remains on the US administration. They are engaged in the negotiating processes in various work streams that are going on. You will have seen last week that the Prime Minister met Senator McCain in London. That is the typical sort of contact that might take place between now and November at a political level. The Embassy in Washington is in touch with the campaign policy advisers of each of the main candidates across the range of policy issues and certainly climate will be one of the ones that they are engaging on.

Q146 Martin Horwood: Can you tell us if the Prime Minister did actually raise the issue of climate change with Senator McCain?
Mr Wightman: I think it did come up, yes.
Mr Woolas: I believe so but I do not know for certain.

Q147 Mr Stuart: Can you comment on how big a sea change is possible if the United States administration changes its position next year?
Mr Woolas: I think that is obviously a very important question. I urge caution in this analysis because again one has to look at the fact that any agreement would need to be ratified by the Senate and by the Congress. I think there is a policy driver in the Senate and the Congress that is understandably driven by the interests of individual states. Many of the states are coal dependent, some of them are oil exporters and the biofuels debate is extremely high on the policy agenda in the United States as indeed it is here. I think that the United States will look at it under a new administration, whatever candidate is successful, in a more progressive way than perhaps has been the case in the past. I am conscious of the advice of our counterparts, particularly the Chairman of the Environmental Council in the White House who points out that the Senate would look to the self-interests of the United States of America as it perceived it as well as to the international forum. I do not see that a change of administration will be a huge U-turn or a breaking point. This is an evolutionary situation, I think we should understand that.

Q148 Chairman: Let us move on to the Major Economies Meetings. I think one of the things that has concerned me—and we were very forcibly reminded of this when we met the Australian negotiator—is that the whole process moving forward to Copenhagen is a pretty complex and torturous business. It looks to us as though there is a real risk that some of the negotiations will get mired in process and lose sight of the urgency and the real objectives. Given that the major economies are responsible for a very substantial proportion of total global emissions, there seems to me to be some merit in that actually if we can get agreement

amongst the really big emitters about what needs to be done you can afford to treat the other countries fairly generously. Some people have suggested this may be a distraction from what is going on, that it may complicate things too much if you have got two parallel tracks. What is your view about that?

Mr Woolas: The major economies constitute 80% of world emissions, I think that is 17 countries and that includes the forest countries and it is very important that we recognise that. My take on this was that it was a welcome initiative. It provides space and it provides confidence building, which in all of these issues is extremely important. I think what it has achieved so far post-Bali is a better understanding between the countries as to why each country took the policy decision that it did. In a lot of these international forums one is very aware of the policy position of one's counterparts but less so of why that is the case. Precisely because the Major Economies Meetings are informal, so there is a better understanding as a result of that. Secondly, in all of these things environment ministers—and I am one—can forget the wider picture outside of the environment department. It is presidents and prime ministers that shifted the agenda that led to the success in Bali. It was about getting it out of just—with all respect to my colleagues—the environment ministers' in-trays and into the prime ministers' and presidents' in-trays and we have to maintain that. I think the Major Economies Meetings have helped us to do that because of the focus that it has brought to it because it is a White House initiative. It would have been wrong to criticise the United States of America by saying, "You are very late to the game," sending a signal that we begrudged that. Our attitude was that we welcomed the initiative of the United States. There are other processes other than the MEM. Gleneagles has been very important. The weekend before last at the Gleneagles final meetings in Japan the United States representative specifically said that Bali would not have been possible without the Gleneagles process and I think that process has done the United Kingdom a real power of good in these international forums.

Q149 Jo Swinson: How disappointed were you to come away from Bali without any set targets either for a maximum atmospheric concentration or long-term emissions reductions?

Mr Woolas: We would say that we got the wording in there. Let me just try and be clear. The wording is in there. It is buried in paragraph 94 on p17!

Q150 Jo Swinson: Not with specifics of numbers.

Mr Woolas: There is not a consensus for a specific target. Most countries can claim that the wording reflects their position. We approach this issue strategically by trying to use our membership of the European Union in the most positive way. I believe that the solidarity amongst European Union countries has been greatest on the issue of climate change above other issues. I think that is a fair statement and I think it has been most successful in this regard as well. I think it gives the United Kingdom a tremendous platform to use additional strengths that we have. Clearly central to that has been trying to persuade the world that there should be a long-term goal and indeed, as the Chairman has pointed out, mid-term goals as well and that will clearly be a key objective for the Copenhagen round.

Mr Dodwell: What we saw in Bali was countries coming together and starting to look at the idea of a long-term goal being part of the discussion that would frame the level of ambition taking things forward and we did get that into the Bali Action Plan, the reference to there being a need to discuss a long-term goal. Until Bali, a lot of countries were in denial about whether we need to go any further than what is in the Framework Convention itself, which is a reference to the need to avoid dangerous climate change but undefined. The Stern report has been very helpful about taking that debate forward. You are beginning to get into a debate with these countries about where that goal should be set. I appreciate the point the Chairman made earlier on about whether this is all moving too slowly, but you have to recognise that countries are now beginning to understand the economic consequences of climate change, they are beginning to undertake their own research into looking at the costs of adaptation and they are getting themselves into a position where they can commit to something. You are not going to force the pace of these negotiations without countries actually recognising what it is that they are able to do. In terms of a long-term goal, we did achieve what we wanted, which was to make sure it was part of the future negotiations. That was the European position going in. We would have liked it if we could have got further, but we have got the concept of the reference to peaking within 10 to 15 years and a global reduction of at least 50% by 2050, that does form part of the Bali conclusions and that was definitely a step forward.

Q151 Jo Swinson: I was at the UN a couple of weeks ago and one of the arguments being put forward there was that, going on from Bali through Poznan and Copenhagen, the big unknown at the moment is who will be in the White House and they were posing the suggestion that in the next two years of this negotiation there is a lot that can be discussed into 2008 but the actual target setting is going to have to be 2009 because it will depend who is in the White House. Do you think that is accurate, that we will not make a lot of progress this year?

Mr Woolas: I think it is over-emphasised. Our policy is that we must keep to the 2009 timetable. There were suggestions in the preparatory committee for Bali that we should slip that timetable in order to allow the Americans time to catch up. We do not agree with that. We believe the 2009 deadline is an imperative and we have urged other countries to stick to that so far with success. We met last week with the Congressional Committee on Climate Change and Energy Security and their view was that the three candidates have got policies that will be positive towards the making of an international agreement, but they caution that the devil is in the detail. I think it is the relationship with the Senate and the Congress that is of crucial importance

because, with the best will in the world, any agreement has to be ratified. It is wrong to make the assumption in my view that all Democrats will support the European Union position and all Republicans will not. It is much more complicated and sophisticated than that based on individual states' views and interests and on the fact that American politics is not quite the same as ours in its adversarial nature. I make no comment on that, but in trying to guide the strategy through I think we have to recognise that fact.

Ms Thompson: I do not know whether your question implies as well that there is going to be a slight gap between now and when we can really make some progress in agreeing targets. There is a huge amount of underpinning work that needs to be done in the negotiations. There is a very intensive schedule of meetings planned over the next couple of years. The first major meeting under the UN process will be next week in Bangkok when all the parties will come together for the first time since Bali to try to agree a schedule of work over the next year at least and possibly into the following year. They will begin to look at questions such as what is comparable effort between one developed country and another developed country, what sort of actions might developing countries be taking and having a look through some of those, how might those actions be monitored and verified and reported, and also looking at all the various technology processes that will need to be brought in and how to encourage them, how to pay for them and what other financial flows will be needed, whether public or private, to mobilise the necessary finance for all of these processes. There is actually a huge amount of underpinning work and negotiations that can be going on over the next year or 18 months certainly in getting ready for the final crunch of negotiations which we hope will come in in the run down to Copenhagen.

Q152 Jo Swinson: Just let me pick up on your point, Minister, that different countries will have different views. In its presidency of the G8 Japan has seemed to differ slightly from the UK and EU position by suggesting the baseline year should be shifted and that this idea of keeping the rise to two degrees is based on politics rather than science. How much disagreement is there between the players within the G8 on what our goals should be?

Mr Woolas: I think there is shifting sands in this regard. You cannot divorce the public positions of the Japanese from the political situation there. They have made some suggestions on sectoral approaches that I think are extremely important. They have also announced both at the Prime Minister's level and at the economic and trade department level investigations and research into the establishment of carbon markets, which I think is an extremely important signal of policy development in Japan. I think it goes back to your previous question about what does the United States administration policy signal and what will Japan's reaction to that be. There are clearly big differences in the positions of different G8 countries. You can move the goalposts wherever you want by looking at the baseline date. One of the important points that we and the European Union have been trying to make in this regard is that the world did not freeze in 1990, that you have got to look at future trajectories of emissions as well as historic emissions, recognising the moral responsibility we have as one of the developed countries, but also recognising the reality of the contribution that other countries must make. I hope that is a suitably diplomatic answer which (A) answers your question and (B) is diplomatic!

Q153 Jo Swinson: I think it brings us on to the issue of it being the atmospheric concentration that is going to be important rather than what baseline figure we use, it is about the amount of emissions in the atmosphere. Stern has argued for stabilising emissions between 450 and 550 ppm but suggested that the bottom end of that range would be very expensive or too costly. Equally, the science is suggesting that it is the bottom end of that range that is going to give us the two degree stabilisation that certainly the EU were aiming towards. How would you square that circle? How does that affect the negotiating position that we take within these processes?

Mr Woolas: The debate in this country assumes that the best option is two degrees and that the bad guys are above that. When you talk to the small island states and the least developed countries you find that two degrees for them is a huge problem. I think we have already got 0.7 degrees. The second point is that I do not think Nick Stern's report said that it was too expensive; he said it changed the economic decisions. I do not think Nick Stern saw a cut-off point. In our view one has to have a long-term goal. You cannot start to talk about the important points, mid-term goals and cumulative emissions and the 450 ppm goal and what the science of that is unless you have got a long-term goal. Jan mentioned the meeting next week. That is the first formal meeting under the formal Convention rules. The situation is that the United States is saying, "Well, we will act if other countries act," and China is saying, "We will act if the United States act," but we will have to break that logjam, that is the urgency of the goal. That is a superior goal to the actual debate about the figures.

Q154 Jo Swinson: If we do need a long-term goal agreed by different countries and we have already seen the difference between Japan, the UK and the US, if we cannot get that agreed within the G8 fairly easily then what hope does the UN process really have? If it is going to take us two years just to agree the goal without actually agreeing what needs to be done to reach the goal, is this just not out of sync with the timescale and the urgency which is required?

Mr Woolas: I think we are still in the pre-crunchy negotiation period. I think that countries will restate their positions. I have been encouraged by the formal discussions that we mentioned through the MEM and Gleneagles where people are starting to recognise the need to address the point you make.

Mr Wightman: An objective analysis would say that left to its own devices there is not sufficient momentum within the negotiations at the moment to deliver the sort of agreement that the UK Government and the EU governments believe will be necessary to address the problem by December 2009. That is why the focus of our activities in the Foreign Office is very much on the political conditions in some of the key negotiating countries. We need to shift the political conditions in those countries. As the Minister said, we will need to get it addressed by heads of government and heads of state. We need the finance ministers to be thinking about climate as a key economic challenge for them, as an economic prosperity imperative for them. That is where the focus of our effort is going to be over the next 18 months, to try and get the political conditions right so it creates an environment in which the negotiators can then unlock the agreement.

Q155 Jo Swinson: I am intrigued and pleased to hear that, but what exactly is the FCO doing? What does that mean, having efforts to create the political conditions in other countries that will help the negotiations?

Mr Wightman: We are developing a number of mobilization campaigns in the key countries. We are engaged in a pretty systematic effort to map influence around climate policy in the key countries, understand who the key decision-makers are, how they are influenced and who influences them, which constituencies influence them and then we are trying to build alliances with those constituencies to try and exert leverage over the decision-making process in those countries. In some countries that means working with faith groups in the US, for example. In the case of Japan it means very much a focus on the Keidanren, the business organisation. It varies from country to country.

Q156 Mr Hurd: If we are serious about the two degree goal and we should be, why do we continue to indulge the 550 ppm outriding target? On Stern's own analysis of the models that are available the probabilities of 550 ppm being consistent with two degrees are very low indeed. In his own words he says that 550 ppm is not a place where we want to be. Why does the British Government continue to run with that riding target? If the answer is that the models are all too vague, we cannot be sure, what are we doing to refine those models and develop more robust models that give us a better idea of whether this 550 ppm has a real part to play or is just a fantasy?

Mr Woolas: This is a very fair question. The answer is that we are not indulging ourselves. We have an open mind. We base our strategies obviously on the international considerations and the need to maintain European Union solidarity, but we also have a Climate Change Bill before Parliament. We have the establishment already in shadow form of the Committee on Climate Change and I am sure their advice will be robust and objective and scientific. I look forward to receiving that in December. I am concerned to hear the word indulge. We do not think we are doing that.

Mr Dodwell: I just wanted to pick up on the 550 ppm point that you were making. We think the two degree target is sound. As you said, it is not risk free and, as the Minister has already pointed out, it will have major impacts on small island states. The question is how you achieve it because a two degree target is something you cannot control. What is the action that is necessary in order to achieve that target? Where we go to in terms of temperature range will be dependent on atmospheric concentrations and it will be dependent on the stock of emissions. What we can control are actually those emissions. That is why we have shifted the discussion quite deliberately over the last year or so to look towards the long-term goal being viewed as an emissions target because that is what countries can control, that is something that is meaningful to individuals in terms of individual action and it provides more certainty to businesses in terms of the direction of environmental policy. The 50% by 2050 against 1990 levels we consider is consistent with a two degree target. We would like to go further than that and say it has got to be at least a 50% reduction, but there is consistency there. We have seen some progress on that. We have seen discussions on it in the G8 last year. It did not get agreed at the G8 last year, but it is one of the issues that are being discussed through the Major Economies process as well. We think that moving away from an atmospheric target and more towards an action orientated emission reduction goal—You need to know the pathway that is going to get you to that target as well and that is why we have been saying global emissions must peak within the next 10 to 15 years, but this is all consistent with the IPCC position.

Q157 Colin Challen: Is not the real answer in the Stern report and that is that if we aim for a more stringent target we have to spend more money to achieve it? He settled on 1% of GDP and suggested we should try and stay within a target of between 500 ppm and 550 ppm and then later on, in further articles, he has written 450 ppm, so that is there and well-established. Obviously it would cost more to be tougher. Are we spending that 1% now? Is that an extra 1% of GDP or is it what was already being spent at the time that Stern published his report? Are we monitoring this money? Are we trying to achieve it? Surely the best way to try and convince others that we are serious is if we are going into negotiations and we can prove that we are doing it and we are abiding by our own report that we commissioned. If we are not meeting even 1%, which is at the low end of expectations, then surely nobody can take us seriously.

Mr Woolas: The point that the United Kingdom's credibility overseas in these negotiations must be matched by a credible performance domestically, is of extreme importance. This is why we place so much emphasis on pointing out the United Kingdom's progress in the reduction of greenhouse gas

emissions. There has been a debate in recent weeks about the UK's performance and the confusion of CO_2 and greenhouse gas emissions is more than just a semantic point; it is a very important point. The creation of the carbon budgets as required by the Climate Change Bill and the work that we are doing with the Committee—this is one of the reasons why we wanted to get it established and up and running in shadow form and we are very grateful to the House that that has been permitted—and the analysis of the expenditure, revenue and capital in that regard is clearly very important. The honest answer to your question is that at the moment we are not able to do that as robustly as we will be able to do. The second point is that we act in co-ordination with the European Union. The European Union's package is a very important part of the equation and where we can point to specific goals. The honest answer to your question is not yet.

Q158 Martin Horwood: Can I just re-ask the question that Mr Hurd asked because I did not hear an answer to it? On the very specific issue of concentrations, which is part of your pathway, do you accept the risk factors set out in Stern which suggest that 550 ppm is an extremely dangerous and high risk scenario that is best avoided?
Mr Dodwell: Yes.
Mr Woolas: Yes, we do. I looked at this last September/October in the run up to the IPCC report because I shared that concern. You can see all sorts there. If you read that then you come to the conclusion that it is dangerous.

Q159 Martin Horwood: The percentages in Stern are from the IPCC and the Hadleigh Centre.
Mr Woolas: It was the fourth assessment report—

Q160 Martin Horwood: Would you go so far as to say that your goal is now stabilisation at 450?
Mr Woolas: No. Our goal is two degrees.

Q161 Joan Walley: Could I go back to Colin Challen's point about the 1% of GDP and how we are actually monitoring? I did not really pick up in your reply how the Government is really monitoring in a very detailed way progress that is being made both in terms of expenditure but also in terms of meeting targets.
Mr Woolas: The answer to that question is a long and sophisticated one. The goal that is set for us is to take the needs of the climate into economic decision-making. This is something that all countries are having to do. That includes the private sector as well as the public sector decision-making both in mitigation measures and in adaptation measures. We see the Climate Change Bill as being hugely important in setting that overall framework and the budgets that come from that. The fact that financial decisions will have to be taken in future as regards not just the financial balance sheet but the carbon balance sheet will bring about a huge change in behaviour and attitudes of decision-makers in our country in both the private and public sector. I do not want to give a flip answer that says yes, we can do that. The fact is we cannot do that at the moment, but it is certainly our goal that we will be able to do that within a timetable that is useful for us in Copenhagen and in order to announce those budgets in the Budget Statement of the Chancellor next year.

Q162 Joan Walley: Given the reference that the Environmental Audit Select Committee had on *The Archers* on Sunday and given what you have just said about needing a long and complicated answer, we have to somehow or another find a way of communicating to people everywhere, not just in *The Archers*, just how much progress we are making.
Mr Woolas: Chairman, I did not know this very welcome bit of news. We have actually a lobbying strategy for the BBC drama department to try and mainstream this. If the nitrate vulnerable zones can make it to *The Archers* then I am glad that this issue has as well. The way in which we see this—and I say "we" in terms of Her Majesty's Government, not just in terms of Defra—is that we are having to create a new policy framework that can bring about the changes that we need domestically and internationally, but it takes time to do that. As the many measures that have been put in place by their nature are complex it is difficult to communicate them in simple self-evident ways. We believe our timetable domestically dovetails with the international timetable. The big picture where I know that your inquiry is focussed as well is that the domestic actions that we take are part of an international framework. That international framework is not yet agreed. This is why the dilemma that was referred to with regard to the United States and China is paralleled domestically. We had a debate in the House about 60% and 80% and which is best. It is the contribution to an international effort that matters and therefore we have to put this jigsaw puzzle into place internationally and domestically. If I sound frustrated it is because I think we are in the early days of putting that framework in place. I have no doubt whatsoever that it is being done across government in all the different policy areas, adaptation and mitigation.

Q163 Chairman: There are a number of policy areas which are sort of acted out in a very international context, defence being one of them. That is an area where Britain has not been afraid to step out well in front of a lot of its traditional allies to make commitments, rightly or wrongly, with quite dramatic effects. On climate change, I think it would be very helpful if Britain was willing to show a similar degree of leadership and courage and it would be rather more positive and productive if it did so. I think the response from Mr Dodwell about the 550 ppm being too high, which I entirely agree with, I am sure every member of this Committee does, is a very welcome one. I hope the Government will not be afraid to go a lot further and say we should specifically be aiming perhaps at a maximum level of between 450 and 500 ppm. I know it would be very challenging to achieve that. It would need actions far in excess of anything contemplated by

Britain or the EU at present. I think to make that statement would wake people up a bit. I think there has been a degree of complacency. It comes back to the point I made at the beginning. We are talking about cutting emissions by 2050. By 2020 or 2030 the concentration level may already be so high that whatever we do in 2050, we are not going to get it back.

Mr Woolas: I think the European Union package is extremely important in that regard. I share your frustration that the concentration of the public debate and comment is on the 2050 target, missing the point that was made before by yourself as well as others on the cumulative nature of that target. The policy area that we are engaged in here is unchartered. We have a debate about what targets are scientifically required and then we try to translate those into what is realistic in terms of investment decisions and available technology in the energy, transport and domestic home and building sector. There is no law of economics or politics that says the two have to match, but my goodness me we have to make them match. Therefore, one's decisions within the context of the EU targets have to be based on that trajectory that allows the peak and allows the mid-term goals to make the 2050 target possible. My own view—this does not mean anything but just for the interest of the Committee, I hope—is quite optimistic and it is optimistic not just because of discussions with colleagues in the political world but discussions with colleagues in the industrial world. I think corporate leaders in the energy sector and in the major emitting sectors absolutely get this and I think they see economic competitive advantages as long as the political framework does not sell them down the river in terms of carbon leakage. So I am quite optimistic and I think the UK plc is in a very strong position and I think that mindset is what we need to inculcate across our industries.

Q164 Chairman: I would certainly agree with that. In the United States in many areas business is ahead of politicians because they understand that. Given the importance of keeping up-to-date with the science, do you think there might be ways in which the UN process could be better integrated with the work of the IPCC? The sort of mismatch between science moving on and a track that is rather fixed for international response, is there a way of relating those two more closely?

Mr Woolas: In a formal way in the process?

Mr Dodwell: They are formally linked. There were sessions on the IPCC report in Bali. The negotiators were made very well aware of what was going on. There is going to be another workshop in April on the IPCC and what the direction is that the IPCC should take forward. We must not allow ourselves to over-simplify the consequence of what that science means and how you then translate that into action. The science is settled. The science is becoming more and more clear about the urgency for action. The economic arguments that were being put forward are being overturned. The Stern work on costs has demonstrated it makes more sense to take costs than not. It is about how you then translate that into global action and that is the feasibility point. When Lord Stern was setting down the difficulties of reaching 450 ppm he was not saying that because it is going to cost too much; he was actually saying it because of the feasibility of getting that scale of action globally to take place in the time that we have got. Perhaps the focus now needs to be on what Scott has been talking about, about political conditions. It is about getting these messages out to the places where the decision-makers are going to be, where the real decisions are going to be taken, where the rubber hits the road and where the investment decisions are going to be made about infrastructure in developing countries, that is what we have to be focusing on. There are strong links in from the IPCC into this. To tell you the truth, the reality is that we need to change the instructions that the negotiators are given in a number of the countries that we are talking about. They need to come to the negotiations with a fresh mandate, a fresh remit and you will not do that simply by moving through the evidence base, however appealing and logical that might be.

Q165 Colin Challen: I cannot really agree with this argument. Germany has officially set a target of a 40% cut in its emissions by 2020 and ours is languishing at between 26 and 32. Why are they able to go further than anywhere else? I know you cannot speak for the German government but the argument holds. Why are they not waiting for other people to anticipate the objections and then work around them and then perhaps adjust their targets upwards and so on? It seems like we are anticipating failure and almost planning for it. It makes it a *fait accompli* when we go into these negotiations saying we accept that the Chinese or the Indians or the Japanese are going to be rather rough with us so let us just see how we can accommodate them. We should go in there on the strength of our ambitions rather than simply saying it is all international but that means that we cannot have higher ambitions.

Mr Woolas: I am really sorry to hear the point of view that the UK is not up there with Germany. The German stance is based on a target to be reached if there is an international agreement. In the crunchy negotiations, for example, the week before last at the European Council on European Steel and Motor Manufacture the United Kingdom's environmental credibility was extremely strong. The starting point is that we are a country that benefited from North Sea oil and gas, that the urgency in terms of energy security has not been as great over the decades—and this is not a party political point, I hope—as it has been in other countries and to that extent we are playing catch-up in the area of renewables. Will we catch up? Yes, I think so. You should judge whether that statement is meaningful, not me. I believe that our policies and our actions stand up to scrutiny in these international forums where the United Kingdom as part of the European Union is seen as a leader not just in words but in deeds as well. The proof of the pudding is in the eating. I am sure I will have this debate with my German colleagues in the months to come.

Q166 Joan Walley: When we were out in Brussels last week there was no doubt whatsoever about the leadership role of the UK in respect to the debate that was going on with Germany and the car and steel manufacturers. I think the point that we are trying to get across is that when we came back from China there was this sense that there are these processes which are going on which are being driven by the science and it is almost as though the negotiations have got into that kind of measured Civil Service speak, whereas actually because of the urgency with which we need to meet the targets up to 2050 there needs to be a greater political drive to do more now so that we are not into that fight ten or 20 years down the line. It is almost like a football team that is facing relegation, no matter what it does it cannot get the points that it needs to get to be where we need to be to avoid the tipping point. It is about that political urgency and we are wondering how the UK Government is driving that into these measured every so often debates that are taking place. It has got to be driven as well as guided by the science.

Mr Woolas: In international forums?

Q167 Joan Walley: Yes.

Mr Woolas: Let me try and reassure you. The diplomatic effort that the United Kingdom is putting into this issue through its Foreign and Commonwealth Office, through the Business and Enterprise Department and through my own department in particular is, in my view, unparallel since the Second World War. Of the four priorities laid out by the Foreign Secretary for our FCO, this is one of the four, we are currently doubling the number of people directly engaged in the Foreign Office in this campaign and we see it as a campaign. We are trebling the number of individuals in overseas posts who are dedicated to this issue. We already have over 500 full-time equivalent posts across the world dedicated to this issue and we are quadrupling the programme resource for this issue. That is the scale of the importance internationally that the United Kingdom puts on this, that our coordination between business and enterprise, Defra and the FCO is very deep and broad. We have strategies for individual countries as well as individual regions and obviously international fora. We believe that our scientific resource is the United Kingdom and we maintain the objectivity—it is absolutely crucial to our strategy that that is not seen as a politically motivated point—and our businesses are part of that strategy as well. It was the Chief Executive of BP that told the Washington renewables summit only two weeks ago, 8,000 delegates, in the presence of the President of the United States of America, that there would be a carbon market because corporations would lead on that. The chief executives and chairmen of our big companies are at the forefront of the international debate. It is inevitable—and, Chairman, you will know exactly what I am saying—that when one travels overseas one is very, very proud of the United Kingdom's effort and when one returns to the newspaper reading room downstairs you get a different picture. We welcome the pressure that is put upon us by the United Kingdom, by select committees, by Parliament, by institutions and by the NGOs because it strengthens our hand internationally. The fact that we have broadly a consensus across the political parties and across the House is a strength for the United Kingdom and not a weakness and maintaining that is very, very important to our strategy. Maybe it is because we take it too seriously that the urgency does not come over, but the Secretary of State and Number 10 and the Prime Minister are intimately involved in these strategies. Bearing in mind the point that has been made that we need to get this paradigm shift at prime ministerial level, all of our actions and efforts are backed up by the Prime Minister in negotiations and discussions with his counterparts overseas. The United Kingdom is I believe, as part of the European Union, seen as a leader of that urgency. I will redouble my efforts on your recommendations to get that urgency across.

Chairman: Without in any way disagreeing with your analysis—I think I broadly share it—we will take that as positive encouragement to pile on the pressure in our reports!

Q168 Mr Stuart: Just before I move on to developing countries, one of the weaknesses of the Kyoto framework is its lack of clarity beyond the five-year timeframe. How do you think that could best be tackled?

Mr Woolas: Could I just say, Chairman, in response to the previous point, the Chairman of the Defra Committee made comments in the House supportive of the UK position in the run-up to the Bali Conference. Those comments strengthened the hand of the United Kingdom because they were by a chairman of a select committee, from the Opposition Party as it happened, and that was commented up by the United States Government. I know we had a flippant exchange a moment ago but I do not underestimate the importance of the deliberations of the select committee, not just in its relationship with the UK Government but how we are seen overseas, and the status of our Parliament is very important. I say that because it did feed back in Bali. On the point about the lack of clarity beyond Kyoto, I turn to my colleagues for advice on this area.

Ms Thompson: You are right, the current Kyoto commitment period ends in 2012. Obviously as part of the new international agreement we will be seeking to negotiate, we will be looking at further commitment periods under Kyoto or under some other mechanism for going beyond that. The ambition will be under a new international agreement to try to set mid-term targets which could go up to 2020 and of course, beyond that, a long-term target if that is possible. Incidentally, negotiating something of that complexity in a timeframe going through to December 2009 is not a very leisurely pace at all, as I think was mentioned. I think that is quite ambitious to try to achieve. To respond also a point made earlier—if it is going to take us until December of next year to agree a long-term goal how are we ever going to do the rest in the

timeframe—just to be clear, all these processes are running along in parallel in the negotiations. What was agreed at Bali was that we would look to reach an international agreement by December 2009 that would cover a number of elements, a number of building blocks: the shared vision, which will include a long-term goal; also what concrete mitigation actions are required by all parties; adaptation actions; what technology actions are required; what financing is required, and how that would work. Putting all that package together is quite a complex process as you will understand and will take a bit of time, but it is all moving forward. Certainly there would be an ambition to look for a longer target period, but this would all depend on the nature of the negotiation, what is agreed and how that will work; so it is difficult to pre-judge that at the moment.

Q169 Mr Stuart: What is the British Government's attitude towards rolling targets, so that there is not this automatic end-point five years on, so at least there is some form of forward-look at all times?
Ms Thompson: It could well be part of the agreement that is negotiated.

Q170 Mr Stuart: To move on to developing countries, China and India are treated just the same as the UAE or Chile, do you think there is a growing recognition among developing countries that they should be differentiated between?
Mr Woolas: Yes, and I think it relates to the question you asked previously, Mr Stuart. The point was made at the Gleneagles meeting and Japan last week that the world, as I have already said, did not stay static in 1990, but it is the trajectory that matters. I think increasingly the point you make is the case. I also think that the issue of forestry and deforestation will give further emphasis to that point.

Q171 Mr Stuart: On what basis could new country groupings be decided and how often should they be re-evaluated, because there are some Annex 1 countries that are poorer than the other countries? How can the dynamics that change between countries be assessed?
Mr Woolas: The United Kingdom has an open mind as to how that will and should play out. It is one of the big areas where we do not want to pre-empt the discussions and negotiations. You are absolutely right to say there is an increasing awareness that, if you measure the wealth of a country, there are countries with a higher GDP per capita outside of the commitments than there are of those within in it. I think deforestation and aforestation will increasingly play a part. I think the carbon market itself, as it develops, will change the relationships of where people see themselves standing and where they actually stand. I think the real world impacts of climate change will bring about a greater urgency, as has been called for by members of the Committee beforehand, and change the relationship. This phrase "common but differentiated", which is a precursor to any contribution to any international forum, and one's allegiance to that phrase is almost a litmus test of one's commitment, the defining of what that means is what this issue is all about. Once you get into the definition of it there are then different models as to how you can take it forward.

Q172 Mr Stuart: Minister, we are interested in *your* vision of where we should be going. How do these countries get separated? I know you are saying you are leaving it to the negotiation, but we need to go in with some idea. We are not trying to dictate to developing countries, but equally we need to have some idea of how we think fairly and equitably that responsibilities can be divided amongst different developing countries?
Mr Woolas: By trajectory and by sectors.

Q173 Mr Stuart: You are basically looking at sectoral approaches?
Mr Woolas: Sectoral approaches are subservient to the wider targets, national and international, but nevertheless extremely important amongst those sectors that are the major emitters; and, secondly, where the projections show we are going in terms of emissions within each country.

Q174 Mr Stuart: Do you see China and India accepting binding sectoral targets even if they were not accepting of binding targets overall?
Mr Woolas: I think the area where the deal is to be done is over that issue combined with technology transfer and finance.

Q175 Mr Stuart: I think you have already answered my question on the separation between the two. How can we have confidence that we can reduce emissions in line with IPCC recommendations if there remain no binding targets on major emitters such as India and China at the end of this process?
Mr Woolas: Chairman, I do not think we can. That is my assessment.
Mr Dodwell: We are now seeing calls not just from those who are looking at different frameworks but actually from the countries within the discussions, the least developed countries who have just tabled a submission saying that they want to see differentiation amongst developing countries. I think the challenge, as the Minister was pointing out, is in how one blends those different sorts of obligations but comes up with something meaningful in the terms you are talking about. We are doing some work now internally to look at what the impact of different options for developing country and developed country targets might be in terms of overall emission impact. I understand why the Committee is looking at this; it is obviously something we need to have an idea of; but were the UK to come forward with an ideal proposal of "This is what an international framework should look like", that is the surest guarantee that we will not achieve it. We are not in a position where we can effectively just put forward a framework. The reality of the negotiations is that countries are now developing their own ideas about what action they are willing to take. You have got China taking its national plan forward, that I am sure you have heard about; and India is developing its own plan as well.

What we need to try to do is to encourage them to push forward to the next stage of development, the next stage of ambition, with those plans, and to get into conversations and dialogues with them about, "You've committed to this domestically. Will you be willing to commit to it as part of an international framework?" We now need to be effectively adding those plans together, working out whether there are additional measures you can take on a sectoral approach which are necessary to oil the wheels and to actually make this a virtuous discussion, a virtuous circle, where we are all competing to go a little bit further, rather than the "after you" discussions we have got ongoing at the moment. What we are doing is listening to the proposals others are coming forward with; we are analysing them; we are modelling their impact.

Q176 Mr Stuart: We are clear on how the diplomatic process works: the truth is you have got to be intellectually coherent. It is important, the point the Minister just made, that he does not believe we can be confident in meeting the IPC projections if we do not have binding targets on the major emitters even in the developing world. I think that is a statement of intent from the British Government and it does apply to China and India. That will be a sea- change if they do sign up to binding targets that are not just sectoral?
Mr Woolas: I think, Chairman, the point Ms Swinson was making then comes in to play, and that is the unknown, is what will be the impact for change in the United States of America; what the chemistry will be in the international negotiations as a result of that. It is clearly linked to the question of finance. The situation we are in at the moment post-Bali, and I can see why it looks a bit stuck, is that since Bali, apart from the informal discussions, there have not been any formal meetings of the Bali processes; as Jan says, the first one is next week. We are in a position at the moment, we are in that bit of a negotiation whereby the protagonists are still publicly repeating their well-known positions, and it is breaking that which is important. I believe, as I have already said, that the area where it will most likely be broken (given that I do believe we need those binding targets) will be in the area of sectors and finance; because it is in those areas where countries can see their economies can grow whilst, at the same time, cutting their emissions.

Q177 Martin Horwood: Do you think that positive but still slightly anarchic approach to binding targets is going to be enough to convince the American Congress? Are they going to vote for a system that does not seem to impose really comprehensive binding targets on developing countries?
Mr Woolas: It is a question of what those targets would be, is it not? I think you are right to urge caution. In our public debate in this country I think we are naïve as to the intentions of the Senate and the Congress. They will look after the United States' interests, and unless they are convinced that there are appropriate binding targets from other countries, particularly the major developing countries of China and India, their judgment will be that American public opinion would not wash any targets that they saw as being detrimental to US interests. I described it previously as the "ultimate mutual issue of destruction", and it is that which we have to break. In my view, that means the commitments from the major developing countries, and the reassurances in return that we can give them, are the most important show in town.

Q178 Martin Horwood: Given the importance of American political opinion on this, and given therefore the importance of those binding targets on developing countries, and the debate in developing countries on opinion in America, how much effort are you devoting (and this might be a question for Mr Wightman as well as yourself, Minister) to trying to shift opinion in those developing countries? You have talked about what sounds like a very welcome increase in the numbers of people in the headcount and in the resource, but how much of that is aimed at developing countries and what are they actually aiming to do?
Mr Woolas: Thank you, certainly Scott will want to come in. May I just take this opportunity to correct a mistake I made. I said we had 500 full-time equivalent in our postings, but in fact it is 500 people and I do not want to mislead you in any way whatsoever. The efforts we and the other European Union countries have in particular in relation to China and India to convince them of the policy, and convince them of our points of view, range from the highest level contacts; the Prime Minister's recent visit to both countries; my Secretary of State's visit to India in the run-up to Bali; the efforts of our Chief Scientist; the Government's Chief Scientist, the dialogue we have at sector and company level—the China-UK Taskforce is extremely important; and an understanding of the policy intentions of the Chinese and of the Indian governments is very important. Scott, perhaps you can amplify on that answer.
Mr Wightman: I think it comes back to the earlier point we made about the political conditions. The Chinese Government is not going to sign up to an international agreement on the basis of some financial inducements, and to agree to meet the sorts of reductions we think would be necessary in its emissions trajectory if we are going to secure the sorts of global emissions reductions that we think are necessary. The Chinese Government, and all governments, are going to have to believe that it is actually in their own interests in terms of jobs and growth that they should shift their economic development path onto a low carbon track. That is really the focus of our effort in the case of China and in the case of other governments as well. We are putting a significant investment into trying to shift political opinion in China—it is not straightforward. We are creating an additional 14 positions in our network of posts in China, locally engaged and UK-based positions in China; that is a significant increase in our capacity there. We are looking to work with our EU partners when President Sakozy

and Chancellor Merkel have been engaged with senior Chinese leaders. We know that they are sending the same messages. We make sure we are speaking with a consistent voice. The Commission will be there en masse later this month in Beijing[1]. That is all part of the mobilisation effort. We are working with the Chinese on the concept of near zero emissions coal plants. The UK has been at the forefront of developing a European initiative designed to demonstrate to China the viability of carbon capture and storage technology, and to try and convince the Chinese that it is going to be in their long-term energy security interests to develop that technology and deploy that technology at scale in China. It is these sorts of initiatives that we are taking

Q179 Martin Horwood: China being essentially a dictatorship it is fairly obvious where you have to aim your attempt at shifting opinion and influence. Looking at slightly more complicated democratic societies like India and Brazil, and places like this, do you pursue a markedly different strategy there? What are you aiming to try and do there? Are you trying to influence public opinion at all?
Mr Woolas: Interestingly, although you use the word "dictatorship" our analysis is that the Chinese central government is part of the solution and not part of the problem. It understands the issue; its policy decisions are in that context; it is a huge command economy and their deliberations are based on the recognition that the climate change is hurting them very hard indeed. In terms of influencing public opinion in the other countries, obviously one has to be extremely sensitive not to interfere in sovereign states; and that is why, in answer to the question before on the American situation, I explained that we take an open non-partisan attitude; we share our policy and our scientific information and lobby in that regard. In terms of trying to influence public opinion there are two [factors]: the first is the climate; what will happen in Brazil; what will happen in the Indian subcontinent as a result of climate change; and the second is the economics. To try to put into local and regional contexts the Stern Report is very important indeed. There are Brazilian and South American equivalents, and there are South East Asian equivalents as well now I think. We obviously undertake this campaign in a way that is sensitive to the accusation of interference. Biofuel debate in Brazil, of course, is a completely different one from that which it is here. We have strategies for the major countries that are sensitive to these points, so we are trying to do what you suggest.
Mr Wightman: The Minister is absolutely right, and you are right, we need to tailor the campaign strategies to the local conditions based on our analysis of how decisions are taken and how we can exert influence on those decisions.

[1] *Note by Witness:* This will, in fact, take place in late April 2008.

Q180 Martin Horwood: Last question about the European dimension, as you have said the Commission was quite complimentary about UK diplomatic efforts and recognised the strength of the UK's contribution; but what about coordination amongst Member States or with Member States? Are you confident that in countries like China, Brazil and India that we are singing from the same song sheet on emissions as other Member State countries? Are we working as a team on this or not?
Mr Woolas: I am, Chairman. In fact I am bored to death with it. European coordination is the first thing you think of in the morning and the last thing you think of at night.

Q181 Martin Horwood: You have an exciting life!
Mr Woolas: I know. I should get out more! I said before, I believe that this issue of climate change and the Bali process has seen a greater EU solidarity than on any other issue. I think it has brought the European Union together. It has shown the world that European Union coordination is an extremely powerful and beneficial thing.

Q182 Martin Horwood: We have been told specifically that more needed to be done to coordinate action amongst Member States, rather than at Union level.
Mr Woolas: The contribution of the European Commission at the Gleneagles Summit was very interesting and important because what they were attempting to do was to show how the lessons learned from European Union internal coordination, walking the walk as it were, what we are actually doing, how we have developed that and are developing it in the area of carbon markets, in the area of renewables policy and so on, is a lesson for the rest of the world. If you look at the European Union energy supply—taking countries as diverse as Poland, which is 80% coal-dependent, through to say Germany and France which have a different energy profile altogether—one of the things we are attempting to do is to show that that European Union coordination can deliver in the real world as well as at the market table.
Mr Dodwell: The point I would make, and I think Scott would back us up on is, you are right we can do more in-country, in terms of reinforcing the messages we are getting out. I think we are very fortunate in the way our Foreign Office has reacted to the challenge of climate change—we discussed the new departmental strategic objectives there; and we are in discussion with other European countries about how they can mobilise their foreign ministries as well so they are equally getting the word out. The Minister is absolutely right, we are joined up very much at the high level messages; what we need to improve is how we actually get the message out there on the ground. I think that is a project we need to be accelerating and dealing with urgently because there is room for improvement.

Q183 Chairman: Given the leadership role which we have played, and I am sure will continue to aspire to play internationally, do you think we are going to be

handicapped by some of the domestic policy decisions that have been made? For example, the decision to go ahead with a new coal-fired power station without CCS? For example, the decision to allow expansion of aviation, more airport capacity and so on? Are those policies not going to handicap us when we are trying to persuade other countries to take urgent action to curb their own emissions?

Mr Woolas: There is the potential of course that that is the case, and having an exemplar obviously strengthens our hand. We have not taken a decision to go ahead with a coal-fired power station that is not carbon capture ready. The debate is: what is the definition of "ready"? To be able to show that we can have commercially viable carbon capture coal-fired power stations, in my view, apart from energy efficiency, is the most important policy objective in energy—and not just my view but, more importantly the International Energy Association's view in their report on that. It is the definition of: what do we mean by "ready"? What is the viability of that? On aviation, I think the difficulty here, Chairman, is that our core message, backed up by the Stern Report, is to say to our own population and to the world not that we have to stop doing things but that we have to change the way in which we do things; that if the proposition that you can have economic prosperity and growth and a reduction in emissions is meaningful—and I believe it is, and that is the pillar of our policy—can we go further than that and say, indeed, that the only way in which we can have economic prosperity and growth, particularly in the developing countries, is by clean carbon economies? How that translates to aviation is very important. In and of itself, other things being equal, an increase in airport capacity is beneficial to the environment; it is the number of aircraft movements that is not beneficial; more efficient to air traffic control and ground traffic control; it brings about a reduction in emissions, all other things being equal. Where emissions are "unavoidable" (and that of course is a very contentious word) then we have to account for those emissions elsewhere. The United Kingdom led the proposal at European level that aviation and maritime should be included in emissions trading and in the caps and the definitions. That is a very sophisticated argument, a very complicated argument; it is one which some people do not agree with; but the premise that we wish to persuade people of, as I say, is not to reduce economic prosperity but to increase it by changing the way we do things but not by stopping doing things.

Q184 Chairman: One might argue that in the medium term a low carbon transport infrastructure is going to be essential for a growing economy. Looking at the examples of France and Spain investing heavily in high-speed rail networks, they have removed almost entirely or reduced very substantially demand for domestic aviation within those countries. The potential to do so exists in Britain, but instead of doing that we are spending money building new runways, even at airports like Stansted which are very largely discretionary flights, shorthaul flights. Do you not think that the policy is difficult to reconcile with the leadership role—which again has been recognised, which I hope we continue to play—if something which actually might strengthen our competitive position in the medium-term is being neglected?

Mr Woolas: I do not accept the premise that the Government has not invested in high-speed trains. I represent a constituency in Manchester and the number of flights from Manchester to London has reduced dramatically as the improvements to the service on the West Coast Line have got better, so I do not accept the premise. I do not just point to the West Coast Line, I think I am right in saying that the number of passenger journeys by rail is continuing to increase, so that point is valid. I think a policy of a government that was to be based on a deliberate restriction of air flights, rather than efficient in terms of emissions overseen by a cap and trade carbon trading system, would be false. It is also true that we have not built a runway in the South East for 30 years. If there is to be an increase in emissions from aviation then it has to be more than compensated for in the carbon markets. Of course, that is central to our policy.

Chairman: Just talking about London-Manchester, as far as I know flights between Paris and Lyon which were significant 25 years ago have been almost entirely removed, and that is comparable in my view. We may have made some progress but we could have got a lot further.

Q185 Mr Hurd: Coming back to the issue of new coal-fired capacity in this country, the Kingsnorth decision is being watched very carefully; when do you expect a decision? Has the Department argued strongly for conditions to be attached to it? Was I right in interpreting your remarks as suggesting you actually anticipate some success, in that you do anticipate what we might call "clean coal conditions" to be attached to the granting of that application?

Mr Woolas: Chairman, on the timetable I am afraid I will have go come back to you on that. It is a BERR lead; it is this year, I think. We act as one; we sing off the same hymn sheet. It is one of the strategic objectives of BERR that we can show commercially viable clean coal technology. The advantages to the UK and UK companies in being at the lead of that are great indeed. We have of course been involved in discussions with them. I would not say we have put conditions on, as if we were the masters in this relationship. We debate with our colleagues what the conditions should be and to some extent it is a false debate, because being ready for a technology that it is not yet ready is, to coin a phrase, a "known unknown". On one level it simply means is there space available to build new kit into the planning permission? On another level it means is the design of the technology best able to predict the technology assessment that the engineers and scientists have? There are only two carbon capture schemes that I am aware of in the world—one is BP owned in Algeria, and the other is Norwegian owned in the North Sea. I think it is BP but it may be Shell. Those plants do not tell us much because that is just, as it were, about

carbon capture and not about the process of developing the energy. We have to get it right. It is 50% of the world problem, and 50% of the solution. As I said before, after energy efficiency it is *the* most important thing. I think getting it right will benefit our ability to export, design and build clean coal technology around the world to the advantage of our economy, as well as of our environment. I hope that does not sound like a fudged answer. The emphasis that we have is obviously environmental, but it is also worth pointing out that we have not built a new coal power station for many years; it is 1999 since the last power station was built, apart from combined heat and power. The new proposals for coal-fired power stations are a lot more efficient than existing ones. The argument that says we should not build a more efficient coal-fired power station is a tortuous logic in my view, because it would lead, to the absurd, to the conclusion that we should not have coal-fired power stations. I am not aware of many people arguing that.

Q186 Colin Challen: Just returning to aviation. The Tyndall Centre have very convincingly argued that the continued growth of 3, 4 or even 5% per annum in aviation eventually within the carbon trading system would displace all our other efforts—that is the figure they have produced. Certainly the logic is clear, the cap and trade system, introducing this big new growing sector will mean that other sectors have to reduce even more their carbon footprint. In some cases there is evidence already that there are some British companies looking to move overseas as a consequence. It is clear that if we add these competitive pressures on to them, that is something they will consider very seriously. What is so special about aviation that we have to guarantee its "place in the sun", so to speak, with unmitigated growth? Is that seen by the Government to be better for our competitive position than maintaining other sectors which will feel the pinch as a result of aviation entering the ETS and obviously will face a higher carbon price, which I would argue is a good thing? Has the work been done to show that aviation somehow has a long-term economic benefit for the country which other sectors do not?
Mr Woolas: I think, Chairman, that this debate goes to the heart of the dilemma we all have to face. I am not suggesting Mr Challen is arguing this point at all, but it was put to me by my counterparts in Nigeria that one person's food miles was another person's protectionism. We do not wish to say to the developing world that we are putting up the shutters and we are not going to trade because of the carbon footprint; and, indeed, it would be wrong to do so, because carbon footprints are not as simple and straightforward as often the debates give the impression. To come to the specific, I do not accept that the UK's Government's policy is to treat aviation in a different way from other sectors. If they increase their emissions they will pay for it. Secondly, the fact there is obviously no available technology to change the fuel for jet engines does not mean that there are no significant efficiency measures we can take to improve the situation; and I would use the parallel with the motor car manufacturing industry. If we look at efficiency of air traffic control and ground traffic control, we are doing work on this, but some estimates suggest that 30% of emissions are in the landing and take-off manoeuvres. Stacking is a significant problem for emissions—greater efficiency in air traffic control can address that. Efficiency of the aircraft themselves—we are seeing developments in new fuels; we haven seen that very encouragingly in the United Kingdom as the first in the world recently. 30% of the power used in an aircraft is not from the jet engine itself; on average it is from the power packs that move it on the ground and provide other benefits of the aircraft. There are things we can do in efficiency both through technology and through better organisation. I come back to my point, if the aviation industry does increase its emissions it will pay for it, and that is the same for other sectors. I do not accept the premise that we are treating them differently. Neither do I think that an alternative policy, of deliberately restricting and indeed cutting the amount of air traffic, would be a viable policy from the point of view of the environment—except that protectionism generally would have that result, and I do not think that that is a path the world should go down.

Q187 Mr Stuart: The National Audit Office recently reported that if you included aviation and shipping in our overall emissions then our emissions have not dropped at all since 1990. Should we show leadership by including aviation and shipping emissions in our emission reduction targets in the Climate Change Bill?
Mr Woolas: I will need to ask for help from colleagues on this. The reports of the United Kingdom's emissions that came in our newspapers following the NAO Report were mischievous. We do report maritime and aviation. The method of counting at the United Nation's FCCC level presents the information in different ways, and of course one can cherry pick those. The difficulty of course is: what emissions do you account for? A plane stopping off at Heathrow is that a UK emission, an American emission, or a European emission? This is the subject of international negotiation. Getting aviation and shipping into the trading schemes is absolutely crucial. That is important because, you are absolutely right, in the real world it is the emissions that count and not who is responsible for them. The formal advice I am given is that on the data "we do not include international aviation or shipping in these totals because there is no international agreement on how these should be included in targets. We are working to include aviation and shipping in the EU ETS to ensure least cost emission reductions can be achieved in these sectors". We do report emissions to the UN but they are not published in the formats alongside the others.

Q188 Mr Stuart: Can I put it to you, Minister, we are perfectly free to choose a methodology and then adopt it, and sitting around saying, "No-one has

internationally agreed a methodology yet", if we want a position of leadership perhaps we should adopt one and get on with it, or change it later?
Mr Woolas: The fact that we do report our estimate of emissions is showing that leadership. The fact that the United Nations' agreements display the data in a certain format is not of our choosing. I think the second point is more important, which is: it is where you have come from and where you are going that matter. It is a comparison over time that matters. Is it reducing? Our goal and our commitment is to reduce our greenhouse gas emissions. If one takes a consistent methodology of measuring aviation emissions, I think I am right saying that the net impact of emissions from the UK is still down. Chairman, I plead for your robust analysis on this point—all of the debate is about the domestic emissions within the UK. What matters are emissions that are a result of UK economic activity; that is why an international trading scheme is so, so important. I think our contribution is 2% domestically, but nearer 15% internationally. How we could affect that 15% is through international agreements and through carbon markets, and that is what is important.

Q189 Mr Stuart: Turning to another area of potential leadership, which is that we need to find adaptation, mitigation and technology transfer in developing countries. Given that this issue will make or break a UN deal, do we not need to demonstrate where this money will come from?
Mr Woolas: Yes, we do, that is extremely important. We talked about the major economies' meetings. The other countries in the world have a very powerful argument when they say they are suffering the effects of climate change greater than the major emitters; that it is costing them proportionately more. Clearly both through public finance and private finance, including carbon markets, we have to show that we are able to increase the resource flow significantly. The IEA report looks at trillions, but again the important point is the nature of the investment and what we are investing in, and Nick Stern's point is very important. In terms of the Clean Development Mechanism, the Strategic Climate Fund, our own domestic Environmental Transformation Fund, I believe we are showing the way. I think there is an important debate to be had about the relationships between overseas development money and climate change money, if I could put it that way. Clearly the resourcing of this industrial revolution, energy revolution, economic revolution is core to it. Again, I think the United Kingdom is in a leadership role in this regard, but I do not pretend that the sums of money on the table at this point in time are anywhere near sufficient to solve the problem. I think we have to give those reassurances to the developing world in the course of the next 12 months. I am confident that we will with our European partners be able to do that.

Q190 Mr Stuart: How, because the adaptation funding at the moment is running at around 30-36 million through the CDM and the estimates are that it needs to be a thousand times greater than that. Saying what you are going to come up with in the next 12 months, where exactly?
Mr Woolas: The solution to the problem is largely in the private sector. The mobilisations of the monies that are required we estimate are 85% private sector. Included within that is the carbon market money. I think that argument is winning the day internationally. In terms of public sector money, although in the global scheme of things the environmental transformation fund is relatively small amounts of money—what it has been able to do is to provide leadership to leverage in commitments from, already, the United States and Japan, and I believe we will see success in that regard from other European countries. Our policy is that the funding should be multilateral; that recipient countries should have a major say; that the World Bank should be a major conduit, if not *the* major conduit, and that will require reforms of the World Bank. I think we are in the nursery slopes of this transformation; but that we are moving up the mountain is undoubtedly the case.

Q191 Mr Stuart: The Prime Minister's vision of the World Bank becoming the World Environment Bank is that gaining ground, or not?
Mr Woolas: It is. I think the recognition that what we call "adaptation" means mainstreaming—policy decisions, finance decisions across all the different areas of governance in different countries—that adaptation is not something that is exclusively the remit of environment departments, it has to inculcate all areas of investment, I think that point will see the World Bank and the Regional Development Banks increasingly taking onboard the adaptation. We want to be in a world where monies that are invested in infrastructure are all for adaptation; we cannot have one budget heading for adaptation and another budget heading for things that are not adapting; that would be folly. I think it is happening.

Q192 Mr Stuart: 85% of the private sector is not a number I have heard before, but even at that level we are going to need large and reliable sources of funding, and an obvious one appeared to be the auction revenues from the EU ETS which, as the British Government has previously made clear it would like to see join up into a global trading system; if you wanted multilateral, if we have a global trading system working from an EU original model then there is a source of funding that could be used to help transform the developing world. Why is the UK Government directly opposed to any hypothecation of EU ETS auction funds?
Mr Woolas: It is not just the UK Government that opposes that hypothecation; most treasuries in most of the world oppose that sort of hypothecation. It is wrong, in my view, to say that that revenue is lost to environmental transformation: it is not. The task in hand, as I say, is to ensure that both in terms of adaptation and mitigation that resources are directed towards that. In future when we build a new school, that school will have to be resilient. It is not

something that will get its funding from a climate change fund; it will get its funding from the Department of Young People, Children and Families, mainstream funding. The same is true internationally. How we can give these things boosts, of course, is a debatable point. I think the other serious point on this hypothecation from auctioning is that we do not want it to become a maximum either, although I fear that would be the case.

Q193 Chairman: Given the leadership role that we might play, and even if it is true other countries' finance ministries have the same Jesuitical objections to hypothecation that the Treasury has had for generations, would it not be a bold move (and this was certainly a point made to us last week in Brussels) if Britain were to say, "Actually for once we'll make an exception there. We think this is a good case where hypothecation would be justified"?
Mr Woolas: It would be bold but it would be foolish. The reasons why these cold-faced accountants have these policies, just because they are from cold-faced accountants does not mean they are wrong. We would be putting what many people have recognised, including this Committee, one of the two biggest challenges facing the world into the whim of revenues from specific budget headings, and we cannot do that.

Q194 Chairman: Overseas aid budgets have almost always fallen short of the UN agreed target. There must be some credibility gap in the minds of the people in developing countries about commitments which are not backed up with specific revenue sources?
Mr Woolas: That I think is a very serious important point the developing countries can reasonably make that, "We've heard it before. The cheque's in the post", and so on. I think the United Kingdom can be proud over the decades of its record but, nevertheless, countries are asking that question. That is why the credibility of the financing mechanisms goes to the heart of this. We cannot expect developing countries, particularly the least well-off developing countries, to sign up to an international agreement when there is not the credible finance mechanism in place. We see the Strategic Climate Fund, which of course is in place and will run in the period before the post-Kyoto settlement, as an encouragement, as a sign of good intent as well as being real cash. By showing we are prepared to put our money where our mouth is now we hope to give lubrication to the chances of an international agreement. I think the point you make, Chairman, along with the previous point about what the nature of an agreement would be is the most important question facing us.
Mr Dodwell: I wanted to point out that auctioning of allowances is obviously one option: ODA is another. There is a broad spectrum of options for where one might look for adaptation financing. We recognise the gap which has been pointed out and the Office of Climate Change is actually undertaking a project at the moment precisely aimed at this, where we are looking at which are the preferred ways of meeting this gap—so looking at the costs and benefits of auctioning, versus ODA, versus other forms of finance. It is something we recognise and we have prioritised by putting resources in to try to get a strong foundation behind that. As the Minister has pointed out, I think the SCF is a chance. We have got some money, now let us start having some really intense discussions with countries about actually what one finances. Let us pilot some of these adaptation approaches and actually try to work out how you can best get the right blend of public and private finance into solving the problem.

Q195 Joan Walley: Could you just translate SCF for us?
Mr Dodwell: The Environmental Transformation Fund, you already know about the international window of that. The Strategic Climate Fund is the name being given the work we are now trying to pull together with the World Bank and other donors to try to bring together various pots of money equivalent to the ETF and use them collectively.

Q196 Joan Walley: This brings us nicely to the issue of the Clean Development Mechanism. I think one of the things which we found when we visited China, and we did actually visit a project while we were out there, we were really struck by the potential there could be for abuse of the system. I would be very interested in what your considered view is about the future of the Clean Development Mechanism, and whether or not you have got any plans in the talks post-Bali to see it replaced by anything else? The additionality that was the concern, whether or not there was money that was going to something which should automatically be funded in any case and whether or not it only came about as a result of the funding that came from the CDM?
Mr Woolas: The policy we are pursuing in this regard recognises that, as in all international treaties there is a compromise on national sovereignty. The ability to independently audit and verify and report emissions reductions to ensure that monies are not paying for additional emissions goes to the heart of the matter. The international agreement will hinge around a trade-off between international verifiability and finance, and that is crucially important. The second point to make is that carbon markets themselves, let alone governments, will require that. The third point is that London is the strategic centre of such auditing, and that is to our advantage. I suppose, as in all systems, there will be an element of doubt and no doubt corruption. Those are the general principles that we adhere to. Could I ask Jan to back me up on it.
Ms Thompson: As the Minister has said, it is a relatively new mechanism, the CDM, so we are still learning as we go along, and improvements have already been introduced in some of the calculations that are made, and some of these we piloted during our presidency of the G8 and the EU in 2005, which has led to some strengthening; but I think there does need to be some further work done in that area. Looking at the way forward as part of an

international agreement, which we hope to reach next year, it may be possible to look more at benchmarks for the CDM; and also trying to look at the CDM on a sectoral basis. Rather than individual projects, having a look at it on a programmatic basis, particularly in a particular sector across a sector against agreed base lines, and that sort of thing, so that the methodologies are improved and the additionality concerns can be taken away to some extent. All of that is being looked at and hopefully some improvements will be possible.

Q197 Joan Walley: I wanted to ask about the Millennium Development Goals because you talked just now about the World Bank and bringing in the World Bank. I wondered if you could help the Committee with how you see the Clean Development Mechanism being expanded in respect of rewarding policy measures in developing countries; and how that is going to sit side by side with the Millennium Development Goals, because it is quite clear that this is an area where quite a lot of leadership is needed and where we are not going to end up with, for example, DFID providing all kinds of funding for projects which do not have these efficiencies in terms of carbon at the heart of them?
Mr Woolas: Two points, Chairman: one, we could provide the paper we have done on where improvements to the CDM could come about. We have provided a printed document on that. If that is not public, Chairman, it is now, and we will get that to you! On the second point, this is a tremendous opportunity. I take the view that the only realistic hope for increased prosperity, particularly in Africa, is when the successful Climate Change Agreements are reached. The sums of money we need to increase prosperity in the world, particularly in Africa, in my view will only come about through the finance mechanisms the Climate Change Agreements put into place, rather than ODA on its own. All governments will be open to the accusation that we are taking money off ODA to give it to climate change or vice-versa but the truth is that if we accept the logic of Nick Stern's argument then the two are aimed at the same goal. I can see and want to work towards circumstances where the Climate Change Agreements, and particularly the development of the Strategic Climate Fund in the public sector and the carbon markets and investment decisions in the private sector, bring about a significant investment in recurrent expenditure in the developing world. I think that the countries in the developing world that accept that policy see a tremendous opportunity for sustainable economic activity and sustainable economic growth. I see this as a tremendous opportunity. I think this is the most exciting and important area of policy that there is in government. The idea that we could face this challenge of climate change to help the developing world increase their prosperity, it may be terrible circumstances that are leading to this situation but that opportunity we have to gasp and I believe we can do that.

Q198 Chairman: In the light of that answer, do you have a figure in mind for the proportion of international credits that EU countries should be allowed to use for the purposes of meeting their obligations under the EU ETS?
Mr Woolas: Of course this matter is subject to the Climate Change Bill. I am a purist on this. I take the attitude that of course we have to have policies that leave a change in our own country; but I see the scientific argument that says, "What does it matter where the emissions are reduced from as long as they are reduced?" There is of course a timelag in the southern-northern hemisphere situation in terms of the emissions. The opportunity to use carbon markets to invest in sustainable production, agriculture and otherwise in the developing countries, is tremendous and we should gear our policies in my view towards that goal.

Q199 Chairman: So you would be happy for a significant proportion of Britain's commitment to be met in that way?
Mr Woolas: I would. I do not believe that there is a clear divide. I think the changes in technologies that we need in order to bring this vision about will happen in our country and similar countries. If you take the areas of combined heat and power, if you take the areas of clean coal, indeed take the areas of renewables, pharmaceutical processors, industrial symbiosis generally, I think that this country will be one of those handful of countries that will lead the world, and that what we can invest in through carbon markets in the developing world can only be there if we do the work ourselves. It is a question of balance, I am sorry to be boring and come back to that phrase. It is how we drive domestically and internationally in those areas. I tend to the international rather than the domestic because I think corporations take decisions on an international basis and not a domestic basis.

Q200 Mr Stuart: Do you think a reformed CDM is the right instrument to deal with deforestation?
Mr Woolas: Yes and no is the answer. The United States' position has been caricatured as one which says, "Why should we pay criminals not to do something that they shouldn't be doing anyway?" In other words, why should a market pay someone or a government pay someone not to do something illegal. The alternative point of view is to say that if you are to base carbon policies on science rather than on politics then carbon sinks are just as important and have to be taken into account in the same way as a power station does; and we are in the latter camp. On your baseline you have two considerations: you have the national baseline and the very sensitive issue of national sovereignty, particularly as expressed by Brazil, Indonesia and indeed other countries; then you have the point that was related to before about additionality. If we can show verifiable mechanisms of deforestation projects that take on board the sustainability then I think they will be part of the carbon market, but the jury is out on this issue.

Q201 Mr Stuart: What about the EU ETS? Would it completely destabilise the ETS if reforestation or deforestation credits were allowed to enter in?
Mr Woolas: At the moment, yes. Other things being equal, it would have such an impact that it would cut our nose to spite our face. Our policy is to work towards the inclusion of deforestation and aforestation of course within that market.

Q202 Mr Stuart: Do you basically accept that eco-services, if you like, provided by forests being paid for is part of the long-term future?
Mr Woolas: Yes, we do.
Ms Thompson: If you were including it you would have to have deeper commitments and would have to do the balancing. The point I was going to make was, there is a mechanism for piloting approaches of how to tackle forestry issues. In Bali the UK Government announced a contribution of £15 million to the World Bank's forest carbon partnership facility which has a couple of funds in it—a readiness fund which looks at building capacity in developing countries so that they can measure these emissions properly and try and address issues of leakage and that sort of thing; and a carbon fund which looks at testing out incentive mechanisms and how payments are to be made and whether or not this comes through carbon markets, through public finance and to whom those payments would go and so on. Those pilots are getting underway now through this year and next so we can see where we get to by the time we are looking to conclude an international agreement.
Mr Woolas: It is worth saying that Bali did include this. I thought personally that one of the greatest breakthroughs of Bali was that.
Chairman: We have covered quite a lot of ground in the last two hours. We are grateful to both you and your officials for coming in both for the content and the manner in which you have dealt with our questions. We much appreciate that.

Written evidence

Memorandum submitted by the Royal Society for the Protection of Birds

Summary

The RSPB considers human-induced climate change, poses the biggest long-term threat to global biodiversity. To avoid a catastrophe for wildlife, anthropogenic greenhouse gas emissions need to be cut hard and rapidly, with global emissions peaking within the next ten years and then declining steeply, in the UK by at least 3% annually. We therefore support policies and measures that do so, in the UK, EU and internationally. In summary, the RSPB believes:

- The Kyoto Protocol is still highly relevant and is the only international climate regime that we have until the end of 2012.
- The Bali Action Plan agreed by all countries, including the USA, was an important outcome even though it should have included emissions from aviation and shipping.
- It will be difficult for some emerging economics such as South Africa, China and Brazil to fully come on board in the absence of effort from the USA, although this situation has the potential change as each of the main US presidential candidates appear committed to the global 50% reduction goal.
- The Asia-Pacific partnership has been damaged by the Bali agreement and its influence is likely to diminish.
- Development of mechanisms to tackle emissions from deforestation should include elements of both market-based and fund-based approaches.

Introduction

The RSPB has a long history of involvement in the international climate change debate and works with BirdLife International Partners in to pilot projects, which aim to reduce emissions from deforestation in developing countries (REDD). We have saved 100,000 hectares of tropical lowland rain forest in Sumatra, Indonesia (one of the most biodiverse and one of the most threatened places in the world) from almost certain conversion to oil palm or timber plantations. This groundbreaking project, Harapan Rainforest, is the result of years of lobbying for a change in the Indonesian Forestry law and is the first forestry concession in the country that is managed for conservation and restoration, rather than for timber production. Similarly, together with the Government in Sierra Leone, we have saved the Gola Forest from being logged for timber. Instead, we have reached an agreement with the local communities that they get compensation payments in return for allowing the Gola Forest to be designated as National Park.

In this submission we respond to questions 1, 2, 3, 4, 7 and 8 posed by the Committee.

Is the Kyoto Protocol still a relevant and effective mechanism and how successful was the Bali conference?

1. The Kyoto Protocol is still highly relevant and, indeed, is the only international climate regime that we have until the end of 2012. It contains sound, well thought out mechanisms on which many national and regional policy instruments are based or make use of, for example, the EU Emissions Trading Scheme and the Clean Development Mechanism. Just a few weeks into its first commitment period it is hard to say how effective Kyoto will be but it has already had a huge influence with its almost global membership.

2. Kyoto would undoubtedly have been much improved by the participation of the United States. Even at the time it was agreed 10 years ago, it was only regarded as a first step in terms of its emission reduction commitments which are clearly inadequate to tackle climate change, hence the need for a successful outcome in Bali.

3. In our opinion, the Bali conference was successful in that it set up the inclusive, comprehensive process contained in the Bali Action Plan. An indicator of success is that in the run up to Bali, the EU proposed eight "building blocks" that it considered would be needed in a successful agreement and seven of these are included in the Action Plan, the exception being emissions from international aviation and shipping. Whilst this is an important omission, the key issue in Bali was to establish the right process and there is a good chance of adding more substance later.[1] The main subject headings are in place in the Plan: the need for an overall objective, the need for action on mitigation by both developed and developing countries, adaptation, technology transfer and financing. This is, in principle, enough to lead to a post-Kyoto agreement that adequately addresses the climate change challenge.

[1] International transport emissions are not ruled out and there are a number of items in the agreement where they could be addressed. It should be noted, however, that there is significant opposition to their inclusion by countries with major transport hubs, including the USA. It was the Clinton not the Bush Presidency that excluded them from Kyoto.

4. Draft text in Bali contained reasonable long and medium term objectives for emission reductions that were removed, mainly at the instigation of the USA, although the IPCC report from which they were taken remains referenced in a footnote.[2] Given that these objectives were widely discussed during the course of 2007 at a series of international meetings, we anticipate that something along these lines will eventually be agreed, although we may have to wait for a new US Administration.

5. A key feature, if not the key feature, of the Bali Action Plan is that it was agreed by all countries including, rather grudgingly, the USA. On balance, its weaknesses in terms of substance were probably worth trading for its inclusivity, bearing in mind that all likely candidates for the next US President are in favour of action on climate change.

What needs to be done between now and Potznan?

6. This year, there will be four meetings of the ad hoc working group on the Bali Action Plan at roughly quarterly intervals, with the fourth being in parallel with the Poznan meeting. There will also be at least one workshop on reducing emissions from deforestation in developing countries (REDD). Taken in conjunction with other related meetings, such as the UNFCCC ad hoc working group on developing country commitments, the G8 and Gleneagles meetings, the major emitters meetings and so on, this represents a very busy schedule for negotiators.

7. logically, the Bali Action Plan group should first consider the overall objective but should this prove difficult with, for example, the USA, it would be easy to begin meaningful discussion on any one of the other major topics on the Action Plan list.

8. Consideration also needs to be given to the types of mitigation policy mechanisms that the post-2012 regime will contain. For example, whilst it should continue to place binding targets on developed countries, continue the Kyoto carbon markets and continue to recognise CDM credits, it is an open question as to how to accommodate reducing emissions from deforestation in developing countries (REDD) and more broadly, ways in which developing countries might limit their emissions. For example, Papua New Guinea (PNG) proposes a sectoral commitment for REDD and this concept might be adopted for other sectors. China might opt to take on an emission limitation commitment for its electricity generation sector.

9. Emissions from international aviation and shipping should be included in the debate but although the politics of their inclusion are likely to be difficult, the mechanics should be fairly simple. In the past, a lot of fuss has been made about the difficulties of, for example, determining where to allocate responsibility of emissions and how to deal with uncertainty. In fact, there is little option but to allocate responsibility for emissions to the point of sale of the fuel and there is uncertainty associated with all emission estimates that can be dealt with using existing IPCC methodologies.

How can "common but differentiated responsibilities" be decided in such a way that ensures the engagement of all parties?

10. Although significant effort has been made by both NGOs and some governments to develop fair and equitable frameworks for emission reductions, these have for various reasons had little traction in the global climate negotiations to date. In part, this is because there are always some governments that simply refuse to go down this route. For the past seven years the US Administration has exemplified this position but it is shown to some degree by many countries. For example, at present India is less willing than South Africa, Brazil and China to take an active part in discussions on what developing countries might contribute to a post-2012 regime. In part, the situation also arises because it is very hard to devise a truly comprehensive framework that fits all. Some years ago, Brazil made a proposal on how to account for historical responsibility which has a lot of goodwill, resulted in some interesting discussions but which has still to come to a conclusion.

11. In very general terms, a degree of fairness and equity is acknowledged. All countries agree that developed countries should take the lead in tackling climate change (as enshrined in the Convention). They also agree that the poorest countries that emit almost nothing should not have to do anything on mitigation. There are, however, several large grey areas where who needs to do what is unclear and the waters are muddied by bad behaviour by a few. The emerging economies, especially South Africa, China and Brazil, recognise that if climate change is to be tackled then they need to take some action; the problem simply will not be solved otherwise. Yet is it politically hard for them to act in the absence of effort from the USA.

12. Having said this, there is now considerable agreement on the sorts of emission reduction that are needed globally and that may help shape the negotiations. Over the past year or so there have been a series of meetings at which an increasing number of nations have converging on agreeing on global emission pathways, if not individual national ones. In terms of the global pathways required, this emerging consensus largely built upon the third assessment report of the IPCC and, in terms of shorter term developed country targets, upon the proposals of the EU, which were in turn based upon science. On 13 December, two days

[2] The draft text said that global greenhouse gas emissions should peak and decline in the next 10–15 years and be cut to half of 2000 levels by 2050. It also said that developed country parties to the Kyoto Protocol should cut their emissions by between 25 and 40% by 2020.

prior to the conclusion of the Bali Action Plan, the draft Plan stated that " . . . the Fourth Assessment Report of the IPCC requires global emissions of greenhouse gases to peak in the next 10 to 15 years and be reduced to very low levels, well below half of 2000 levels by 2050 . . . " It also stated that " . . . recognising that much deeper cuts in emissions by developed country Parties will be required and that Parties to the Kyoto Protocol are considering the indicative range of emissions of Parties included in Annex I to the Convention with a commitment inscribed in Annex B of the Kyoto Protocol, as a group, of 25-40% below 1990 levels by 2020 . . ."

13. Whilst this text was stripped out of the final agreement, largely by the USA, reference is still made in the Plan to the relevant pages of the IPCC text, the 50% reduction goal was largely agreed in the Ad Hoc Working Group on developed country commitments under Kyoto, and it is consistent with what the main US Presidential candidates have been saying or is in their election manifestos. It is thus likely that any final agreement in Copenhagen in 2009 will contain similar text on the overall objectives.

How might an agreement be reached with emerging economies to ensure that their emissions trajectories move into line with the need to reduce global emissions?

14. It has been clear for some time that at least some of the major emerging economies appreciate that they need to take action, certainly in the cases of Brazil, South Africa and China, all of whom adopted positive stances in Bali. Indeed, on some issues such as REDD, all of the major emerging economies showed willingness for action. PNG led on REDD, Indonesia played a very helpful role together with Brazil, and both India and China constructive. Bearing in mind that tropical deforestation accounts for about 20% of global emissions (roughly the same as the USA) it was encouraging that all of the nations with such forests were keen to act to stop these emissions.

15. Whilst poorer nations might make use of the Clean Development Mechanism to limit their emissions, it is clear that the CDM is inadequate to make serious inroads on the emissions of large nations whose economies are growing rapidly. China, for example, has the lion's share of CDM projects but their effect on the Chinese economy is marginal. Access to far greater financial flows is needed. In our opinion, such access would best be gained by means of sectoral commitments. In such an agreement, a developing nation would voluntarily undertake to limit its emissions and obtain credit for any cut below this limit, in a very similar way to that proposed for REDD by Papua New Guinea. This could potentially unleash substantial amounts of money, if the carbon market is driven by tight caps on developed countries.

16. Under such an approach developed countries would essentially be paying developing countries to limit their emissions which, at least in principle, is fair in terms of historical responsibility. It is unlikely to be completely equitable, however, in that larger countries with burgeoning economies would be likely to benefit most—but then they are also the countries with the fastest growing emissions and thus need to receive the most encouragement.

Is the Asia-Pacific partnership a complement or a rival to the Kyoto Protocol? How is it likely to develop and what is it likely to achieve?

17. The Partnership is not a rival because its membership is limited and it has multiple objectives, encompassing energy security, air pollution more generally, poverty reduction and sustainable economic growth, as well as climate change.[3] Also, its remit is limited to certain economic sectors, mainly heavy industry. However, the partnership is both powerful and influential because its members represent about half of the world's economy, population and energy use, and they produce about 65% of the world's coal, 48% of the world's steel, 37% of world's aluminium, and 61% of the world's cement.

18. At times during the last few years, the USA has clearly tried to establish the Partnership as a rival to Kyoto but it has equally clearly failed, with even the Howard government in Australia backing off. With new governments in Australia and soon the USA, we suspect that the influence of the Partnership is likely to be more benign, or at least less potentially harmful.

How might mechanisms to tackle emissions from deforestation be developed?

19. A variety of proposals have been made as to how the REDD regime might develop, ranging from a full market-based approach by PNG to a fund-based approach from Brazil with several limited market approaches in between. It is at present unclear which option is likely to be agreed or, indeed, if another option may emerge. The question foremost in most negotiators minds is how to ensure that sufficient resources are delivered to negate the drivers of deforestation and which mechanism would serve best in this regard, rather than an in-principle preference for certain types of mechanism. A widespread view is that market mechanisms could deliver most money, but only if there are tight caps on developed country emissions—which cannot be assured. Voluntary funds, on the other hand, have a poor record of delivering large sums of money over long periods. (More than US$5 billion per year are likely to be needed to make a significant impact on deforestation).

[3] APP partners are Australia, Canada, China, India, Japan, Republic of Korea, and the United States.

20. In our view, a single policy approach may well be inappropriate and a step-by-step approach involving different mechanisms might be more effective. This is simply because most nations would find it very hard to implement a national sectoral commitment in the near future, requiring far more capacity building for several decades. Alternatively, a hybrid mechanism may work best, with a limited market feeding money into a fund.[4]

How can we ensure that such mechanisms contribute to wider sustainable development aims? Will such mechanisms deal with the need to ensure the protection of indigenous people, land use rights and governance?

21. We consider that it will be hard to address wider socio-environmental concerns adequately. This is because the negotiations take place in a United Nations treaty on climate change. The UN believes absolutely in national sovereignty and neither the treaty nor negotiators have a mandate to conclude agreements on social justice or any other domestic matter within states, other than those relating to climate change.

22. However, if there are existing international agreements, especially UN agreements such as the Convention on Biological Diversity, covering issues other than climate change then it is a relatively simple matter to have the climate regime recognise them and ask for them to be taken into account in its legal texts. If there is no such agreement then it is perhaps rather too much to expect the climate change regime to address the problem. In fact, the REDD agreement from Bali does specifically recognises that " . . . the needs of local and indigenous communities should be addressed when action is taken to reduce emissions from deforestation and degradation in developing countries . . ."—although this is not legally binding. We, of course, will be arguing that biodiversity protection should also be advanced through any REDD deal.

How might forest degradation be dealt with?

23. It was agreed in Bali to include degradation in the negotiations. Whilst it was right to include degradation, because it is often a precursor to deforestation and a significant source of emissions in its own right, it is harder to estimate the extent of changes in carbon stocks due to degradation than to deforestation. Clear-cut deforestation can largely be assessed by remote sensing, with some ground-truthing, but this is more difficult for degradation where ground-based measurement is probably generally required. Also, there are many different types of degradation with many different definitions.

24. However, the negotiating group on REDD has largely agreed that IPCC methodologies and good practice guidelines should be employed for emission estimates and the higher (more accurate) "tiers" of these are preferred. These employ national definitions and methodologies, thus avoiding the need for any new international ones. Moreover the IPCC guidelines, overall, promote the so-called conservative approach, in which credit is only given for what can be accurately estimated, ensuring the reliability of estimates and encouraging nations to improve their inventories. Nevertheless, estimating changing in carbon stocks due to degradation remains a significant challenge.

Are additional mechanisms required to enable the creation of carbon sinks?

25. It was agreed in Bali, at the insistence of India, that the REDD negotiations should now include not only reducing emissions from deforestation but also enhancement of carbon stocks too; in other words, take into account carbon sequestration. It is not yet clear precisely what this means but India clearly intends that it should allow credit for reforestation, which India is about to undertake, having already "stabilised" deforestation, and which both China and Costa Rica are already doing.

26. Whilst it is many ways rational to include all forest-related activities in one mechanism, this will complicate the negotiations, if only because there is already a mechanism for addressing afforestation and reforestation under the CDM—the prospects of which now look uncertain. Also, the inclusion of reforestation raises concerns about biodiversity; reducing emissions from deforestation is always likely to be beneficial to the conservation of "natural forests" but whilst reforestation would benefit regeneration of such forests, significant money is likely to be channelled into fast-growing monoculture plantations that could give more immediate carbon benefit but do little or nothing for wildlife.

January 2008

[4] There are several proposals on this type of approach, including from Greenpeace and the Centre for Clean Air Policy.

Memorandum submitted by Sindicatum Carbon Capital

Introduction

- Sindicatum Carbon Capital (SCC) welcomes the Environmental Audit Committee's emphasis, throughout this Parliament, on climate change-related issues. It also welcomes the opportunity to contribute to this important Committee inquiry. It believes that the inquiry is timely, too, with 2008 marking the third anniversary of the Kyoto Protocol coming into effect (in February).
- SCC supports both the Kyoto Protocol and the new "global green currency" system which it created, through the introduction, for example, of carbon pricing and credits for reductions in the emission of greenhouse gases (GHG). Similarly, SCC welcomed the emphasis on market-based solutions to environmental challenges that was contained in last year's very positive report from the Commission on Environmental Markets and Economic Performance.
- The timeliness of the Environmental Audit Committee's inquiry is demonstrated by the fact that 2008 is likely to be the year in which the generation, carbon market capitalisation will pass the $1 trillion mark worldwide.[5] Sindicatum believes that the scale of this market, and London's leading role within it, is poorly understood.

Sindicatum Carbon Capital

- SCC is a UK-based developer of pollution abatement projects in the global emerging markets. It provides a combination of finance, technical expertise and project management to develop major, cost-effective greenhouse gas reduction projects. SCC's shareholders include Citigroup, AIG (the world's largest insurer), and Black River Asset Management (a wholly-owned subsidiary of Cargill).
- Areas of specialisation include abating Greenhouse Gas (GHG) emissions from the oil and gas, chemicals, waste management and natural resource sectors, as well as energy efficiency. SCC's commercial strategy is to provide its shareholders with strong capital growth combined with a manageable risk profile through direct investment as an "end-to-end" developer in projects that reduce greenhouse gases and, as such, result in the "manufacture" of environmental commodities and in the generation of cleaner power. The company uses its experienced management team to select the best investment opportunities and to deploy advanced and best-of-breed technologies to become the preferred partner and source of capital to qualifying asset owners worldwide.
- SCC has detailed knowledge of the economic incentives, created by the Kyoto Protocol, which can encourage both developed and developing countries to reduce their greenhouse gas emissions. SCC believes that people, companies and governments are not going to reduce pollution just because there are rules urging them to do so; they are going to reduce it because of the financial incentives and benefits of doing so.

Our response will focus on the Committee's questions as far as SCC's experience is relevant.

1. *Is the Kyoto Protocol still a relevant and effective mechanism? How successful was the Bali conference? Does the roadmap contain all that is needed to lead to a post-Kyoto agreement that adequately addresses the climate change challenge? Will the roadmap focus on implementation issues or will it come to an agreement on a stabilisation level? How do we ensure that no key parties are left out of the process?*

SCC believes that the Kyoto Protocol remains a relevant and effective mechanism through which global greenhouse gas emissions can be reduced. SCC believes that a market-based mechanism is the only way in which deep and wide-ranging cuts in greenhouse gas emissions can be delivered within the timescale that the International Panel on Climate Change (IPCC) tell us is required. The Bali Conference was a success in that it continued progress towards a second commitment period but was disappointing in that it stopped short of setting any new targets.

However, with the political situation in the US, any agreement was always going to be weak, and the Parties must now strive to build on the changes in attitude that a new US Administration may bring to the table. The best way of ensuring that no key parties are left out of the process is to demonstrate that:

- greenhouse gas emission reductions and caps on emissions do not impose significant costs or burdens on economies;
- there are positive benefits of reducing greenhouse gas emissions in the form of reduced energy costs; and
- reduced energy consumption is a strategic goal closely aligned to energy security

[5] http://www.environmental-finance.com/2007/0702feb/Sindicatum.htm

2. *What needs to be done between now and Poznan? Emissions from international aviation and shipping were not included in the Bali roadmap. Why did this happen and what can be done to address these emissions?*

Successful climate change mitigation will require action on a global scale and, in particular, it requires massive investment in new technology, research and development delivering significant results within a short time period. We believe that it is important to focus immediately on those sectors which have the potential make a significant contribution to global greenhouse gas emissions in the short term. Consideration must be given to immediate climate control mitigation policies, such as methane emissions and emissions of other industrial gases, whilst longer term targets are established using technologies such as CO_2 sequestration, energy efficiency and renewable and nuclear energy.

In order to address the climate change challenge, SCC has invested heavily in specialist teams operating in key areas where we believe that opportunities exist to significantly reduce greenhouse gas emissions in the short to medium term; these are land-fill gas, coal mine methane, energy and industrial emissions, and oil and gas.

Globally, landfills are the third largest source of man-made emissions. Methane from landfills and coal mines is 21 times more powerful than carbon dioxide at affecting global warming. In the coal mining sector, methane also represents a major safety problem for miners and loss of value for mine owners. By 2020, the world's coal mines are expected to produce annual emissions of 153 million metric tons of CO_2 equivalent in the form of un-treated or un-utilized methane.

International shipping and aviation were excluded from the scope of the Kyoto Protocol because, by definition, they arise outside national boundaries and are not considered to be the responsibility of any one nation. The International Air Transport Association (IATA) and the International Maritime Organization (IMO) were both given responsibility for progressing the issue within their respective industries, but little progress has been made to date. Both sources could be included simply by agreement between the countries hosting the port of origin and the port of destination, as is now being proposed for aviation within the European Union Emissions Trading Scheme (EU ETS). There are also technologies that will deliver incremental reductions in greenhouse gas emissions in both industries and a system of international cap and trade could be used to limit the impact of growth in emissions.

Emission Reduction Frameworks

3. *How can "common but differentiated responsibilities" be decided in such a way that ensures the engagement of all parties? How can equity concerns regarding the allocation of mitigation targets and historical responsibility for climate change emissions be reconciled?*

A large part of the answer lies in the provision of technology and investment by Annex I parties to Non-Annex I parties, to help the latter to develop in less greenhouse gas intensive ways. Helping Non-Annex I Parties avoid lock-in to carbon intensive technologies now, will benefit them greatly in the future. For example, helping such countries develop efficient mass rapid transport systems will help them avoid the misery of traffic congestion.

Allocation is a function of historic emission levels and the availability of technology to reduce greenhouse gas emissions. Whilst allocation is an emotive issue, the European Commission has gained considerable experience in the allocation of EU Allowances (EUA) through the National Allocation Planning process. Guidance should be taken from the European Commission's experience to date. Above all, the ultimate goal and the likely cost of failure to act should be borne in mind.

Equity concerns are addressed through the provision of flexibility mechanisms, giving parties options as to how they achieve their targets. Domestic action and trade are, of course, the main flexibility mechanisms and the Clean Development Mechanism (CDM) has shown that there is a plentiful supply of additional emission reductions that can be used to take the brunt of equity concerns. Maintaining an appropriate price for carbon is key so that Parties and industries can make the required cuts without significant financial costs.

4. *How might an agreement be reached with emerging economies to ensure that their emissions trajectories move into line with the need to reduce global emissions? How might developing countries' need to expand their economies be reconciled with controls on emissions?*

Emerging economies must be helped in order to avoid being locked into high greenhouse gas emission positions. This can be achieved through the provision of technology and investment. In practice this should, for example, involve carbon capture and sequestration; a more beneficial and practical approach to recognising the storage of carbon in forests; greater support for the implementation of hydro power (instead of excluding it from the EU ETS through the application of the World Commission on Dams Guidelines); and wind and solar power applications.

Of the emerging economies, China is by far the most significant. China accounts for 77% of world's growth in coal consumption, and coal production will double by 2020 if its economic growth is maintained. China will be dependent on coal for about 70% of its power generation for the foreseeable future. China

must be convinced that concerted international action on climate change is not a ruse to restrain its economic potential. This can be achieved by demonstrating that partnerships such as that between SCC and Shanxi Coking Coal Group are mutually beneficial. (See question 5 for more detail).

Methane emissions from coal mining can be substantially reduced by a combination of established and emerging technologies. Using technology pioneered by SCC, near-zero methane emissions coal mining is a practicable proposition and should be promoted as an important intermediate climate control mitigation policy ahead of CO_2 capture and sequestration.

Adaptation and Technology

5. *Is there adequate support for developing countries to adapt to climate change? Should there be binding targets for funding and how could these be decided? How will funding for climate change mitigation or adaptation interact with existing aid budgets? Will such funding contribute to wider sustainable development goals?*

Adaptation to climate change needs to take place in hundreds of thousands of individual installations across dozens of countries. The kinds of actions can be broadly divided into non-CO_2 abatement and CO_2 abatement activities. The former include potent gases such as sulphur hexafluoride (SF6), hydrofluorocarbons (HFC23), di-nitrous oxide (N2O) and Methane (CH4), whilst the latter is CO_2—usually from the combustion of fossil fuels. Many of the non-CO_2 abatement activities have already been addressed by the market mechanisms under the Clean Development Mechanism (CDM) because, particularly in the case of HFC23 and some N2O projects, they are massively profitable when carbon prices are in excess a $2 or $3 per tonne CO_2e. Joint Implementation (JI) has yet to deliver on these.

In retrospect, some of these activities could have been addressed via a global fund such as the Global Environment Facility (GEF) because, by and large they are non-revenue generating and are the result of unintended industrial developments. CO_2 emission reductions come from energy efficiency programmes and renewable energy, which have an underlying financial driver (although there are also significant CO_2 emissions from some processes such as cement manufacture, which are harder to reduce because the CO_2 comes from chemical reactions which are fundamental to the products). It has already been shown that with a CDM element, many such programmes can be encouraged Carbon Capture and Sequestration (CCS) is somewhat similar to the former category of Non-CO_2 GHG abatement projects. There are no revenues involved; the quantities of greenhouse gas emission reductions are potentially very large and consequently they have the potential to impact upon the distribution of wealth. CCS could be dealt with via an international fund delivering benefit for the world's population without distorting trading regimes.

The developing counties are right to demand that official development assistance is not used to pay for greenhouse gas emission reduction activities, because to do so would simply support the donors' standard of living.

SCC believes that successful climate change mitigation can most efficiently be achieved by encouraging market-based solutions, underpinned by a secure regulatory framework. SCC harnesses the profit incentive in order to help developing countries respond to the challenge of reducing greenhouse gas emissions. SCC is a major player in promoting the development and implementation of new technologies in mitigation of greenhouse gas emissions. Unlike other project developers, SCC takes a principal position in its projects, using its capital and technology to create long-term emissions reductions, which generate emissions credits—as opposed to buying forward credits. These are sold on in the market and the profits are fed back to SCC investors.

Taking our "near-zero" methane emissions coal mining project as an example, SCC encourages participation from developing and transitional countries by providing selected project owners with:

- Full technical support during project implementation to ensure project delivery and maximisation of emission reductions.
- Priority allocation of new and innovative mitigation technologies developed by SCC.
- A gas drainage audit report which provides recommendations and assistance in enhancing gas capture and quality.
- Technology transfer and training.
- Generation of electricity & heat, often in areas of unreliable supply.
- Creation of additional revenue streams by selling carbon credits and electricity.
- Attractive commercial terms at low risk.

SCC will identify and introduce new technology where existing equipment and practices are limiting gas capture performance. SCC believes this is the kind of support that developing countries require to tackle their greenhouse gas emission effectively.

Methane from coal represents 8% of worldwide greenhouse gas emissions and China is the world's largest coal producer, mining almost nine times more coal from underground longwalls than the USA—the second largest coal producer in the world. China emits over 43% of the global methane released by coal mining and

this could rise to more than 50% by 2020, representing 450 million tonnes CO_2e. At best, conventional approaches will mitigate 15% of this amount. More than 70% of methane released by coal mining is diluted to safe, low concentrations (generally < 1%) by ventilation air. SCC has developed a near-zero methane emissions coal mining strategy which can be widely replicated to achieve significantly greater reductions.

SCC believes that its holistic approach of maximising gas capture, optimising utilisation of drained gas, flaring surplus methane and destroying Ventilation Air Methane (VAM) at the surface exhaust fans will ultimately facilitate near-zero methane emissions coal mining. These projects qualify for carbon credits under the Kyoto Mechanisms and Voluntary schemes, making them economically sustainable.

6. *Is there effective international coordination on technology R&D? How might technology transfer to developed countries be improved? How does technology transfer interact with international trade rules? How effectively do Government technology programmes, such as the Energy Technologies Institute, lead to technology development and transfer to developing countries? How effective are UK Government measures to assist developing countries to reduce emissions?*

In not agreeing to host Joint Implementation (JI) projects, the UK Government is failing to show leadership to other countries. In the Climate Change Bill, the Government justified the exclusion of non-CO_2 greenhouse gases from the EU ETS and its refusal to host JI projects on the grounds that the sources of gas were too small and technologies were not available to reduce the emissions. However, SCC feels that the purpose of a market-based mechanism is to stimulate the development of new technologies. The fact that sources of greenhouse gases are insignificant in the UK does not mean that the UK Government should not promote technologies that may be of benefit in other countries and which the UK could export to those countries, either through the private sector under CDM and JI or through Government-sponsored programmes.

In this respect, SCC is promoting the abatement of Ventilation Air Methane from coal mines, of which there are several notable sources in the UK. But without JI, there is no mechanism to implement such a technology in the UK.

7. *Is the Asia-Pacific partnership a complement or a rival to the Kyoto Protocol? How is it likely to develop and what is it likely to achieve?*

No SCC position.

Mechanisms

8. *How might mechanisms to tackle emissions from deforestation be developed? How can we ensure that such mechanisms contribute to wider sustainable development aims? Will such mechanisms deal with the need to ensure the protection of indigenous people, land use rights and governance? How might forest degradation be dealt with? Are additional mechanisms required to enable the creation of carbon sinks?*

Under the Kyoto Protocol, Annex I Parties are required to account for the changes in stocks of carbon stored in various land-use activities. As a result, a decrease in carbons stored in forests is counted as an emission of carbon, to be made up with excess Assigned Amount Units (AAUs). There is no theoretical reason why the same approach could not be undertaken in Non-Annex I Parties where an increase in forest cover and carbon stored in the forests is rewarded through the existing cap and trade mechanisms; a decrease in carbon stock need not be penalized. Such a positive approach would encourage developing countries to change their land-use policies. The links to sustainable development and conservation of biodiversity are very significant and too numerous to elaborate here.

The mechanism that is required is wall-to-wall accounting of forest carbon stocks with reward for increases in carbon stocks, via the international cap and trade markets, at a government to government level. There are issues to be addressed, such as catastrophic loss of carbon through drought and fire, for instance, and the size of the task to inventory carbon stocks, but the scale of the problem means that it merits considerable attention and political resolve.

9. *Are the Clean Development and Joint Implementation Mechanisms functioning effectively? How might they be improved? How might they better be used in relation to forestry or other land use emission reduction projects? Should CDM and JI projects play a greater role in sustainable development more widely? To what extent should credits such as those from the CDM and JI be permitted to be used in emissions trading schemes, or contribute to emissions reduction targets?*

CDM and JI are the two main flexibility mechanisms within the Kyoto Protocol. They play several fundamental roles. For example, they provide a route of participation for Non-Annex 1 countries; they also provide a flexible project-based mechanism driven by the private sector, which can quickly and efficiently allocate resources to find the most cost-effective means of reducing emissions.

At the outset of the Kyoto negotiations, a reduction in greenhouse gas emissions amounting to one tonne of carbon dioxide equivalents (CO_2e) was considered equivalent to another, irrespective of whether they were generated from a HFC 23 abatement facility in China or a small-scale renewable energy project in Africa. The justification for this was that both actions have the same environmental impact and the market was the means of allocating resources most efficiently to achieve global reductions at the lowest cost.

More recently, and most recently in the EC's guidelines for Phase 3 of the EU ETS, there is an increasing discrimination between emission reductions of different kinds. First, the EU ETS excluded forestry-based credits, then the World Commission on Dams (WCD) guidelines were cited as a screening tool for all hydro power dams over 20 MW. In the most recent guidelines, there is a distinct preference for renewable energy and energy efficiency credits. The WCD guidelines are not an effective means of assessing hydro dams because there is no international dam certification programme; the guidelines are unwieldy and do not make adequate provision for dams which are already under construction without adhering to the guidelines.

SCC believes that limiting the access to CDM and JI credits, in order to address the issue of supplementarity, the Parties have unwittingly undermined the value of the flexibility mechanisms. The Kyoto Protocol is about reducing global greenhouse gas emissions and promoting sustainable development, but, through the Linking Directive and rules on supplementarity, more emphasis has been placed on domestic interests above the over-reaching goal of reducing greenhouse gas emissions.

It is true that industrial gas abatement projects contribute little other than tax revenues to the host country's sustainable development benefits; however, contribution to sustainable development is a sovereign issue. In conclusion, relatively un-limited access to CDM and JI credits would have the dual benefits of enabling Annex 1 Parties to make deeper cuts in greenhouse gas emissions without imposing significant costs on industry and the promotion of sustainable benefits in Non-Annex I countries.

SCC currently has one Clean Development Mechanism (CDM) project under review by the mechanism's Executive Board. This Indonesian-based project, in conjunction with Indonesian gas company Odira, captures associated gases from oil production at the Tambun and Pondak Tengah oil fields in West Java. The captured gas is then piped into the gas distribution network; previously it would have been flared.

The Clean Development Mechanism rewards voluntary reductions in GHG emissions from flaring. Flaring emissions are currently estimated to be 300 million tons of carbon dioxide equivalents (CO_2e) per year. Our specialist Flaring Reduction team works with resource owners to identify appropriate development solutions for natural gas capture and utilisation projects—qualifying the projects, in the process, for carbon credits under the Clean Development Mechanism. SCC's Flaring Reduction team seeks to offer an integrated CDM project development solution based on:

- Access to industry best practice in technology, operations and programme management.
- Infrastructure development.
- Access to appropriate technologies.
- Access to funding.
- Access to economic value from the associated gas.

10. *What action is the Government taking to prepare for and accelerate the linking of the EU Emissions Trading Scheme with other trading schemes? Is a new institutional or regulatory framework required to enable their development and coordination? How might schemes be linked where they have different emission caps? Might the EUETS be undermined by linking with other schemes?*

The only threat to the EU ETS is linkage to schemes that allow non-additional projects to generate credits that are interchangeable with EU Allowances, Certified Emission Reductions (CERs) or Emission Reduction Units (ERUs). Different levels of emission caps are a short term issue; the key point is that participating countries should all be making sufficiently deep cuts in emission allowances and auctioning an increasing proportion of those allowances to ensure that industries do not benefit from distortions in international trade and windfall profits.

Conclusion

The market for environmental allowances, an emerging asset class, is approaching $1 trillion in market capitalisation. This is equivalent to the stock market capitalisation of the Toronto Stock Exchange, the seventh largest in the world, or to half of the total size of the companies traded on the London Stock Exchange. SCC believes that a valuation approaching $1 trillion reflects the growing importance of markets for pollution permits and credits. A figure of this size is noteworthy and something worth celebrating.

The $1 trillion total speaks volumes for the commitment from policy-makers, regulators, business leaders and a host of other players to make emissions trading the tool of choice to tackle environmental resource allocation. Momentum of this magnitude cannot fail to attract a high level of attention from the financial markets and we can already see many innovative mechanisms being applied to environmental issues.

In 2007, the United Nations Framework Convention on Climate Change (UNFCCC) announced that the CDM was on course to generate 1 billion certified emission reductions (CERs) by the end of 2012. This figure does not incorporate the risk of project under-performance or failure, but more projects are in the pipeline, so it is probably not unrealistic. Assuming an average price of $10 per CER (which represents one tonne of CO_2e), this market is currently valued at around $10 billion to the end of 2012.

These figures reflect that an increasing proportion of the world's economy is recognising and quantifying significant environmental assets and liabilities which, 10 years ago, were not even on the agenda. The industry which has emerged to capitalise on this market, underpinned by the generation and trade in carbon credits, in which SCC is a leading player, demonstrates both the relevance and the effectiveness of the mechanisms.

Glossary

Annex I Parties

The industrialized countries listed in the annex to the Convention on Climate Change that were committed to return their greenhouse-gas emissions to 1990 levels by the year 2000 as per Article 4.2 (a) and (b). They have also accepted emissions targets for the period 2008–12 as per Article 3 and Annex B of the Kyoto Protocol. They include the 24 original OECD members, the European Union, and 14 countries with economies in transition. (Croatia, Liechtenstein, Monaco, and Slovenia joined Annex 1 at COP-3, and the Czech Republic and Slovakia replaced Czechoslovakia.)

Assigned Amount Unit (AAU)

A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading.

Certified Emission Reductions (CER)

A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. CERs are issued for emission reductions from CDM project activities. Two special types of CERs—called temporary certified emission reduction (tCERs) and long-term certified emission reductions (lCERs)—are issued for emission removals from afforestation and reforestation CDM projects.

Clean Development Mechanism (CDM)

A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

Emission Reduction Unit (ERU)

A Kyoto Protocol unit equal to 1 metric tonne of CO_2 equivalent. ERUs are generated for emission reductions or emission removals from joint implementation projects.

EUA

EU Allowance ($C0_2$-emissions).

Global Environment Facility (GEF)

GEF is an independent financial organization, established in 1991, that provides grants to developing countries for projects that benefit the global environment and promote sustainable livelihoods in local communities. GEF grants support projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

Greenhouse Gases (GHGs)

The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO_2), methane (CH4) and nitrous oxide (N20). Less prevalent but very powerful greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).

Non-Annex I Parties

Refers to countries that have ratified or acceded to the United Nations Framework Convention on Climate Change that are not included in Annex I of the Convention—mostly developing countries.

Memorandum submitted by 3D Metrics

"GREEN CREDIT" FOR "GREEN GROWTH" FINANCING ADAPTATION TO CLIMATE CHANGE ON LOCAL, REGIONAL AND NATIONAL LEVELS IN THE POST-KYOTO CONTEXT

A. Introduction

1. This document is a response to the inquiry of the *Environmental Audit Committee* regarding "Post-Kyoto: The International Context for Progress on Climate Change"—published on 8 January 2008.

2. *Limits to Growth* was published by the Club of Rome in 1972 and examined five variables: world population, industrialization, pollution, food production and resource depletion. *Beyond the Limits* was published in 1993 and *Limits to Growth: The 30-Year Update* came out in 2004.

3. The *Growth Dilemma* is one of the chapters in the latest book *Creating a World without Poverty—Social Business and the Future of Capitalism* by economics professor Dr. Muhammad Yunus. He received the Nobel Peace prize in 2006 for creating the *Grameen Bank* which has reversed conventional banking practice by removing the need for collateral.

4. Along this line of thinking, the *Forum for Stable Currencies* responded to a *Call for Concepts* by UNDP with *Green Credit for Green Growth*. This contribution was input to the debate at the Bali conference in December 2007.

5. At home, *Green Credit for Green Growth* was tabled as EDM 265 by Austin Mitchell MP on 11 November 2007.

6. It is our proposition that the challenge of funding national needs for the adaptation to climate change can be met at all institutional levels if only there was an attitude of "we have the money" and "we want to fund initiatives to stop and adapt to climate change".

7. This attitude should start with the Treasury at the top of the pyramid of credit pr. The Role of the Treasury was therefore a document sent to the Rt Hon Alistair Darling MP after his speech at the RSA on 15 January 2008 on the Role of the Treasury in 21st Century Britain. It summarises how the *Forum* has advocated the use of "public" or "green"' credit since 2002. One of its eight EDMs was tabled by David Chaytor MP. The mechanisms are set out in detail under "description of concept".

B. The Issues Addressed by the Inquiry

8. Ad 5: There is no adequate support to adapt to climate change in any country. Binding targets for funding such support would be a beginning, but more efficient approaches to actually solving the problem and not just talking about it could easily be developed. However, this may require approaches that arise from outside our current institutional framework. As an example, our proposal for a "Climate Monitoring Project" to DEFRA was rejected for lack of funding.

9. Ad 6: There is always enough money for war, but never enough for health, education and the environment. Dr Yunus points out in Chapter 1 of this book that our institutions have failed us on all social issues, whether it is aid, development, reducing poverty, protecting the environment or providing adequate healthcare and nutrition. As soon as it is recognised that funding determines the quality of the activities that take place, it should be obvious that green funds for green activities would be the most effective mechanism for funding R&D as well as environmental businesses at all levels: local, regional, national and international.

10. Ad 8: There is no country without an army and without unemployment. Tackling emissions from deforestation should therefore be tackled by using either armies or the unemployed or both to plant trees. Funding for this is to be generated by Governments as "green credit"—thus creating "green growth" in their economies.

11. Ad 10: Anybody who is using the internet will appreciate that the transition from paper to screen is similar to the transition from paying by cash or by cheque. Emission schemes are "virtual screen transactions" that do not physically reduce any emission. It would be wiser to generate money for "really green projects" that employ people rather than more "virtual trading schemes".

12. *Contraction & Convergence* establishes a constitutional, global equal-rights-based framework for the arrest of greenhouse gas emissions. Logically, it is based on per capita measurements. Applying the same logic, per person figures for income and national indebtedness should be used to address and monitor the imbalances between North and South or developed and developing countries.

C. Description of Concept

13. *Green Credit for Green Growth* is generic and applies to high income as well as developing countries:

13.1 The principle of Sovereignty and a Nation's Money Supply:

13.1.1 As part of its sovereignty, any nation state should control its money supply. The total supply of money comprises interest-bearing credit from banks and financial institutions and interest-free cash (notes and coins) from governments. Interest-free cash can also be called "*public credit*".

13.1.2 Controlling and monitoring the money supply should include watching the ratio between cash and credit and between wholesale lending and retail lending.

13.1.3 For example, in the UK, the cash share of the money supply has gone down from nearly 30% to less than 3% since the late 60s. Since 1996, credit has been split into wholesale and retail lending, with exceptional growth in wholesale lending.

13.2 The principle of Seigniorage as a National Source of Income:

13.2.1 In addition to taxing and borrowing, any nation state should maximise its third source of income: seigniorage, the balance between the face value of a currency and the cost of printing money and minting coins.

13.2.2 Instead of increasing national debts from one legislative period to the next, seigniorage can be used to leverage interest payments.

13.3 National Financial Mechanisms for Adaptation to Climate Change:

13.3.1 Public or green *credit* would fuel the economy without causing inflation.

13.3.2 Public *expenditure* should finance the five sectors identified in the framework of adaptation.

13.3.3 Public *grants* should finance voluntary and commercial activities in the five sectors.

13.4 Monitoring Growth under the auspices of UNDP:

13.4.1 The current "growth through credit" is measured by the national debt per person.

13.4.2 The *Cash: Credit ratio* would signal that business as usual, ie growth through credit, is changing.

13.5 Defining, Measuring and Monitoring "Green Growth":

13.5.1 To create the tens of billions of dollars necessary for adaptation requires growth not in interest-bearing investment from high income to developing countries, but in the money supply of all nation states.

13.5.2 Whilst economic growth is measured in GDP, "green growth" would be measured by:

13.5.2.1 The *Cash: Credit ratio* in the total annual money supply and per person.

— On a national scale, this ratio consists of cash created by states versus *credit* created by banks and financial institutions.

— On a per person level, according to "Money Supply" in Wikipedia, the US cash : credit ratio is roughly $4,5550 : $23,320.

13.5.2.2 The annual reduction of CO_2 emission per person.

D. Challenges Addressed: Scarcity of Finance and Democratic Accountability

14. An overview of investment and financial flows needed for adaptation is published on http://unfccc.int/cooperation_and_support/financial_mechanism/items/4053.php Paragraph 485 says that "several tens of billions of dollars of additional investment and financial flows will be needed for adaptation to the adverse impacts of climate change".

15. By Governments assuming the power to issue *Green Credit*, the remaining challenge lies in promoting "green funds" and prioritising among the five sectors that have been identified: Agriculture, forestry and fisheries; Water supply; Human health; Coastal zones; Infrastructure.

16. Instead of competing for chronically scarce money as credit, competition between nations could ensue to be the one that spends most money on adapting to climate change.

17. By issuing green funds as green credit, short-term political governments that are democratically accountable but have lost credibility would talk responsibility for the tasks at hand.

18. Democratically unaccountable financial institutions would influence the real economy with less destructive power. But in the ethical framework of "social business" that Dr Yunus provides, they could make their contribution to climate change, too.

E. Green Credit for High Income and Developing Countries

19. The public credit approach addresses parliamentary committees and statistical institutions that monitor and oversee the economics of a country. It also addresses the IMF, the World Bank and UN agencies that watch the financing of adaptation, prevention and monitoring climate change.

20. Furthermore, it addresses the principles of democratic governance and the legality of excessive debt and extortionate interest.

21. And finally, it addresses the ethics of "business as usual" while time is running out and tipping points in our earth system need to be adapted with utmost urgency.

F. Proposed Function, Design and/or Structure: Software and Web

22. The function of *Green Credit for Green Growth* is to provide public funds by States for governments, companies, NGOs, voluntary organisations and individuals who want to make a difference in whatever sphere of influence they may be operating.

23. Announcing that funds are available is the first step. Making them available in as attractive and effective a manner is another. The obvious mechanism would be accounting on-line by the respective *Green Credit* agencies and monitoring *Green Growth* on-line.

G. Estimated Value or Influence

24. The degree of influence depends on the fervour and commitment with which *Green Credit for Green Growth* would be implemented. It can become a small or large percentage of a nation's GDP—depending on the number of industry leaders, the unemployed who could be mobilised, the NGOs that would participate and the support of national media.

H. Remaining Gaps and Questions

25. A global understanding of "money", its origins and the measures used to describe, measure and monitor national economies.

26. An appreciation of "employment" as a way of protecting either a military-industrial complex or our planet with its delicate atmosphere.

27. An understanding of "democracy" as being:

- — *political* in terms of voting;
- — *economic* in terms of income per person; and
- — *ethical* in terms of environmental governance and our legacy to future generations.

I. Key Points for Discussion

28. Which governments are willing commit to *Green Credit for Green Growth*?

29. Which national agency makes *Green Credit* available and monitors *Green Growth* in their national economy?

30. Which UN agency builds and supervises globally accessible software mechanisms?

31. How do the International Monetary Fund and the World Bank respond to Sir Nicholas Stern's call to take on a greater role in mitigating climate change?

J. Local Action for Appropriate Scaling

32. Following drafting advice regarding the economic and legal challenge of climate change, the *Forum for Stable Currencies* submitted *Green Credit for Green Purposes* to the Treasury Select Committee of the Parliament in the UK on 16 January 2007. This submission was a response to an enquiry into climate change and the Stern report.

See http://www.publications.parliament.uk/pa/cm/cmtreasy.htm for evidence given on 23 January 2007 and 6, 7 and 27 February 2007.

33. A supplementary memo highlighting the ethical dimensions of climate change was submitted on 10 May 2007. See www.greencredit.org.uk

34. Our submission is based on an in-depth analysis of the on-line data base of the Bank of England as well as the Treasury and the National Office of Statistics. The publication of the Committee's report which should include our submission is supposed to take place before Christmas 2007.

35. Eight Early Day Motions regarding the general principle of "public credit for public purposes" have been tabled since June 2002.

36. Contraction & Convergence illustrates the *processes* necessary for the whole world to adapt to climate change.

37. Echoing Contraction & Convergence, Sovereignty & Seigniorage are the *legal principle* and *financial mechanism* for individual nation states to finance adaptation to climate change.

38. As a non-funded NGO, the Forum for Stable Currencies continues to take legal advice for most effective participation in the law making process via Parliament.

39. As a small company, 3D Metrics is collaborating with the London Metropolitan University on a Climate Monitoring Project to measure CO_2 emissions in a novel way.

40. Independently, *3D Metrics* will be putting software on-line to allow for comparing multi-dimensional data of complex systems and forecasting over short, medium and long-term time periods. This will allow anybody on the web to gain new perspectives on the economics of climate change.

29 April 2008

Memorandum submitted by the City of London

The City of London Corporation, on behalf of its international carbon finance practitioner constituency, strongly supports the EU Commission's new proposals to strengthen and enhance the EU Emissions Trading Scheme, as part of its Climate Change Review. There are however a few specific reservations which the City would wish to highlight at this time.

Clear targets to continue the Scheme and increase emissions reduction targets beyond the close of its "Phase II" in 2012, and beyond the first commitment period of the Kyoto Protocol, will serve to raise levels of confidence generally amongst the European financial and industrial community and assist in longer term business planning and strategies. The inclusion within the Scheme of additional industrial sectors and greenhouse gases should enhance its ultimate effectiveness. Moving forward, the City would support strongly the inclusion of Carbon Capture & Storage initiatives within the EU ETS.

The Commission's plans to continue the dialogue with Governments of developing countries should assist in ensuring that capital flows for essential infrastructure projects are maintained and encouraged, and that these countries are themselves incentivised to participate in international initiatives to reduce greenhouse gas emissions. The EU ETS is currently the world's largest and most successful such scheme and efforts to link other new greenhouse gas reduction schemes around the world with the EU ETS will ultimately result in a more effective "discovery" of the true costs of mitigation. Unlinked, individual national schemes would give rise to different costs for abatement and mitigation and, therefore, lead to a lack of clarity for international businesses planning for the long term.

Any proposals to limit the use of UNFCCC-approved credits from outside the EU ETS, or to discriminate against certain types of credits within the Scheme (land use, land use change and forestry (LULUCF) credits, for example), should be viewed as a backward step as this could serve to discourage investment in cleaner technologies and reduce market efficiency. This, clearly, is at odds with the findings of the Stern Review. Recommendations in the Review that a proportion of the proceeds from auctioning of credits by Member States should be invested in clean technology projects, and projects not recognised within the EU ETS (LULUCF), need to be formalised.

A clear message from the Commission on the requirements for the adoption of an increased 30% reduction target in European GHG emissions by 2020, as opposed to the current 20% target, is essential if European industries are to gauge the costs of abatement most effectively, as the burden of a significantly increased reduction target would fall directly upon installations falling under the Scheme, via reduced allocations of permits.

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