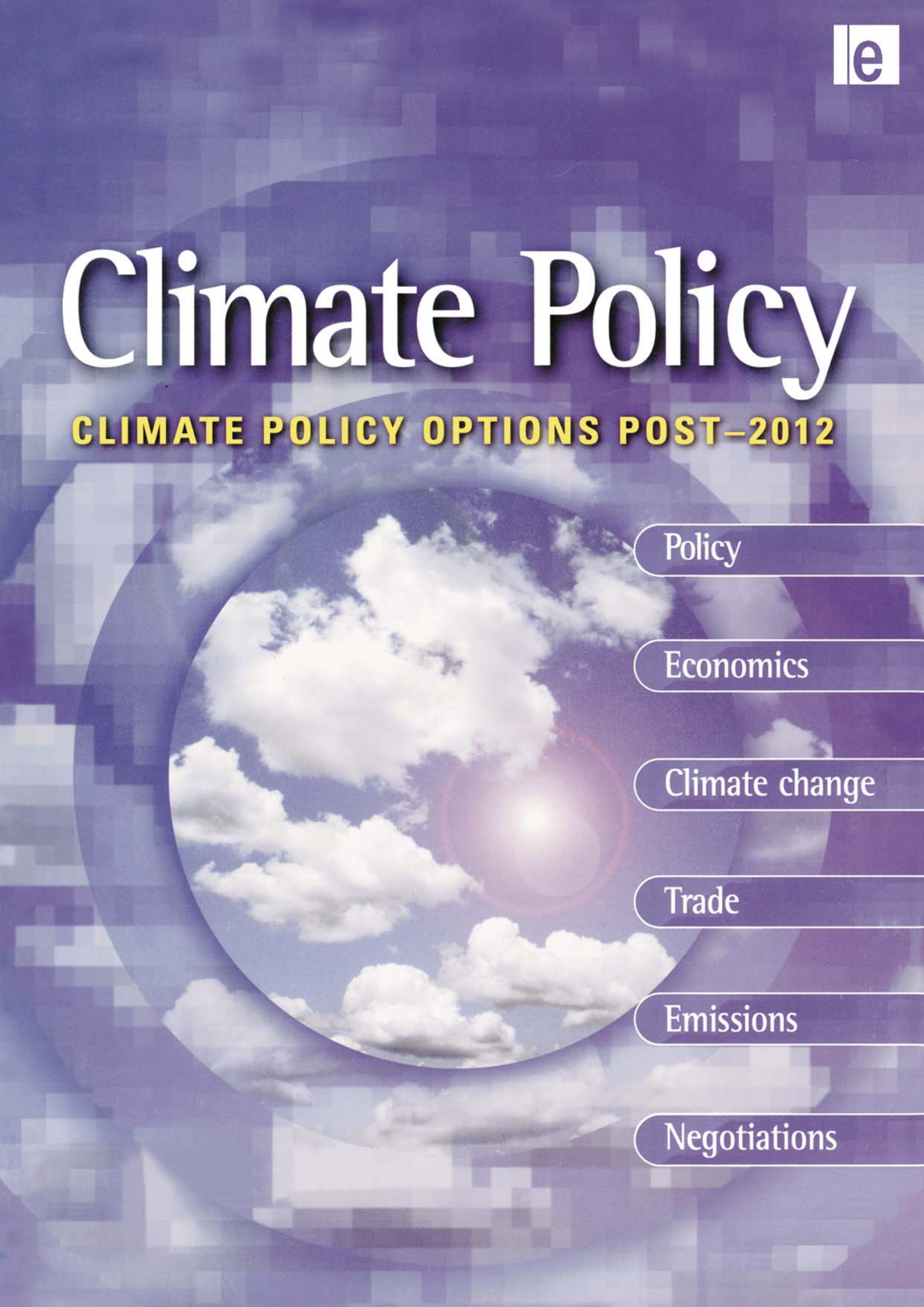
Climate Policy

CLIMATE POLICY OPTIONS POST–2012



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ISSN 1469-3062
ISBN-13: 978-1-844072-37-8
ISBN-10: 1-84407-237-1

Visit www.climatepolicy.com for further information about this journal

JOURNAL SUBSCRIPTION INFORMATION
Institutional subscriptions (6 issues) are £320/$595/€464 per volume (air mail extra); personal subscriptions are £99/$185/€144 per volume (air mail extra)

Abstracting/indexing: ISI social sciences citation index

EARTHSCAN

Earthscan

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada by Earthscan

711 Third Avenue, New York, NY 10017

Earthscan is an imprint of the Taylor & Francis Group, an informa business

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CLIMATE POLICY OPTIONS POST–2012

European Strategy, Technology and Adaptation After Kyoto

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Preface

The European Forum on Integrated Environmental Assessment (EFIEA) is a network of research organizations across Europe, brought together through a Concerted Action funded for the period 2002–2005 under the Fifth Framework Programme of the European Union. The overall purpose of EFIEA is to strengthen the EU science–policy interface by applying integrated assessment techniques through bringing together leading researchers, stakeholders and policymakers to jointly address climate change and energy, transport, land use and water policies in a integrated fashion. One specific objective of the network is to create an effective conduit between the scientific, policy and stakeholder communities at the European level and to explore and make explicit the added value of integrated assessment approaches in a variety of environmental policy areas.

As part of this process, EFIEA commissioned the Netherlands Environmental Assessment Agency (NEAA/RIVM, The Netherlands) and the Tyndall Centre for Climate Change Research (UK) to organize and convene two 2-day workshops with the objective of supporting the EU process of developing a post-2012 climate change policy position through deploying insights and approaches from the field of integrated assessment. The programme for the workshops was developed with the assistance of a Scientific Steering Committee. The two workshops brought together over 50 (mostly) European scientists, policymakers, and representatives from NGOs and industry in order to meet this objective.

The first of the two workshops addressed the question: *What long-term policies for climate change adaptation and mitigation should Europe pursue to adequately enhance sustainability on a European (and global) level?* The second workshop built on the outputs from the first workshop and addressed the question: *What are the policy implications of the elements of a European climate strategy that were identified in workshop 1, for the design of a global post-2012 climate regime? What are the implications of views of other important parties for negotiations on a global post-2012 regime?*

Over the course of the two workshops, ten articles by European scientists, well versed in the tools and approaches provided by integrated assessment, were presented to facilitate discussion on these questions and to address the implications of EU policy within a global regime. Following substantial discussion at both workshops, eight of the authors agreed to revise their articles and submit them for peer review so that they could form part of this special supplement of *Climate Policy*. An opening synthesis/conclusions article (Winne et al., 2005, this volume) provides an overview of the issues that emerged from the twin workshops.

We thank EFIEA – and therefore its funder the European Commission – for sponsoring this special supplement and Michael Grubb and James & James/Earthscan for making this publication possible. Needless to say, the ideas presented here have benefited from the varied inputs from all the workshop participants and we thank them for their time and willingness to share and sharpen ideas. The reviewers of the final articles also brought additional wisdom and insight into this process.

As we move into a new era where the Kyoto Protocol is in force and the serious work of designing the next stage of managing climate change on our planet beyond 2012 is undertaken, we offer these articles as a contribution from Europe to the debate.

March 2005

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Towards a long-term European strategy on climate change policy

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1. Introduction

One of the key challenges facing European policymakers today is developing a politically credible and economically progressive post-2012 climate policy regime. Over the course of two workshops organized by NEAA/RIVM and the Tyndall Centre in autumn 2004, ten articles were presented by leading European scientists to facilitate discussion on Europe's role in this changing international climate policy arena. The timing of the workshops came at the start of the process of intensifying the intergovernmental role of science in shaping and guiding the climate debate after 2012. These workshops were planned as a forum for a wide-ranging discussion on most of the key topics.

The recent Gleneagles G8 Summit and associated communiqué on climate change provides an important anchor for assessing how a wider and more connected science can contribute to this crucial policy debate in the next 2–3 years. In fact the substantive material covered in the two workshops, and presented in the articles here, relates closely to the points raised in the Gleneagles communiqué. Climate change was, as expected, right at the heart of this global summit, additionally bringing in China, India, and Brazil as the strong and potentially high energy-consuming and carbon-emitting economies of the future. The absolute imperative of working towards such a comprehensive global solution was clearly highlighted during last autumn's workshops. The importance of coalition development was an issue raised both at Gleneagles and during last autumn's workshops. The planned G5 and G8 meeting in November is a vital next step in continuing the Gleneagles process. Technology, and the possibility of increasing the speed with which new climate-friendly technologies are developed and transferred to all countries, emerged as a key focus of workshop discussions. This topic is also raised in the communiqué, which indicates that further action needs to be taken to 'promote innovation, energy efficiency, ... , regulatory and financing frameworks; and accelerate deployment of cleaner technologies, particularly lower-emitting technologies' (*The Gleneagles Communiqué*, point 6a). The communiqué clearly places emphasis on the importance of addressing both adaptation and mitigation. This further implies the necessity of broadening the dialogue about the post-2012 climate regime to include adaptation in the context of sustainable development. The discussions held in the workshops surrounding this topic

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made it clear that whilst many agree on the importance of both adaptation and sustainable development, there is still much uncertainty about how they can be combined successfully in specific policy measures.

The recent climate pact between the USA, Australia, India, China, South Korea and Japan, known as the Asia-Pacific Partnership on Clean Development and Climate, again shows the effectiveness of the USA in building climate coalitions, and highlights the problem faced by the EU in providing an appealing perspective for post-2012 climate policies to the rest of the world. The USA is effective because it focuses on the needs of developing countries to grow and develop technologies. The EU advocates a 'push and pull' strategy in mitigating emissions because simply 'pushing' technologies is not likely to be effective. However, the EU has not done much practically in developing policies in the 'push' component. The new pact makes it clear that the EU needs to acknowledge the dilemma of developing countries to reconcile their economic ambitions with climate protection and to develop clear international policies in the area of supporting climate-friendly technological development and transfer. The G8 process indicates a change in the US position. While it has not yet resulted in concrete results, the process offers an opportunity for the EU to regain its climate leadership role in shaping progress in international climate policy beyond 2012.

It is critical for the EU to keep to, and then go beyond, the objectives of the Kyoto Protocol, reinforcing internal debates on the potential for achieving this goal. The outcomes of Gleneagles clearly make this analysis even more pertinent. Indeed, the spotlight is again on Europe, as the importance of the EU taking a political leadership role has increased. This special supplement of *Climate Policy* brings together a selection of articles that highlight many of the key issues surrounding the post-2012 climate policy discussion.

2. Scope of the workshops

The workshop articles in this supplement cover a range of topics that are central to the development of a post-2012 climate change policy regime, namely: climate change and sustainable development, technological development and policies, short- and long-term climate protection targets, Europe's position in post-2012 negotiations, and climate change adaptation strategies. These articles have been edited since the workshops to reflect workshop discussions, and have also undergone peer review.

Sustainable development in the context of post-2012 negotiations was a key topic of discussion during the two workshops. Petra Tschakert and Lennart Olsson's article on post-2012 EU climate action in the framework of sustainable development policies offers an interesting perspective on sustainable development. This article raises many questions for future EU climate-change-sustainable development policy, the most important being whether climate change policy should 'piggy-back' on sustainable development policies or not. Other questions addressed are: how can the Kyoto Protocol Clean Development Mechanism be developed to better address sustainability and equity? How can unsustainable consumption and adaptation patterns be addressed? The question of how the EU can build a vision of sustainable development is also explored, identifying obstacles standing in the way of this goal.

The topic of technological development also proved central to workshop discussions, as raised in the article by Cédric Philibert. A number of technology policy issues were discussed, including technical change, behaviour and price, competitiveness, scarcity and price, and learning-by-doing.

The importance of exploring the international dimensions of these issues is clear, specifically international technology collaboration, technology diffusion and transfer, and intellectual property rights. The article demonstrates that there is significant opportunity for the development of low-carbon technologies, and that policies and synergies at the EU level have significant potential to impact these technologies. The question is then, what policies are most appropriate?

The issue of long-term climate protection targets and how these can guide future post-2012 climate policy is raised in an article by Jan Corfee-Morlot, Joel Smith, Shardul Agrawala and Travis Franck. They explore how scientific knowledge about climate change impacts can be used and how that in turn can facilitate the forming of new coalitions in international negotiations. Christian Azar's article explores the impact that long-term climate change mitigation policies will have on costs and on European competitiveness. The article identifies the problems that occur when only selected regions are acting on stringent carbon emission reduction targets. The article also demonstrates, however, that increased carbon targets are compatible with increased global and regional economic welfare. Måns Nilsson and Lars Nilsson explore the need for and the difficulties in developing an integrated European policy agenda that works within different sectors and helps to build an integrated international process.

Europe's unique position in climate policy negotiations is discussed in Frank Biermann's article, which questions the role that Europe might play in the emerging coalition formation. Europe has the potential to be drawn into the conflicting interests in climate governance, notably between the USA and the developing world. Lastly, the issue of adaptation is discussed in articles by Farhana Yamin and Frans Berkhout. These articles raise several questions, including: What are the present adaptation challenges to all parties? What are the challenges specifically for the EU? What is the balance between mitigation and adaptation? The articles also indicate areas that need to be addressed immediately, including impacts on the communities themselves, the possibility that 'past' knowledge may not necessarily be relevant to deal with future scenarios, and incorporating the cycle of learning-by-doing into adaptation work.

3. Workshop insights

The conclusions summarized below are the most important broad areas of consensus that arose during *both* workshops. Participants agreed that these points must be addressed when thinking about post-2012 climate change policy from the perspective of the EU, even though agreement on more specific details or implementation strategies was not always reached. The summaries therefore include points of both agreement and disagreement and elaborate on the issues that will need to be addressed in future climate policy discussions.

3.1. Set conditions and processes internally (e.g. EU institutional development) and externally (coalition development)

Thinking about the issue of climate change must be expanded so that it is considered as more than simply an environmental issue. There is a need to engage more sectors both nationally (such as economics, development and foreign ministries) and within the EU (such as a wider range of Directorate Generals than just environment). The EU has the potential to act as a leader in the post-2012 climate change debate, but it must improve coordination and communication internally to do so effectively. Indeed, some of this integration is already beginning to happen. However,

interdepartmentalism, especially across national governments, does not come easily when the policy arena is fuzzy and the time-scales are long, and early actions are difficult to justify. This is a research arena of great moment for political scientists.

Europe needs to pay attention to partnerships that are being built, especially with partners in the South and with the USA. This requires: (1) better understanding of the motivations, drivers and standpoints of others; (2) increasing credibility by full implementation of Kyoto; (3) having a position about the continuation of European policies (e.g. what is Europe's position on its own post-2012 targets?); (4) making use of the current dynamic and windows of opportunity to put post-2012 issues on the agenda; and (5) getting high-level policymakers and stakeholders together to develop shared visions and coordinate policies (e.g. governments should engage more in public–private partnerships). Once again, the inherent problems of thinking and action over generations, when the stakes of engagement are so ambiguous and the payoffs so very unreliable, will require the attention of experts in many scientific disciplines working in close harmony.

3.2. A diverse range of targets and commitments will be necessary both within the EU and globally

In general, a more sophisticated way of setting targets is needed compared with the approach in the Kyoto Protocol. There is much debate over whether the post-2012 agreements should include binding targets on reduced emission levels for certain countries. Because such targets are not feasible for all countries, the question needs to be asked – What will other countries be willing to take on over time? Intensity and other indexed targets, and non-binding targets, though still controversial, could provide a way toward allowing developing countries to engage, encouraged by the possibility of participating in emissions trading.

However, it needs to be said that emissions trading depends on ever-tightening 'caps' which convey higher costs and more effort and attention by emitters. The lobbying by business, national governments and aggressive civil economic groups will intensify. This is another arena in which social scientists must work with the modellers.

The importance of addressing the ultimate objective of the UNFCCC ('avoiding dangerous interference with the climate system'), which the EU has translated into its 'not more than 2 degrees' target, has proven to be an important one, because long-term targets provide guidance for short- and medium-term policy. Post-2012 climate policy in the EU and in EU negotiating positions should be consistent with the '2 degrees' target and, therefore, the EU should mobilize as much support for this target as possible. There is a clear need for continued research into climate change impacts, and to engage others in thinking through the implications for emission reduction.

3.3. Enhance technological change

Many issues dealing with technological change and policies have proven complicated; however, one point that emerges is that the diffusion of clean technologies must be accelerated. With regard to technological sharing, one possible idea is to create a mechanism for increasing financial incentives for sharing.

The role of the government in promoting clean technologies is a contentious issue which raises the question as to whether governments should pick 'winning' technologies, or instead choose

technology-neutral instruments. Debate continues over whether it is necessary for policies to promote specific technologies, so that they can enter the market and be fully utilized.

The positive aspects of technological change could be emphasized in future debates so that we can take advantage of the current awareness of the benefits of modern technology. This would move the discussion away from the negative aspects of mitigation, towards technology development and business opportunities. In addition, a combination of technology 'push' and 'pull' is needed. Technology 'push' policies will be useful, in particular for the long term, but pulling new technologies into the marketplaces will require price signals stemming from comprehensive instruments such as taxes or cap-and-trade regimes.

3.4. Kyoto Protocol features such as the flexible mechanisms will need to be retained, and expanded upon, in a post-2012 regime

The success of the Clean Development Mechanism (CDM) is an issue that has been debated significantly and has received mixed reviews. Rather than participating in 'CDM-bashing' (because of the current bureaucratic procedures and the small scale), the EU needs to support the CDM market and let the CDM deliver. In addition, emissions trading should certainly be retained in a post-2012 regime, and if possible be expanded.

3.5. Adaptation and sustainable development need to be addressed

The link between climate change and sustainable development needs to be clarified. A post-2012 climate policy regime could be created without addressing sustainable development explicitly, although for developing countries this linkage might be crucial; the reverse (i.e. addressing SD without addressing climate change) is not possible. There is debate as to whether it is necessary to make the link between climate change and sustainable development explicit in order to make progress. Climate change is certainly a sustainable development issue and there are important policy linkages, but diluting climate change in the broader SD context might slow progress on climate change. On the other hand, singling out climate change might not attract sufficient policy attention in many countries. Inevitably, the connection between the two will test the theme of cooperative intergovernmentalism that is proving so difficult to address. Here again, this is an arena where a wider basis for science engagement will prove necessary.

There has been much discussion regarding the need to link adaptation with impacts and vulnerability. In the last decade the focus within climate change negotiations has been too much on the costs of mitigation: there is a great need to complement this with attention to impacts and adaptation, as well as to the link between avoiding impacts and required mitigation strategies within the EU and externally. Certain elements of the post-2012 negotiations, including adaptation, could be based on the FCCC rather than on the Kyoto Protocol, because not all countries have signed the Kyoto Protocol. In the context of adaptation, it may also be constructive to make use of non-FCCC instruments such as existing international disaster relief agreements.

3.6. Additional insights and conclusions

Issues of European costs and competitiveness must be addressed when considering post-2012 policies. The timing and management of transitions to sustainable economic practices (in energy,

industry, land use, transport, agriculture and forestry) are important in order to limit costs. Climate change policy options cannot be properly evaluated based on traditional cost–benefit analysis because there are too many uncertainties. Least-cost approaches, i.e. achieving targets at the lowest possible costs, are usually preferable. The use of price caps could provide a way of reducing the fear of excessive costs, while advancing towards significant emission cuts. However, there are many complications in making such a system work.

Both short- and long-term goals need to be addressed when developing post-2012 climate policy. There is need to link long-term goals and visions to short-term action. The choice of long-term targets does matter for short-term policy actions: the next decades will be decisive in keeping options open for staying below the 2 degrees target in the future. To make this work, there needs to be better insight into what changes are needed in specific sectors, and when these changes should occur. Short-term opportunities and critical policy and investment decisions to get on another trajectory need to be identified. The roles of the governments, private sector and the role of NGOs need to be explored further.

There are several areas of research that are of critical importance and need further work. Specifically, there is a need to strengthen strategic research on (a) costs of inaction and the benefits of climate policy; (b) costs and consequences for individual sectors; (c) options for dealing with competitiveness problems; (d) regional climate change impacts in relation to extreme events; (e) coping capacities and (limits to) adaptation and adaptation costs; (f) ways to better integrate climate change into sector and structural policy decisions; and (g) perceptions and social acceptability of climate impacts and policies.

4. Conclusions

These two workshops successfully brought together policymakers, scientists, representatives from NGOs and industry to discuss Europe's role in developing a post-2012 climate change policy regime. Altogether, 58 people participated in the workshops and added their expertise to the discussion.

The discussions that took place during the workshop are especially relevant in the light of the recent Gleneagles Summit, the new USA-led climate technology initiative, and looking to the increasingly intense international debate on the future of the climate regime after 2012. We therefore summarize the key insights into future science-policy discussions as follows:

- There is now a major debate on the future of the Kyoto versus non-Kyoto mechanisms. Scientific research and assessment on climate change must engage with this in a balanced way. Science can contribute to the exploration of what might be the elements of, and pre-conditions for, adequate institutional frameworks for addressing climate change.
- The role of technology in tackling climate change is a key issue. These workshops demonstrated that exciting new research on induced technological change and on the diffusion of new technologies is increasingly able to provide insights into how to realise the potential contribution of technology.
- There are important debates on timing, trajectories and the role of trading. The Gleneagles statement challenges the scientific community to continue to demonstrate the extent to which the science justifies action in the short term and to show how trading (and technology) can reduce the costs of early action.

- A debate is emerging surrounding policies that pay for adaptation. It appears that this may become increasingly attractive, especially where such policies can be seen as stimulating economic growth and contributing to development objectives. However, such policies must be carefully balanced against investment in mitigation in order to avoid perverse incentives. Scientific research is needed in order to first expose this point and then to explore how such adaptation–mitigation linkages could work in practice.
- Finally, the importance of a sustained dialogue between groups of policy-makers and scientists (including both social scientists and climate scientists) emerged clearly from these workshops. This requires personal commitment from both sides to build up a common knowledge base over time. Without this it is very difficult to achieve the depth of discussion required to really add value to policy debates. This demands of the scientists involved that they are cognisant of the subtleties and pace of the policy debate, rather than being wedded to narrow scientific research agendas.

There is certainly scope for future workshops of this kind, although it is essential that they should now be highly focused on particular issues of direct current relevance to the policy debate (such as the issues highlighted above) and, where possible, anticipate emerging 'hot topics' in the policy debate. To this end a consortium of the institutions involved in these workshops is now planning to organize a series of 6-monthly science-policy workshops in Brussels during the crucial 2006–2008 period. This is an important part of the activities of ADAM, a new European research project on long-term adaptation and mitigation strategies for Europe. We specifically envisage the added value of such dialogues as resting on the building of personal contacts and a common knowledge base over time. Such dialogues should play an essential underpinning role in allowing the European Union to provide a critical part of the leadership on climate change that will be essential to making significant progress.

References

The Gleneagles Communiqué, G8 Gleneagles, 2005. Climate Change, Energy and Sustainable Development [available at http://www.number-10.gov.uk/files/pdf/Gleneagles_G8_finalcommnique.pdf].

Asia-Pacific Partnership on Clean Development and Climate, 28 July, 2005. [Available at http://www.dfat.gov.au/environment/climate/050728_factsheet.html].

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Long-term goals and post-2012 commitments: where do we go from here with climate policy?

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Received 17 January 2005; received in revised form 11 March 2005; accepted 18 March 2005

Abstract

With entry into force of the Kyoto Protocol in 2005, climate change negotiators are turning their attention to the question, 'Where do we go from here?'. A key component of answering this question is in understanding the implications for society of alternative long-term goals for greenhouse gas concentrations. One challenge in ongoing negotiations is whether and how to deal with meanings of 'dangerous interference' as outlined in Article 2 of the UN Framework Convention on Climate Change. This study addresses Article 2 by suggesting the use of long-term goals to guide decisions about the stringency and timing of future climate change commitments. Focusing on mitigation policy benefits and, in particular, on avoiding long-term climate impacts, a number of management approaches and their implications are highlighted. After discussing some challenges of using scientific knowledge to monitor and manage progress, we look at what we can learn from current climate change global impact literature. Solid benchmark indicators appear to be available from global mean temperature change, ecosystems and coastal zone impacts information. We conclude by arguing for global goal-setting based on climate change effects and the use of indicators in these areas as part of post-2012 climate change negotiations. Aggregate global impacts suggest that 3–4°C of global mean temperature increase by 2100 (compared to a reference period of 1990) may be a threshold beyond which all known sector impacts are negative and rising with increasing levels of warming. However, marginal benefits may accrue at lower levels of mean change. Thus, a prudent policy might aim for significantly lower levels and slower rates of global warming.

Keywords: Climate change; Science and policy; Global environmental change; Climate change impacts; Greenhouse gas mitigation policy; Climate change mitigation and adaptation linkages

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Decision making has to deal with uncertainties including the risk of non-linear and/or irreversible changes and entails balancing the risks of either insufficient or excessive action, and involves careful consideration of the consequences (both environmental and economic), their likelihood, and society's attitude towards risk (IPCC, 2001a).

1. Introduction

Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC 1992)[1] focuses international effort on avoiding dangerous climate change and stabilizing atmospheric concentrations of greenhouse gases. In this light, the consideration of long-term goals to guide policy is not an option but an integral part of the Convention and of future negotiations. Yet a practical interpretation of Article 2 has so far eluded policymakers. Some observers have suggested there is a growing acceptance and political recognition that information about climate change impacts can help policymakers to interpret Article 2 (Oppenheimer and Petsonk, 2005; Yamin and Depledge, 2004; Corfee Morlot and Höhne, 2003; Metz et al., 2002; Berk et al., 2002), while others remain more sceptical (e.g. Pershing and Tudela, 2003). However, much of the research community, and the Intergovernmental Panel on Climate Change in particular, has avoided getting into this area, noting that it is the work of policymakers (rather than scientists and researchers) to balance different perspectives on risk, to value risk avoidance, and to make judgements about what is acceptable (IPCC 2001a; Agrawala, 1999).[2] The formal political process of international climate negotiations under the Convention has also largely avoided the question of how to interpret Article 2 (Corfee Morlot and Höhne, 2003; Depledge, 2000).[3]

Meanwhile several national governments have made hortatory statements about long-term objectives for climate policies; e.g. the Netherlands and, more recently, Germany and Canada (for a detailed, historical account, see Oppenheimer and Petsonk, 2005). In 2005, the EU formally reaffirmed its view on the Convention objective by stating that global mean temperature should not exceed a 2°C increase above pre-industrial levels (EU, 2004, 2005). In an effort to influence an upcoming G-8 ministerial, a multilateral task force of prominent scientists and policymakers recently recommended the establishment of the same long-term temperature change goal as a guide for further policy actions (ICCT, 2005). These actions demonstrate an ongoing political interest in some countries, regions and among some communities of experts to interpret the Convention's objective in a practical way. However, given the global nature of the climate change problem, none of these efforts will have political implications for next steps under the Convention unless relevant issues are also addressed in a wider multilateral context.[4] This article explores the possibility of using long-term goals as a guide for post-2012 climate policy. It focuses on global mitigation decisions and considers long-term climate goals in the form of impacts (or proxies for impacts) that society might wish to avoid. Such goals could be used to outline desirable global emission pathways of acceptable stringency and sufficient timing to significantly limit the risk of key impacts (Figures 1 and 2). For example, distinct pathways emerge for 450 and 550 ppm CO_2 stabilization objectives (Figure 2) and each corresponds to a different set of risks for climate change and impact outcomes. While still not providing insights on important questions related to post-2012 climate negotiations, such as allocation of responsibilities for mitigation among different Parties, forms of commitment, or instruments for implementation, a general agreement on long-term goals would provide input with respect to level of ambition and upper bounds for emission pathways for any future agreement.

This article focuses narrowly on the implications of our current knowledge of climate change impacts for the stringency and timing mitigation commitments. After a brief review of recent IPCC findings of relevance, it is organized into four parts, addressing the following questions:

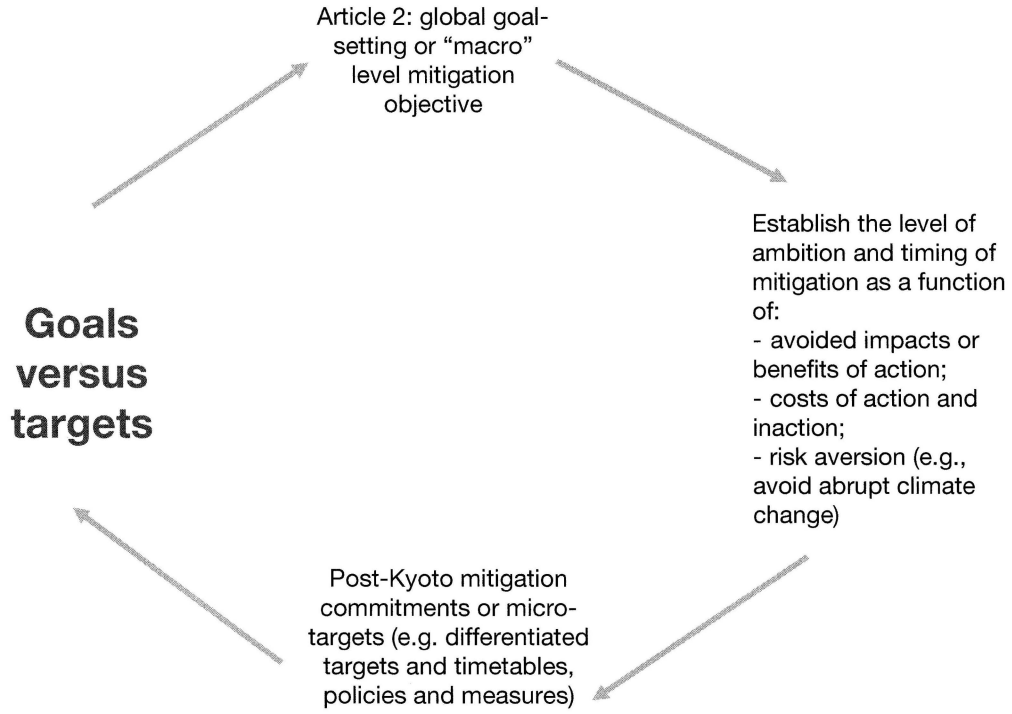
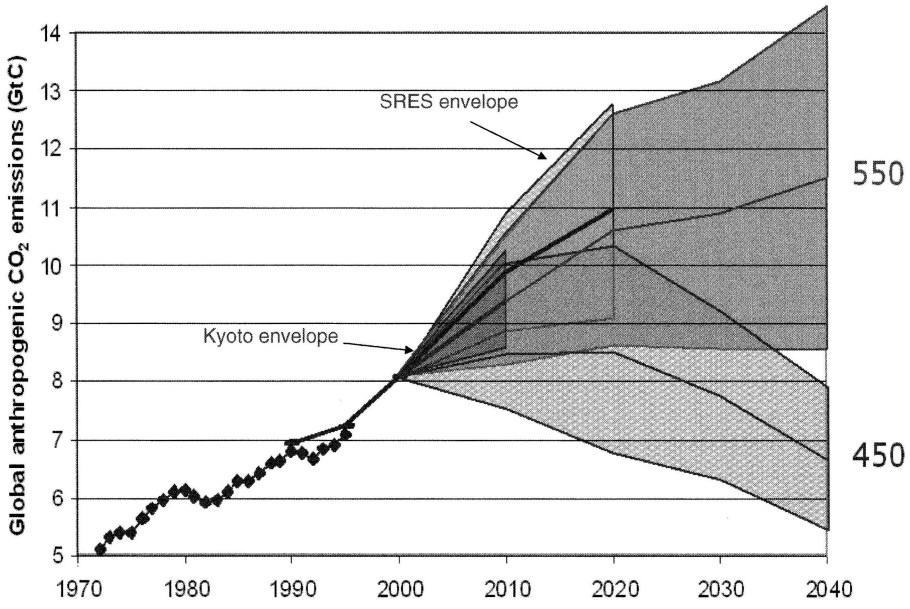


Figure 1. Goal versus target setting for global climate policy.



Source: Corfee Morlot and Höhne (2003).

Figure 2. Costs and benefits of climate change policies across time and space.