

THE BENEFITS OF CLIMATE POLICY: AN OECD PROJECT
Comments from Canada
January 10, 2003

General Comments

- The workshop agenda was very full. In retrospect, the workshop objective may have been overly ambitious, given that it was one of the first dialogues between the scientific, economic, impacts and adaptation and policy communities on the subject. It was evident that these three groups approach the question of benefits of climate policy from different perspectives, and use different vocabularies. However, the dialogue made possible by the workshop between experts of different disciplines helped to initiate some convergence in paradigm. Perhaps it was unrealistic to hope to develop a framework for benefits analysis in one meeting. More time is needed to discuss framework issues and how to structure the overall analysis. The discussion of the conceptual framework was limited to the brief wrap-up session, thus we did not leave with a clear sense of how the framework would take shape.

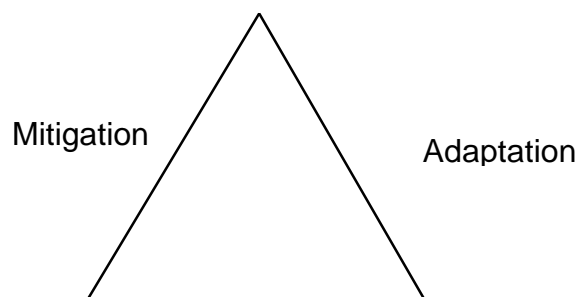
- Canada would have liked the workshop to focus more on establishing a framework for analysis, and an assessment of available methods to account for potential benefits of avoided damage in the context of this framework. The workshop did, however, provide a useful opportunity to scope out the issues involved by focussing on the discrete issues identified in the project document, such as uncertainty in modeling climate change and climate change impacts, and adaptation issues. Although issues associated with accounting for market and non-market benefits of policies and monetary and non-monetary approaches to valuation were discussed, little guidance was provided in terms of how to best to deal with these issues. Baseline issues (i.e., the need for common reference scenarios) were not addressed in a substantive way, although the lack of common assumptions and scenarios was often identified by workshop speakers as a short-coming in the existing literature.

Comments on Framework for Analyzing Benefits of Climate Policy

- In Canada's view, key questions that will need to be addressed in developing a framework include:
 - What level of detail of information is necessary to policy-makers at this stage? What level of detail could realistically be assembled in the next few years (say, for the Fourth Assessment Report) and beyond?

- Further analysis and comparability of approaches would be enhanced by the use of common scenarios and common assumptions. How should these be developed?
- How should the various communities proceed (and cooperate) to ensure that scientific assessment and valuation of impacts better feeds into the policy process?
- How and by whom might the process to develop a benefits framework be moved forward?
 - What is the most appropriate role for the OECD in the process, given that developing countries clearly need to be involved?
 - Should the OECD undertake to develop guidelines for socioeconomic impact assessment, including development of socioeconomic scenarios and common assumptions, arriving at consistency in organizing costs/benefits, how to incorporate temporal distribution of costs and benefits (ie. through use of various discount rates and which ones should be used?)
 - What might the UNFCCC SBSTA do? Can any lessons be learned from the SBSTA process to advance work on the Brazilian Proposal through promotion of targeted research and modeling to produce comparable results, but also by bringing the scientific and policy communities together to highlight basic issues, assumptions, limitations and uncertainties involved?
 - How will this process feed into the IPCC Fourth Assessment Report?

Martin Parry's presentation of a triangle, with marginal damages on one axis, adaptation on the second, and mitigation on the third, might be a good way to broadly illustrate the conceptual framework for analysis of the benefits of climate policy. This depiction (see below) captures the optimization problem faced by governments: How to allocate scarce resources between responding to damages from climate change, and investments in adaptation and mitigation strategies?



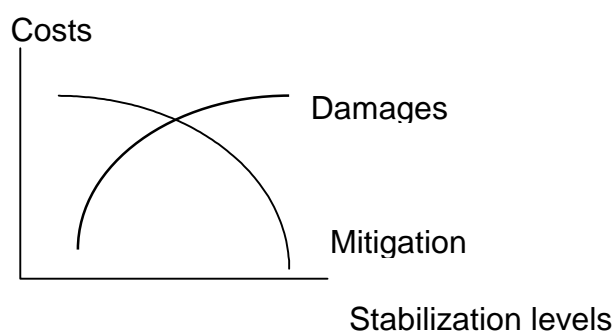
Damages

This approach can be applied at the local, national, regional and global level and is robust across a wide range of issues and perspectives. A wide range of criteria relating to reasons for concern, risk tolerance levels, cost sensitivity, adaptive and mitigative capacity, risks and opportunities in different time frames and distributional issues such as fairness and equity can be represented in the framework.

This three-sided picture would also help to illustrate the suggestion in Jacoby's and Yohe's papers that the problem statement, as was presented in the project document ENV/EPOC/GSP(2002)6/REV1 may be too difficult to answer. It helps to illustrate the need for a more holistic and interactive approach as opposed to the linear approach (i.e., taken in the IPCC TAR WGI, II and III). Risk assessment and management could be the means to synthesize the three dimensions.

Another difficulty in estimating the damage function is the question of how to factor in adaptation. The three-dimensional approach may work better to emphasize the need to consider alternative adaptation strategies.

The project document ENV/EPOC/GSP(2002)6/REV1 framed the problem in the traditional way that economists use to think of an optimization problem (see below). The objective is to find the optimal level of mitigation expenditures by finding the level where marginal damages from climate change are equal to the marginal costs of mitigation. This framing of the problem ignores the need to also evaluate and optimize adaptation strategies. (Parry showed one diagram where the marginal damage curve could be shifted downwards to some degree, depending on the adaptation strategy that was chosen.)



Both Parry and Yohe argued that it would be very difficult to arrive at an assessment of the incremental benefits of different levels of mitigation. In particular, Jacoby argued that, while it may be possible for individual countries to arrive at some estimate of the marginal damage function above, it is unlikely that this would be accepted by all parties to a negotiation, because of the

complexities related to: the high level of uncertainty in assessing damages; valuation techniques as applied to the vast regions and differing realms of climate change damages; and difficulties in aggregating costs and benefits across countries and generations.

Both Jacoby and Yohe provided useful suggestions for further exploration. Jacoby argued that the benefit-cost framework is best tool for assessment of benefits, and suggests a three-pronged approach to research on benefits of climate policy:

- insights of shape of global climate change damage curve;
- cascades of benefits assessments for different target levels (sectoral, sub-national, national, regional, global); and
- how benefits relate to analyses of potential levels of mitigation effort.

We note the importance of enhancing mitigative and adaptive capacities. Yohe also describes an analysis of adaptation options under conditions of enormous uncertainty, which provides insights on how to minimize the likelihood of crossing some critical threshold. Parts of Yohe's paper draw from a recent paper by Yohe and Tol ("Indicators for social and economic coping capacity – moving toward a working definition of adaptive capacity", *Global Environmental Change* 12 (2002), pp 25-40), which demonstrates how alternate adaptation strategies might be assessed according to adaptive capacities.

Here are some additional comments on developing a conceptual framework for benefits assessment, many of which are drawn from the discussion at the workshop:

- Policy-makers need information and better explanation of the potential risks and consequences of climate change impacts, and the respective roles, potentials and costs of adaptation and mitigation to reduce risk. This information should contribute to global and national goal setting, inform understanding of level of effort needed on adaptation and mitigation, and help development of adaptation strategies. This work is essential input for knowing how best to manage climate change risks.
- There is also the need for improved provision of information to the assessment communities in order to better reflect socio-economic futures, and adaptive and mitigative capacity in the modeling of climate change, impacts, adaptation and vulnerability assessments.
- Roles of the Key Communities include:
 - ◆ Scientific assessment: to model climate change and mitigation required for different stabilization levels, model impacts and assess damages under different stabilization scenarios;
 - ◆ Economic assessment: to cost mitigation and adaptation strategies

and to develop approaches to valuing impacts to human and natural systems;

- ◆ Impacts, adaptation and vulnerability assessment: to assess adaptation costs and limits of adaptation at different levels and for different systems and to identify irreversible and catastrophic levels;
 - ◆ Policy making: to compare net benefits of adaptation with costs of mitigation, and assess trade-offs based on societal perceptions of value, cost sensitivity and risk tolerance levels.
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- There is a need for a more holistic and interactive approach as opposed to the previously linear approach (i.e. IPCC TAR WGI, II, III) and risk assessment can be the means to synthesize this.
 - The framework should be flexible to allow for incorporation of new information as it is made available and strengthening of the methodologies over time.
 - The framework should provide an analytical tool to assess trade-offs between risks of climate change and mitigation/adaptation costs. Different players will choose different trade-offs.
 - The framework needs to be applicable at multiple levels (sectoral, sub-national, national, regional, global).
 - The methodology needs to address uncertainty, distribution, fairness, equity, different time frames, and the difficulty to fully quantify or monetize impacts.
 - Need a few indices that contain key information.
 - Encompass different metrics/criteria/numeraires.
 - Encompass different time frames.
 - Framework needs to be robust under different perspectives of risk.
 - Deal with challenges to aggregate multiple criteria.
 - Ancillary benefits are important and should be better incorporated.

Specific Comments on slides presented in the wrap-up session

Slide 1

Second column

- The first box under “indirect measures” could be expanded to the list in the Yohe paper (see section 2). This list includes references to expanding technological options (which should encompass technology cooperation and transfer) and alludes to the potential need for financial assistance.

Third and Fourth columns

- These two columns capture the three-pronged framework that is suggested above – to prevent “dangerous” damages by choosing between accepting some level of climate change damages, and making investments in adaptation and mitigation.

Slide 2

Suggest adding to the list of policy relevant research: baseline issues, particularly the need to understand the dividing line between natural and anthropogenically-induced climate change and development of socioeconomic scenarios and the interaction of climate change with other man-made stresses.

Slide 3

To add to the first bullet – both are essential, they are complementary, and one of the policy questions facing governments is how to allocate scarce resources between the two to reduce climate change risks. Add a bullet “Mitigation is essential – some climate change is unavoidable but only mitigation can help avoid the most severe climate change damages.”

Slide 5

Following our earlier comments, the slides should begin with an illustration of the three-pronged approach – the need to find the most acceptable level of climate change damages, adaptation and mitigation expenditures. This would help to reinforce the linkages that the conceptual framework needs to make between damages, adaptation and mitigation. It would also be helpful to highlight all the issues on the inside of the triangle: i.e. The approach can be applied at the local, national, regional and global level and is robust across a wide range of issues and perspectives. It can be adjusted for reasons for concern, risk tolerance levels, cost sensitivity, adaptive and mitigative capacity, risks and opportunities in different time frames and distributional issues such as fairness and equity.

Slides 6-8

We disagree with the distinction between social and economic categories that is made in slides 6, 7, and 8. Particularly for this project, we should be taking the social welfare view of economics, which incorporates issues such as quality of life, distribution of income, in addition to financial well-being. In our view, the Environment Directorate of the OECD should work to reinforce this broader view of economics and not use the term “economic” in a way that could easily be interchanged with “financial” or “monetary”.

For slide 6, suggest replacing the 3 categories of numeraires with those presented by Schneider at the workshop:

monetary
loss of life
biodiversity

distributional consequences
reduced quality of life
millions at risk

As an aside, it is too bad that we weren't able to go into more detail at the workshop on the pros and cons of all of these alternative valuations! At this point we should stress that they are possible examples of numeraries.

In Slide 7, the separation between social/geopolitical and economic impacts should be removed. In our view, economic impacts include distributional considerations and impacts on human health and well-being.

Similarly, in Slide 8, the separation that is made between eco-system, social and economic impacts is misleading. Economic impact analysis, when properly conducted, should consider eco-system impacts, as well as increased risk of flooding, and changes to specific economic sectors, such as tourism or agriculture.

Slide 9: Baseline issues- add the importance of improved socio-economic and adaptive and mitigative capacity information.