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New Zealand Delegation, United Nations Framework Convention on Climate Change (FCCC)

Working Paper

Greenhouse Gas Stabilisation: Principles to Guide the Formulation of Possible Targets and Policies and Measures

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TREASURY WORKING PAPER

NEW ZEALAND DELEGATION

GREENHOUSE GAS STABILISATION: PRINCIPLES TO GUIDE THE FORMULATION OF POSSIBLE TARGETS & POLICIES AND MEASURES

November 1996

The Ad Hoc Group on the Berlin Mandate at its fourth session requested the Secretariat to compile proposals relating to the treatment of quantified emission limitation and reduction objectives (QELROs) and policies and measures. This paper focuses on the principles for the development of new commitments. The paper does not attempt to cover all relevant issues and is not intended to be exclusive of other ideas.

Summary

A key element of the New Zealand position is that emissions reductions should be achieved at global least cost. A least cost approach does not neglect equity; rather, a least cost approach improves the prospects of finding an equitable outcome acceptable to all.

Targets

- in setting targets, Parties should focus on the primary objective of the Convention which is to stabilise the atmospheric concentration of greenhouse gases, rather than setting potentially unachievable near-term targets as endpoints in themselves
- in order to achieve genuine flexibility over when abatement occurs consideration needs to be given to commitments developed in cumulative terms in relation to a time-frame sufficient to capture changes in technology and turnover of the capital stock
- the tension between full flexibility over when abatement occurs, and the need to have milestones to lend credibility to any agreement, should be recognised and addressed transparently
- one approach to addressing the tension between credibility and flexibility would be to specify an emissions envelope which became more stringent over time and allow any over-achievement in terms of emissions reductions to be carried forward or banked for future use

Least cost policy

- where practical and cost effective, action should be taken to address all sources and sinks of greenhouse gases

- contributions should be welcomed from developing countries as to how a transition to effective global action might best be achieved in the longer term

- equating the marginal costs of abatement across opportunities minimises overall costs, and economic instruments including emissions trading and carbon charges are effective ways to achieve this

- mandatory harmonised policies and measures are unlikely to prove least cost due to variations in individual countries' circumstances; however, areas where common action may be appropriate include removal of fossil fuel subsidies, the treatment of international aviation and marine bunker fuels, and protocols for emissions trading systems

Adopting a global least cost approach

New Zealand supports as a guiding principle the achievement of the objectives of the Convention at global least cost. The rationale for this principle should be clear - a least cost approach allows reductions in emissions to be achieved with least disruption and hence offers the greatest scope for durable actions to stabilise greenhouse gas concentrations over time. It also reduces the potential tension between the objectives of stabilising greenhouse gas concentrations, sustainable economic development, and equity concerns.

A least cost approach is not just about efficiency since, by minimising overall costs, the scope to agree on effective action is maximised. Least cost is about achieving a given level of emission reductions at the lowest total cost to society; it does not mean 'no-cost', or taking no action, to reduce emissions.
A global least-cost approach is both more efficient and equitable than action behind national borders to meet uniform emission targets. Uniform targets can impose very high costs on some parties, and low costs on others. A global least cost approach does not neglect equity, rather it would both reduce cost disparities and the potential concern over absolute costs to individual Parties. A least cost approach therefore provides the best hope of achieving a durable outcome acceptable to the widest range of parties, thereby minimising environmental and economic uncertainty. In New Zealand's view, the proposed principle of global least cost could assist the negotiating process towards an agreed outcome.

Clarity about the objective

Article 2 of the Convention states that stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system is the ultimate objective of the convention. This objective supports an approach which seeks to include the following elements:

- action, where practicable and cost effective, to address all sources and sinks of greenhouse gases

- basing targets and actions over time on a long term perspective focused on the atmospheric concentration of greenhouse gases

- recognition of the growing proportion and importance of developing country emissions

While the primary focus has been on emissions of CO_2 globally, other greenhouse gases and sinks of CO_2 provide significant cost effective opportunities to stabilise overall greenhouse gas concentrations. Where practicable and cost effective it makes sense to address such opportunities. However, concern has been expressed by some about the certainty with which reductions in other greenhouse gases and absorption by sinks of CO_2 can be verified and sustained. Rather than neglecting such opportunities, work is needed to develop practical protocols for the inclusion of the widest possible range of sources and sinks of greenhouse gases within the scope of verifiable policy actions.

In setting targets for the post-2000 period, Parties should focus on the primary objective of the Convention which is to stabilise the atmospheric concentration of greenhouse gases, rather than setting potentially unachievable near-term targets as endpoints themselves. This does not imply no action now to address emissions. However, it does imply a shift in the emphasis of negotiations to achieve a sustainable and cost effective outcome over time. While it is important to have flexibility, it is also important to establish periodic emissions targets as milestones to lend credibility to any agreement.

A focus on the atmospheric concentration of greenhouse gases points to a need to find ways to address developing country emissions post the Conference of Parties in Kyoto. While Annex I countries are committed to take the lead, their actions in isolation would be likely to prove increasingly ineffective at addressing the objectives of the Convention. Developed country parties to the Convention should welcome contributions from developing countries on how a transition to effective global action might best be achieved in the longer run. Taking a longer term view, and moving to a least cost approach which accommodates flexibility over where and when abatement occurs, is an important contribution Annex I countries can make towards leadership on this issue.

Flexibility and credibility: focus on long term concentrations, not short run emissions

The approach taken on targets and policies and measures are necessarily related. Insufficient flexibility in the formulation of targets could limit the scope for least cost abatement because of a lack of flexibility over where and when abatement occurs.

Flexibility over **where** abatement occurs can be achieved by emissions trading between parties who meet agreed requirements. Emissions trading allows an efficient outcome to be achieved independent of the allocation of total cost among Parties. Differentiated commitments are therefore not essential to achieving a global least cost outcome. The complexity of differentiated commitments, and the fact that they necessarily involve relative winners and losers, make movement on this front difficult. If differentiated commitments are considered it is important that this is on the basis of a simple principle that reduces the disparity between Parties in terms of the abatement costs implied by uniform targets. One possible option would be to aim to share commitments in a manner consistent with the outcome expected if marginal abatement costs were equalised. Clearly there are a range of options which could reduce cost disparities.

Trading can also deliver flexibility over **when** abatement occurs. However, to achieve significant gains from flexibility over when abatement occurs commitments need to be developed in cumulative terms (consistent with the concentration objective of the

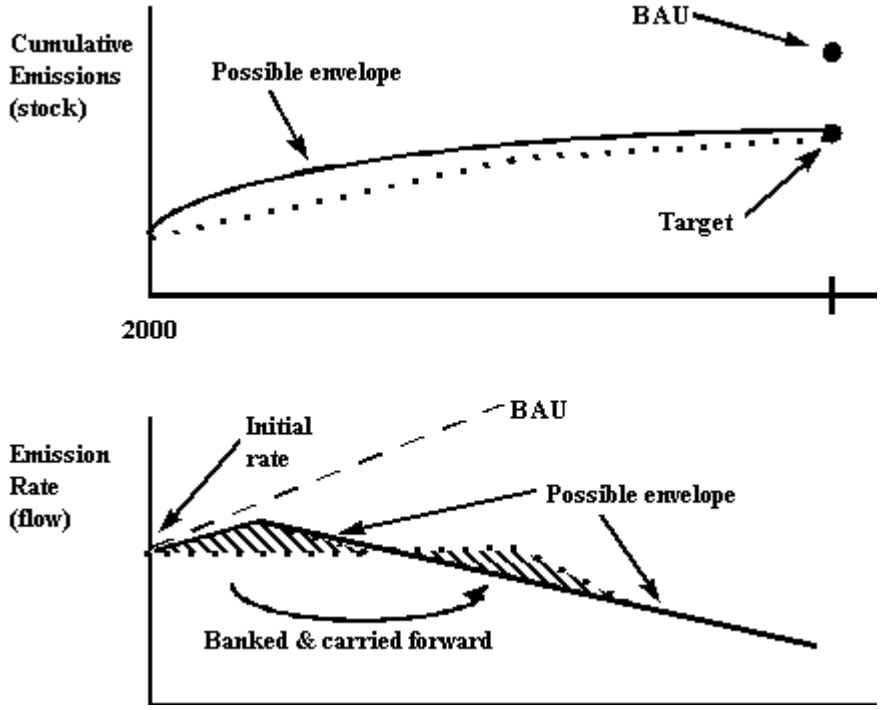
Convention), over a time-frame sufficient to capture changes in technology and turnover of the capital stock. Structural rigidities, including existing capital and technology, imply that, consistent with a least cost approach over time, relatively small initial reductions in emissions may be consistent with meeting a longer term objective. This is not an argument for delaying action; rather it is an acknowledgement that the initial response may be small, but would increase as new capital investment and technology is stimulated by any increase in the relative price of greenhouse gas emissions.

An approach based solely around a longer term concentration target would in principle provide full flexibility over when abatement occurs. We recognise, however, that there may be tension between the objectives of flexibility and credibility. Including intermediate milestones of progress can ensure that parties are committed to achieving their agreed cumulative target, but such milestones would need to be set carefully to ensure they did not unduly limit flexibility. In the absence of intermediate milestones Parties to the Convention, or individual emitters, may delay action, and then legitimately claim that meeting the agreed concentration target is likely to be very costly given the remaining time available for action. Such strategic behaviour could occur if re-negotiation of commitments were anticipated based on the current costs and benefits of action. This tension is best addressed in a transparent manner.

One approach to the tension between flexibility and commitment would be to have an emissions envelope which became progressively more stringent over time. Figure 1 shows both cumulative emissions (the top figure), and the rate of emissions (the bottom figure). The figures show an emissions envelope, which could be specified, equivalently, in terms of either cumulative emissions or the emissions rate. The concept is relevant at both the global and national levels, with trading allowing flexibility over where and when abatement occurs under the global envelope.

National envelopes could be combined with the ability to bank over-achievement relative to the envelope, in order to emit more in the future (banking is represented in the lower figure by the hashed areas). The envelope for cumulative emissions would never be exceeded at the global level (at the national level emissions trading could allow unders and overs relative to the envelope). It is such flexibility over where and when that provides for global least cost abatement. We do not support allowing the ability to borrow against future commitments as this introduces the scope for deferring any action.

Figure 1: Indicative cumulative and emissions rate profiles showing a cumulative emissions target, emissions envelope, and possible banking (lower figure)



Note: While at the national level emissions could exceed the envelope provided there is emissions trading between nations, at the global level the cumulative envelope is a binding constraint.

Achieving the objective at least cost

Solutions should be sought that lead to the convergence rather than divergence over time of marginal abatement costs between countries. To do otherwise would place disproportionate burdens on some countries and increase the overall global cost. There is a risk that this could ultimately jeopardise the sustainability of the Convention.

The source and nature of CO_2 emissions suggest that economic instruments are most likely to be cost effective in this area. These views are consistent with the IPCC Working Group III report which stated that 'At both the national and international levels, market-based approaches are likely to be more cost effective than other instruments'. However, durable policy solutions require the careful selection of approaches which suit the circumstances in question, for example, further work is needed on the scope for applying economic instruments to other greenhouse gases and sinks of CO_2.

New Zealand has consistently advocated the implementation over time of economic instruments internationally. While we consider that economic instruments are likely to offer the most cost effective approach to reducing CO_2 emissions in a wide range of circumstances, international agreement over a given policy approach may neither be appropriate or necessary. Provided commitments can be agreed, individual parties should be free to respond according to their own assessment of what is least cost in accord with individual circumstances. Variations in factors such as the state of development, local energy resource costs etc make it unlikely that mandatory harmonised policies and measures would be cost effective for all parties. However, we

recognise some broad exceptions to this general position, in particular, consistency of approach in respect of the following is desirable

- fossil fuel energy subsidies which are inconsistent with both the intent of the Convention, and with maximising economic welfare including the prospects for sustainable development - phasing these out should be a high priority and deserves consideration as a compulsory measure

- the treatment of international aviation and marine bunker fuels may require internationally agreed, and probably harmonised action to be taken

- protocols for emissions trading which would need to be agreed between parties who wished to participate in trading (the right to trade would provide an incentive to comply with any such protocol)

In terms of emissions trading a key feature of a credible approach in the longer term is for trade to be against agreed emissions envelopes which ensure that reductions are genuine. Unless emissions envelopes apply to all parties participating in trade there may be an incentive for trading between parties with and without fixed envelopes to occur which may not involve corresponding real emissions reductions (and indeed undoes the commitments of those with an agreed envelope).

It is important that Parties give consideration to the requirements of a protocol on trading. To encourage such discussion New Zealand puts forward the following two examples for further consideration: mechanisms for tracking and validating trades, and the formulation of clear rules which would govern changes to the overall allocation or target. Tracking and validation are important in order to reduce the transaction costs of trade, and to ensure that trades are valid. Clear rules governing changes to the overall target would place some constraints on such action, but would facilitate trading and the emergence of market based instruments for risk management. We would welcome contributions from other parties in this area.