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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

AD HOC GROUP ON THE BERLIN MANDATE

Eighth session, second part

Kyoto, 30 November 1997

Agenda item 3

**RESPONSE FROM PARTIES ON ISSUES  
RELATED TO SINKS**

**Comments from Parties**

**Note by the secretariat**

1. At the first part of its eighth session, the Ad Hoc Group on the Berlin Mandate (AGBM) considered the issue of greenhouse gas sinks in the context of quantified emission limitation and reduction objectives (QELROs) (FCCC/AGBM/1997/8).
2. At the same part of the session, Parties were invited to submit views on this topic by 12 November 1997. The secretariat was requested to compile these submissions into a miscellaneous document.
3. The secretariat has received thirteen submissions\* which have already been issued as documents FCCC/AGBM/1997/MISC.4 and Add.1. The secretariat has received two further submissions between 20 and 27 November 1997 from the Russian Federation and Uzbekistan. In addition, the secretariat has received three revised submissions from Australia, Canada and Peru, and one comment on the responses received from Parties to the sinks questionnaire (New Zealand). In accordance with the procedure for miscellaneous documents, these submissions are attached and are reproduced in the language in which they were received and without formal editing.

FCCC/AGBM/1997/MISC.4/Add.2  
UKY.97-71076

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\* In order to make these submissions available on electronic systems, including the World Wide Web, these contributions have been electronically scanned and/or retyped. The secretariat has made every effort to ensure the correct reproduction of the texts as submitted.

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PAPER 1: AUSTRALIA  
(Revision)

**1. Should anthropogenic sinks be included or excluded in a QELRO?  
Why or why not? (In responding you may wish to consider which budget period or target year.)**

The inclusion of anthropogenic sinks in national programs to mitigate climate change is specifically provided for in the Climate Change Convention and in the Berlin Mandate.

Articles 4.1 and 4.2 of the Convention relating to the commitments by Parties specifically use the phrase “anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol” when dealing with inventories and mitigation action.

Drawing on the wording in these articles, the Berlin Mandate also specifically states (article II 2 (a)) “This process will, inter alia, (a) aim ..... for developed country Parties included in Annex 1 .... to set quantified limitation and reduction objectives ..... for their anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol ...”.

Omitting sinks from QELROs would therefore be inconsistent with both the Convention and the Berlin Mandate.

Australia’s view is that anthropogenic sinks should be included in a QELRO as part of a comprehensive approach that covers all greenhouse gases and all emissions sources and sinks. The objective of the Convention (Article 2) is that greenhouse mitigation action should cover areas that impact on the greenhouse gas concentrations in the atmosphere. Enhancing removals of greenhouse gases from the atmosphere is as important as is reducing emissions from sources.

According to IPCC WG1 (Technical summary, Table 2) the land use change and forestry sector accounts for around 25% of net anthropogenic emissions. The net emissions from this sector are the product of emissions from sources and removals by sinks. Sinks are clearly an important part of the response action to achieve the objectives of the Climate Change Convention.

Australia is therefore concerned that excluding sinks from QELRO;

- removes incentives to implement sink enhancement strategies even though they can make a major contribution to reducing net global and national emissions;
- prevents countries from receiving credit for reductions in the level of net emissions achieved through sequestration activities;
- disadvantages countries whose national emissions profile includes a major contribution from sinks.

Australia supports adoption of the comprehensive approach for the first budget period because it;

- ensures that countries explicitly consider the environmental impact of all greenhouse gases in all sectors in responding to the climate change challenge;
- recognises different national emission profiles and consequent varying national circumstances;
- recognises the significance of both sources and sinks to global contributions to greenhouse gas emissions;
- enhances the cost effectiveness of national and global response;
- maximises the national response flexibility, as anything less than a fully comprehensive approach would unfairly limit flexibility and unfairly constrain the opportunities for cost effective action for some parties.

**2. What would be the impact of including or excluding sinks on the QELRO levels, national plans or policies of your country? (Please try to provide a qualitative answer.)**

Countries have different emission profiles. In this respect Australia's profile is significantly different when compared to other Annex 1 countries. The energy sector accounts for only about half of Australia's net emissions (compared to an average 80% for OECD countries) while the land use change and forestry sector accounts for around 20% of Australia's net national emissions in 1990.

Although in Australia land use change and forestry represents a net source of emissions, sinks are also an important component comprising around 20% of net national emissions. In contrast, for other Annex 1 countries, the land use change and forestry sector is generally of low significance in the overall emissions pattern and, in almost all cases, represents a net sink.

In recognition of our situation, Australia's national greenhouse strategy, while addressing emissions from the energy sector, also has a strong focus on the land use change and forestry sector, particularly including protection and enhancement of sinks. This comprehensive approach ensures Australia's climate change mitigation action is targeted to achieve maximum effectiveness and incorporate significant components of the national profile.

Australia's key sink protection and enhancement programs include:-

- the National Vegetation Initiative which includes extensive replanting of Australia's native vegetation cover, and Bushcare (A\$350M); and
- 2020 Vision which aims to treble Australia's plantation estate by 2020.

**3. What criteria governed your answer to question number 1?**

The criteria that governed Australia's response is its firm support for the comprehensive approach, based on the fact that around 25% of world greenhouse emissions are from land use change and forestry, that is, non-energy sources. Such an approach maximises the cost effectiveness of mitigation action through allowing individual countries to tailor their approach to their own emissions profile.

Australia sees the principles surrounding the inclusion of sinks as a separate issue to accounting mechanisms pertaining to sinks used in meeting QELROs.

Australia is therefore concerned that excluding sinks from QELROs;

- removes incentives to implement sink enhancement strategies even though they can make a major contribution to reducing net global and national emissions;
- prevents countries from receiving credit for reductions in the level of net emissions achieved through sequestration activities;
- disadvantages countries whose national emissions profile includes a major contribution from sinks.

As stated in Q1, Australia supports adoption of the comprehensive approach for the first budget year because it;

- ensures that countries explicitly consider the environmental impact of all greenhouse gases in all sectors in responding to the climate change challenge;
- recognises different national emission profiles and consequent varying national circumstances;
- recognises the significance of both sources and sinks to global contributions to greenhouse gas emissions;
- enhances the cost effectiveness of national and global response;
- maximises the national response flexibility, as anything less than a fully comprehensive approach would unfairly limit flexibility and unfairly constrain the opportunities for cost effective action for some parties.

#### **4. How would you define ‘anthropogenic’ sinks in the context of a QELRO?**

The IPCC Guidelines for the National Greenhouse Gas Inventory Reporting instructions refer to ‘anthropogenic’ as follows: ‘In general terms (it) refers to greenhouse gas emissions and removals that are a direct result of human activities or are the result of natural processes that have been affected by human activities. Users may include any human-induced emissions and removals in their inventory as long as they can be clearly documented and quantified.’

The IPCC Guidelines have been adopted by the Conference of the Parties as an integral part of guidelines for preparation of national communications and national inventories. In interpreting development of the National Greenhouse Gas Inventory, Australia has followed these guidelines and included all activities resulting in both sources and sinks.

#### **5. Do you agree or disagree with the following proposition; if so why or why not? ‘Any QELRO that would include sinks should be based on the 1996 IPCC Guidelines. Any new IPCC methods would only apply to a second budget period or subsequent target.’**

Australia agrees with the statement and considers the current IPCC Guidelines to be workable, while acknowledging that, of course, they will continually be refined.

Australia supports the view that the 1996 Guidelines should be applied for the full budget period, with any new Guidelines being applied for the next period.

The IPCC guidelines allow refinements to activity data and methods used in compiling national inventories. Any changes to compiling inventory emissions estimates should be

applied consistently by a country to the base year and the budget period when assessing compliance with a QELRO.

**6. a) Which IPCC LUCF categories should be included or excluded in a QELRO? Why? Examples: all land use change and forestry/changes in forest and other woody biomass stocks/other.**

Australia supports inclusion of all terrestrial activities to ensure a comprehensive coverage and assessment (of all greenhouse gases and all emissions sources and sinks), in accordance with our response to Q1 and Q3.

**b) If some categories are excluded, how should they be dealt with?**

Australia supports inclusion of all categories agreed to be anthropogenic.

**7. What reference year should be used as the basis for any QELRO that would include sinks? 1990/2000/none/other.**

The base year for measuring emissions needs to be the same for both sources and sinks. Australia has used 1990 as its base year as it is used in Article 4.2 of the Climate Change Convention and is featured in most QELROs proposals.

Australia would oppose the option of not having a base year (option 'none'). A transparent, credible and environmentally effective QELRO must be based on a consistent approach to estimating emissions in the reference year and in the budget period, as this would not provide any means of measuring and including improvements in sinks in QELROs. It would, in fact, undermine positive action to protect and enhance sinks.

**8. a) How much uncertainty do you associate with the GHG inventories provided by your country for the specific IPCC reporting categories?**

The IPCC Guidelines for national inventories recognise varying levels of uncertainty. The guidelines require that uncertainty assessments be made for each major part of the inventory. This is part of the transparent approach to presentation of national inventories.

Uncertainty is inherent in estimations of GHG emissions and sinks from all sectors and is likely to remain higher for sectors involving biological processes than for essentially industrial areas.

However, using the same methodology over an accounting period (uniformity of approach) provides a 'consistent' measure acceptable for QELROs whatever the sector or level of uncertainty. Though uncertainty in the assessments for individual years may be high, there is greater confidence in the difference in net emissions over a given period. A consistent approach to estimates in the base year and in the budget period provides an acceptable means of assessing the trend over time.

Australia considers that it is not necessary that the same methodology apply between countries, only that methods are applied consistently within a country and across a budget period in QELROs.

Some methods may not be appropriate to conditions in all countries.. Each country should be able to develop methodologies suitable to itself in accordance with the IPCC guidelines.

The criteria used in Australia's inventory to define 'high' 'medium' and 'low' levels of confidence in the different sectors reflects the quality of the activity data generally available in that sector and the confidence with which the relationships between activity and emissions have been established. For example, the quality of activity data in energy use is high and the relationships between activity and emissions are comparatively simple. Hence, the confidence criteria are more stringent for the energy sector than for other sectors.

<b>Level of Confidence</b>	<b>Energy, Transport, Fugitive emissions</b>	<b>Agriculture, Forestry, Land use</b>	<b>Industry Waste</b>
High	Uncertainty<5%	Uncertainty<20%	Uncertainty<10%
Medium	Uncertainty 5-20%	Uncertainty 20-80%	Uncertainty 10-50%
Low	Uncertainty>20%	Uncertainty>80%	Uncertainty>50%

Australia expects the uncertainties in estimates of both sources and sinks to reduce as refinements in data occur over time. For example, through refinements in developing the 1995 inventory, Australia has already reduced the uncertainty in the rate of land cleared from 50% to 30 % and in the biomass per hectare from 50% to 40%, compared to earlier estimates.

**b) What uncertainty levels would be appropriate for sinks in a QELRO, bearing in mind the uncertainties associated with sources?**

See response to 8a) above. While there are uncertainties associated with the definition and measurement of sinks, in Australia's view, there are adequate methods available, if rigorously applied, to accommodate current uncertainties and enable sinks to be included in a QELRO.

Biological sectors are both sources and sinks. Estimates of sources in these sectors are also subject to uncertainty and are dependent on some of the same information that is used in estimating sinks. The same rigorous application of methods is adequate to accommodate uncertainties in emissions sources as well as sinks.

**c) How should uncertainty be dealt with?**

See response to Q8 a) above. The IPCC Guidelines for national inventories recognise varying levels of uncertainty. The guidelines require that uncertainty assessments be made for each major part of the inventory. This is part of the transparent approach to presentation of national inventories.

In Australia's view, these accepted IPCC Guidelines provide a standardised approach for dealing with uncertainties. In addition, there is good evidence to demonstrate that

improvements in methodologies and data have already resulted in substantial improvements in the level of confidence in some areas and there is every expectation that improvements will continue to be made.

**9. Should there be a limit on the amount of sinks in a QELRO; if so how should it be determined?**

Australia does not support a limit on national sinks in QELROs. All national sinks relevant to a country's emissions profile should be included. A comprehensive approach to QELROs enables countries to develop activities, including protecting and enhancing sinks, that best reflect their national circumstances and emissions profile.

**10. Is the data provided in national communications adequate/inadequate for assessing compliance with a QELRO? Why or why not?**

See response to Q8 a). The current guidelines for national communications require data on all sectors and on both sources and sinks. In Australia's view, the accepted IPCC Guidelines provide a standardised approach for dealing with uncertainties in inventory data. This is part of the transparent approach to presentation of national inventories. The review process that is required by the IPCC guidelines for national communications provides an important means to verify the data.

**11. Should any 'national system' established under Article 4 [Article 5 in the latest draft] give special consideration to sinks?**

Australia views inclusion of sinks as an integral part of Article 5. Article 5 of the Chairman's text states "'Each Party included in Annex 1 .... shall have in place ..... a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol". This text reflects the Climate Change Convention and the Berlin Mandate. Accordingly, as sinks are specifically included, Australia considers that no 'special consideration' should be given to sinks in the 'national system' and that removals by sinks should be regarded as equivalent to reductions in source emissions.

**12. In order to achieve compliance with a QELRO (with/without sinks), what activities should be credited or not credited and what base year should be used?**

Australia supports a comprehensive approach, covering all greenhouse gases and all emissions sources and sinks (see Q1 and Q3). Therefore, all activities relating to sink enhancement, in line with IPCC Guidelines, should be credited, provided they are reported, with measurement, in a country's national communication and are subject to the review mechanism (see Q10). Refer to Q7 re base year.

**13. What definitions should be included; in which article of the protocol?**

Australia sees no need for specific definitions to be included in the protocol in relation to sinks. The IPCC Guidelines provide a working definition of the term 'anthropogenic' (refer to

Q4). The wording in the Convention (Article 4.1) “emission by sources and removals by sinks” gives a working interpretation of “net emissions”.

These IPCC guidelines form an integral part of the guidelines for national communications and have been adopted by the Conference of the Parties.

**14. Do you have any other approach to propose?**

No comment.

**15. Do you have specific protocol language?**

No comment.

PAPER 2: CANADA  
(Revision)

Question 4: Anthropogenic sinks - Remove “aimed at” and definition should read “Direct human activities undertaken after 1990 that protect and enhance sinks capacity, (specifically reforestation and afforestation) and that affect carbon stocks (deforestation and harvesting) and that can be verified.

Question 7: Reference Year response for Canada in table is incorrect - emissions 1990, and for net sinks the beginning of the budget period - For your info the difference with our approach and NZ approach is that only net sinks resulting from direct human activities undertaken after 1990 would be included.

PAPER 3: NEW ZEALAND

**COMMENT ON THE RESPONSES RECEIVED FROM PARTIES TO THE  
SINKS QUESTIONNAIRE**

***1. Regarding the exclusion of sinks at least for the first budget period.***

Parties in this group including Nauru, the Marshall Islands, Japan and Kenya, mostly cite uncertainty as the reason why sinks should not be included at this time. In particular, the concern is expressed that the uncertainty surrounding data in the land use change and forestry sector will make it difficult or impossible to evaluate whether key Parties are in compliance with their QELROs.

In New Zealand's opinion, the undeniable fact of uncertainty and lack of absolute comparability in Parties' inventory reports to date has to be seen in a broader context. We accept these Parties legitimate expressions of concern about the impacts of climate change. But is excluding sinks the correct way to protect the atmosphere and to reduce uncertainty?

No Party who proposed excluding sinks for now has addressed the point that exclusion would mean the total of Annex I Parties' QELRO budgets would be established at a level approximately 10% higher than if sinks are included (for the same % reduction target). By contrast, establishing the aggregate Annex I target on a net basis precludes the possibility of subsequent increases in net emissions to the atmosphere (within the confines established by reporting, review and compliance mechanisms). This is a critical point in terms of the ultimate objective of the Convention - protecting the atmosphere.

In New Zealand's opinion, to protect the atmosphere we must constrain the total of Annex I budgets on a net basis. We must also ensure that Parties take their inventory monitoring and reporting commitments seriously. To help them in this endeavour we must direct the necessary attention and resources to methodological issues that need to be resolved.

New Zealand believes this is most likely to occur by including sinks within legally binding commitments, not excluding them. There is a reasonable period of time available before even the earliest proposed budget periods. Accordingly, there is reason to believe that with this impetus Parties will be in a position to provide acceptably accurate data by the time budget periods begin. Compliance consequences are proposed in the Protocol to deal with Parties who fail to do this.

New Zealand further notes that the uncertainty issue arises in respect of a range of other gases and sources. It is not unique to sinks.

***2. Regarding those wishing to include sinks but who don't specify how targets should be established.***

Parties in this group include Canada, Denmark (?), the EU and Iceland. As noted above, to not be clear about how to address sinks in setting targets, or alternatively to be clear that it is a "gross" target, fails to address the need to establish firm budgets based on net emissions.

Setting targets on a gross basis would lead to an “emissions loophole” as the sinks that existed in 1990 “grow up” and the rate of CO<sub>2</sub> removal from these sinks diminishes to zero. Depending on exactly how removals by sinks are to be recognised in a budget period, the emissions loophole could be immediate or occur over time. But it must occur.

**3. *Regarding the inclusion of sinks but with a limit on the amount of credit for removals during a budget period.***

Parties in this group include Canada, Denmark (?), the EU, Iceland and Peru. In New Zealand’s view the overarching principle should always be “assessment from the perspective of the atmosphere”. New Zealand proposes that all anthropogenic emissions by sources and removals by sinks should be accounted for in determining if Parties are in compliance with their QELROs. This is what the atmosphere “sees”. The atmosphere, for example, does not distinguish between a removal by a sink activity that began before 1990 as compared with one started after 1990.

We question whether Parties proposing limits to the recognition of removals by sinks have fully considered the practical ramifications of such an arbitrary and artificial limitation. The incentive framework and assessment requirements are made fundamentally different by drawing such a policy line.

If, for example, forest growers do not gain credit in a budget period for removals by sinks begun before 1990, does this mean they should not bear any responsibility if they harvest or otherwise remove these sinks and then don’t replace them? Would this not set up an incentive to liquidate an existing forest asset and simply shift activity to a new site which would get credit?

Consider the transaction cost implications of a credible and transparent system that has to deal with a boundary line between those anthropogenic removals that are to be counted and those that are not. This would require case-by-case analysis and scrutiny. These costs would be borne, *inter alia*, by the IPCC and their working groups in establishing the methodologies, all those participating in SBSTA and COP deliberations associated with these methodological issues, the secretariat in their role, the Parties (and companies within) in establishing and maintaining the markedly more complex inventory systems necessary and the review teams and all those involved in compliance assessments and processes.

**4. *Regarding the `discounting` of the amount of removals by sinks because of data uncertainty.***

Parties in this group include Canada and Nauru.

As a general point, New Zealand notes that the uncertainty issue is not unique to sinks. Data uncertainties for some sources of methane and nitrous oxide are more uncertain than many Parties’ estimates of removals by their sinks.

Discounting is one proposed solution to avoid the circumstance that the atmosphere in fact sees higher total emissions than is estimated by the use of central values. For

example, under a discounting approach; a central estimate 100 unit CO<sub>2</sub> removal credit may only be counted in the inventory as 75 units if the data certainty was  $\pm 25\%$ . (Presumably if applied to uncertain gases, they would be counted in the inventory as 125 units in an equivalent circumstance).

New Zealand's views/questions on the treatment of uncertainty in the Annex I Party Inventories of emissions and removals that will form the basis of assessing compliance with QELROs are:

- All inventory estimates carry uncertainty bands around them. To be consistent, if we are to accept the arguments for uncertainty discounting, this should mean that inventory data for all emissions should be adjusted to the upper end of the range of uncertainty and all removals data to the lower. This is for calculating inventories in the budget period. (Should the reverse be true in the base year? ) We question whether Parties would ever agree to such a suggestion.
- Central estimates are just that, and should be the basis for all inventory accounting. For agreed inventory methodologies there should be equal probability that the true value lied on one side of the central point as the other. There is then no logical basis for preferring a lower to a higher figure.
- During the expert review of Parties' inventories, attention should be given to the potential for systematic bias in the way data has been estimated using the chosen inventory methods.
- We also note that one proposal in the negotiating text is that, where Parties use inventory methodologies that are less certain than an agreed best method, such data should be adjusted accordingly (ie in a direction that penalises). New Zealand supports this proposal contingent upon an acceptance that Parties may use better than "agreed best methods" (IPCC 1996 Inventory Guidelines allow and recommend that national best methods be used where default methods would be less accurate).
- A general principle of ongoing step-wise improvement should apply to inventory methodologies and continual improvement in Parties' use of them: the objective should be to have the most accurate possible inventories.

PAPER 4: PERU  
(Revision)

The answer to question 1 should be:

Yes, if they are adequately established with sound methodologies, fully recognized.

PAPER NO. 5: RUSSIAN FEDERATION

1. We support inclusion of sinks in QELROs/emission budgets. We support the approach that emission budgets will be based on net aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases. Under net aggregate anthropogenic emissions we understand anthropogenic emissions minus anthropogenic sinks.
2. Inclusion of anthropogenic sinks in QELRO, national plans and policies in the Russian Federation will provide carbon sequestration for 10-year period from 2000 to 2010 about 50 millions tons C per year. It seems to us to be a significant contribution to the balance on GHG concentration in the atmosphere.
3. High efficiency of measures on anthropogenic sinks, reflection of real possibilities to increase anthropogenic sinks, valuable global effect on carbon dioxide concentration in the atmosphere.
4. Sinks caused by clear and concrete anthropogenic measures with clear determination of baseline.
5. Any commitments should be based on up-to-date scientific data, therefore currently such guidelines are the IPCC Revised Guidelines, in future it will be possible to use new revised versions.
6. All categories might be included in QELROs, for which may be provided high certainty, monitoring and verification.
7. We consider that for QELROs a base year for sinks might be 1990.
8. For anthropogenic sinks uncertainty might be of about 10%, only sinks with low uncertainty (10%) can be included in commitments.
9. No limits (except uncertainty level).
10. In general, yes, but with further developments, corresponding to new requirements of certainty and verification.
11. Yes.
12. We consider that Parties should have rights to choose measures (activities) by themselves to archive compliance.
13. A definition of “anthropogenic sinks” might be included to Article 1.
14. Our approaches were presented in proposals of the Russian Federation to a Protocol.
15. No.

PAPER 6: UZBEKISTAN

1. Anthropogenic sinks should be eliminated from QELRO due to the great uncertainty in the sinks classification: anthropogenic or natural ones. For example, it should be defined how to consider the marshed areas, forest areas where there is no economical activities and how to divide or tropical forest into sectors subjected to anthropogenic activities and not-subjected ones.
2. Due to the absence of the traditional reservoirs of sinks in our country, including or elimination of sinks at QELRO level in the national plan will play a significant role.
3. Anthropogenic sinks present absorption by the reservoirs used for the anthropogenic activities. For example, the restoration of the land use in the result of anthropogenic activities, making of the artificial water bodies.
4. We agree with the proposition “any QELRO that would include sinks should be based on the 1996 IPCC Guidelines. Any new IPCC methods would only apply to a second budget period”.

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