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SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
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Item 4 (b) of the provisional agenda

METHODOLOGICAL ISSUES

Comments from Parties and an international organization

Note by the secretariat

By its decision 9/CP.2, the Conference of the Parties, at its second session, requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to consider methodological issues relevant to national communications and, in particular, at its fourth session, to address those issues discussed in FCCC/SBSTA/1996/9/Add.1 and 2; and, if relevant conclusions on such issues could be drawn, to revise further the guidelines for the preparation of national communications as appropriate (FCCC/CP/1996/15/Add.1).

The SBSTA invited Parties to submit their views on the methodological issues identified in documents FCCC/SBSTA/1996/9/Add.1 and 2, as well as on other methodological issues related to national communications from Annex I Parties, by 15 October 1996, for possible inclusion in the programme of work of the SBSTA.

The secretariat has received submissions from six Parties, namely, Australia, Bulgaria, Denmark, Ireland, Mexico and Switzerland. A submission from the International Civil Aviation Organization was also received. In accordance with the procedure for miscellaneous documents these submissions are attached and reproduced in the language in which they were received without formal editing *. The submissions have been arranged according to topic. Any further submissions from Parties will be issued in an addendum to the present document.

In addition, the secretariat has received a submission from the Edison Electric Institute (EEI). It is the practice of the secretariat not to reproduce documents from non-governmental organizations. However, Parties may wish to request copies of this submission directly from the EEI at the following address: Edison Electric Institute, 701 Pennsylvania Avenue, N.W., Washington D.C. 20004 (Tel. No. 202/508-5655).

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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. Although the secretariat has made every effort to ensure the correct reproduction of the texts, the possibility that some mistakes have not been detected nevertheless remains.

CONTENTS

I. ACCOUNTING FOR THE EMISSIONS ASSOCIATED WITH ELECTRICITY TRADE

1. Australia

Australia considers that electricity trading is part of a more generic issue of trade in high carbon intensive commodities, and the embedded emissions associated with them.

Australia considers that it is useful to consider the issues associated with consideration of emissions in three distinct parts: inventory; allocation or attribution of emission responsibility; and control of emissions.

Australia considers that a fundamental principle in dealing with emissions is that the Parties' national greenhouse gas inventories should reflect all the actual emissions that take place within the borders of the country.

The issue of attribution of emission responsibility or 'performance' is a separate question. Australia notes that some Parties have adjusted their emissions inventories to take account of emissions associated with imports or the production of export goods, including electricity. Australia envisages that guidelines and methodologies could be developed which would allow offsets of national emissions through trading of goods across borders. If arrangements are to be developed for such an approach, they will need to address:
1) both the exports and imports of the commodity; and 2) the scope of commodities to covered by such adjustment arrangements still needs to be considered (we would not expect the commodities to be limited to electricity trade).

In the meantime, Australia supports the reporting by Parties on the range of supplementary inventory information associated with such an approach, as identified by the Secretariat.

In respect to the two specific options proposed by the Secretariat, Australia considers that while the first option (emissions being attributed completely to the Party that reports the emissions in their inventory) may be technically simpler, the second option (the bilateral agreement option) provides a more equitable attribution of emission responsibility.

2. Bulgaria

During the review of the national communication of Bulgaria, conducted between 2-4 October, 1996, data on electricity trades was provided to the review team. The team was informed that in 1993 Bulgaria imported electricity from the Ukraine and Moldovia and exported electricity to Greece and Yugoslavia. The trend in imports and exports is shown in the following table.

Electricity Exchange, Gwh

YEAR	1987	1988	1989	1990	1991	1992	1993
IMPORT	4673	4450	4937	5387	3083	3289	1634
EXPORT	324	304	548	1597	959	584	1518
BALANCE	4349	4146	4389	3790	2124	2705	116

3. Denmark

In the Danish view, the discussion on these issues involves three separate elements:

1) how to secure accurate reporting of actual emissions in inventories
2) how to deal with inter-annual fluctuations in emissions, that are due to non anthropogenic random factors such as weather fluctuations, and
3) how to reconciliate national emission targets with free trade of electricity across national borders

Denmark wants to stress, as a principal view, that the question of reporting on emission inventories should be separated from the items 2) and 3).

In the absence of clear directions on how to report on adjustments on annual fluctuations countries have introduced non homogeneous adjustments, which have led to the notion, that the issues of adjustments should be explicitly addressed in the reporting guidelines.

1. How to secure accurate reporting of actual emissions in inventories?

Denmark is of the opinion, that emissions inventories should report actual, unadjusted emissions in a way that leaves no doubt about actual emissions, and that secures that aggregations of national inventories across countries will result in accurate estimates of global emissions, without double-counting or underreporting of emissions.

Denmark believes that all Parties should report unadjusted emissions inventories. In addition to this they should be allowed to report adjusted figures for their national emissions provided the methodologies and the motivation for the adjustments are clearly explained in a transparent manner. The methodologies applied should be thoroughly evaluated by the in-depth review of the national communications, and could also be dealt with by SBSTA or COP, in the process of approving the in-depth review reports.

2. Principal comments regarding adjustments for weather-induced fluctuations

The underlying fact on fluctuating emissions is, that some countries experience large fluctuations in their emissions and in their exchange of electricity from year to year, due to fluctuating weather.

The problems faced by such countries are twofold: emissions in the base year may be accidentally high or low as a result of fluctuations in that year. Or the emissions in any future target year may turn out to be accidentally high or low. For such countries, their compliance with the FCCC can only be judged fairly, if the reporting of adjusted emission inventories, in addition to inventories of unadjusted emissions is allowed.

Countries should be allowed to report on emissions adjusted for weather related fluctuations, and the trends in those emissions. Such adjusted emission figures and trends should, after proper review by the in-depth review mechanism and approval by the Convention bodies, also be mentioned in the synthesis reports and other compilations of parties progress, along with the unadjusted figures, and proper explanatory notes.

Denmark believes that SBSTA should continue its work on adjustment methodologies, inter alia by reviewing existing adjustment methodologies applied by parties.

2.1. Value of adjustments for following trends in emissions

When interannual fluctuations are large, a proper adjustment methodology is a necessity in order to monitor how national emission trends are developing. This may be illustrated by figure 1, which shows the Danish CO2-emissions from energy consumption based on fossil fuels from 1975 to 1995, in the following two versions: Unadjusted and adjusted for the effects of net electricity exchange.

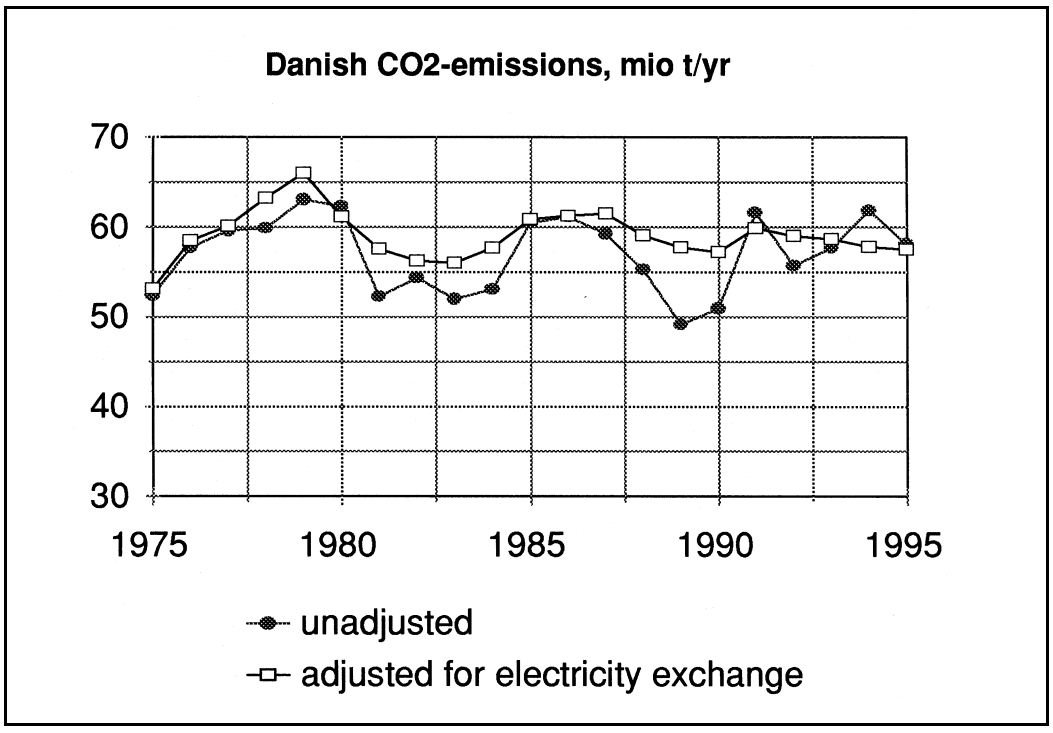

Figure 1. Danish CO2-emissions from energy combustion: Unadjusted, adjusted for net electricity import, and adjusted for both net electricity import and temperature.

3. The potential conflict between free trade in electricity and national commitments.

Denmark believes, that there is a potential conflict between present policies in many regions, including Europe, towards free cross-border trade of electricity, and the reliance on national reduction commitments, if the problems of potential large shifts in the trade patterns are ignored.

On the one hand, Denmark believes that the international community in the foreseeable future will continue to need the impetus of national reduction commitments, in order to make sufficient progress in the mitigation efforts.

On the other hand, the development of competitive regional markets for electricity could assist in the achievement of greenhouse gas reductions, by reallocating electricity production on a regional scale to producers that can most economically achieve such reductions. This result presupposes that proper internationally co-ordinated measures, such as CO2-taxes were introduced in order to fully reflect the costs of production.

The possibility exists, however, that such reallocation could create a stress on individual countries policies to fulfil national reduction commitments, if electricity exports, as a result of the free competition, were to increase substantially for individual countries.

For this reason, Denmark believes, that transfer of CO2-emissions resulting from electricity produced for exports, from exporting to importing country, may be unavoidable in the future, if the policy of free trade are to achieve its objective.

Denmark believes, that such systematic shifts in trade patterns should be separated from the above mentioned problem of weather related trade-fluctuations.

Furthermore, Denmark agrees with the observation in the secretariat paper, that the Convention already allows annex 1 parties to implement their commitments jointly. We understand this to mean that mutually agreed transfer of responsibility for emissions would be allowed, as long as the aggregate responsibility for emissions of the countries involved corresponds to the actual emissions, and respects the existing, as well as future commitments of the Convention.

Denmark is of the opinion, that far more options exist for agreeing on emission-transfers connected with electricity trade, than the few options outlined in the secretariat paper, whether on a bilateral or regional scale, including some sort of sharing of the total emission reduction or increase resulting from the electricity trade, schemes based on general labelling of electricity, or schemes involving emission (or permit) trading.

Denmark finds it premature to settle on any specific scheme for corrections in relation to electricity trade.

Supplementary notes. The Danish case.

Net import of electricity in OECD-countries (per cent of total net supply)

																swing
Australia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Austria	-10	-13	-12	-9	-4	-4	-4	-14	-6	-5	-2	1	1	-2	-2	15
Belgium	-5	1	1	-0	0	-0	-0	-4	-3	-4	-6	-3	0	3	5	11
Canada	-8	-10	-9	-10	-10	-10	-8	-10	-6	-2	-0	-4	-5	-6	-9	10
Denmark	-5	23	8	17	19	2	0	8	14	31	22	-6	11	3	-14	44
Finland	3	6	6	11	11	9	11	10	12	14	17	12	13	12	9	14
France	1	-2	-2	-5	-9	-8	-9	-10	-10	-12	-12	-15	-15	-17	-15	18
Germany	2	2	2	3	1	1	1	1	0	0	-0	-0	-1	0	0	4
Greece	3	1	4	8	10	3	5	2	1	1	2	3	2	2	1	9
Iceland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	3	5	4	6	11	12	11	11	13	14	14	15	14	16	14	13
Japan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luxemburg	75	86	90	94	91	94	91	91	86	86	87	95	89	90	88	19
Netherlands	-0	-0	5	8	5	8	3	5	8	6	11	11	11	12	12	13
Norway	-1	-6	-7	-15	-9	-1	2	-0	-5	-15	-15	-3	-8	-7	-0	17
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Portugal	11	20	17	7	4	11	9	14	10	4	0	0	0	1	3	20
Spain	-1	-1	-3	-0	2	-1	-1	-1	-1	-1	-0	-0	0	1	1	5
Sweden	1	-3	3	5	0	-1	-4	-3	-2	-0	-1	-1	-2	-0	0	8
Switzerland	-21	-27	-27	-22	-11	-19	-19	-20	-19	-5	-4	-5	-8	-14	-22	23
Turkey	5	7	7	8	9	6	2	1	1	1	-1	1	-0	-1	-1	10
UK	0	0	0	0	0	0	2	4	4	4	4	5	5	5	5	5
US	1	1	1	2	2	2	1	2	1	0	0	1	1	1	1	2

Table 1: Net electricity import (+) or export (-) in percent of total net electricity supply for annex 1 OECD countries. The total variation (difference between max. and min. net import share) in the period shown, is given in the last column, denoted “max. swing”. Note that apart from countries with a clear trend (such as France), large swings are found in countries with large shares of hydro (such as Norway and Switzerland), or in countries influenced by fluctuations in hydro-resources in their neighbour countries (as is the case for Denmark). Denmark shows the largest swing in the period, of 44% of total net electricity supply, among all the countries listed. Note also the co-variation between export from Norway and import to Denmark.

In order to illustrate the nature of the Danish case the following information is offered:

Denmark is a small country situated at the border between the Scandinavian power systems dominated by hydro power and the European continental power system with large fossil shares in electricity supply. Danish electricity supply is almost 100% fossil based, apart from small, but growing wind-energy and biomass shares. This difference has been the basis for a long term trade-pattern, where surplus hydro power is exported to Denmark in wet years, whereas fossil-based electricity is exported from Denmark in dry years.

The Danish electricity consumption is small (about 30 TWh ab plant) compared to the Swedish (about 140 TWh) and Norwegian (about 110 TWh). Hence small variations in hydro resources in these countries cause large fluctuations in the Danish net import of electricity. Also variations in heating demand play a role, as relatively large shares of electric heating in Norway and Sweden may amplify the pattern caused by hydro resource fluctuations. Also fluctuations in Finish hydro power and electric heating is believed to influence the net import to Denmark.

Due to this, Denmark has the largest fluctuation in electricity trade seen in any OECD country, as is apparent from table 1. In 1990, hydro power was relatively abundant in Scandinavia, and thus Denmark had a large import share of 22%, surpassing the average share of 9% in the period 1980 to 1994. As opposed to this, 1994 (and 1996 deemed from preliminary figures) turned out to be unprecedented dry years, leading to a large export from Denmark to the Scandinavian countries, to compensate for the low hydro resources.

The difference between the year with largest export (1994) and largest import (1989), amounts to 44% of total net Danish electricity supply. These fluctuations mean, that Denmark would have to reduce CO2-emissions disproportionately in any given target year, if Denmark were bound to the relatively high import that accidentally took place in 1990, and still larger reductions if any future accidental large export in a dry year should be accommodated. For this reason, Denmark has repeatedly stated, that it interprets its stabilisation commitment under the Convention, and any future targets that may be agreed, to be in terms of emissions adjusted for these fluctuations in electricity trade.

As the fluctuations are mainly climate related (fluctuating precipitation giving fluctuations in hydro resources and fluctuating demand for (electric) heating in Scandinavia), Denmark views this adjustment as analogous to a correction for heating demand, namely as an adjustment that serve to eliminate accidental climate fluctuations.

Denmark has committed itself to a national target of reducing its CO2-emissions from energy combustion by 20% in 2005, compared to 1988, and has declared its willingness to pursue still larger reductions (such as 50% by 2030), provided other industrialised countries pursue matching targets. These commitments, as well present and future, would have to be in terms of emissions adjusted for electricity trade fluctuations.

As a consequence of the Danish energy plan with increasing use of renewable energy resources the share of co-generation the future electricity production will be increasingly influenced by climatic factors.

This does not detract from the clear Danish commitment to reduce the overall trend of emissions, arising from its own electricity consumption.

4. Ireland

The EU believes that Parties should continue to report in their national inventories actual emissions from all of the electricity which they produce, whereas any adjusted figures calculated for the illustration of progress in reducing emissions trends can be reported in separate compilations.

The EU recognises the complexities involved where emissions are influenced by electricity trading, which are described in paras 23 and 24 of FCCC/SBSTA/1996/9/Add.2. The EU notes that the revised guidelines for National Communications from Annex I Parties (FCCC/CP/1996/L.13 Add.1 para 51) which were agreed at COP2 have already made some provisions for reporting emissions estimates associated with exports of electricity. The existing approach does not preclude the implementation of policies jointly between Annex I Parties to mitigate emissions from electricity which is subsequently traded between Annex I Parties.

The EU also notes that, as described in para 16 of FCCC/SBSTA/1996/9/Add.2, a study of three Parties indicated that joint efforts to reduce emissions in combination with electricity trade could significantly lower the cost of reducing emissions to individual Parties compared to the costs if each Party acted alone. For this reason the EU believes that the methodological work on electricity trading should continue to be on the work programme of the SBSTA.

5. Switzerland

Switzerland prefers the **generator option**. The main reasons are:

- The "polluter pays" principle cannot easily be applied to the case of electricity generation. Generally, the generator Party A is also interested in the product. It may thus be considered as much a polluter than any Party B importing from A. At the same time, production technology and type of fuel used will in most instances be independent of a domestic supplier or exporter perspective. These circumstances need to be considered when assessing the first sight equity merits of the bilateral agreement option. In addition, the generator option is supported by the facts that

a) economical benefits from electricity generation should not be de-coupled from the ecological drawbacks,

b) ecological as well as economical self-interest will lead the generator to optimize the efficiency with which electricity is produced,

c) generally, the generator option sets the right incentives for investments in low or no emission generation facilities,

d) very obviously, it has strong advantages with respect to feasibility

- Consistency should be safeguarded with other (non-energy) domains, where emissions are allocated to the producer. The bilateral agreement approach bears the danger of -sooner or later- calling for corresponding regulations in a broad range of similar, emission-intensive fields (e.g., the cement, steel, or petro-chemical industries). The foreseeable effects at the level of mitigation measures do not justify the effort necessary to implement and maintain such a scheme (inflation of data procurement, calculation and adjustment).

- The generator option does not exclude the establishment of common emission reduction policies between net exporting countries and net importing countries, e.g., in the context of AIJ projects.

For the sake of transparency and in order to facilitate policy analysis, the amounts and origins of imported and/or exported electricity should be declared periodically in a transparent and comparable manner, e.g., as an element of national communications.

As regards projections, reference should be made in national communications to the extent to which foreseeable electricity demand may have to be covered through imports.

II. ALLOCATION AND CONTROL OF INTERNATIONAL BUNKER FUELS

1. Australia

As with the treatment of electricity trading, Australia considers that it is useful to consider the issues associated with consideration of emissions in three distinct parts: inventory; allocation; and control. In the case of bunker fuels it is a simple matter to prepare an inventory at the point of sale. The difficulty associated with bunker fuels is that since the majority of emissions occur outside sovereign borders, it is impracticable to allocate emissions to Parties.

Therefore, in respect to the eight specific options presented by the Secretariat, Australia prefers option 1; no allocation or the status quo. Australia considers that options 2 through 8 are either impractical or inequitable.

The responsibility for controlling activity associated with bunker fuels could be based on a combination of national action and international action where effective and appropriate. Australia considers that the subsidiary bodies should progress work in this area with a view to presenting a recommended approach to a future COP.

2. Ireland

The key consideration in deciding on the issue of allocation of emissions from bunker fuels is the scope for control (i.e. limitation or reduction) of emissions which the chosen option affords. Given the international context in which international civil aviation and marine transport operate, the scope for national measures would probably be very limited.

While the EU believes that it is premature, pending further studies, to make a final choice among allocation options, the EU proposes, in the light of current commitments, to focus on the international control of emissions from bunker emissions, whereby the responsibility for international bunker emissions should be attributed to the international community as a whole. However, the EU also acknowledges that depending on the development of the Protocol or another legal instrument, the allocation of emissions from international bunker fuels may have to be reconsidered at a future date.

The allocation of the responsibility for bunker fuel emissions to the international community would make explicit the commitment of the FCCC Parties to control these emissions, and it would imply the commitment of FCCC Parties to act together also through the ICAO and IMO to develop mitigation measures. Thus, the EU requests the Secretariat to explore ways to increase the involvement of the ICAO and IMO in the control of international bunker fuel emissions.

With a view to future commitments, the EU recommends that as part of a Protocol or another legal instrument common actions, necessary objectives and targets for policies and measures to control international bunker emissions be considered, whereby the characteristics of the international aviation and shipping sectors and their associated emissions are taken into account.

3. Switzerland

In the context of on-going policy projects, Switzerland favours **Option 3** (Allocation to the country where the fuel is sold) for the handling of aviation and maritime bunker fuel emissions. **Option 1** (No allocation) is seen as a viable alternative, should Option 3 not find enough support for implementation.

Options 2 and 4 are not acceptable on the grounds of practical and political considerations. Options 5 to 8 do not deserve closer consideration even though Option 6 has strong merits with respect to equity. Left with the choice between Option 1 and Option 3, Switzerland prefers the latter option as - in the case of an affluent country with large and growing demand with respect to air transport - it accounts better for the polluters responsibility.

Regarding their feasibility for serving the objective of the Climate Convention, Switzerland bases its assessment of Option 1 and Option 3 on the following considerations:

The use of international bunker fuels is directly linked to the development of global transport patterns. Many nation states profit from the effects of a globally harmonized trade framework (GATT/WTO-regulations) and participate in growing transport activities. At the same time, the adverse environmental effects of intensified international trade call for the definition of a complementary framework, which ensures that international transports evolve according to the principles of sustainable development. Such a framework must, by definition, be developed and implemented on a supranational level.

In the light of foreseeable bunker fuel emission trends, an increasing number of Parties will recognize the need to engage in a process that eventually leads to effective emission limitation measures. Option 1 and Option 3 differ in the way individual Parties become involved in this process of implementing new measures:

If **Option 3** is chosen, the process will depend more heavily on the initiative of Parties with high quotas of international bunker fuel emissions in relation to their total GHG emissions. To them, meeting national emission reduction targets will become increasingly difficult. Since on national level, options to influence bunker fuel consumption are rather limited, amongst these Parties pressure to seek international agreements on measures decouraging an unchecked development of bunker fuel emissions is likely to grow. However, effective measures are in their particular interest and may collide with (economic) interests of other Parties where international bunker fuel emissions are of minor importance with respect to total emissions.

If **Option 1** is chosen, the process is likely to be the result of action taken by the Convention Bodies themselves as it leads to the creation of a global emissions pool related to international transports. Assuming that bunker fuel emissions continue to be reported in national GHG inventories and are regularly assessed by the Convention Bodies, this option may incite the Conference of Parties to take action and initiate the search for an inter- or multinationally acceptable emissions control strategy that allows to meet Convention objectives.

An obvious disadvantage of Option 1 is that bunker fuel emissions will not become part of national emissions targets. To compensate for this, the definition of a specific target, complementary to common targets agreed to, e.g., in the AGBM process, may be needed to give negotiations on common measures a clear perspective.

No matter which option eventually is adopted by the Convention bodies, it seems of great importance that national and international developments in the transport sector can be analysed separately. Thus, in any case a transparent reporting format for transport related emissions should be maintained. In this context, harmonizing definitions amongst the various international bodies interested in data in the area of bunker fuels (e.g., IPCC, CEMT, ICAO) may enhance the consistency of figures reported and the completeness of data aquired.

4. International Civil Aviation Organization (ICAO)

Paragraph 26

1. The activities listed in this paragraph under "light aviation" are usually referred to as "general aviation activities". The Manual on the ICAO Statistics Programme, which most States follow, defines general aviation activities as follows:

> "***General aviation activities***. All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire (Annex 6, Part II). For ICAO statistical purposes the general aviation activities are classified into instructional flying, business and pleasure flying, aerial work and other flying."

As can be seen from this definition, general aviation activities are not separate from civil aviation. They are considered to be a part of civil aviation. A more appropriate categorisation would therefore be:

1) Civil aviation
   - Commercial airlines
   - General aviation

2) Military aviation

2. In the last sentence, the numbers of airline companies operating international flights are significantly underestimated (see attached extract from ICAO's The World of Civil Aviation, 1994-1997, pages 13 and 14; key figures are in para 2.23).

Paragraph 27

3. Final sentence may exaggerate registration in countries for economic reasons.

Table 5

4. Typographical error in title ("by").

Paragraph 38

5. The quoted figure of 138 Mt from Balashov and Smith is for commercial airlines plus general aviation. More importantly, it covers both international and domestic (copy attached for ease of reference).

There is no figure in the Balashov and Smith paper for international fuel consumption. However, an estimate can be made by assuming that fuel consumption is proportional to capacity available. In 1995, scheduled airlines offered 488 418 million tonne-kilometres, of which 299 012 million were international services (Source: ICAO's Annual Report of the Council - 1995, pages 168/9, copy attached).
International traffic therefore represents approximately 61% of total scheduled traffic.
[Note: While the proportionality assumption is a valid one for the present purposes, it should be borne in mind that a) the aircraft used on international flights do not necessarily have the same fuel consumption characteristics as those used on (usually shorter) domestic flights; and b) the figures used exclude non-scheduled traffic, most of which is international].

Applying this 61% to 435 Mt CO2 gives 265 Mt CO2 for international traffic, which corresponds to 1% (not 2%) of the 26 000 Mt quoted for global CO2 emissions.

Paragraph 39

6. Not mentioned in this list is the fact that with aircraft having a typical lifetime of about 25 years, aircraft entering service today are considerably more fuel efficient than those they replace. As a result of this and the factors listed, the annual traffic increase of 5% leads to a much lower annual increase in fuel consumption (say 2-3%).

Paragraph 40

7. Now 184 (not 183) States.

Paragraph 44

8. In light of the above comment about paragraph 38, the "2 per cent" for international aviation would become "1 per cent".

9. The use of "domestic" in the third sentence could mislead the reader and using "national" instead would overcome this problem. Similarly, adding "aviation" after "international" might facilitate comprehension.

Paragraph 46

10. If it were intended to use the ICAO data that produced Table 5, there would be a number of questions concerning the availability and quality of the data that would need to be addressed.

Paragraph 47

11. The expression "national standards" could pose problems. ICAO develops Standards for world-wide application and these are applied nationally. Is this what is meant by "national standards"?

FCCC/SBSTA/1996/9/Add 1

Paragraph 25

12. The figures for international aviation (435 Mton and 2%) need to be revised in the light of the recalculated figures in paragraph 38 of Addendum 2 (265 Mton and 1%).

III. USE OF GLOBAL WARMING POTENTIALS

1. Australia

Australia considers that the use of global warming potentials to aggregate emissions data is fundamental to the Convention's comprehensive approach to greenhouse gases. Australia supports the approach to GWPs adopted in the revised Annex I National Communication Guidelines.

2. Ireland

The EU agrees with the decision adopted at COP2 in paragraphs 4 and 5 of FCCC/CP/L.13/Add. 1 (Guidelines for the Preparation of National Communications by Annex I Parties). These paragraphs say that quantitative data related to inventories and projections of greenhouse gases should be provided by Parties in units of mass (Gg), and that any use of GWPs should be based on the effects of the greenhouse gases over a 100-year time horizon as provided in the IPCC's Second Assessment Report. In addition Parties may also choose other time horizons.

3. Switzerland

Switzerland is generally in favour of reporting instructions that, with a view to national circumstances, leave some flexibility to Parties. Nevertheless, for the sake of comparability, data presented on the basis of GWP calculations should always include figures based on GWPs for the 100-year time-horizon as published in the latest assessment accepted by IPCC.

IV. ACCOUNTING FOR LAND-USE CHANGE AND FORESTRY

1. Australia

The Convention is clear on the need for climate change policies and measures to be "comprehensive" and "cover all relevant sources, sinks and reservoirs of greenhouse gases" (Article 3.3) and Australia is a strong advocate of this approach. Activities in this sector represent almost a third of all Australia's greenhouse gas emissions. While Australia supports the separate reporting of carbon dioxide sequestration from emissions in this sector (see below) , we consider that the comprehensive approach requires activity in this sector to be aggregated with or 'netted' against activities in other sectors (as we would expect to occur for activity in all of the sectors).

Inventory and Projections Uncertainties

The SBSTA in its recent report (FCCC/SBSTA/l996/3) pointed out that the Land Use Change and Forestry Category was problematic in many cases and that scientific uncertainties and difficulties in data collection have given rise to low confidence in the inventory figures. Australia's experience supports this conclusion.

In preparing the Australian inventory for inclusion in the First National Communication to COP, an expert working group was established comprising academics and researchers in biological and soil sciences, conservation officials and NGOs, and representatives from the farming and timber product users. The expert working group was tasked with developing a methodology based on IPCC guidelines but also taking into account Australia's environmental conditions and land use practices wherever they could be supported by published information.

The working group stressed that although the inventory was prepared using the best recently developed methodology, it was still subject to a high level of uncertainty. Causes for that include the limitation of the methodology to adequately represent Australian practices (eg land clearing methods) and conditions (eg classification of vegetation cleared, rate of decay of cleared biomass and regrowth of vegetation on cleared sites) with a high degree of accuracy. Lack of reliable statistical and input data (eg land clearing rates dating back 25 years, carbon content of biomass and in soil) also contributed to the uncertainties.

As part of the efforts to continually update and improve the inventory and methodology, a national workshop was run in late May 1996. This workshop focused on the issues mentioned above that needed to be resolved to improve the methodology and input data. The next development phase involves a revision of the current method to estimate emissions from Land Use Change and the subsequent compilation of a new inventory in the sector.

A major effort will be directed towards compiling an inventory in the sector in time for submission of the Second National Communication in April 1997.

While Australia is developing its own methodology, we strongly support the efforts of the IPCC in the continuing development of international guidelines and in improving the default methodology. Our view remains that the IPCC contributions in this area are essential if comparable and compatible inventories are to be produced by different countries. Australia believes that for the Land Use and Forestry Category, such international efforts should concentrate on:

- developing a methodology that is not too complex to enable nations of various level of resource capacity to compile an inventory, having regard to data availability limitations;
- building adequate flexibility and guidelines in the methodology to encourage and facilitate nations to incorporate their environmental conditions and land use practices, and to introduce more complex algorithms if desired;
- providing a range of default input data to cover representative conditions and practices for each country to use as appropriate; and
- developing guidelines for assessing and reporting error estimates (the current recommended practice of reporting a single number for each inventory category may need to be reviewed).

The difficulties in compiling an inventory for the sector and the uncertainties in the inventory make the task of estimating projections even more difficult. There is a need for SBSTA to develop methods to deal with these problems in the analysis of national data.

Under current IPCC inventory guidelines, the Land Use Change and Forestry Sector is reported as a net source or a net sink - there is no provision to separately report emissions and removals of greenhouse gases in this Sector. As sinks are a significant component of greenhouse response strategies, they should be separately identified and reported. Australia will be seeking to amend the IPCC guidelines along these lines. (This should also apply to other inventory categories such as the Agricultural Soils sub category under the Agriculture Category.)

Anthropogenic - interpretation

SBSTA paper FCCC/SBSTA/1996/3 (para. 24) also indicated that methodological difficulties arising from the definition of anthropogenic activities have been identified. Australia supports action by SBSTA to achieve greater clarity in relation to the concept of anthropogenic emissions and considers that this issue should be placed on the SBSTA's work plan. It is noted that the issues arising are concentrated around greenhouse gas emission from the land use change and forestry sector.

In Australia, a workshop was held in May 1996 on the interpretation of the term 'anthropogenic' in tandem with the workshop on Land Use Change and Forestry methodology. Australia is pleased to share the outcomes of that workshop with other countries through SBSTA in a report on the workshop which is due out shortly.

2. Ireland

Carbon stored or sequestered in sinks should be reported separately in inventories and projections and not subtracted from emissions in other sectors. Parties are of course also free to report net calculations.

The IPCC Plenary in Mexico has discussed proposals from emission inventory experts to change the allocation in the IPCC Emissions Inventory Guidelines of estimated emissions from harvested wood. The IPCC has not taken a decision on the matter but requested Working Group I to continue work on this topic pending policy advice from SBSTA.

The EU believes that consideration of this issue is needed at the next meeting of SBSTA so that the policy implications of any changes can be given proper consideration. For its part the IPCC could usefully prepare a paper describing the relevant technical aspects of all the available methodologies. Such a paper would facilitate a policy discussion in SBSTA on this matter. To maintain incentives for sustainable forestry and avoid complexity, the EU believes that allocation of emissions from harvested wood products should remain unchanged pending future decisions in this regard.

3. Switzerland

The issues raised in the section on LUCF are of very high importance due to their implications for the planning and valuation of measures as well as for the definition of emission targets. If the choice is the "net" or the "gross" approach, there seems to be no satisfactory solution.

Switzerland believes that priority should be given to a scheme that promotes practices that lead to a lowering of total GHG emissions and discourages any practice leading to greater emissions. A "gross" approach would exclude LUCF practices from this principles. This is not considered acceptable. However, a "net" approach may lead to unwanted interference between policies in the LUCF sector with the non-LUCF sector. In order to avoid such situations, which may compromise desirable sectoral strategies and developments, and acknowledging the particular nature (long term dynamics, interdependence of sources and sinks) of the LUCF sector, Switzerland proposes a reporting format where the status and the development of the non-LUCF and the LUCF sector are considered and reported as separate entities. This approach implies separate and complementary targets and projections at the national level. Consequently, no national net emissions would be reported, but two sets of independent information relating to the two sectors identified above. The overall (net) emissions assessment would be applied only at the international level, in the context of synthesis reports to the COP.

V. USE OF TEMPERATURE ADJUSTMENTS

1. Australia

Australia considers that as a matter of principle the issue of temperature during the base year should not be treated any differently to a range of other cyclical factors when calculating the emission inventory for any particular year. The emissions inventory in any given year is the subject of a variety of cyclical factors (including temperature, other climatic events including drought, economic cycles, commodity prices etc.) which are of varying significance for different Parties and their respective sectors and sub-sectors (including land use change and forestry, transport etc.).

We would not wish to see cyclical factors used as a basis for making statistical adjustments to emissions inventories. We consider that there is no reason to single out temperature as a factor affecting the energy sector.

The essential requirement for Parties is to determine an actual emission inventory for any given year, including the base year. The issue of adjustment arises in an attempt to modify the "starting points" of Parties (Article 4.2(a)). If one were to take other variable factors, such as economic cycles, then they would also bear upon a Party's "starting points... economic structures and resource bases... and other individual circumstances" (Article 4.2(a)).

We would expect that a Party may wish to provide a description of national circumstances regarding how conditions specific to the base year might alter the assessment of emissions activity that identifies the effects of cyclical factors. The underlying concern that drives the effort to adjust base year figures relates to the emission commitments in the FCCC which are expressed as a uniform target. The challenge in terms of future QELROs is how to construct them in ways that allow practical recognition of countries' circumstances.

We would also note that if adjustments were made in the base year then for consistency they must also be included in the target year (ie. if a five year average is used in the base year, it should also be included in the target year). This would have implications for the provisions of inventory for the target year, with the potential to delay the inventory up to three years.

2. Ireland

The EU believes that national inventory data for greenhouse gases should be reported on an unadjusted basis, but Parties are of course free, in addition, to report in separate compilations adjustments for temperature and other relevant climatic factors such as precipitation. Such adjusted data may be relevant to interpreting how FCCC commitments are being met. The methodology for any such adjustments should be clearly set out.

In recognition of the complexity associated with the calculation of adjusted national inventories, the EU recalls its statement at SBSTA 3 in which it recommended that the development of related common methodologies be included in its future work programme.

3. Mexico

We think that the Inventories should be based on actual numbers coming from National Energy Balances and fuel consumptions, and not in temperature adjusted estimates that might add to the uncertainties surrounding climate change.
It could be argued that a more representative value for a baseline could be an average centered in 1990.

4. Switzerland

In Switzerland, climate shows considerable variability on a year-to-year basis, leading to great fluctuations in heating degree days and related fuel consumption. For this reason, Switzerland has applied temperature adjustments to the baseline data for its CO2 projections in the first national communication and will continue to do so in future projections.

At the basis of projections and policy planning there should not be any significant distortions of baseline data, independent of any potitical intervention. Switzerland considers temperature fluctuations such a significant source of baseline data distortion. Adjustment seems appropriate in this particular case since any projection figure will be "adjusted" in the sense that it represents "average" weather conditions. Accordingly, emission targets, too, are most meaningfully defined with respect to adjusted baseline data.

Switzerland is aware of the fact that there may not be a single, globally applicable temperature adjustment methodology and that in certain countries no adjustment may be necessary at all. In its view, Parties should be free to apply temperature adjustments to their baseline data in projections if clear reasons and supporting data for the adjustment are given and the calculations are made transparent and reproducible in the context of the national communications.

At the same time, Switzerland strongly supports the view that inventory data shall always be free of temperature adjustments to maintain their role as a common reference for factual emission quantities. If deemed necessary, the unadjusted inventory data corresponding to the baseline year in projections may be used by the Convention Secretariat for the sake of projections comparison and synoptic representation on an international level.

For reasons of policy evaluation in the context of national circumstances, Switzerland wishes to maintain the option of analysing and commenting on the variation of factual emissions reported in the GHG inventories since 1990 in the light of temperature influence in its communications to the Convention.

VI. OTHER METHODOLOGICAL ISSUES

1. Australia

Performance Indicators

National performance indicators can provide quantitative information on the effectiveness and performance of general policies or strategies for greenhouse response as well as specific response measures. In this context, Australia has developed a working set of performance indicators for its National Greenhouse Response Strategy which are set out in Table 1. Indicators are also being developed at the sectoral level.

Australia welcomes the inclusion of performance indicators in the revised Guidelines for the preparation of National Communications by Annex I parties and would support the SBSTA's development of a set of common performance indicators for application by Annex I Parties as a means of further strengthening the overall National Communication process.

Table 1: Primary Performance Indicators for Australia's National Greenhouse Response strategy

Hierarchy	* Primary Indicators
Macro Indicators	• Total Emissions (C02 Equivalents) • Emissions per Unit of Economic Welfare/Performance (until alternative more useful indicator is developed the interim measure for this indicator is Total Emissions per Unit of GDP) • Emissions per Capita
Sectoral/Sub-Sectoral Indicators	• Total Emissions from each sector • Emissions per Unit of Gross Product
Energy	• Energy Emissions per Capita
• *Energy Supply*	• Emissions from Energy Delivered by fuel Type • Emissions from Energy Delivered per Unit of Energy used
• *Household Energy*	• Emissions from Household Energy per Capita
• *Industrial and Commercial Energy*	• Emissions per Unit of Energy Delivered
• *Transport*	• Emissions per Passenger-km-Total and by Mode • Emissions per Freight Tonne-km-Total and by Mode
• *Transport and Urban Planning*	• Emissions per Km Travelled in Urban Areas by mode
• *Industry Process Emissions*	• Emissions from the Aluminium Industry
Agriculture	• Sheet Methane Equivalents per Animal • N_2O Emissions Index
Natural Environment	• CO_2 from Land Use Change
Waste	• Methane Emissions from Landfill per Capita

* Performance indicators based on the Report "*Performance Indicators for the National Greenhouse Response Strategy*" (1995, DEST) and as reflected in the "*Adjustments to Primary Indicators - An Addendum*" (1996, DEST).
