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SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
Tenth session
Bonn, 31 May - 11 June 1999
Item 5 (c) of the provisional agenda

METHODOLOGICAL ISSUES

OTHER MATTERS

Analyses of the information provided by the delegation of Iceland

Submissions from Parties

Note by the secretariat

1. In addition to the submissions already received and included in document FCCC/SBSTA/1999/MISC.3, a further submission has been received from Iceland.

2. In accordance with the procedure for miscellaneous documents, this submission is attached and is reproduced in the language in which it was received and without formal editing.*

* 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.

PAPER NO. 1: ICELAND

Response to questions from Germany on behalf of the European Community and its member States

Germany on behalf of the European Union posed four questions to Iceland (FCCC/SBSTA/1999/MISC.3) on the issue of significant proportional impact of single projects. These questions are a follow up to earlier questions tabled at COP4 which Iceland responded to during the same session (see FCCC/CP/1998/MISC.11).

In their submission Germany expressed concern over the impact of the proposed COP decision (FCCC/CP/1998/MISC.11/Add.1) on the emissions of Perfluorocarbons (PFCs), given their long lifetime in the atmosphere. Iceland shares the concern of the EU on the PFCs and, for this very reason, included the requirement that Best Available Technique (BAT) be used for projects to be eligible for separate reporting.

The emission of PFCs per tonne of produced aluminium can be reduced significantly through the use of point feeding systems, computerised control systems, best environmental practices and other measures to reduce the frequency and magnitude of the so-called “anode effects”. Experience in Iceland shows that values as low as 0.03 kg per tonne aluminium may be reached. This equals 0.21 tonnes of CO_2 per tonne aluminium or 12% of the total process emissions from the production.

Projects eligible for special reporting under the proposed COP decision would have significantly lower emissions of PFCs than is generally the case in aluminium production world wide due to the BAT requirement. The adoption of the decision would therefore contribute to a reduction in the emission of PFCs globally per unit of production.

1. What detailed analysis has Iceland done on the use of the Kyoto mechanisms to address the issue of impacts of single projects? (Follow-up to question 1 in FCCC/CP/1998/MISC.11)

The EU asked for detailed analysis on the use of the Kyoto mechanisms to address the impact of single projects. Iceland has stated its position that while the mechanisms are important in meeting the objectives of the Convention, they can not be used to correct deficiencies in the Protocol.

The Icelandic Economics Institute has recently prepared a report on the economic impact of the Kyoto Protocol. This study included preliminary analysis of the possible use of the Kyoto mechanisms. Uncertainty on the implementation of the mechanisms precludes detailed analysis at this point in time.

2. Can Iceland provide a rough estimate of the impacts on global greenhouse gas emissions, i. e. the emission savings resulting from the use of renewable energy in potential single projects in Iceland, taking into account inter alia the possible use of renewable and other low or zero CO2 emission sources of energy elsewhere and the possible increase of the demand of aluminum, before SBSTA10? (Follow-up to question 3 in FCCC/CP/1998/MISC.11)

The emissions savings result from the fact that the power used for the production comes from renewable sources with close to zero emissions. The emissions savings then equal the energy-related emissions per unit of production for a comparable project, which receives its energy from power plants driven by energy sources that emit CO_2 such as coal or natural gas[1]. Comparison can also be made to an estimate of energy-related emissions based on the actual energy mix (hydro, coal, natural gas, nuclear and oil) used for the production of aluminium in 1997[2].

Table 1 shows the estimated emissions savings which would result if the three aluminium projects listed in FCCC/SB/1998/MISC.1/Add.4 would be realised. For reference, the total CO_2 emissions of Iceland in 1990 were 2.147 Gg and the total GHG emissions were 2.877 Gg CO_2 equivalents.

Table 1		Emissions savings from the use of renewable energy compared to:		
	Production (thousand tonnes)	**A project using coal (Gg CO_2)**	**A project using natural gas (Gg CO_2)**	**The average actual energy mix (Gg CO_2)**
Enlargement of an aluminium smelter	**112**	**1.388**	**826**	**514**
Aluminium smelter under construction	**180**	**2.230**	**1.328**	**826**
Possible new aluminium smelter	**480**	**5.947**	**3.542**	**2.203**
Total	**772**	**9.565**	**5.696**	**3.543**

The magnitude of the emissions savings resulting from these three projects depends on the energy source used for the comparison. Change in the average actual energy mix through an increase in the use of renewable and other low or zero CO_2 emission sources of energy elsewhere would reduce the emissions savings from these projects while an increase in the use of fossil fuel would increase the emissions savings. As reported in FCCC/CP/1998/MISC.11, the share of fossil fuel in aluminium production is on the increase, however.

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[1] Emissions from energy sources are taken from: StormBASISWISSEN No. 102, The Information Agency for the German Power Suppliers.

[2] International Primary Aluminium Institute Statistical Report: Electrical Power Used in Primary Aluminium Production (http://www.world-aluminium.org).

The EU also asked how possible increase in the demand for aluminium would affect the emissions savings. Demand does not affect the emissions savings directly since they are determined by the energy use. Increased demand could possibly influence the balance between energy sources, however.

3. How can the concern of international industrial competitiveness be addressed, i.e. the concern that industries would be located in Iceland instead of the location in other countries including Annex I countries, especially given that renewable energy could also be used in other Annex I countries? (Follow-up to question 6 in FCCC/CP/1998/MISC.11)

Iceland addressed the general issue of international competitiveness in FCCC/SB/1998/MISC.1 and stated that the proposed COP decision aims to correct competitive disadvantage small economies face under the terms of the Kyoto Protocol. The problem of scale is the most important aspect of the whole issue of significant proportional impact of single projects.

The EU is concerned how the correction of this competitive disadvantage of small economies would affect other Annex I Parties. The setting of emissions limits in Annex I countries will in general result in improved competitiveness of renewable energy. It is difficult to see how the correction of a problem which only affects one Annex I Party, which would, if all projects listed in table 1 are realised, be responsible for less than 0.004% of the annual production of aluminium during the first commitment period, could alter competitive balance in the aluminium industry.

Limited expansion is taking place in this industry within Annex I countries. From 1990-1997, 80% of new capacity in aluminium production was established in non-OECD countries.

4. When did operation start for the three „on-going" projects? When would the two „possible" projects (see FCCC/SB/1998/MISC.1/Add.4) start operation? Which single projects with which emissions have been taken into account in the with measures projection of Iceland for 2010? What would be the with measures projected emissions for 2010 without these single projects? (Follow-up to question 11 in FCCC/CP/1998/MISC.11)

The EU asked when the projects listed in FCCC/SB/1998/MISC.1/Add.4 would start operation. Table 2 shows estimates of the annual production and when these levels are expected to be reached according to current information from the industry available to the Government of Iceland.

Table 2	Annual production (thousand tonnes)	Year
1. Enlargement of an aluminium smelter	**162**	**1998**
	200	**?**
2. Enlargement of a ferrosilicium plant	**115**	**2000**
	190	**?**
3. New aluminium smelter under construction	**60**	**1999**
	90	**2001**
	180	**?**
4. Possible new aluminium smelter	**120**	**2003**
	360	**2008**
	480	**?**
5. Possible magnesium plant	**50**	**?**[3]

The with-measures projection for 2010 in the second national communication of Iceland included the following projects:

Table 3	Annual production in 1990 (thousand t.)	Annual production estimate for 2010 used in NC2 (thousand tonnes)	Annual GHG emissions used in NC2 (Gg CO_2 eq.)
1. Enlargement of an aluminium smelter	**88**	**160**	**320**
2. Enlargement of a ferrosilicium plant	**63**	**111**	**372**
3. New aluminium smelter		**60**	**120**
Total	**151**	**331**	**812**

The total GHG emissions from Iceland in 2010 without these projects are projected to be 3232 Gg CO_2 (12.3% increase from 1990). If the first three projects in Table 2 reach full capacity according to their operating license, the total GHG emissions in 2010 can be expected to reach 4186 Gg CO_2 (45,5 % increase from 1990). If project 4 in Table 2 reaches 360 thousand tonne production by 2010, the total GHG emissions could reach 4816 Gg CO_2 by 2010 (67.4% increase from 1990).

[3] This project is in the feasibility study stage. No dates can be given at this point.

Response to comments by Canada

Iceland notes useful analysis submitted by Canada on the single project issue (FCCC/SBSTA/1999/MISC.3). In the submission, Canada focuses on renewable energy and the "global benefit" or emissions savings issue. Iceland agrees with Canada that the share of renewable energy must be increased globally. Iceland also appreciates the comments made by Canada concerning the "global benefits". However, the comments of Canada do not address the key aspect of the problem, notably the issue of scale.

The problem Iceland is seeking to correct is the deficiency of the Protocol with regard to small economies. The approach of the Protocol to setting emissions limits does not accommodate for scale. In small economies, single large industrial projects lead to a relatively large increase in GHG emissions. The proportional weight of individual projects with respect to GHG emissions increases as the size of the economy decreases. Moreover, in small economies and especially economies which are relatively non-diversified and where energy production is based to a large extent on renewable sources, it is difficult to absorb such an increase by reduction in other sectors.

Canada encourages the Secretariat to study the single project issue from a broad angle. In light of the heavy burden on the Secretariat, any request for analysis would need to be focused and designed to help delegations reach a conclusion on the matter rather than extend the process unduly. Iceland has provided the technical information requested by Parties. The phase of fact finding and technical analysis of the issue identified as important in Kyoto needs to be completed.

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