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FIRST MEETING OF THE LEGAL AND
TECHNICAL WORKING GROUP ON
TRANSBOUNDARY CO₂
SEQUESTRATION ISSUES
25 – 27 February 2008
Agenda item 8

LP/CO2 1/8
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REPORT OF THE 1ST MEETING OF THE LEGAL AND TECHNICAL WORKING GROUP ON TRANSBOUNDARY CO₂ SEQUESTRATION ISSUES

1 INTRODUCTION

1.1 The 1st meeting of the Legal and Technical Working Group on Transboundary CO₂ Sequestration Issues was convened at the premises of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Bonn, Germany, from 25 to 27 February 2008 under the Chairmanship of Ms. Dagmara Berbalk (Germany).

1.2 Delegations from the following 10 Contracting Parties to the London Convention 1972 attended the meeting:

CHINA	JAPAN
DENMARK	NETHERLANDS
FRANCE	NORWAY
GERMANY	SWEDEN
ITALY	UNITED KINGDOM

1.3 Delegations from the following nine Contracting Parties to the 1996 Protocol to the London Convention 1972 also attended the meeting:

CHINA	JAPAN
DENMARK	NORWAY
FRANCE	SWEDEN
GERMANY	UNITED KINGDOM
ITALY	

1.4 An observer from the following international non-governmental organization also attended the meeting:

GREENPEACE INTERNATIONAL

Opening of the Meeting

1.5 In opening the proceedings, the Chairman welcomed all participants to the 1st meeting of the Legal and Technical Working Group on Transboundary CO₂ Sequestration Issues under the London Protocol.

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

Terms of reference

1.6 The terms of reference of this Working Group, as agreed by the 2nd Meeting of Contracting Parties in November 2007 (LC 29/17, paragraphs 4.7 to 4.9) is attached in annex 1 to this report.

Adoption of the agenda and organization of the work

1.7 The agenda for the meeting (LP/CO2 1/1) was structured in accordance with the terms of reference and was adopted, as shown at annex 2 to this report. This annex includes, under each respective agenda item, a list of documents submitted to the meeting. The meeting also noted the annotations to the provisional agenda (LP/CO2 1/1/1).

2 TRANSBOUNDARY MOVEMENT OF CO₂ STREAMS INTENDED FOR SEQUESTRATION IN SUB-SEABED GEOLOGICAL FORMATIONS

The following clarifications/assumptions were agreed prior to embarking on a discussion of item 3 of the agenda:

- .1 the transport of CO₂ streams for sequestration in sub-seabed geological formations between the point where these are generated on land or at offshore installations and the site where these will be stored is done by pipeline and ship, alone or in combination;
- .2 a storage site for a CO₂ stream would be generally well defined after an initial exploration and the conduct of a risk assessment in accordance with the CO₂ Sequestration Guidelines¹. If a given CO₂ stream would behave differently than predicted through modelling exercises over the timescale considered and migrate to adjacent formations/sites it might move in terms of kilometres rather than hundreds or thousands of kilometres. This notion would be important when discussing transboundary movement within a geological formation;
- .3 transboundary movement in sub-seabed geological formations concerns *migration* of CO₂ streams, i.e. the movement of fluids within or out of reservoir rocks, rather than *leakage* which in respect of carbon storage is the escape of CO₂ from the storage formation into the water column and the atmosphere; and
- .4 the 2006 amendments to Annex 1 of the Protocol, paragraph 1.8, only address the dumping of carbon dioxide streams from carbon dioxide capture processes for sequestration and not the use of such streams for enhanced oil recovery (EOR). In other words, EOR fell outside the terms of reference of the Working Group.

3 TRANSBOUNDARY MOVEMENT OF CO₂ AND ITS RELATION TO ARTICLE 6 OF THE LONDON PROTOCOL

3.1 For this agenda item, the meeting drew upon, *inter alia*, two informal submissions from Germany and the informal responses thereto received from Canada and the United States.

¹ The full title is: "Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-Seabed Geological Formations".

3.2 The meeting agreed that an exception to the export prohibition in Article 6 of the Protocol can be justified solely for the activity of CO₂ sequestration in sub-seabed geological formations as a climate change mitigation measure.

3.3 The meeting analysed the relation between transboundary movement of CO₂ streams for sequestration in sub-seabed geological formations and Article 6 of the Protocol, which prohibits the export of wastes or other matter to other countries for dumping or incineration at sea. The analysis addressed the questions:

- .1 whether the following two cases fall under the scope of application of Article 6:
 - .1 the transfer of a CO₂ stream from one State to another for the purpose of dumping at sea but *prior* to its injection in the sub-seabed geological formation (**Case 1**); and
 - .2 the transboundary migration of CO₂ streams within the sub-seabed geological formation *after* dumping, including both the deliberate migration (**Case 2.1**) and the unintended migration (**Case 2.2**); and
- .2 whether or not an amendment of Article 6 might be required.

Case 1 – Transfer of CO₂ to another State prior to injection

3.4 The transfer of CO₂ from one State to another might be of interest to those Contracting Parties which do not have enough suitable sub-seabed geological formations available within their own jurisdiction. In particular, a transfer might be considered in regions where the national territories are generally small in size.

3.5 Most delegations were of the view that:

- .1 the transfer of CO₂ in Case 1 falls under the scope of application of Article 6; and
- .2 the transfer of CO₂ from one State to another State should thus be regarded as “export” under Article 6.

3.6 The question was whether the prohibition to export under Article 6 was to non-Contracting Parties only, or to Contracting Parties *and* non-Contracting Parties and whether potential ambiguities in this respect should be clarified by a resolution to interpret Article 6 or by an amendment of the Article itself.

3.7 It was recalled that the 17th Consultative Meeting had agreed in 1994 that an export provision should be included in the draft London Protocol being negotiated at that time and that “such a provision should prohibit exports generally, not to particular countries” (LC 17/14, paragraph 5.39).

3.8 In light of this decision of Contracting Parties preparing for the London Protocol, the meeting rejected the option of a resolution to interpret Article 6 for the purpose of transboundary movement of CO₂ streams.

3.9 The meeting took the view that Article 6 prohibits the export of CO₂ streams from the jurisdiction of one Contracting Party to any other country, whether that is another Contracting Party or a non-Contracting Party. It was also felt that “export” would include any movement

from one Contracting Party to another country for disposal in that other country regardless of any commercial basis for that transfer. Consequently, it was felt that an amendment to Article 6 was required in order to permit such movements.

3.10 The meeting discussed, without reaching a conclusion, whether in cases where CO₂ is brought out of the jurisdiction of one State, without being brought to the jurisdiction of another State, i.e. the transfer to the high seas, Article 6 applies.

3.11 The meeting developed a possible amendment to Article 6 as shown in annex 3 to this report.

3.12 The German delegation, supported by Italy and the observer from Greenpeace International, proposed the inclusion of an additional indent into the proposed amendment to Article 6, as follows:

“if disposal of CO₂ streams from a particular source is not feasible within the State of origin;”

3.13 The delegation provided the following explanation for its proposal:

- .1 a basic principle of the London Protocol – the general prohibition of export of wastes or other matter – is being opened by the proposed amendment;
- .2 in order to limit this exception to the current prohibition of export to the extent necessary for the purpose of permanent CO₂ storage, i.e. climate change mitigation, it should be part of the selection of a storage option to consider storage in the country of origin as the priority option;
- .3 being aware of the fact that accessibility to suitable storage options differs between countries and that storage in the vicinity of a CO₂ source (e.g., a power station) could be preferable for environmental and economic reasons, export may be the better option; and
- .4 since Article 6 of the Protocol had been developed to complement the Basel Convention, in line with this convention’s spirit, “a country should try to solve its waste management problems primarily within its own boundaries” (Basel Convention, paragraphs 6 and 7 of the preamble) and, therefore, export to other countries should remain limited as much as possible.

3.14 The majority of delegations that spoke expressed the view that the concept of the proposed indent was too restrictive and could therefore not support it. One delegation expressed the view that this proposal might not reflect the role to be played by the State of origin in determining the feasibility of disposal.

3.15 In conclusion, the proposal was kept in this report for future consideration.

Case 2 – Deliberate and unintended transboundary migration of CO₂ within a sub-seabed geological formation

3.16 This case related to the transboundary migration of CO₂ streams after they have been dumped into a sub-seabed geological formation.

3.17 The conclusion reached for Case 1 above with regard to the term of “other countries” used in Article 6 also applies here.

3.18 In the case of the *deliberate* migration of CO₂ streams across boundaries within sub-seabed geological formations, no conclusion was reached as to whether such migration would constitute an export under Article 6.

3.19 However, one possible interpretation of Article 6, as it currently stands prior to entry into force of any amendment, was that where the disposal activity occurs within the jurisdiction of a Contracting Party, but there was subsequent movement of the CO₂ stream into the jurisdiction of another country, this would not be regarded as an export and therefore not be prohibited by Article 6.

3.20 The possible amendment shown in annex 3 to this report has been formulated in such a way as to include sub-seabed migration of CO₂ streams through the use of the term “transboundary movement”.

3.21 There was general agreement that an *unintended* migration of CO₂ streams within sub-seabed geological formations would not constitute an export within the terms of Article 6.

Consideration of amendments to the CO₂ Sequestration Guidelines

For cases of export/transfer of CO₂ streams for storage where export/transfer is between Contracting Parties

3.22 It was considered that a co-ordinated approach should be taken using bi-lateral agreements or arrangements², as appropriate. An exporter should include a characterization of the CO₂ stream within a permit allowing export. However, it would be the responsibility of the receiving country to permit the deposition activity.

3.23 It was considered that in all cases of transboundary movement of CO₂ streams, the competent authorities in each Contracting Party should apply the guidelines jointly. It was also considered that such an instruction should be included in the introduction to the CO₂ Sequestration Guidelines, resulting in the following recommendation for a new paragraph 1.10:

“In the case of a transboundary movement, the Contracting Parties shall co-operate in order to meet the requirements of these Guidelines jointly.*

*footnote: transboundary movement means any transfer of CO₂ streams from one country to another before or after disposal takes place”.

For cases where the CO₂ is exported from a Contracting Party to non-Contracting Parties

3.24 The meeting concluded that Contracting Parties would wish to see best efforts undertaken by them to ensure that the non-Contracting Party had applied equivalent standards to those encompassed within the London Protocol, including those set out in the CO₂ Sequestration Guidelines, prior to the issuing of permits for export within the exporting Party.

² The phrase “or arrangements” is taken from the Basel Convention. Some Contracting Parties were of the opinion that it should be retained in order to be as close as possible to the Basel Convention. Other Contracting Parties prefer the deletion of this phrase since it would make the requirement less stringent.

3.25 The meeting agreed that the following explanation should be included in the CO₂ Sequestration Guidelines to clarify a possible Article 6.2.3:

“Article 6.2.3 is designed to cover the case of transboundary movements of CO₂ streams between Contracting Parties and non-Contracting Parties. This proposal is based on Article 11 of the Basel Convention and reflects the treatment by that Convention of transboundary movements between its Parties and non-Parties as a derogation from the underlying prohibition on shipments to non-Parties. Under the proposed amendment, transboundary movements of CO₂ streams to non-Contracting Parties may take place on condition that those countries have previously entered into an agreement or arrangement on such movements that require the non-Contracting Parties to meet standards that are equivalent to those contained in the Protocol. This would include not only the obligations to protect and preserve the marine environment under the Protocol, but also procedures as developed in these Guidelines pursuant to Annex 2 to the Protocol. Where a non-Contracting Party fails to meet those standards, it will not be acting in conformity with that agreement or arrangement and, consequently, the conditions for CO₂ movement and disposal will not have been met. In that event, as with movements between Contracting Parties under the Protocol, the transboundary movement would no longer be permissible. The consequences of a breach of that agreement or arrangement by a non-Contracting Party would be determined by the provisions of that agreement or arrangement”.

3.26 The suggestion was made that the provisions contained in Article 12 of the Protocol (Regional co-operation) might guide Contracting Parties when establishing bilateral, multilateral, or regional agreements or arrangements in the case of transboundary movement to non-Contracting Parties.

For storage sites crossing a boundary

3.27 Where there are two or more permitting authorities for one sub-seabed geological formation then States should reach bilateral (or more) agreements or arrangements in accordance with the requirements outlined in paragraph 3.22 above. Where one of these States was a non-Contracting Party then the principles of paragraph 3.24 above, should apply, i.e. that any permission issued by any of the countries permitting activity on the site should be to the standards required by the London Protocol and its Annexes and the accompanying CO₂ Sequestration Guidelines.

Reporting

3.28 The meeting agreed to recommend that the London Protocol Scientific Group should take into account the suggestions of this Working Group when it develops the reporting requirements on CO₂ sequestration at its next session.

4 EXAMINATION OF THE NEED FOR ADDITIONAL MONITORING REQUIREMENTS

The meeting concluded that there was no need to develop additional monitoring requirements as, in the event of co-operation, the Contracting Parties concerned would have to apply the current ones individually, and to the same standard.

5 EXAMINATION OF THE NOTIFICATION, REPORTING, INFORMATION SHARING AND PERMITTING REQUIREMENTS

Unintended transboundary movement

5.1 With regard to unintended transboundary movement of CO₂ streams the meeting considered the necessity of adding new requirements to the CO₂ Sequestration Guidelines. However, on reflection, the meeting took the view that international customary law rules, such as notification and co-operation obligations, cover sufficiently possible incidents associated with transboundary movements.

Transboundary movement from a non-Contracting Party

5.2 It was acknowledged that the transboundary movement of CO₂ streams could also be initiated by a non-Contracting Party, but this issue was not further considered at this stage.

6 FURTHER ADVICE TO REGULATORS

The meeting agreed that it was not necessary to provide further advice to regulators.

7 ANY OTHER BUSINESS

Provisions in the event of a submission to amend the London Protocol (Article 21)

The meeting noted that in accordance with Article 21 of the Protocol, any proposal for an amendment to Article 6 would have to be submitted six months in advance, i.e. by Friday, 25 April 2008, at the latest, for consideration by the 3rd Meeting of Contracting Parties (27 to 31 October 2008). Adoption of an amendment required a two-thirds majority of the Contracting Parties present and voting. If adopted, the amendment would enter into force 60 days after two-thirds of the Contracting Parties³ had deposited an instrument of acceptance of the amendment with IMO.

8 CONSIDERATION AND ADOPTION OF THE REPORT

8.1 The Legal and Technical Working Group on Transboundary CO₂ Sequestration Issues adopted the report of its first meeting on Wednesday, 27 February 2008.

8.2 The Working Group expressed its appreciation to the German delegation and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety for its kind hospitality, the excellent meeting facilities and support provided which contributed greatly to a successful meeting.

³ To date, 3 March 2008, there are 33 Contracting Parties to the Protocol.

ANNEX 1

**TERMS OF REFERENCE OF THE WORKING GROUP
(Source: LC 29/17, paragraphs 4.7 to 4.9)**

The Legal and Technical Working Group on Transboundary CO₂ Sequestration Issues should consider the following issues:

- .1 transboundary movement of CO₂ streams intended for sequestration in sub-seabed geological formations;
- .2 whether and how the transboundary movement of CO₂, for and during, sub-seabed sequestration in geological formations relates to Article 6 of the London Protocol on export of wastes and other matter, and consider, in particular, from a legal point of view:
 - .1 transboundary CO₂ transport above and below the seabed for CO₂ intended for sequestration in sub-seabed geological formations;
 - .2 transboundary CO₂ movement below the seabed in sub-seabed geological formations – deliberate and unintended; and
 - .3 whether as an outcome of their deliberations, any amendment of Article 6 is necessary;
- .3 the need for additional monitoring requirements for movement of CO₂ streams intended for sub-seabed sequestration in geological formations and storage sites crossing jurisdictional boundaries;
- .4 notification, reporting, information sharing and permitting requirements; and
- .5 whether and what further advice should be provided to regulators.

ANNEX 2

AGENDA FOR THE FIRST MEETING OF THE LEGAL AND TECHNICAL WORKING GROUP ON TRANSBOUNDARY CO₂ SEQUESTRATION ISSUES**1 Adoption of the agenda**

LP/CO2 1/1 Secretariat: Provisional Agenda

LP/CO2 1/1/1 Secretariat: Annotated to the Provisional Agenda

2 Transboundary movement of CO₂ streams intended for sequestration in sub-seabed geological formations

No documents submitted under this agenda item

3 Transboundary movement of CO₂ and its relation to Article 6 of the London Protocol

No documents submitted under this agenda item

4 Examination of the need for additional monitoring requirements

No documents submitted under this agenda item

5 Examination of the notification, reporting, information sharing and permitting requirements

No documents submitted under this agenda item

6 Further advice to regulators

No documents submitted under this agenda item

7 Any other business

No documents submitted under this agenda item

8 Consideration and adoption of the report

LP/CO2 1/8 Secretariat: Report of the meeting

LP/CO2 1/INF.1 List of Participants

LP/CO2 1/WP.1 Secretariat: Draft report of the meeting

ANNEX 3

POSSIBLE AMENDMENT OF ARTICLE 6 OF THE LONDON PROTOCOL

Export of wastes and other matter

Add 1 before: Contracting Parties shall not allow the export of wastes or other matter to other countries for dumping or incineration at sea.

Add a new paragraph 2 as follows:

“2 Notwithstanding paragraph 1, transboundary movements including migration of carbon dioxide streams as referred to in Annex 1, paragraph 1.8, for disposal may occur, provided that:

- .1 the receiving State gives its prior informed consent;
- .2 disposal of carbon dioxide streams is in compliance with the requirements set by annex 2; and
- .3 in the case of such transboundary movement from a Contracting Party to a non-Contracting Party, a bilateral, multilateral or regional agreement [or arrangement]⁴ on the transboundary movement of carbon dioxide streams has been entered into by the countries concerned. Such an agreement [or arrangement]⁴ shall not derogate from the protection and preservation of the marine environment as required by this Protocol and shall stipulate provisions that are equivalent to those contained in this Protocol on the protection and preservation of the marine environment. A Contracting Party entering into such an agreement [or arrangement]⁴ shall notify it to the Organization.”

⁴ The wording “or arrangements” is taken from the Basel Convention. Some Contracting Parties were of the opinion that it should be retained in order to be as close as possible to the Basel Convention. Other Contracting Parties prefer the deletion of this phrase since it would make the requirement less stringent.