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Agenda item 7 (a)

Methodological issues under the Kyoto Protocol

Carbon dioxide capture and storage in geological formations as clean development mechanism project activities

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Recommendation of the Subsidiary Body for Scientific and Technological Advice

The Subsidiary Body for Scientific and Technological Advice, at its thirty-third session, decided to recommend the following draft decision for adoption by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its sixth session:

Draft decision -/CMP.16

Carbon dioxide capture and storage in geological formations as clean development mechanism project activities

The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol,

Option 1:

Recalling decisions 7/CMP.1, 1/CMP.2, 2/CMP.4 and 2/CMP.5,

Taking into account Article 12, paragraph 5(b) and 5(c), of the Kyoto Protocol,

Recognizing that carbon dioxide capture and storage in geological formations is a relevant technology for the attainment of the ultimate goal of the Convention and may be part of a range of potential options for mitigating greenhouse gas emissions,

Recognizing that Parties have registered concerns regarding the implications of the possible inclusion of carbon dioxide capture and storage in geological formations as clean development mechanism project activities and have highlighted issues which need to be addressed and resolved in the design and implementation of carbon dioxide capture and

storage in geological formations, in order for these activities to be considered within the scope of the clean development mechanism,

Emphasizing that the deployment of carbon dioxide capture and storage in geological formations shall be environmentally safe and shall have as an objective the avoidance of any seepage,

Emphasizing that the inclusion of carbon dioxide capture and storage project activities in geological formations in the clean development mechanism should not provide perverse outcomes,

1. *Decides* that carbon dioxide capture and storage in geological formations is eligible as project activities under the clean development mechanism, provided that the issues identified in decision 2/CMP.5, paragraph 29, are addressed and resolved in a satisfactory manner;

2. *Requests* the Subsidiary Body for Scientific and Technological Advice, at its thirty-fifth session, to elaborate modalities and procedures for the inclusion of carbon dioxide capture and storage in geological formations as project activities under the clean development mechanism, with a view to recommending a decision to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its seventh session;

3. *Decides* that the modalities and procedures referred to in paragraph 2 above shall address the following issues:

(a) The selection of the storage site for carbon dioxide capture and storage in geological formations shall be based on stringent and robust criteria in order to seek to ensure the long-term permanence of the storage of carbon dioxide and the long-term integrity of the storage site;

(b) Stringent monitoring plans shall be in place and be applied during and beyond the crediting period in order to reduce the risk to the environmental integrity of carbon dioxide capture and storage in geological formations;

(c) Further consideration is required as regards the suitability of the use of modelling, taking into account the scientific uncertainties surrounding existing models, in meeting the stringency requirements of such monitoring plans, in particular taking into account the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*;

(d) The criteria for site selection and monitoring plans shall be decided upon by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and may draw upon relevant guidelines by international bodies, such as the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*;

(e) The boundaries of carbon dioxide capture and storage in geological formations shall include all above-ground and underground installations and storage sites, as well as all potential sources of carbon dioxide that can be released into the atmosphere, involved in the capture, treatment, transportation, injection and storage of carbon dioxide, and any potential migratory pathways of the carbon dioxide plume, including a pathway resulting from dissolution of the carbon dioxide in underground water;

(f) The boundaries referred to in paragraph 3 (e) above shall be clearly identified;

(g) Any release of carbon dioxide from the boundaries referred to in paragraph 3 (e) above must be measured and accounted for in the monitoring plans and the reservoir pressure shall be continuously measured and these data must be independently verifiable;

(h) The appropriateness of the development of transboundary carbon dioxide capture and storage project activities in geological formations and their implications shall be addressed;

(i) Any project emissions associated with the deployment of carbon dioxide capture and storage in geological formations shall be accounted for as project or leakage emissions and shall be included in the monitoring plans, including an ex-ante estimation of project emissions;

(j) A thorough risk and safety assessment using a methodology specified in the modalities and procedures, as well as a comprehensive socio-environmental impacts assessment, shall be undertaken by independent entity(ies) prior to the deployment of carbon dioxide capture and storage in geological formations;

(k) The risk and safety assessment referred to in paragraph 3 (j) above shall include, inter alia, the assessment of risk and proposal of mitigation actions related to emissions from injection points, emissions from above-ground and underground installations and reservoirs, seepage, lateral flows, migrating plumes, including carbon dioxide dissolved in aqueous medium migrating outside the project boundary, massive and catastrophic release of stored carbon dioxide, and impacts on human health and ecosystems, as well as an assessment of the consequences of such a release for the climate;

(l) The results of the risk and safety assessment, as well as the socio-environmental impacts assessment, referred to in paragraphs 3 (j) and (k) above shall be considered when assessing the technical and environmental viability of carbon dioxide capture and storage in geological formations;

(m) Short-, medium- and long-term liability for potential physical leakage or seepage of stored carbon dioxide, potential induced seismicity or geological instability or any other potential damage to the environment, property or public health attributable to the clean development mechanism project activity during and beyond the crediting period, including the clear identification of liable entities, shall:

(i) Be defined prior to the approval of carbon dioxide capture and storage in geological formations as clean development mechanism project activities;

(ii) Be applied during and beyond the crediting period;

(iii) Be consistent with the Kyoto Protocol;

(n) When determining the liability provisions referred to in paragraph 3 (m) above, the following issues shall be considered:

(i) A means of redress for Parties, communities, private-sector entities and individuals affected by the release of stored carbon dioxide from carbon dioxide capture and storage project activities under the clean development mechanism;

(ii) Provisions to allocate liability among entities that share the same reservoir, including if disagreements arise;

(iii) Possible transfer of liability at the end of the crediting period or at any other time;

(iv) State liability, recognizing the need to afford redress taking into account the longevity of liabilities surrounding potential physical leakage or seepage of stored carbon dioxide, potential induced seismicity or geological instability or any other potential damage to the environment, property or public health attributable to the clean development mechanism project activity during and beyond the crediting period;

(o) Adequate provision for restoration of damaged ecosystems and full compensation for affected communities in the event of a release of carbon dioxide from the deployment of carbon dioxide capture and storage in geological formations must be established prior to any deployment of related activities;

4. *Invites* Parties and admitted observer organizations to submit to the secretariat, by 21 February 2011, their views on how the issues referred to in paragraph 3 above can be addressed in the modalities and procedures referred to in paragraph 2 above and requests the secretariat to prepare a synthesis report based on the submissions;

5. *Requests* the secretariat to conduct a technical workshop with technical and legal experts, after the thirty-fourth session but prior to the thirty-fifth session of the Subsidiary Body for Scientific and Technological Advice, to consider the submissions and the synthesis report referred to in paragraph 4 above, and to discuss how the issues referred to in paragraph 3 above can be addressed in modalities and procedures;

6. *Requests* the secretariat to prepare draft modalities and procedures, based on the submissions referred to in paragraph 4 above and the technical workshop referred to in paragraph 5 above, for consideration by the Subsidiary Body for Scientific and Technological Advice at its thirty-fourth session.

Option 2:

Recalling decisions 7/CMP.1, 1/CMP.2, 2/CMP.4 and 2/CMP.5,

Taking into account Article 12, paragraph 5(b) and 5(c), of the Kyoto Protocol,

Recognizing that carbon dioxide capture and storage in geological formations is a relevant technology for the attainment of the ultimate goal of the Convention and may be part of a range of potential options for mitigating greenhouse gas emissions,

Recognizing that Parties have registered concerns regarding the implications of the possible inclusion of carbon dioxide capture and storage in geological formations as clean development mechanism project activities and have highlighted issues which need to be addressed and resolved in the design and implementation of carbon dioxide capture and storage in geological formations, in order for these activities to be considered within the scope of the clean development mechanism,

Emphasizing that the deployment of carbon dioxide capture and storage in geological formations shall be environmentally safe and shall have as an objective the avoidance of any seepage,

1. *Decides* that carbon dioxide capture and storage in geological formations is not eligible as project activities under the clean development mechanism unless the issues identified in decision 2/CMP.5, paragraph 29, are resolved in a satisfactory manner by the Conference of the Parties.

2. *Invites* the Conference of the Parties to consider and resolve issues identified in decision 2/CMP.5, paragraph 29, as well as to address the following issues:

(a) The selection of the storage site for carbon dioxide capture and storage in geological formations shall be based on stringent and robust criteria in order to seek to ensure the long-term permanence of the storage of carbon dioxide and the long-term integrity of the storage site;

(b) Stringent monitoring plans shall be in place and applied in order to reduce the risk to the environmental integrity of carbon dioxide capture and storage in geological formations;

(c) Further consideration is required as regards the suitability of the use of modeling, taking into account the scientific uncertainties surrounding existing models, in meeting the stringency requirements of such monitoring plans, in particular taking into account the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*;

(d) The criteria for site selection and monitoring plans shall be decided upon by the COP and may draw upon relevant guidelines by international bodies, such as the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*;

(e) The boundaries of carbon dioxide capture and storage in geological formations shall include all above-ground and underground installations and storage sites, as well as all potential sources of carbon dioxide that can be released into the atmosphere, involved in the capture, treatment, transportation, injection and storage of carbon dioxide, and any potential migratory pathways of the carbon dioxide plume, including a pathway resulting from dissolution of the carbon dioxide in underground water;

(f) The boundaries referred to in paragraph 2 (e) above shall be clearly identified;

(g) Any release of carbon dioxide from the boundaries referred to in paragraph 2 (e) above must be measured and accounted for in the monitoring plans and the reservoir pressure shall be continuously measured and these data must be independently verifiable;

(h) The appropriateness of the development of transboundary carbon dioxide and capture projects in geological formations and their implications shall be addressed, if relevant;

(i) A thorough risk and safety assessment using a methodology specified in modalities and procedures decided upon by the Conference of the Parties, as well as a comprehensive socio-environmental impacts assessment, shall be undertaken by independent entity(ies) prior to the deployment of carbon dioxide capture and storage in geological formations;

(j) The risk and safety assessment referred to in paragraph 2 (i) above shall include, inter alia, the assessment of risk and proposal of mitigation actions related to emissions from injection points, emissions from above-ground and underground installations and reservoirs, seepage, lateral flows, migrating plumes, including carbon dioxide dissolved in aqueous medium migrating outside the project boundary, massive and catastrophic release of stored carbon dioxide, and impacts on human health and ecosystems, as well as an assessment of the consequences of such a release for the climate;

(k) The results of the risk and safety assessment, as well as the socio-environmental impacts assessment, referred to in paragraph 2 (i) and (j) above shall be considered when assessing the technical and environmental viability of carbon dioxide capture and storage in geological formations;

(l) Short-, medium- and long-term liability for potential physical leakage or seepage of stored carbon dioxide, potential induced seismicity or geological instability or any other potential damage to the environment, property or public health attributable to the carbon dioxide and capture project, including the clear identification of liable entities, shall be defined;

(m) When determining the liability provisions referred to in paragraph 2 (l) above, the following issues shall be considered:

(i) A means of redress for Parties, communities, private-sector entities and individuals affected by the release of stored carbon dioxide from carbon dioxide and capture projects;

- (ii) Provisions to allocate liability among entities that share the same reservoir, including if disagreements arise;
 - (iii) Possible transfer of liability;
 - (iv) State liability, recognizing the need to afford redress, taking into account the longevity of liabilities surrounding potential physical leakage or seepage of stored carbon dioxide, potential induced seismicity or geological instability or any other potential damage to the environment, property or public health attributable to the carbon dioxide and capture project;
- ((n) n) Adequate provision for the restoration of damaged ecosystems and full compensation for affected communities in the event of a release of carbon dioxide from the deployment of carbon dioxide capture and storage in geological formations must be established prior to any deployment of related carbon dioxide and capture activities;
- (o) The potential for perverse outcomes.
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