Submission by Grenada on behalf of the Alliance of Small Island States (AOSIS)

Views On Matters Relating To The Use Of Carbon Capture And Storage In Geological Formations As Clean Development Mechanism Project Activities.

February 2011

Grenada welcomes the opportunity to present the views of the 43 member States of the Alliance of Small Island States (AOSIS), in response to the invitation to Parties to submit to the Secretariat, their views relating to the use of carbon capture and storage in geological formations as Clean Development Mechanism project activities in response to paragraph 4 of decision -/CMP.6, taken at CMP.6.

Decision -/CMP.6 "Recogniz[ed] 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."

The CMP requested SBSTA to develop modalities and procedures for inclusion of carbon dioxide capture and storage in geological formations as clean development mechanism activities with a view to recommending a decision to the CMP at its seventh session. These modalities and procedures should address the unresolved issues referred to in 2/CMP.5. These unresolved issues include, inter alia,

(a) Non-permanence, including long-term permanence;
(b) Measuring, reporting and verification;
(c) Environmental impacts;
(d) Project activity boundaries;
(e) International law;
(f) Liability;
(g) The potential for perverse outcomes;
(h) Safety;
(i) Insurance coverage and compensation for damages caused due to seepage or leakage;

AOSIS recognises the potential of CCS technology as part of the global mitigation effort to keep the average increase in global temperatures to less than 1.5^{o}C above pre-industrial levels. However, AOSIS has been consistent in emphasizing that offsetting mechanisms do not contribute to global emission reductions, and therefore inclusion of CCS in the CDM would remove the mitigation benefit of this technology completely, in the absence of equivalently-deeper, legally-binding quantified emission reduction commitments by Annex I Parties to the Kyoto Protocol.

AOSIS has also been consistent in its view that eligibility of CCS as a CDM activity is conditional upon the resolution of several legal, technical and environmental issues.

The SBSTA has been requested to address these unresolved issues that are summarised in decision 2/CMP5.

Eligibility Criteria: At CMP.6 in Cancun, the Parties confirmed a principle that AOSIS has always maintained – all technologies are NOT automatically eligible as CDM activities. There are criteria or provisos that must be met before eligibility is granted. This confirmation is clearly reflected in the first paragraph after the preamble:

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;"

Perverse Outcomes: In the preamble of the CMP.6 decision, the issue of perverse outcomes is addressed as follows:

"*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"

AOSIS submits that the issue of perverse outcomes would need to be explicitly addressed in any CCS modalities and procedures to be outlined by SBSTA. There are at least four examples of how CCS as a CDM activity may potentially lead to more GHG emissions than would have occurred under the baseline scenario to provide the same level of service.

a. CCS technology requires that greater than 15% of the energy produced from the combustion of the fossil fuel is required to capture, transport and store the CO2. As a result, A CCS plant will be required to burn >15% additional fuel to provide the same level of service as a conventional plant.
b. If CCS were used in combination with Enhanced Oil Recovery (EOR), the potential emissions from the additional hydrocarbons brought to the surface would need to be accounted. These tonnes also represent an additional source of revenue, which would need to be taken into consideration in any analysis of additionality.
c. Investments in CCS technology that are linked to coal-fired or gas-fired power generation represent long-term investments not made in renewable energy production or energy efficiency measures, which increases dependency on fossil fuels.
d. Use of storage capacity for CCS combined with fossil-fuel technology reduces the remaining storage capacity available for combining CCS with modern BioEnergy (BECCS). As confirmed by the UNEP Emissions Gap report in 2010, large-scale application of BECCS technology is required to achieve global net-negative CO2 emissions in the latter half of the 21st century, which in turn is crucial for achieving a 1.5°C temperature target (and even a 2°C target), unless deep and immediate emission cuts are achieved before 2020.

AOSIS is of the opinion that these potentially perverse outcomes can be addressed by stipulations in the modalities and procedures. First, to require that the project

developer compensate for the additional energy usage to provide the same service (same electrical energy to the grid) by incorporating the use of renewable energy or energy efficiency measures within the same project boundary. To ensure the environmental integrity of any CERs, the scale of this additional energy usage would have to be monitored on a project-project basis, and monitored and verified during the course of project activities. These calculations would to be conservative, erring on the side of over-compensating for this excess energy usage.

For example, if a 1000 MW CCS plant were planned to be built with only 800 MW to be exported and 200 MW used to capture, transport and store the CO_2 and the developer wished to register the plant as a CDM activity; then he would need to incorporate a renewable energy project or energy efficiency interventions (generation or distribution) to "recover" the lost 200 MW. Second, if EOR were to be used in conjunction with the CDM project activity, the GHG emissions of all downstream activities from the recovered hydrocarbons would have to be accounted for in the prescribed methodology.

It is AOSIS' view that perverse incentives should be discouraged by making the eligibility for participation by Annex I (AI) Parties in activities relating to CCS in the CDM conditional on their meeting a defined percentage of their commitments domestically. For unilateral CDM projects in non-Annex 1 (NAI) countries, part of the proceeds from the sale of CERs arising from CCS projects, additional to the 2% that goes to the Adaptation Fund, should be used for funding the development of renewable and energy efficiency projects in those and other developing countries as part of the eligibility criteria. Additionally, a further part from all CCS projects in the CDM should be dedicated to funding climate insurance for small island developing states given their vulnerability. The limitation of reservoirs to depleted oil wells might also address certain perverse incentives.

Site selection and monitoring plan criteria: It is noted that section 3(d) of the CMP.6 decision requires CMP approval of the site selection and monitoring plan criteria recommended by SBSTA. The preamble for decision CMP.6 states:

"*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,"

AOSIS notes the use of the words *"shall*" and "*any*" in the above quote and regard this clause in the preamble as setting the standard for site selection and monitoring plan criteria.

AOSIS recognizes that the site selection is one of the most critical and important aspects that will determine the feasibility of a project activity. Therefore, it is of utmost importance that addressing this area be given one of the highest priorities.

Short, medium and long-term liability: It is noted that there is no quantitative definition of short, medium and long-term liability in the decision text. AOSIS is of the view that long-term for CCS in geological formations should be in the context of geological time.

Further, the issue of liability ought to be placed in the context of the benefits to be derived by Annex I parties from activities giving rise to any ensuing risk and should be an underlying principle of CCS projects in the CDM. Accordingly, AOSIS is of the firm view that given the technical, technological and financial resources of Annex I parties, any liability arising from CCS projects should be vested in the respective Annex I party or entity investing in such projects.

Related issues for discussion include the appropriate placement and channelling of liability to private and public actors in the event of seepage or accidental release (to the Annex I project proponent, Annex I investor government, or CER purchaser?), responsibility for remediation in the event of seepage or accidental release in the pre- and post-closure phases, and responsibility for site closure, post-closure monitoring and post-closure releases (Annex I project proponent, Annex I investor government, or CER purchaser?). Consideration might be given to whether an international law framework should be developed to address the unique liability issues raised by the possible inclusion of CCS in the CDM, given the implications that possible CO2 releases in host countries have for the international accounting system, in the absence of developing country emission reduction commitments.

Legal and regulatory frameworks: SBSTA should also consider the scope of the legal and regulatory frameworks required to be in place in host countries to account for, monitor and report emissions captured and stored. Because seepage and accidental releases will undermine the environmental integrity of the CDM if not all emissions are reported and accounted for, host country frameworks should be as stringent in these areas as developed country obligations for CCS monitoring and reporting.

International Law: Other legal issues that warrant discussion and resolution include the relationship of CO2 capture, transport and storage to other international law frameworks, including, among others, those addressing: waste transport and management; marine pollution; transport and liability; access to information, public participation and access to justice; water; liability for transboundary impacts; and nature conservation. Many developing country Parties are party to international law frameworks in these areas and it is important that any projects are consistent with both domestic legislation and relevant international law.

Use of modelling vs. direct measurement: Section 3(c) of the decision refers specifically to the limitation of using models. Section 3(g) also requires measurement of any CO2 releases from the project boundary rather than the use of models to estimate seepage. AOSIS also notes the requirement for CERs to be real, measurable and verifiable and re-emphasises that whilst modelling can be supplemental, it should not be allowed in the modalities and procedures to be used as the primary or only means of quantifying emission reductions and/or seepage (including the potential dissolution of C02 in underground water).

Insurance/financial security: SBSTA should detail the nature, and form of financial security required to be held to cover all obligations and liabilities, including remediation of any seepage and accidental releases during capture, transport and storage, closure and post-closure requirements and post-closure monitoring requirements.

Transboundary CCS projects & shared reservoirs: SBSTA has been requested to consider the appropriateness of transboundary CCS projects and the potential use of a geological reservoir by more than one project proponent. See paragraphs 3(h) and 3(n)(ii). AOSIS is of the view that the following elements would be needed for consideration of transboundary CCS projects, among others:

- Any CDM project boundary would have to encompass all countries with the shared reservoir. DNA approval, access for verification of monitoring plans etc from both countries would be required.
- Procedures would have to be in place for verification of the amount of CO2 stored and for remediating seepage and any accidental releases where a reservoir is shared by more than one developer (CDM or non-CDM) or more than one country.
- Legal and regulatory regimes would have to be in place in both countries, addressing CCS project environmental impact assessments, risk assessments, responsibility for accounting and monitoring, responsibility for site closure, post-closure monitoring, and the maintenance of financial security to address these issues.

Required skill sets of any consultants: AOSIS recognises that SBSTA may seek to request the secretariat to assist it in preparing possible recommendations to the CMP. AOSIS respectfully suggests that the following diverse knowledge and experience skill sets would be required of any consultants engaged for such purpose;

- How the CDM operates in particular methodology development.
- CCS technology.
- International law frameworks relevant to CCS activities, as well as those relating to: waste management, marine pollution, climate change; transport and liability; access to information; public participation and access to justice; water; liability for transboundary impacts; and nature conservation.
- Options for the assignment and channelling of liability to public and private actors.
- Risk assessments, including the modelling of potential climactic impacts from the massive and catastrophic release of CO2.
- Geology, hydrogeology and seismology.
- Public health
- Aquatic and terrestrial ecosystem management
- Social and environmental impact analysis

It is unlikely that such skill sets will be found in one individual or company. Therefore, it is respectfully suggested that if any procurement process takes place, the terms of reference for the consultancy is divided into components (e.g. legal, engineering, environmental) and separate consultants hired to address the individual components.

Impacts on the market: At a time when the international community is challenged in establishing a sufficiently robust market price to induce investment in low-carbon technologies, it would be counter-productive to flood the market with inexpensive carbon credits. Therefore, in considering the possible inclusion of CCS project activities in the CDM, a study should be undertaken on the potential scale of CERs

that might be produced, and their impact on carbon pricing. Because an additional concern with the inclusion of CCS in the CDM is the possible diversion of these investment funds from renewable energy and energy efficiency projects, this study might also consider the impact of investments in CCs in this regard, with and without the incentive of CERs from inclusion in the CDM.

AOSIS views the resolution of this issue in the context of the role that it can play in allowing Parties to undertake deeper, more ambitious emission reductions in order to ensure that temperature increases are kept as close as possible to 1.5 degrees Celsius. Therefore, the members states are ready to do all that they can to assist the SBSTA in this regard.