

## **SUBMISSION BY SAUDI ARABIA**

*February 21, 2011*

### **Views on Carbon Capture and Storage in Geological Formations as Clean Development Mechanism Project Activities**

Saudi Arabia welcomes the opportunity to submit its views on how the issues referred to in Paragraph 3 of Document FCCC/KP/2010/L.10 to address the modalities and procedures referred to in paragraph 2 of the same document.

Saudi Arabia strongly supports the Decision at Cancun to make carbon dioxide capture and storage in geological formations eligible as project activities under the clean development mechanism. All studies related to CCS, including IPCC assessment reports and the special report on CCS, stressed that CCS provides great potential for mitigating greenhouse gases. CCS technology alone can reduce up to 45% of total global emissions. CCS also helps many developing countries to contribute to global mitigation efforts to achieve common goals. The acceptance of eligibility of CCS under CDM will help in the faster deployment and dissemination of the technology and the reduction of costs associated with it.

CCS technology has been proven through a number of demonstration and well as large scale projects in different countries, some of which have been in operation for significant number of years. Results from all these projects conclude that CCS is the most effective win-win technology for combating greenhouse gas emissions, win to reducing emissions and win for reducing impacts on developing countries. All initiatives to promote and deploy this technology under through CDM are important.

All concerns related to CCS and modalities of implementation can easily be resolved. There are number of existing intergovernmental multilateral bodies and institutions, including, IPCC that already produced significant work in that regards. This is in addition to the existing and ongoing work from many respected research institutions. Such work can be easily captured to provide specific modalities and procedures for the CCS under CDM.

**Addressing issues from Decision-/CMP.16 paragraph 3 of Documents FCCC/KP/2010/L.10.**

- **Site selection criteria (Para. 3.a & d)**

In order to ensure a permanent storage of CO<sub>2</sub> and manage the risk, site characterization accurate procedures need to be followed as indicated in IPCC SR, IPCC GHG Inventory Guidelines 2006, CSLF and London Protocol, Risk Assessment and Management Framework for CO<sub>2</sub> Sequestration in Sub-Seabed Geological Structures.

This is most important to ensure that CCS provides real, measurable, long-term emissions reductions and is compatible with the current Modalities and Procedures of the CDM. Criteria based on the above work should be provided to the EB for them to assess site selection in proposed CCS projects.

- **Monitoring plans (Para. 3.b)**

There are current available techniques, equipment and processes that are in use in number of projects to monitor and assess the integrity of the storage site as indicated in IPCC 2005, Special Report on CCS, IPCC 2006 GHG Inventory Guidelines and London Protocol, Risk Assessment and Management Framework for CO<sub>2</sub> Sequestration in Sub-Seabed Geological Structures. Criteria based on the above work should be provided to the EB for them to assess monitoring plans in proposed CCS projects.

- **Modelling (Para. 3.c)**

Climate Change science, impacts and all variables, depend on the modeling; smaller modeling is an important tool used to support work undertaken during the site characterization and selection phases, as well as the risk assessment and the development and implementation of the site monitoring plans. The use of modelling in combination with monitoring is very important to ensure that CCS provides real, measurable, long-term emissions reductions and is compatible with the current Modalities and Procedures of the CDM.

- **CCS boundaries and Transboundary (Para. 3.e, f, g&h)**

Project boundaries for the storage would be defined by the site characterization, site selection and risk assessment exercise. Any release of CO<sub>2</sub> emissions from the project boundaries will be determined by the site specific monitoring. Many UN bodies developed and adapted guidelines, such as the 2006 IPCC GHG Guidelines, that provide methodologies for estimating CCS project-related emissions, also offering guidance on instances where more than one

country utilize a common storage site, and in the case where a storage site occurs in more than one country. These guidelines could be followed for defining different new projects; in addition to London Protocol, Risk Assessment and Management Framework for CO<sub>2</sub> Sequestration in Sub-Seabed Geological Structures guidelines.

- **Accounting for project or Leakage emissions (Para. 3.i)**

All emissions under the control and attributable to a CCS project activity can easily be accounted for. Such accounting for total reductions from CCS projects should not be different from other reduction projects under the CDM.

There are many reference to this is issues can be referred to such as:

- IPCC 2006 Guidelines approach to accounting for project emissions
- The definition of the leakage under the CDM

- **Risk and safety assessment (Para. 3.j,k,l& o)**

Environmental Impact Assessment (EIA) will be developed for each CCS project before implementation; such EIA includes an assessment of risks and safety. IPCC and other international bodies have faithfully established EIA guidelines that address such issues. In addition to appropriate site selection based on available subsurface information, as well as monitoring programmes to detect problems if they occur, and a regulatory system including the appropriate use of remediation methods to stop or control CO<sub>2</sub> releases.

Corrective measure from unintended consequences associated with CCS projects should be explored as more experience is gained from a wider application of CCS projects.

- **Liability (Para. 3.m & n)**

Liability should not be used as an obstacle for hindering progress on projects for which Environmental Impact Assessment (EIA) have been completed. Risk and safety issues were addressed within the EIA where any matter related to liability can be further explored and elaborated. The main liability issue can be associated with possible small leakage. It should however be noted that the IPCC concluded that on the fraction of injected CO<sub>2</sub>, it is very likely that projects can exceed 99 per cent long-term permanence.

Appropriate site selection, modelling, risk assessment, operation, and monitoring are of the utmost importance to ensure the long term permanence of the CO<sub>2</sub> and minimize liability. The detail on how to implement liability for damage to the environment, property or public health

should be left to host country regulations. Further guidance is provided on treatment of short and long term liability with respect to the Modalities and Procedures in the Implications Report to UNFCCC Sections 2.3.1 and 5.1 (2009).

## **References**

Implications of the Inclusion of Geological CO<sub>2</sub> Capture and Storage as CDM Project Activities, A report for the UNFCCC, UNFCCC/EB50 Annex 1 (2009), (<http://cdm.unfccc.int/EB/050/eb50annagan1.pdf>)

- IPCC SR CCS 2005
- IPCC GHG Guidelines 2006
- London Protocol (various 2004-2009)
- OSPAR (2007)