

CCOP – Norway Program Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM)

**EPPM P2W1: Workshop on development of natural gas resources with high CO<sub>2</sub> & Carbon Capture and Storage (CCS) in CCOP  
Bali, Indonesia, 17-20 March 2009**

Summary Report:



The workshop is the first activity under *Project 2 (P2), Natural Gas Field Development and Environmental Issues* of the EPPM Program. The workshop is organized with the cooperation of PETRAD (Norway) and LEMIGAS (Indonesia) and is about development of high CO<sub>2</sub> natural gas resources in the CCOP region, Carbon Capture & Storage (CCS) - as a solution to the climate change issues. Discussions on how the public and private sector can effectively work together in meeting the challenges of developing high CO<sub>2</sub> natural gas areas were also included in the agenda. A total of 55 participants from China, Cambodia, Indonesia, Japan, Korea, Malaysia, Philippines, Timor-Leste, Thailand, Vietnam and also from the CCOP Technical Secretariat. Most of the participants are management representatives from various government & private sectors of the oil and gas industry, including the 25 from Indonesia.

Present during the opening ceremony of the workshop are the following distinguished guests:



1. **H.E. MR. EIVIND S. HOMME** -  
Ambassador of Norway to Indonesia,  
Royal Norwegian Embassy (Jakarta)
2. **DR. MARWANSYAH LOBO BALIA**  
- Assistant to the Minister,  
Environmental & Regional Affairs,  
Ministry of Energy and Mineral  
Resources (ESDM)
3. **DR. R. SUKHYAR** - Permanent  
Representative of Indonesia to CCOP

and Head of Geological Agency, ESDM

4. **DR. ØYSTEIN BERG** - Managing Director, International Programme for Petroleum Management and Administration (PETRAD)

5. **MR. HADI PURNOMO** – Head of LEMIGAS

The presentations covered topic related to gas development technology and issues related to technologies and the environment, particularly with relevance to climate change. Experiences and best practices were shared from the Indonesian perspective as well as from Norway and other parts of the world, as shown below.

1. Indonesia - Governance in oil and gas, production & reserves history, legal framework, status of gas field development, current thrusts, and CCS- related research projects
2. Norway – update on R & D activities related to technology development and CCS, CCS current status, CCS case studies, legal barriers, and CDM Projects
3. Germany – CCS risk & uncertainties and criteria for selection

The Norwegian experts were identified courtesy of PETRAD.

The workshop discussions focused on potential CDM projects in the CCOP region, how the government and private sector can work together in addressing the challenges impacting the environment and the people, CCS awareness & capability building in CCOP, Moving forward – future capacity building topics related natural gas development, CO<sub>2</sub> and CCS potential in the CCOP region.

In summary the workshop has made the following observations and conclusions:

1. CO<sub>2</sub>-capture, -transportation and –storage (CCS)
  - CCS is doable for oil and gas companies considering the experiences of this particular sector
  - The CO<sub>2</sub>-rich gas operators are most likely to continue pioneering CCS
  - There is still some way to go with regards to technology and (not least) cost
  - we need to improve our ability to tackle high-CO<sub>2</sub> natural gas
2. CCS Financing
  - The challenge is primarily to find ways to finance CCS-related projects
3. Let us keep a focus on the opportunity of using CO<sub>2</sub> for EOR
4. The challenges of geological storage cannot be underestimated
5. CCS one of five important climate solutions, but there are no single silver bullets in climate mitigation
6. Legal Frameworks
  - Globally there is a general lack of enabling financial or legal frameworks directed towards CCS
  - Financial mechanisms are, however coming into place in some regions and countries
7. CCS is not allowed within the Clean Development Mechanism (CDM) at present

LEMIGAS, the Indonesian agency hosting the workshop, organized a cultural evening for the all the participants of the workshop during the welcome dinner and also help organized the 1 day field trip around Bali Island.

*Sim/22.3.09*