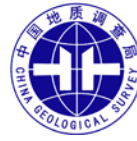




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## CCOP CO<sub>2</sub> Storage Mapping Program (CCS-M)

**China Case Study Seminar 1 (C3S1): CCS Policy Framework and Applied Technologies**  
6-8 November 2013, Shanghai

### Summary:

The CCOP Technical Secretariat in cooperation with the Global CCS Institute, PETRAD, CHINA'S Ministry of Land and Resources, China Geological Survey (CGS) and SINOPEC conducted the C3S1 in Shanghai. The main objectives of the Seminar are to enhance the participants' understanding on the elements for the development of a policy framework for CCS and the applied technologies in CO<sub>2</sub> capture, use and storage (CCUS).



A total of 50 participants majority technical staff from the various SINOPEC Groups, CNPC, China United Coal Bed Methane Corporation and CGS attended the Seminar. The number also includes, participants from Indonesia (Geological Agency, LEMIGAS, ITB-Bandung and PERTAMINA) and Malaysia (PETRONAS).



The welcoming address of the Dr. Adichat Surinkum, Director, CCOP Technical Secretariat, highlighted the importance of networking and partnership to achieve the overall goal of sustainable development of the regions resources. The cooperation among CCOP member countries and partner countries/organizations will help in the realization of the overall goal of the CCS-M Program. The opening remarks delivered by Mr Ma Yongzheng, Director, Department of International Cooperation, Science and Technology, Ministry of Land and Resources, and also Deputy Permanent Representative of China to CCOP, reaffirmed China’s commitment to the strengthening of cooperation among countries in the region. China will continue to support applied geoscience projects to benefit the region.



The keynote address delivered by Dr. Li Yang, Deputy Chief Engineer of SINOPEC, focused on the Low-Carbon Strategy of SINOPEC in response to China’s environmental policy. The low-carbon strategy is SINOPEC’s commitment to a green development that will contribute to the planning and deployment of CO<sub>2</sub> Capture, Use and Storage (CCUS) in China. SINOPEC is one of the 4 (four) national oil company of China and is the largest manufacturer and distributor of petrochemicals in the country.

The presentations and discussions of the Seminar covered applied technologies in CO<sub>2</sub> capture from oil and gas operations, coal power and coal to liquid process, and development of various policy frameworks for CCUS (Norway, Australia, North America and some countries in Europe. The use of CO<sub>2</sub> for enhancing oil/gas recovery and transportation options, highlighted by best practices, also attracted strong interest from the participants. These topics were reflected in the overall feedback for future topic of follow up workshops/seminars.



The resource persons from Norway – Dr. Tore A. Torp (a CCS Consultant at Tel-tek Norway) and Mr. Mike Carpenter and MR. Jock Brown of DNV GL- were invited through the help of Dr. Oystein Berg, Special Adviser of PETRAD. Dr. Michael Dolan of CSIRO- Australia also was invited to deliver the presentation on coal to power with CCS technologies and the development of Australia’s policy framework on CCS.

Dr. Oystein Berg of PETRAD delivered the closing remark of the Seminar.

### Conclusions:

1. EU CCS implementation has been hindered by financial problems and non-acceptance of the general public. Communicating CCS to the public effectively is equally an important strategy for public acceptance and for building trust.
2. The significant risk in the deployment of CO<sub>2</sub> for EOR/EGR technologies in China
  - a. Reliability of CO<sub>2</sub> supply
  - b. CO<sub>2</sub> pipeline design (there is a critical difference to natural gas)
  - c. Well integrity of existing wells (corrosion issues)
  - d. Verification of GHG emissions reduction
  - e. Financial risk due to value chain complexity
3. Based on the Australian experience, 3-pronged approach to CCS policy should be implemented, such as
  - a. Pricing mechanism
  - b. CCS demonstration
  - c. Mandated efficiency targets. For coal-to –power, there are now high efficiency coal technologies that are emerging.
4. The global response to climate change will include a range of mitigation measures, including greater energy efficiency, more renewables, lower carbon fuels and CCS/CCUS – there is no single solution. The worst-case scenario is business as usual. We all need to start implementing NOW!

A 1-day field trip was organized by SINOPEC to visit their Libao oil and gas operations in Jiangsu Oilfield and the famous Suzhou gardens that is included in the UNESCO Heritage list, located in the lower reaches of the Yangtze River. SINOPEC's Libao field is currently operating at a capacity of 12,500 tons/year (oil production).

