CCOP - KIGAM Unconventional Oil and Gas Resources Project: Mapping of black shale formation for the prediction of shale resources (**UC Project**)

National Coordinators Meeting and Technical Workshop 7 (UCM7)

Bangkok, Thailand 28-30 March 2017

Introduction

The Memorandum of Agreement (MOA) between CCOP and KIGAM for the implementation of the CCOP KIGAM Unconventional Oil and Gas Resources Project: Mapping of Black Shale formations for the prediction of shale resources (UC Project) was signed during the 64th CCOP Steering Committee Meeting on 24 March 2015 in Krabi, Thailand.

The Goal of the is to create the highest possible value for society from oil and gas resources in order to improve the quality of life of the people in the CCOP member countries. This is also consistent with the aspirations of the member countries for a sustainable development of the energy resources and energy security. The Project is designed to sustain the experience, technology transfer and institutional capacity building projects in CCOP.

The UC Project have already conducted seven (7) meetings with technical sessions / workshops integrated in the Meeting's agenda. The 7th National Coordinators Meeting or UCM7 was conducted at Holiday Inn Silom Hotel, Bangkok on 28-30 Mar 2017 with 27 participants.

UCM7 Meeting/Workshop

In attendance were the national coordinators / technical staff from Cambodia, China, Indonesia, Korea, Lao-PDR, Japan, Malaysia, Myanmar, Philippines, Papua New Guinea, Vietnam and Thailand, the host country. Technical staff from the Department of Mineral

Fuels and PTTEP represented Thailand at the Meeting. A representative from Myanmar Oil and Gas Enterprise (MOGE - representing Myanmar), participated in the UC Project event for the first time.

The objectives of UCM7 is to apply the Guideline Methodology for the assessment of oil and gas shale resources - looking into the assessment parameters, data to use, and work flow. Workshops on shale basin mapping using QGis software and resource assessment exercises were included in the agenda. The UC Project is using the EIA/ARI methodology for world shale gas and shale oil resource assessment (June 2013) as the Guideline Methodology for CCOP.

The Workshop on QGis software was conducted to complete / update the shale maps of some of the participating countries. This was guided by the KIGAM team of Dr Byeong Kook Son and Dr Tae Hoon Lee. The Country Reports highlighted the recent status of shale basin assessment according to the Guideline Methodology. A full description of the basin was also reported, describing the location, geological settings, stratigraphy and shale formation, and maturity of the basin when it comes to oil and gas exploration. Informations from the country report will also update the Shale basin map of CCOP that will be ready for further update during UCM8 - Indonesia, with quantity of resources (and uncertainties) from each mapped shale basin.

CCOPTS also presented the recent developments of the United Nations Framework Classification for Resources (UNFC) that is now applicable to oil/gas, solid minerals, uranium and thorium, geothermal energy and for injection projects for geological storage.

Significant progress has also been made to broaden the UNFC application to other renewable energy systems, including bioenergy, solar, hydro, and wind energy.

Conclusions and The Way Forward

The national coordinators agreed to submit the updated shale basin maps (with basin description) before 30 April 2017. The complete shale basin map of CCOP will be ready prior to conducting the 8th national coordinators meeting (UCM8) in Indonesia. It was also agreed that main topic of UCM8 will be on quantification (volumetric calculation) of shale resources (including quantification of uncertainties) using the Guideline Methodology. The South Sumatra basin will be the first basin wherein the UC Project will test / apply the methodology. Experts from BGS, KIGAM and other member countries will be invited to share their experiences on shale resource quantification.

A 1-day field work was organized by PTTEP and CCOPTS to visit PTTEP's Core Research Center (PCRC) in Ayutthaya. A brief presentation was given with information on data submission flow and management system. PCRC is the main core sample

storage of PTTEP with a Knowledge Center to disseminate information on rocks/geology to interested technical personnel and the general public. After the visit to PCRC, the UCM7 participants made a short tour at the ancient city of Ayutthaya before heading home to Bangkok in the afternoon.