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

## *Project 1 (P1), Petroleum Resource Management with focus on Natural Gas*

**P1W2**: North Sumatra – Mergui Basin Case Study: Basin Analysis & Technical Fieldwork - Medan , Parapat & Bahorok (Indonesia), 27-30 April 2010

Summary Report:

The workshop is the second activity under Project 1 (P1), *Petroleum Resource Management with focus on Natural Gas* of the EPPM Program and organized by the CCOP Technical Secretariat with the cooperation of Indonesia's LEMIGAS and Geological Agency, and Norwegian Petroleum Directorate (NPD). The objective is to conduct the basin analysis of North Sumatra – Mergui basin in order to have a better understanding of the big geologic picture- with better geological interpretations and predictions, translating into a higher drilling success rates. A technical fieldwork was added in the agenda with stops in various locations of outcrops - basement, source and reservoir rocks in North Sumatra.

*1. Group Photo of P1W2 participants with Lake Toba (a caldera lake) in the background (27 May 2010)*

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During the opening ceremony, Mr Jakobsson & Mr Bambang Wicaksono (LEMIGAS) delivered the welcoming address while Dr. Achmad Djumarmam Wirakusumah, Director of Center for Geological Survey officially opened the workshop on behalf of Dr Sukhyar, Head of Indonesia's Geological Agency and Permanent Representative of Indonesia to CCOP.

A total of 49 participants represented the Member Countries-China (4), Indonesia (25), Korea (1), Malaysia (3), Philippines (3), Thailand (6), Vietnam (2) and Timor-Leste (2). These include participants from ASCOPE Members (PNOC, PERTAMINA, & PETROVIETNAM) and CCOP Technical Secretariat (3). The main resource persons were:

1. Indonesia
    a. Dr. Ngakan Alit Ascaria (Premier Oil)
    b. Mr. Yunan Mudzafar (MIGAS)
    c. Mr. Sofyan Sudarman (LEMIGAS)
2. Malaysia
    a. Mr. Robert Wong (PETRONAS)
3. Norway (NPD)
    a. Mr. Jan Stenløkk
    b. Mr. Knut Henrik Jakobsson


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Day 1 & 2 were spent in Parapat town (5 hours by car from Medan) for technical presentations and discussions that covered topics on case study basin evolution and sedimentation development, oil and gas activities in Indonesia (updated report), basin modeling analysis and tools for modeling, analysis workflow and best practices, and sequence stratigraphic analysis with exercises facilitated by Mr Robert Wong, Team leader of Malaysia. The case study host countries also presented the results of their initial interpretation of the integrated seismic and well data. Each host country presentation received some valuable comments from other case study countries as well as from the rest of the workshop participants.

Right after the workshop, the participants took a boat ride to visit the Samosir Island, home of the Batak people. Day 3, the Indonesian team led the technical field work, making 3 stops near


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Lake Toba to examine outcrops of pre-Tertiary basement rocks and Parapat formation (Oligo-Miocene). Another 7hours later by bus ride (with 1 lunch & 2 toilet stops) the group made their 4th stop in Bahorok and stayed overnight in the area. Day 4, the 2nd day of the fieldwork was around the Bahorok area to outcrops of the Pre-Tertiary Bahorok formation, Belumai (L Miocene)- proven source and reservoir rock, and Baong (M Miocene). The participants also used to opportunity to visit Gunung Leuser National Park – part of the Sumatra rainforest and home to many endangered species such as the orangutan, that the group were able to see.

Outcomes and Way Forward:

1. The case study countries will finalize the interpretations of the seismic lines with well correlation and create the time structure map, to be converted to depth map later.
2. Indonesia team will create the structure map from interpreted data submitted by Malaysia and Thailand (not later than 15 May)
3. Gravity map from all case study countries will be integrated. According to the Indonesian team, the gravity data is useful to map the basement & determine the approximate sedimentary thickness since many areas in the North Sumatra are masked by volcanic sediments that is difficult to map by seismic method.
4. The next workshop, P1W3 will be conducted in Langkawi, Malaysia on 2-5 August. The main topic is basin modeling (2D) using the interpreted data. Indonesia (Pak Jonathan) will prepare the list of data to be prepared for the basin modeling. A 1-day fieldwork is also planned to examine basement rocks & fractures.
5. A 4gb USB memory flash were distributed to all participants containing all documents and pictures of the workshop.

More photos taken during the P1W2 Fieldwork are shown below.


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In the pictures:

1. *Group Photo of P1W2 participants with Lake Toba (one of the biggest caldera lake in the world) in the background (27 May 2010)*
2. *Dr. Achmad Djumarmam Wirakusumah- officially opening the workshop*
3. *Data viewing & discussions*
4. *Data presentation, Thailand*
5. *Data presentation, Malaysia*
6. *Data presentation, Indonesia*
7. *A Batak guide providing information about Samosir Island & the Batak people*
8. *Sigabanding limestone (Pre-Tertiary ), viewed from Lake Toba*
9. *Group photo with Parapat formation (L Miocene) at the background*
10. *Group photo with the Belumai Ls (E Miocene) at the background (Bahorok)*
11. *River Crossing to the Gunung Leuser National Park*
12. *Watching the feeding of orangutan at the Gunung Leuser National Park*

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