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# **CCOP E-NEWSLETTER**

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**VOL. 4 NO. 3  
OCTOBER 2013**

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CCOP Technical Secretariat

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# CCOP E-News

*Coordinating Committee for Geoscience Programmes in East and Southeast Asia*

VOL. 4 NO. 3

OCTOBER 2013

Welcome to the CCOP E-News. This e-news is brought to you by CCOP and is meant to give you the latest news and information on its activities around the region and worldwide.

CCOP e-news replaces the former printed CCOP Newsletter and will be issued several times each year. Each can be downloaded at CCOP website, <http://www.ccop.or.th> in PDF format.



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## Message from Director

The first CCOP Newsletter was published in 1973 and widely distributed. Printed editions continued at regular intervals until October 2008 when e-mail made it possible to launch the CCOP Georesources E-News. The first Newsletter (1973) was focused on an “offshore mineral survey proposed for the Strait of Malacca” which followed many discussions in various parts of Indonesia and Malaysia. Two proposals were drafted for geological and geophysical surveys in that area under the UNDP/CCOP project. At that time the acronym CCOP stood for “Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas”.

As in this issue for October 2013, all issues of the E-Newsletter are intended to act as a reminder of recent and forthcoming CCOP activities. These are all quite different from those of 1973. Brief accounts of new developments within Member Countries, particularly collaborative and joint projects, are given below. The interested reader will find that very

varied topics of geoscience programs are ongoing currently in the different CCOP Member Countries. In 1973, CCOP comprised eight Member Countries but the CCOP region of today covers almost all the East and Southeast Asia countries and projects may extend much further than the “Strait of Malacca” mentioned in the very first Newsletter. The project mechanism has also evolved from UNDP/CCOP activities to both bilateral and multi-lateral collaborative projects, not only between Member Countries but also with Cooperating countries. Furthermore, outputs for use in public geoscience education are now an important part of these activities.

Much fuller descriptions of all these recent activities are posted on the CCOP website <http://www.ccop.or.th> and the CCOP Facebook Page together with many photos. All such material can be downloaded everywhere in the world and both of CCOP’s public networks are frequently updated with new developments and activities described whenever these take place.

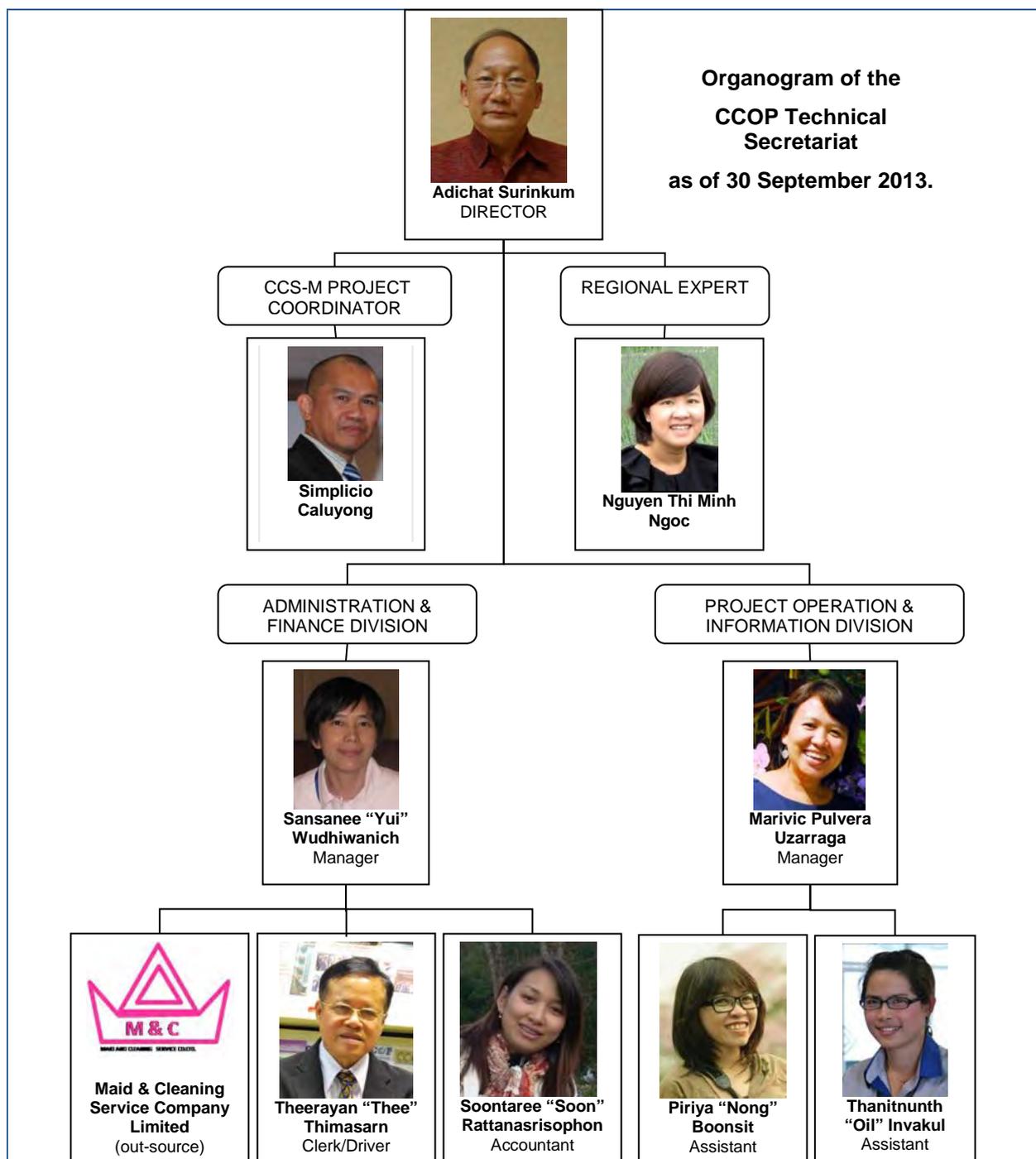


*Outreach activities have been conducted by CCOP on the basis of bilateral and multi-lateral collaboration among CCOP member countries, cooperating countries and cooperating organizations*

## Administration News

**Dr. Kyu Han Kim**, President, Korea Institute of Geoscience and Mineral Resources (KIGAM) succeeded **Dr. Hee Il Lee** as Permanent Representative of Korea to CCOP.

Starting from 26 August, Mrs. Marivic Pulvera Uzarraga, Manager of Project Operation & Information Division has been taking maternity leave for a total of 10 weeks, except for the time of CCOP 2013 meetings.



## The 49<sup>th</sup> Annual Session of CCOP and 12<sup>th</sup> Thematic Session will be held in Sendai, Japan

### Previous Annual Sessions: Notes from the past

CCOP was founded in 1966 with four founding Member Countries (**The Philippines, China, Japan and Korea**). Two sessions of CCOP were held during **1966**, the second of which was held in **Tokyo, Japan** and saw the establishment of the 'Technical Advisory Group', a forerunner of the present day Advisory Group. A further two sessions took place in 1967, followed by a single session, the first truly 'Annual Session', in **Tokyo** in **1968**. It was at this meeting that the acronym CCOP was first used and Permanent Representatives of the, by then, six Member Countries were nominated.

Further Annual Sessions were held in Japan in **1975, 1982, 1995** and **2004**. Thematic sessions were introduced at Annual Sessions from 2003 and at the **2004** Session in Tsukuba, Japan, the second Thematic Session, “Geoenvironment of Deltas and Groundwater Management in East and Southeast Asia”, was organized. This year in Sendai, the eleventh Thematic Session will be held on the topic of “**Geohazards: Impacts and Challenges for society development in Asian countries**”. Twenty verbal presentations and ten posters are already scheduled for this important session.



*The Japanese delegation at the 1982 Annual Session with Dr Shimazaki, second from right.*

All the above is history and now we can look forward with eager anticipation to see what the 49<sup>th</sup> (2013) Session of CCOP might hold. The forthcoming Annual Session in Sendai, Japan, will be the seventh session of CCOP to take place in Japan.

For updates on this event see this link: <http://www.ccop.or.th/activity/288>

### **The 2013 Thematic Session “Geohazards: impacts and challenges for society development in Asian countries”**

This year’s Thematic Session will be jointly organized by Geological Survey of Japan, AIST and the CCOP Technical Secretariat. To be held on the 22<sup>nd</sup> and 23<sup>rd</sup> October, the session will focus on geological hazards which include geological disasters caused by earthquakes, tsunami, volcanic eruptions, landslides, flooding, etc. The Thematic Session may consist of the following sub-sessions:

- Earthquakes and Tsunami
- Volcanic Eruptions
- Landslides and coastal erosion
- Flooding
- Other Geological Hazards
- Risk Assessment and Management
- Policy for Mitigating Geohazards

## RECENT PROJECT ACTIVITIES (1 July – 30 September)

During the period 1 July to 30 September 2013, 5 activities (see below) were organized, with 143 participants from the CCOP Member Countries.

### CCS-M Training course (T2): CO<sub>2</sub> Storage Capacity Estimation

The CCS-M Training Course (T2) “**CO<sub>2</sub> Storage Capacity Estimation**” was held on 20-23 August 2013 in Bangkok. **CCS-M T2** was the second training course conducted by the CCOP Technical Secretariat in cooperation with the Global CCS Institute (GCCSI) and Thailand through the Department of Mineral Resources (DMR) and Department of Mineral Fuels (DMF). The objectives were to enhance the knowledge of the participants on methodologies for calculating CO<sub>2</sub> storage capacities of subsurface reservoirs, the various types of geological storage systems and CCS applied technologies.

The training course was attended by 42 participants from CCOP MCs (Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, Timor-Leste and Vietnam), 1 distinguished guest, 6 resource persons, and 5 CCOP staff. The resource persons were from Australia, GCCSI, International Energy Agency (IEA) and Norwegian Petroleum Directorate (NPD). In addition, resource persons from the United States Geological Survey (USGS) and Statoil (Norway) delivered call-in presentations (via the Internet) on case studies related to the topic. The key lessons learned from these presentations were as follows:

1. CO<sub>2</sub> can be stored in depleted oil and gas fields and deep saline formations.
2. The technology for the geological storage of CO<sub>2</sub> is mature.
3. A comprehensive policy commitment to CCS is necessary – including a clear vision of the future for CCS.
4. There are existing methodologies for the characterization of geological storage and estimation of storage capacities that CCOP can use. However, there is a need for a deeper understanding on the criteria and methodologies.

Feedback to some key questions as below:

**1. What questions would you like a CCOP regional assessment to answer?**

- a. Building capacities for CCS, particularly on site characterization and storage estimation.
- b. Alignment of CCOP methodologies to UN and other regional organizations.
- c. Understanding the methodologies- putting into practice and addressing the integrity of the methodologies.

**2. What level of assessment (e.g., basin scale, site specific) would be useful to answer these questions?**

- a. High level assessment- basin scale
- b. Then later prospect to site specific level..

**3. What can your country contribute for development of a CCOP regional assessment?**

- a. Data and field man power support (for field study)

**4. Can you think of any show-stopper for a regional assessment?**

- a. Data confidentiality and nature of critical data
- b. Lack of resources (experts) and support of management

- c. No specific policy framework for CCS
- d. Strong public concerns and possible opposition
- e. Conflict of interest (e.g., existing oil and gas operations) and politics
- f. Investor's confidence.



*Participants at the CCS-M Training Course (T2) “CO<sub>2</sub> Storage Capacity Estimation”*

Going forward and based on feedback from the participants, the next Training Course (T3) will have to include agenda items on workshops/exercises for the deeper understanding of the characterization of storage reservoirs and estimation of capacities. This can be done with more hands-on exercises and assessment of the criteria parameters using real data from the case study countries.

A 1-day field trip was organized by Thailand’s Department of Mineral Resources to Saraburi (NE of Bangkok) to visit sandstone outcrops (late Cretaceous- Early Tertiary?), as a visual representative for possible geological CO<sub>2</sub> storage.

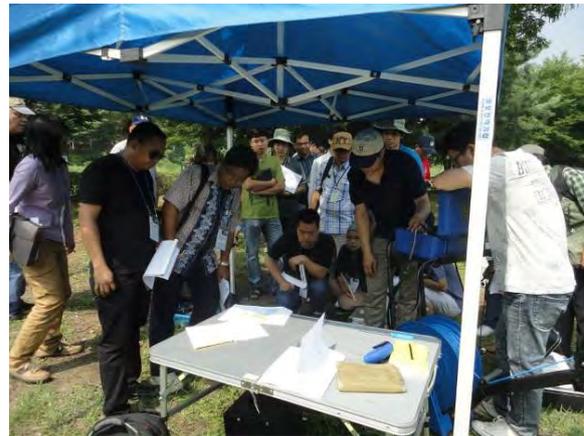
All materials from CCS-M T2 are available as free downloads from the CCS-M website [www.ccop.or.th/ccsm](http://www.ccop.or.th/ccsm).

### **CCOP/KIGAM/IS-Geo Training course on Groundwater Theory and Application**

The CCOP Technical Secretariat co-organized a subject training course in cooperation with the **International School for Geoscience Resources (IS-Geo)** of the **Korea Institute of Geoscience and Mineral Resources (KIGAM)** from 24 June to 9 July 2013 in Daejeon, Korea. This training course was within the framework of the 4-year (2013-2017) CCOP-KIGAM Project “Solution for groundwater problems in the CCOP region”, kindly supported by KIGAM, Korea. The course was attended by **17** participants from CCOP Member Countries (Cambodia, China, Indonesia, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, Timor-Leste and Vietnam) and 1 participant from the CCOP TS. The aim of the training course was to provide participants with a clear understanding of fundamental concepts, theory and applications of groundwater and to share information, and best practice on groundwater projects in Member Countries. During the ten days of this training course, Prof.

Frank W. Schwartz and Dr Eung-Seok Lee (Ohio University) led the lectures and exercises covering 2 modules: Module 1- Groundwater Basics and Hydrogeological Investigations and Module 2- Groundwater Contamination and Remediation. After the lectures, Dr. Yongcheol Kim (KIGAM) guided the CCOP trainees on KIGAM Laboratory and Korea Water Resources Corporation (K-Water) Tour. On the last day, participants gave presentations of their country reports and shared experiences on groundwater research, surveys and management.

A seminar on “Solution for groundwater problems in the CCOP region” is going to be held in cooperation with DGR, DMR and AIT of Thailand in Pathumthani province, Thailand on 7-9 October 2013.



*CCOP trainees at a lecture and one field trip to measure water level and water quality parameters in monitoring wells in Daejeon, Korea*

### **CCOP-DMR-VIGMR Training course on Community Based Landslide Mitigation**

Within the framework of the CCOP-DMR-VIGMR Project on Landslide Mitigation, the CCOP-DMR-VIGMR Training course on Community Based Landslide Mitigation was held on 17-20 July 2013 commencing with a seminar Bangkok, Thailand followed by a 3-day excursion to visit models of Community Based Landslide Mitigation in Phetchabun, Uttaradit and Chiang Mai provinces. The seminar/fieldtrip was attended by 9 participants from CCOP member countries (Indonesia, Malaysia, Philippines, Thailand, Vietnam) 28 local participants from the Department of Mineral Resources (DMR) of Thailand and 5 CCOPTS staff.

The seminar on 17 July 2013 in Bangkok was held in the meeting room of DMR where CCOP participants presented and discussed their country reports. On July 18, participants visited the first group for Community Based Landslide Mitigation in Thailand and joined the simulation exercise of a local network in response to landslides in Lom Sak district, Phetchabun Province. About 600 local residents, including children and adults, and 200 rescue officers were actively involved in the practice of rescue and evacuation activities.

On July 19, participants discussed with local coordinators of the community network for Landslide Mitigation in Lablae District, Uttaradit Province and visited some rehabilitation locations along the way to Chiang Mai. On July 20, participants joined the Training course for local residents on Community Based Landslide Mitigation in Doi Saket District, Chiang Mai. There, Community of Pa Miang residents and Pa Miang Municipal rescue officers took part in the training course. After the training course, Dr Adichat, Director of CCOP TS facilitated a discussion among CCOP participants on future cooperation opportunities.

A training course is under consideration for November 2013 in Vietnam, with the aim of establishing the Landslide Watch Network in other CCOP project areas (Vietnam as a case study during 2013 -2014), enhancing the skills of counterparts in landslide hazard analysis, landslide risk mapping and establishment of Landslide Watch Networks.



*CCOP participants joined the simulation exercise of local network in response to landslide in Lom Sak district, Phetchabun Province*

### **CGS-CCOP-ASEAN Workshop on Geochemical Mapping**

The CGS-CCOP-ASEAN Workshop on Geochemical Mapping was held on 3-8 September 2013 in Nanning, China with attendance of 12 participants from CCOP MCs (China, Cambodia, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand and Vietnam), 2 from Mongolia, 1 from Greece, 8 from CGS (China) and 1 from CCOP TS.

The subject workshop is within framework of the 4-year CGS-CCOP-ASEAN Geochemical Mapping Project, which is financially supported by China Geological Survey from 2012 to 2015. This was to follow up the Seminar of March 2013 in Nanjing with focus on the Training and Manual Preparation phase. The workshop program included a 2-day lecture on Global-scale Geochemical Baselines, Regional-/National-scale Geochemical Mapping, Analytical Scheme and Quality Monitoring System for Geochemical Mapping, Geochemical Data Management and Map Generation, Application of Geochemical Mapping for Mineral and Environmental Assessment, follow by a 1-day Discussion Meeting on the CGS-CCOP-ASEAN Geochemical Mapping Manual and 2 days of Field Sampling Training for global-scale floodplain/overbank sediment and soil sampling and national-scale stream sediment and soil sampling in tropical forest terrains.

The discussion among the Project leader and CCOP member countries resulted in plans being proposed for case studies for 2014 and 2015, starting in Lao PDR and PNG in the first quarter of 2014.



*Participants at the field trip training for overbank and stream sediment sampling*

### **KIGAM/IS-Geo- CCOP Training course on Coastal Geology and Geohazards**

The International School for Geoscience Resources of KIGAM in coordination with CCOP, presented an intensive training course on Coastal Geology and Geohazards (GeoCoast) in Daejeon (Korea) on 2 – 13 September 2013. The course aimed to foster professionals from the developing countries in the fields of coastal geology and research as well as to enhance collaboration of participating countries/organizations with Korea/KIGAM. The training course was attended by 13 participants from CCOP Member Countries (Cambodia, Indonesia,

Malaysia, Papua New Guinea, Philippines, Thailand and Vietnam). During two weeks, the participants attended lectures on 2 modules: 1) Tide-dominated Coasts and Human Impacts and 2) Wave-dominated Coasts and Coastal Geohazards, and took part in visits to the Western Korean Coast (Tide-dominated) and Eastern Korean Coast (Wave-dominated) and also participated in a briefing and presentation of country reports at the end of the course.

## NEW PROJECT PROPOSALS AND INITIATIVES

- **The Project: “Best practices on Mine Decommissioning and Rehabilitation Plan in CCOP region”** was proposed by the Philippines at the 59th Steering Committee. A Task Group of national coordinators have been established based on nominations by the CCOP Member Countries. The project proposal is under consideration by the Philippines Government. CCOP TS and the Philippines are in communication with CCOP Member Countries on possibilities for co-funding.
- **The CCOP Book Project “Stone Heritages in East and Southeast Asia”** was proposed by Japan at the 60<sup>th</sup> Steering Committee. A Heritages Stone Task Group (HSTG) of national coordinators has been established based on nomination by the CCOP Member Countries. The task group will have the first meeting on 22 October 2013 in Sendai, in conjunction with the 49<sup>th</sup> CCOP Annual Session.
- **The 2-year (2013-2014) Project “The Standard Petroleum Reserves Report Forms”** was proposed by Thailand at the 60th Steering Committee with purpose to create standard practice for those who work on petroleum resource/reserves classification. Participating countries cover all CCOP Member Countries. CCOP TS is in communication with Thailand on tentative activities and funding possibilities. CCOP is in communication with DMF (Thailand) to plan for co-organizing a workshop in 2014 by using UNFC 2009 (date & venue to be confirmed).
- **New initiative “A Feasibility Study of Karst Groundwater Storage”** was proposed by Thailand at the 60<sup>th</sup> Steering Committee. DMR/DGR plan to co-organize with CCOP a Feasibility Study of Karst Groundwater Storage in 2014.
- **New initiative “Trans-boundary Aquifer Management and Sharing among CCOP member countries”** was proposed by Thailand at the 60<sup>th</sup> Steering Committee. The CCOP TS is in communication with UNESCO Bangkok on possible cooperation on this subject.
- **ASEAN Harmonized Geology Project (ASEAN Seamless Geology Project).** The ASEAN Harmonized Geology Project was endorsed by the ASOMM Database Committee on 28<sup>th</sup> August, 2013. As a kick-off activity, an open discussion on ASEAN Harmonized Geology, will take place October 21 afternoon, 2013, adjacent to the 49<sup>th</sup> CCOP Annual Session. The meeting will start with an introduction of ASEAN Seamless Geology and follow by discussion on cooperation activities of seamless geology in CCOP/Indochina region and National Geological Maps of ASEAN. All representatives of ASEAN countries and the organizations concerned to the ASEAN Harmonized Geology are invited.

## MISSION TRIPS AND MEETINGS

CCOPTS Director, **Dr. Adichat Surinkum** attended the following seminars and workshops as an **invited speaker**:

**28 July 2013**, the plenary session DMR's seminar on “Subsurface Geophysical Investigation” in Nakorn Sawan Province of Thailand.

**31 July 2013**, DMR's seminar on "Detailed Investigation in Heavy Minerals - Rare Earth Elements Potential in Ranong Province" held in Bangkok, Thailand. The seminar partly dealt with the question of how to relate the ore deposit models to granitic terrain located within the Tahi-Malay peneonsula and the island of Sumatra, Indonesia.

**5 August 2013**, brainstorming session of DMR's seminar on "Detailed Investigation in Tin Minerals potential areas in Phangnga Province" at Bang-zai subdistrict Administrative Organization (SAO), Takuapah district, southern Thailand. The purpose of this event was to share the investigation results as well as brainstorm on "Guidance for development and management in Tin minerals deposit areas, Phangnga Province".

**6 August 2013**, the plenary session of the DMR's seminar on "Natural resources in Southeast Asia and Thailand's capabilities to develop infrastructure projects" at Phichit Plaza Hotel, in Phichit province, Thailand. The purposes of this event were to enhance knowledge sharing and to prepare the database for public support on strategic regional infrastructure projects.

**9 August 2013**, seminar "Causing Cracks in a Coal seam to test the flow rate of natural gas-Pit Number FA-BT-45-05" at Northern Petroleum Development Center, Defence Energy Department, Chiang Mai, Thailand.

**17 August 2013**, the plenary session "Management of Landslide Hazards in Thailand and Southeast Asia" of the DMR's seminar "Landslide Prevention and Alleviation", organized at Paklong School, Krungching, Noopitam, Nakhon Si Thammarat. The purpose of this event was to enhance knowledge sharing on community based landslide hazard mitigation.

**24 August 2013**, the Honorary Advisor Mobile Activity: "Tracking in the Paleo Tethys Sea and Fossil Evolution" held along the route of Trung-Thung Wa-La Ngu, Satun province, South Thailand. The activity aimed for more than 20 experts from various disciplines to have an overview of geosites and geological museums of the area for geoconservation and development.

**28 August 2013**, the brainstorming discussion session at DMR's seminar on "Excursion for mineral potential areas in Rayong Province, East of Thailand, and reporting mineral exploration projects in 2013". The purposes of this event were to share investigation results and related knowledge as well as planning for mineral exploration projects in 2014".

**26 September 2013**, DMR's seminar on Fossil Protection at Kanchanaburi Province, Thailand. Dr Adichat was invited speaker on the possible approach for development and management of fossil sites and geological museums. The aim of this seminar was to exchange experiences among DMR officials on the implementation of Thailand's Fossil Protection Act.

#### **Other CCOP mission trips:**

**27 August 2013**, the CCOPTS Director **Dr. Adichat Surinkum**, Regional Expert **Dr. Nguyen Thi Minh Ngoc** and CCOP TS staff attended the special talk given by Prof. Dr. Koji Wakita, Division of Physics and Earth System Sciences, Graduate School of Science and Engineering of Yamaguchi University on the topic of advantages and opportunities of post-graduate courses for students from Thailand and other CCOP member countries. Yamaguchi University is a national university in Yamaguchi Prefecture (Japan) providing graduate and post-graduate courses of different disciplines, including geosciences for Japanese and foreign students all over the world. Prof. Dr. Koji Wakita offered to share information and support for students who are interested in taking post-graduate courses of Geology in Yamaguchi University. All CCOP Member Countries are invited for cooperation in these long-term training courses.

**28 August 2013**, on behalf of CCOP, CCOPTS Director **Dr. Adichat Surinkum** signed a renewed Memorandum of Understanding with the Asian Institute of Technology (AIT) for Strengthening Cooperation in Geosciences. The AIT Interim President Prof. Worsak Kanok Nukulchai suggested that CCOP could utilize AIT as a platform where experts and researchers from CCOP Member Countries can conduct joint research activities.

**11 September 2013**, CCOPTS Director **Dr. Adichat Surinkum** and Regional Expert **Dr. Nguyen Thi Minh Ngoc** had a meeting with **Mr Jayakumar, Programme Specialist and Chief, Natural Sciences UNESCO Bangkok** at the CCOP office,. Mr Jayakumar stressed

that UNESCO is now focussing more on geoscience programmes. Four main topics were discussed; Geoparks, Geoscience for public education, Trans-boundary aquifers and artificial recharge, within CCOP MCs. These topics match with the on-going programs of CCOP. Education and cultural perspectives will be more integrated to scientific themes in CCOP Member Countries by collaboration between CCOP and UNESCO.

**20 September 2013**, CCOPTS Director **Dr. Adichat Surinkum** and Regional Expert **Dr. Nguyen Thi Minh Ngoc** had a meeting with **Dr. Rien A.C. Dam** (Deltares), and group of experts from DMR and DGR of Thailand at the Geohazards Operation Center (GOC) in Bangkok, Thailand. The discussion focused on 3 main topics: 1) submission of the CCOP-Deltares proposal on land subsidence for ADB fund, 2) Further opportunities to approach ADB and 3) New initiative on a CCOP-DMR-DGR-Deltares project on groundwater management and land subsidence prediction to seek for funding from the ADB, the Government of the Netherlands and Thai geoscience agencies.

## UPCOMING CCOP ACTIVITIES

Date	Activities	Venue
<b>7- 9 October 2013</b>	<p>CCOP-KIGAM-DGR-DMR-AIT Technical Workshop on “Solution for groundwater problems in CCOP region”.</p> <p>This workshop is within the framework of the 5-year (2013-2017) CCOP-KIGAM Project “Solution for groundwater problems in CCOP region”, kindly supported by KIGAM, Korea. The workshop includes 2 days of seminar and 1 day field trip to Suphan Buri province and will be attended by participants from all CCOP member countries.</p>	Asian Institute of Technologies (AIT) Pathumthani Province, Thailand
<b>19-20 October 2013</b>	<p>The 2<sup>nd</sup> G-EVER International Symposium and the 1<sup>st</sup> IUGS &amp; SCJ International Workshop on Natural Hazards.</p> <p>The events will be organized by G-EVER Consortium, GSJ, the International Union of Geological Sciences (IUGS), Science Council of Japan (SCJ) in cooperation with CCOP. All CCOP delegates, who are attending the Annual Session, are welcome to participate in and submit a paper to this symposium.</p> <p><a href="http://www.g-ever.org/en/symposium/symposium2.html">http://www.g-ever.org/en/symposium/symposium2.html</a>.</p>	Sendai, Japan
<b>20-24 October 2013</b>	<p>49<sup>th</sup> CCOP Annual Session.</p> <p><a href="http://ccop.or.th/activity/288">http://ccop.or.th/activity/288</a></p>	Sendai, Japan
<b>21 October 2013</b>	<p>ASEAN Seamless Map Meeting - a half-day open discussion on ASEAN Harmonized Geology.</p> <p>The ASEAN Harmonized Geology Project was endorsed by the ASOMM Database Committee on 28th August, 2013. The meeting will introduce the ASEAN Seamless Geology project and discuss on Seamless Geology in CCOP region, Seamless Geology in Indochina region and National Geological Maps of ASEAN. Expected participants are all</p>	Sendai, Japan

	representatives of ASEAN countries and the organizations concerned to the ASEAN Harmonized Geology.	
<b>21 October 2013</b>	<p>National Coordinators Meeting for the CCOP Book Project on Stone Heritages in East and Southeast Asia will be co-organized by the Geological Survey of Japan (GSJ), AIST and CCOP in conjunction with the 49<sup>th</sup> CCOP Annual Session.</p> <p>National Coordinators of CCOP member countries are invited to join this meeting for discussion about the book's contents and the project timeline until publication.</p>	Sendai, Japan
<b>25-26 October 2013</b>	<p>61<sup>st</sup> CCOP Steering Committee</p> <p><a href="http://ccop.or.th/activity/289">http://ccop.or.th/activity/289</a></p>	Sendai, Japan
<b>25 October 2013</b>	<p>The Expert Meeting on Web-based GIS and Recent Geoscience Database will be co-organized by Geological Survey of Japan (GSJ), AIST and CCOP in conjunction with the 49<sup>th</sup> CCOP Annual Session.</p> <p>The Expert Meeting will focus on the web-based GIS, which has been developed for geoscience data management and will discuss the recent technology of web-based GIS and examples of its application in the CCOP region. The results will contribute to the database management programs. The mineral resources database, compilation of seamless geology, the groundwater monitoring system, and the geo-hazard monitoring system are examples. Experts from CCOP member countries and the Advisory members are invited to register and contribute presentations.</p>	Sendai, Japan
<b>6-8 November 2013</b>	<p>The CCS-M C3S1: China Case Study - Seminar on CCS Policy Framework and Applied Technologies.</p> <p>C3S1 will address the needs of the China case study team and is aimed at enhancing the knowledge of the participants on 1) Development of a policy framework for CCS and 2) CO<sub>2</sub> capture, use and storage technologies. Expected to participate are members of the CCS-M case study teams from China, Indonesia and Malaysia. Other CCOP member countries and ASCOPE members will also be invited to participate.</p> <p><a href="http://ccop.or.th/activity/298">http://ccop.or.th/activity/298</a></p>	Shanghai, China
<b>19-20 November 2013</b>	<p>The CCOP-VIGMR-DMR Training course on Community Based Landslide Mitigation will be co-organized by Vietnam Institute of Geosciences and Mineral Resources (VIGMR), Department of Mineral resources of Thailand (DMR) and CCOP.</p> <p>This training course is one following activity after the</p>	Hanoi, Vietnam

kick-off training course on Community Based Landslide Mitigation in Bangkok – Phetchabun – Uttaradit - Chiang Mai, Thailand on 17-20 July 2013, within the framework of the CCOP-Thailand–Vietnam Cooperating Project on Landslide Mitigation. This training course will contribute to the understanding of community based network for geohazard mitigation widely in Vietnam, Thailand and other CCOP member countries. Participants from CCOP member countries will be invited to attend on own-cost for airfare and accommodation.

**10-13  
December  
2013**

The CCS-M T3 “National Assessment of CO<sub>2</sub> Storage Sites and CO<sub>2</sub>” is currently coordinated by CCOP Technical Secretariat.

Malaysia

The objectives of T3 is to have a deeper understanding of the methodologies and criteria for the selection of technically accessible storage resources and the use of CO<sub>2</sub> for enhancing oil/gas recovery (EOR). Hands-on exercises to assess and test the site selection criteria and storage estimation procedures will be the main agenda items. Resource persons from the CCOP network will be invited from Australia, USA, Norway and from CCOP countries. Expected to participate are the member countries and ASCOPE members. T3 will be conducted in cooperation with Global CCS Institute, PETRONAS and Minerals & Geoscience Department - Malaysia.

## Publications

During the 3-month reporting period, the following have been published and circulated to all the Member Countries:

- **CCOP E-News July 2013**

The CCOP E-News July 2013 issue is now available for download from this link: [http://www.ccop.or.th/download/e-news/CCOP\\_e-news2013-07v4n2.pdf](http://www.ccop.or.th/download/e-news/CCOP_e-news2013-07v4n2.pdf). It is of 14 colored pages, and 900MB file size. This e-news is brought to you by CCOP and is meant to give you the latest news and information on its activities around the region and worldwide. CCOP e-news replaces the former printed CCOP Newsletter and will be issued several times each year.

- **Proceedings of the 48<sup>th</sup> CCOP Annual Session held in Langkawi, Malaysia**

The Proceedings of the 48<sup>th</sup> CCOP Annual Session held in Langkawi, Malaysia on 5-8 November 2012 is now available for download from this link, <http://www.ccop.or.th/download/as/48as1.pdf>. The proceedings include the minutes of the session, CCOP Progress Report and its Workplan, Member and Cooperating Countries Reports as well as Cooperating Organizations Reports, among others. This proceedings is in PDF format, and is of 5.6MB file size.

## For more information

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