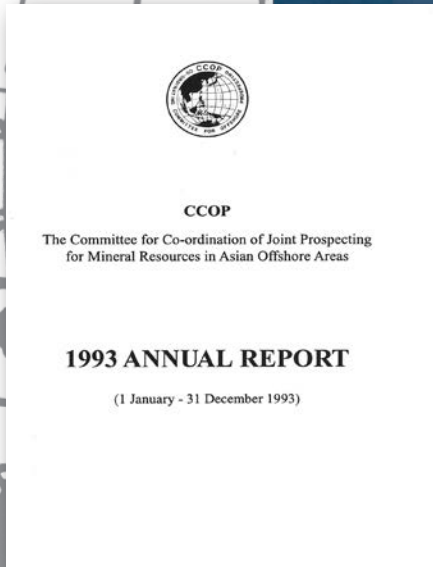
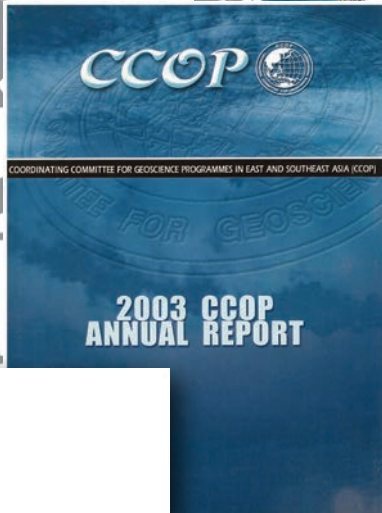




Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP)

CCOP ANNUAL REPORT 2013



**CCOP Technical Secretariat
Bangkok**

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On cover page:

- *Cover Pages of CCOP Annual Reports 1993, 2003 and 2013*
- *CCOP Activities in 2013 (60th CCOP Steering Committee, CCOP-AIT MOU Signing Ceremony, CCS-M Signing Ceremony, CCOP member countries involved in technical activities in 2013, CCOP-KIGAM-DMR-AIT Seminar "Solution for Groundwater problem in CCOP region" on 7-10 October 2013 in Pathumthani, Thailand; and 49th CCOP Annual Session in Sendai, Japan)*

MESSAGE FROM THE CHAIRMAN



As we all may recall that on 1 April 2013, the New Director of CCOP Technical Secretariat, Dr. Adichat Surinkum of Thailand has been elected to succeed Prof. Dr. He Qingcheng of People's Republic China for a 3-year term starting 2013 up to 2015. On this occasion, please allow me on behalf of the CCOP Member Countries, to express my heartfelt appreciation to Prof. Dr. He Qingcheng for his leadership and guidance during his term as Director of the CCOP Technical Secretariat for the period of 2011 up to 2013. In addition, I would also like to take this opportunity to thank Dr. Adichat Surinkum, who has served as the New Director of CCOP Technical Secretariat since 1 April 2013.

During my term as the Chairman of the CCOP Steering Committee until the end of 2013, I duly noticed the betterment and improvement including the development at the CCOP Technical Secretariat, among others are:

- The balanced budget is now fully applied, with greater transparency.
- New Organization Structure at the CCOP-Technical Secretariat is significantly functioning with only 9 personnel in total. This represents the effectiveness and efficient leadership of the new Director.
- Increased Cash contribution from Japan.
- More activities from both bilateral and multilateral agreements have been conducted.
- This year's Annual Session and Steering Committee Meeting were held successfully in Sendai, Japan with many side meetings of new initiatives.

Furthermore, as it was agreed in Sendai's Meeting in Japan, Papua New Guinea was approved to host 2014 Annual Session. However, the definite time and venue are yet to be confirmed. The CCOP Technical Secretariat is at the moment already making preparations together with the CCOP Member Countries as well as Organization and Cooperating Countries for the CCOP 50th Anniversary in 2016. CCOP is planning to organize such Golden Anniversary to be the most amazing event so far.

As I mentioned earlier, my Chairmanship will conclude by the end of 2013, and CCOP Technical Secretariat has smoothly handed over the Chairmanship to the Permanent Representative of Japan to CCOP, Dr. Eikichi Tsukuda, to hold the position as the new CHAIRMAN of the CCOP Steering Committee for a two year period commencing 2014 up to 2016.

Last but not the least, I would like to extend my heartfelt appreciation to all parties concerned and involved in the preparation of the CCOP Technical Secretariat Report of 2013. I do understand that no one is perfect but we all, especially CCOP, is trying to achieve the best in almost every corner.

Thank you and best wishes to you all. Merry Christmas and a prosperous New Year 2014!

Dr. R. Sukhyar
Chairman, CCOP Steering Committee

CCOP: VISION, MISSION AND STRATEGY



VISION

A premier intergovernmental Earth science organization in East and Southeast Asia.

MISSION

To contribute significantly to the economic development and sustainable management of the environment and improvement of the quality of life of its Member Countries by the application of Earth science knowledge.

STRATEGIC FOCUS:

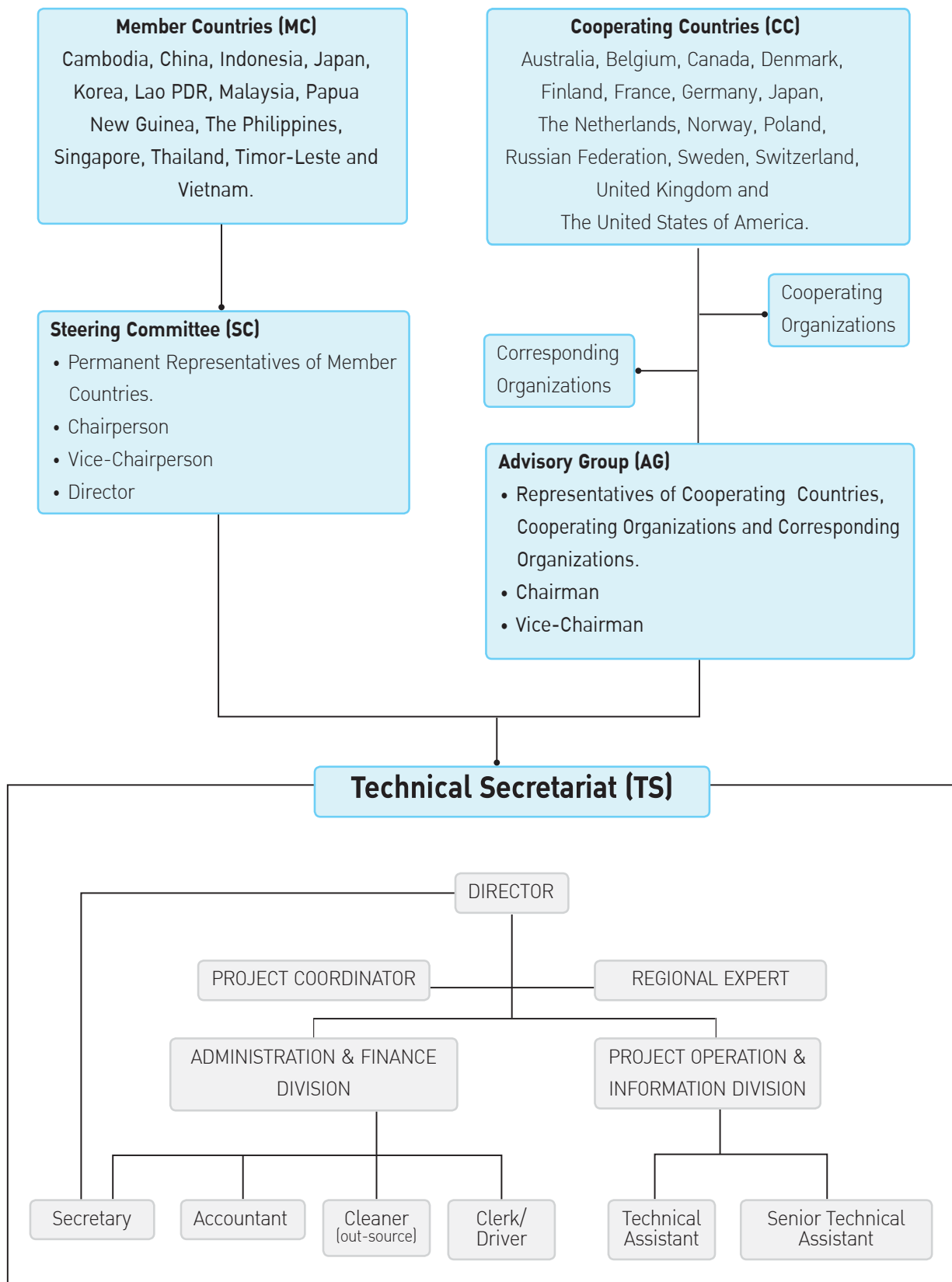
- Outreach – to enhance influence with decision makers, investors and the public through the provision of relevant Earth science information and to develop appropriate skills for communicating effectively with CCOP stakeholders.
- Cooperation and Partnership – to enhance the internal and external partnerships to improve the quality, reach application and impact of our Earth science information and knowledge.
- Knowledge Enhancement and Sharing – to manage, promote, share and exploit the region’s Earth science information and skills.
- Data and Information – to advance sharing of data and information and integrate Earth science data across national boundaries.

Member Countries: Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Papua New Guinea, Philippines, Singapore, Thailand, Timor-Leste and Vietnam.

Cooperating Countries: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Japan, The Netherlands, Norway, Poland, Russian Federation, Sweden, United Kingdom and United States of America.

Cooperating Organizations: ASCOPE, CIFEG, CPC, EUROGEOSURVEYS, GETECH, IOC, IOMAC, IUGS, PETRAD, UKM, UN-ESCAP, UNEP, UNESCO, THE WORLD BANK.

MANAGEMENT AND ORGANIZATION



As of 31 December 2013, the CCOP Technical Secretariat (TS) has 10 personnel, comprising four professionals, five supporting staff and one outsourced staff.



Dr Sukhyar, Chairman, CCOP Steering Committee, Dr Adichat Surinkum (New Director), Prof Dr He Qingcheng (Former Director) and the CCOPTS staff at the Inauguration of the new CCOPTS Director.

Dr. R. Sukhyar, Chairman of the CCOP Steering Committee, Permanent Representative of Indonesia to CCOP, Head of the Geological Agency of Indonesia, continued his services as Chairman of the CCOP Steering Committee and **Mr. Leo L. Jasareno**, Director, Mines and Geoscience Bureau, Permanent Representative of the Philippines to CCOP as Vice-Chairman of the Steering Committee until 31 December 2013. For the period of 2014 - 2015, the 61st CCOP Steering Caommittee Meeting held in Sendai, Japan elected **Dr. Eikichi Tsukuda**, the Permanent Representative of Japan to CCOP, as Chairman of the CCOP Steering Committee and **Dr. Kyu Han Kim**, the Permanent Representative of Korea to CCOP, as Vice-Chairman.

From January 2013, **Ms. Franca Schwarz**, Representative of Germany to CCOP and Head of Sub-Department International Cooperation, Federal Institute for Geosciences and Natural Resources (BGR), succeeded **Dr. David B. Prior** as Chairman of the Advisory Group, with **Mr. Ioannis Abatzis**, Representative of Denmark to CCOP and Senior Geophysical Adviser, Department of Geophysics, Geological Survey of Denmark and Greenland (GEUS), as Vice-Chairman.

At the 60th CCOP Steering Committee Meeting on 26-28 March 2013 in Ubon Ratchathani, Thailand, the signing ceremony of a Memorandum of Understanding between CCOP and Global CCS Institute (GCCSI), Australia took place.

Regarding the changes of Permanent Representative (PR) of Member Countries to CCOP in the year 2013, **Dr. Kyu Han Kim**, President, Korea Institute of Geoscience and Mineral Resources (KIGAM) succeeded **Dr. Hyo Sook Lee** as Permanent Representative of Korea to CCOP.

On 1 April 2013, **Dr. Adichat Surinkum** started his 3-year term of service as Director of CCOPTS, succeeding **Prof. Dr. He Qingcheng**. A ceremonial induction into office was held for the new CCOP Technical Secretariat's (CCOPTS) Director at the CCOPTS's headquarters in Bangkok, Thailand. It was witnessed by **Dr R. Sukhyar**, Chairman of the CCOP Steering Committee and the former CCOPTS Director Prof. Dr. He Qingcheng. Also present at the ceremony were **Dr. Tawsaporn Nuchanong**, First Deputy Permanent Representative of Thailand to CCOP, Deputy Director General of DMR, experts from the DMR of Thailand and all CCOPTS staff.

HIGHLIGHTS FOR THE YEAR 2013

THE 60th AND 61st CCOP STEERING COMMITTEE MEETINGS AND THE 49th CCOP ANNUAL SESSION

The 60th Steering Committee Meeting:

In cooperation with the Government of Thailand, through the Department of Mineral Resources, Ministry of Industry, the 60th CCOP Steering Committee Meeting was organized and held at the Sunee Grand Hotel, Ubon Ratchathani, Thailand on 26-28 March 2013. The Meeting was attended by delegates of the following Member Countries (MC): Cambodia, China, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, Timor-Leste and Vietnam. Also present were **Ms. Franca Schwarz**, Chairman of the Advisory Group (AG), **Dr. Yoshihiko Shimazaki**, CCOP Honorary Advisor, **Mr. Holger Bietz** from the Global CCS Institute (GCCSI), Australia as an observer and the Director and members of the CCOP Technical Secretariat (CCOPTS).

At the Opening Ceremony of the meeting, welcoming remarks were made by the following:

(a) **Mr. Suttinun Boonmee**, Vice-Governor of Ubon Ratchathani Province; (b) Permanent Representative of Thailand to CCOP, Director-General of the Department of Mineral Resources, Thailand, **Mr. Praneet Roibang**; and (c) Vice-Minister, Ministry of Natural Resources, Thailand, **Dr. Pithaya Pookaman**. The Chairman of the CCOP Steering Committee Meeting, Permanent Representative of Indonesia to CCOP and Head of the Geological Agency of Indonesia, **Dr. R. Sukhyar** opened the 60th CCOP Steering Committee Meeting.



Delegates from CCOP Member Countries and Chairman of CCOP Advisory Group at the 60th CCOP Steering Committee Meeting.

Following the opening ceremony, is a signing ceremony of the Memorandum of Understanding (MoU) between CCOP and the Global CCS Institute (GCCSI), Australia for the CCOP CO₂ Storage Mapping Program (CCS-M). **Dr. R. Sukhyar**, representing CCOP and **Mr. Holger Bietz**, representing GCCSI, Australia, signed the MOU, witnessed by **Dr. Elmer Billedo**, Vice-Chairman of the CCOP Steering Committee and **Prof. Dr. He Qingcheng**, CCOPTS Director.

The 60th SC Meeting discussed about the administrative and financial status of CCOP for the period of 1 January to 31 December 2013, as well as technical projects and activities conducted. Revised Budget and Workplan for 2013, CCOP Business Plan 2013-2015 were reported and endorsed by the Meeting. **Prof. Dr He Qingcheng** also presented his terminal report at the meeting, summarizing the accomplishments he had made during his tenure, as well as his recommendations for CCOP.

New Initiatives were proposed by Thailand, Philippines and Japan for the CCOPTS to follow-up and work with, as follows:

1. The Standard Petroleum Reserves Report Forms
2. A Feasibility Study of Karst Groundwater Storage
3. Transboundary Aquifer Management and Sharing among CCOP member countries (Thailand)
4. Compilation of Best Practices on Mine Decommissioning and Rehabilitation Plan (proposed by the Philippines)
5. Solutions of Water Resources for CCOP Member Countries (proposed by Korea)
6. Publication of CCOP Book, "Stone Heritages in East and Southeast Asia" (proposed by Japan).

On the last day of the meeting, the delegates went for the excursion at Phachan Saphanbok Geopark in Ubon Ratchathani Province, organized by the Department of Mineral Resources, Thailand.

The 49th CCOP Annual Session:



Delegations at the 49th CCOP Annual Session and Chairman of the CCOP Steering Committee

The 49th CCOP Annual Session was held at the Sendai International Center in Japan on 20-24 October 2013. It was organized by the Geological Survey of Japan (GSJ), National Institute of Advanced Industrial Science and Technology (AIST) and the CCOPTS. The Session was attended by representatives of the following Member Countries: Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, and Vietnam. Myanmar attended as an observer country. From the Cooperating Countries, Denmark, Finland, Germany, Japan, The Netherlands and United Kingdom were in attendance. From the Cooperating Organizations, EuroGeoSurveys,

PETRAD and Universiti Kebangsaan Malaysia (UKM) attended the session. Also present at the Meeting were the Honorary Advisers of CCOP.

The welcome addresses were delivered by **Dr. Eikichi Tsukuda** (Permanent Representative of Japan to CCOP, Director General, Geological Survey of Japan, AIST), **Mr. Hiroshi Watanabe** (Director-General for Technology Policy Coordination, the Ministry of Economy, Trade and Industry, Japan), **Mr. Atsushi Karimata** (Senior Coordinator, Global Issues Cooperation Division, International Cooperation Bureau, Ministry of Foreign Affairs, Japan), **Prof. Susumu Satomi** (President of Tohoku University, Japan) and **Ms. Emiko Okuyama** (Mayor of Sendai City).

Special messages were given by **Ms. Franca Schwarz** (Chairman of CCOP Advisory Group, Representative of Germany to CCOP, Head of Sub-Department International Cooperation, Federal Institute of Geosciences and Natural Resources (BGR), Germany) and **Dr. R. Sukhyar** (Chairman of the CCOP Steering Committee, the Permanent Representative of Indonesia to CCOP, and Head of Geological Agency of Indonesia).

The opening address was delivered by **Dr. Ryoji Chubachi**, the President of the National Institute of Advanced Industrial Science and Technology (AIST), Japan.

Dr. Eikichi Tsukuda, Head of the Delegation of Japan was elected Chairman of the Session and **Mr. John Arumba**, Head of the Delegation of Papua New Guinea, was elected Vice-Chairman. The representatives from Malaysia (**Mr. Azhar Yusof**) and the Netherlands (**Dr. Rien A.C. Dam**) were elected as Rapporteurs.

CCOPTS Regional Expert **Dr. Nguyen Thi Minh Ngoc** and Manager of Administration and Finance, **Ms. Sansanee Wudhiwanich** summarized the Progress Report of CCOP including organizational changes (personnel), the current financial position, technical activities and cooperation and support from Cooperating Countries and Organizations during January to June 2013. **Mr. Simplicio P. Caluyong**, Program Coordinator, presented the report of the CCOP CO₂ Storage Mapping Program (CCS-M). The Member Countries, Cooperating Countries and Cooperating Organizations represented at the Session made presentations on their country and organization report. The CCOP Workplan for 2014 was presented by the CCOPTS Director for the information and comments of the Session. The Advisory Group met and discussed separately, and presented at the Session their recommendations for CCOP.

The delegation of Papua New Guinea updated the Session on its intention to host the 50th CCOP Annual Session in October 2014 in Kokopo, East New Britain, Papua New Guinea. More information will be provided at the 62nd CCOP Steering Committee Meeting on March 2014 in Thailand. The EAGER Grant for 2013 was awarded to **Mr. Kazuya Ishitsuka**, a PhD student in Kyoto University. The title of his research proposal is “*Mapping and understanding of the evolution of displacement in aquifer system after the reduction of groundwater usage by using satellite imagery*”.

A thematic session on the topic “*Geohazards: impacts and challenges for society development in Asian countries*” was held on 22 - 23 October 2013 with presentations of 22 technical papers and 13 posters by CCOP participants.

Geological excursion to Sendai and Matsushima Coasts was organized on the last day.

The 61st Steering Committee Meeting:



Heads of Delegations at the 61st CCOP Steering Committee Meeting with Chairman of the CCOP Steering Committee, Chairman of the CCOP Advisory Group and Director of CCOP Technical Secretariat.

Following the 49th CCOP Annual Session is the 61st CCOP Steering Committee Meeting held on 25-26 October 2013 at the same venue. The Meeting was attended by delegates of the following Member Countries: Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, and Vietnam. Also present were **Ms. Franca Schwarz**, Chairman of the Advisory Group, and the Director and staff of the CCOPTS. The Director presented the CCOP Progress Report covering the period from 1 January 2013 to 30 June 2013. The report included the administration and personnel, finance, technical cooperation and project support, technical activities, fellowships and grants, publications and documentations. He also presented the actions taken according to the recommendations of all previous CCOP Steering Committee Meetings and proposed workplan, budget for 2014, which were consequently approved by the Meeting with some amendments.

Thailand, the host of the 62nd CCOP Steering Committee planned to be held on 3-6 March 2014 in Chiang Mai, updated the Meeting on their preparations.

CCOP New Membership

The CCOPTS continued its efforts in pursuing new memberships in particular, Myanmar, Brunei and Mongolia as new Member Countries.

At the 61st CCOP Steering Committee in Sendai, Japan, the Steering Committee approved the proposal by Japan to withdraw from its dual status of being a Member Country and Cooperating Country to become a Member Country only.

TECHNICAL COOPERATION

In the year 2013, the Technical Secretariat has exceeded most of its planned targets under three sectors on Geo-resources, Geo-environment and Geo-information. Being consistent with the capacity building strategy for Member Countries, CCOP, with the assistance of its Cooperating Countries and Organizations, continued to adopt an evolving programme of activities that addressed new areas of concern as they arose. Member Countries also provide in-kind support to optimize the benefits of the partly sponsored programmes. These included, outreach type activities for example, CCS-M program, community based geohazard mitigation, best practice on mining rehab and public engagement. The Table 3 below summarizes the ongoing activities in cooperation among Member countries, Cooperating Countries and Cooperating Organizations.

Other Cooperating Countries generally continued their technical support to a number of multilateral and bilateral technical cooperation (TC) activities in CCOP Member Countries by providing valuable advice and guidance as well as resource persons and technical assistance.

Thanks are due to all the Cooperating Countries and Organizations for their provision of representatives to CCOP who have contributed in large measure to the review, assessment and formulation of CCOP work programmes and for the contribution of technical information.

Summary of CCOP Technical Activities with Member Countries, and Cooperating Countries & Organizations in 2013

MEMBER COUNTRIES

Country/ Organization	CCOP Technical Activities
Cambodia	Cambodia continues to provide resource persons to participate in CCOP technical activities.
China	<p>China Geological Survey (CGS) co-organized with CCOP the CCOP-CGS Training course on Capability Enhancing on Integrated Geophysical and Geochemical Data Processing on 16-18 June 2013 in Kun Ming, China. The training course is in the framework of the CCOP-CGS project on Integrated Geophysical and Geochemical Data Processing (IGDP), supported by China since 2011.</p> <p>CGS continues to support for the CCOP/ ASEAN Geochemical Mapping Project 2011-2015. Activity in 2013 includes the CCOP/ASEAN Workshop on Geochemical Mapping on 3-8 September 2013 in Nanning, China.</p> <p>CGS co-organized with CCOP the CCS-M C3S1 - China Case Study on 6-8 November 2013 in Shanghai, China. The Technology and International Cooperation Department and Strategic Research Center of Oil and Gas Resources (MLR, China) co-organized with CCOP a seminar on "China-ASEAN International cooperation and exchanges on Development of Unconventional Oil & Gas Resources" on 12-14 November 2013 in Hangzhou, China.</p>
Indonesia	<p>Geological Agency of Indonesia (GAI) co-organized with CCOP the EPPM P1 Dissemination Seminar with the case study of North Sumatra – Mergui Basin. The first day of this back-to-back event was held on 20 March 2013 at LEMIGAS, Jakarta.</p> <p>GAI co-organized with CCOP the CCS-M Launching Seminar (S1) on 29 April 2013 and the CCS-M Training Course 1(T1) on Geological Storage Selection and Characterization on 30 April – 3 May 2013 in Bali, Indonesia.</p>

Country/ Organization	CCOP Technical Activities
Japan	<p>University of Tokyo (UOT) organized in cooperation with CCOP the CCOP-UOT-DMR Technical Seminar and Workshop on “Modern Remote Sensing for Integrated National Land Safety and Management - International Satellite Constellation” on 20 March 2013. This activity was supported by Japanese Embassy, CAS, hosted by UOT, Vision Tech (Japan) and DMR (Thailand). GSJ/AIST continues support for the CCOP-AIST Groundwater Project Phase II with a technical meeting held on 26-28 February 2013 in Hanoi, Vietnam with 18 participants from CCOP member countries. Activities of mapping procedure - considering description of hydrological data are being carried out during the period of April 2013 to March 2014.</p> <p>GSJ/AIST continues support for the DeISEA project with the CCOP-GSJ/AIST-JMG/UMT DeISEA Short course on Coastal geology and Management held on 16-23 March 2013 in Kuala Terengganu and Kota Bharu, Malaysia.</p> <p>GSJ/AIST supports for the CCOP Book Project on “Stone Geohéritages in South East Asia”.</p> <p>GSJ/AIST co-organized with CCOP the 2nd G-EVER International Symposium and the 1st IUGS & SCJ International Workshop on 19-20 October 2013 in Sendai, Japan. GSJ/AIST proposed the ASEAN Harmonized Geology Project and co-organized with CCOP the first meeting on 21 October 2013 in Sendai, Japan.</p> <p>GSJ/AIST co-organized with CCOPTS the Expert Meeting on Web-based GIS and Recent Geoscience Database on 25 October 2013 in Sendai, Japan.</p> <p>GSJ/AIST proposed the CCOP High Education Support Network Program and co-organized with CCOP the first meeting on 22 October 2013 in Sendai, Japan.</p>
Korea	<p>KIGAM sponsored a 5-year CCOP-KIGAM Project (2013-2017) “Solution for Groundwater problems in CCOP region” with a training course on Groundwater Theory and Application from 24 June to 9 July 2013 in IS-Geo of KIGAM, Daejeon, Korea and a seminar on “Solution for Groundwater problems in CCOP region” on 7-9 October 2013 in Pathumthani, Thailand.</p> <p>In 2013, an ISGeo’s Regular Training Course on Coastal Geology and Geohazards was held in Daejeon, Korea on 2-13 September 2013 for CCOP MCs.</p>
Lao PDR	<p>Lao PDR gave more effort in providing resource persons to participate in CCOP technical activities.</p>
Malaysia	<p>Minerals and Geoscience Department of Malaysia (JMG) co-organized with CCOP the CCOP-GSJ/AIST-JMG/UMT DeISEA Short course on Coastal Geology and Management on 16-23 March 2013 in Kuala Terengganu and Kota Bharu, Malaysia.</p> <p>JMG co-organized with CCOP the EPPM P1 Dissemination Seminar with the case study of North Sumatra-Mergui Basin. This event for Malaysia was held on 21 March 2013 at PETRONAS, Kuala Lumpur.</p> <p>JMG & UKM gave in-kind contribution for publication of Thematic papers submitted to CCOP at the Thematic session in 48th AS in Langkawi, November 2012 in the Bulletin of Geology of Malaysia.</p>
Papua New Guinea	<p>PNG gave more effort in providing resource persons from different sectors to participate in CCOP technical activities.</p>
Philippines	<p>The Mines and Geosciences Bureau (MGB) supports the CCOP Book Project: “Best practices on Mine Decommissioning & Rehabilitation Plan in CCOP region”.</p>
Singapore	<p>Singapore continues to be updated with CCOP activities from CCOPTS.</p>

Country/ Organization	CCOP Technical Activities
Thailand	<p>DMR organized in cooperation with CCOP the CCOP-UOT-DMR Technical Seminar and Workshop on “Modern Remote Sensing for Integrated National Land Safety and Management - International Satellite Constellation” on 20 March 2013 in Bangkok, Thailand.</p> <p>DMF co-organized with CCOP the EPPM P1 Dissemination Seminar with the case study of North Sumatra –Mergui Basin. This event for Thailand was held on 22 March 2013 at DMF, Bangkok with 18 participants.</p> <p>DMR organized in cooperation with CCOP the DMR-CCOP Geopark Symposium held on 26-28 March 2013.</p> <p>DMR and DPIM of Thailand in cooperation with CCOP organized the CCOP-DMR-DPIM Seminar on Best Practices in Mining: Safety and Public Engagement held on 28-30 May 2013 in Thailand.</p> <p>DMR cooperated with VIGMR (Vietnam) and CCOP the project on Community Based Landslide Mitigation, by hosting the visit of Vietnam delegation to the Landwatch Network in Ubon Ratchathani in March 2013, Training course on Community Based Landslide Mitigation in Bangkok-Phetchabun – Uttaradit – Chiangmai, Thailand on 17-21 July 2013 and provided resource persons for the other project activities.</p> <p>DMR continues to support for the Permanent Office Building for CCOP T/S in DMR Complex, Bangkok, Thailand.</p> <p>DGR and Chulalongkorn University continue to cooperate with CCOP under the project entitled “CCOP-GSJ/AIST Groundwater Project Phase II” with focus on the sub-project of Ground-coupled Heat Pumping Systems.</p> <p>AIT has renewed the MOU with CCOP on geoscientific cooperation in 2013-2015.</p> <p>DMR and AIT co-organized with KIGAM and CCOP the seminar on “Solution for Groundwater problems in CCOP region” on 7-9 October 2013 in Pathumthani, Thailand.</p> <p>DMR and DMF co-organized with CCOP the CCS-M T2 on 20-23 August 2013 in Bangkok, Thailand.</p>
Vietnam	<p>CWRPI organized in cooperation with CCOP the CCOP-AIST Groundwater Project Phase II Meeting on 26-28 February 2013 in Hanoi, Vietnam.</p> <p>VIGMR cooperated with DMR (Thailand) and CCOP the project on Community Based Landslide Mitigation. VIGMR provided resource persons for all the project activities and host the Seminar on Community Based Landslide Mitigation in Hanoi – Bac Kan, Vietnam on 19-20 November 2013.</p>

COOPERATING COUNTRIES

Australia	<p>Australia supported the establishment of Global CCS Institute (GCCSI). GCCSI is funding the Facilitation Phase (Year 1) of the CCS-M Program in the amount USD 0.5 Million.</p>
Belgium	<p>Belgium continues to support bilateral cooperation projects with countries in CCOP region.</p>
Canada	<p>Canada is now more focused on geohazards during winter, which are the same with China and Japan. Canada also offers scholarship and CCOPTS is now following up with Ms. Carmel Lowe, Director of GSC.</p>
Germany	<p>BGR continues to assist CCOP MCs in Geoscience programs, especially focusing on requests from MCs.</p>

Country/ Organization	CCOP Technical Activities
The Netherlands	Deltares continues to assist CCOP in seeking funding support for CCOP activities.
Norway	<p>Norway Cooperation and Support to the CCOP-Norway Program for Enhancing Public Petroleum Management (EPPM), which has been completed in July 2013.</p> <p>The Norwegian Government through the Royal Norwegian Embassy in Jakarta signed an Agreement last 28 November 2013 with the CCOPTS to support the CCS-M Program with a fund commitment of NOK5.0 Million. The new fund will be used to cover the activities of CCS-M during the period 1 December 2013 – 31 December 2014.</p>
United Kingdom	BGS continues to support bilateral projects with MCs. Cooperated with GETECH in the production and sale of aeromagnetic and gravity maps for CCOP.
United States of America	<p>Annual EAGER Research Grant by the Geological Society of America for CCOP Annual Session host country.</p> <p>USGS provided resource persons to the CCS-M Program in the area of national assessment of geological CO₂ storage sites.</p>

COOPERATING ORGANIZATIONS

ASEAN Council on Petroleum (ASCOPE)	<p>ASCOPE maintained close cooperation with CCOPTS through jointly organized seminars and information exchange for the benefit of the Member Countries.</p> <p>CCOPTS participated in ASCOPE Joint Committee meetings to discuss current issues on CCOP and ASCOPE energy program.</p>
Economic and Social Commission for Asia and the Pacific (ESCAP)	<p>Information exchange and discussion, cooperation on technical activities as well as organizing workshops and conferences. CCOP reports to the UN-ESCAP Commission Session and participates in the subcommittee meetings.</p> <p>CCOP participated in the 69th UN-ESCAP Session in Bangkok from 25 April to 1 May 2013.</p>
Euro-Geosurveys	CCOPTS and EuroGeosurveys continue to exchange information on Geosciences. EuroGeosurveys invited CCOPTS to join the Annual Session meetings.
GETECH	Supported in the production and sale of aeromagnetic and gravity maps.
International Union of Geological Sciences (IUGS)	CCOP is an Associate Member of IUGS and annually submits an activity report.
PETRAD	<p>Cooperated with CCOPTS in the CCS-M Launching Seminar on 29 April 2013 (Partly sponsored by Norwegian Embassy in Indonesia) in Bali and the Seminar on CCS Policy Framework and Applied Technologies, 6-8 November 2013, Shanghai.</p> <p>All reports from previous PETRAD seminars in East and Southeast Asia are available through the CCOPTS in Bangkok.</p>
Universiti Kebangsaan Malaysia (UKM)	Supported for editing and publication of CCOP 2012 thematic papers in the Bulletin of the Geological Society of Malaysia.

TECHNICAL PROGRAMMES AND ACTIVITIES

During 1 January to 31 December 2013, a total of 23 activities were carried out and attended by 864 participants from the Member Countries, as well as from Brunei, Mongolia and Myanmar. With strategic focus on capacity building, knowledge sharing and technology transfer, a number of workshops, seminars, training courses, working group meetings and expert visits were conducted during the reporting period and were highly appreciated by the Member Countries participation.

Summary of CCOP Member Countries' Participation in Technical Activities

Sector	No. of Activities	No. of Participants
Geo-Resources	11	459
Geo-Environment	9	321
Geo-Information	5	84
TOTAL	25	864

GEO-RESOURCES SECTOR

CCOP-NORWAY COOPERATION PROGRAM FOR ENHANCING PUBLIC PETROLEUM MANAGEMENT OF THE CCOP MEMBER COUNTRIES (EPPM PROGRAM)

The CCOPTS completed the implementation of the EPPM Program that is funded by the Royal Norwegian Government in the amount NOK15 Million. The program incorporates three (3) Projects:

- Petroleum Resource Management with a focus on Natural Gas (P1);
- Natural Gas Field Development and Environmental Issues (P2); and
- Metadata on Natural Gas Resources of the CCOP Region (P3),

In 2013, the EPPM P1 Dissemination Seminar was conducted as the final activity of the EPPM Program which is highlighted by the reporting of the case study team to the stakeholders and representatives from the Royal Norwegian Embassies in the case study countries the outcomes and recommendations from the North Sumatra – Mergui Basin case study. The case study area is a petroleum basin that is shared by three Member Countries of CCOP: Indonesia, Malaysia and Thailand. The Seminar was conducted as a back-to-back event in Jakarta, Kuala Lumpur and Bangkok from 20 to 22 March 2013 with schedule and number of participants as follows:

1. LEMIGAS, Jakarta – 20 March 2013 (25 participants)
2. PETRONAS, Kuala Lumpur- 21 March 2013 (22 participants) and
3. DMF, Bangkok - 22 March 2013 (18 participants).

The aim was to report the outcomes and recommendations of the study teams to the stakeholders.

The case study was supported by technical activities including a series of workshops & training courses, coordination meetings, and geological fieldwork conducted over a period of ~4 years. The case study countries provided the data and local expertise over their area of the basin. The data and knowledge from the 3 countries were integrated and combined with expertise from Norway and other cooperating countries that resulted in a better understanding of the broad geological picture of the basin that can be translated into a higher drilling success in the future. The other member countries of CCOP also participated in the technical activities. The methodologies and workflow that were applied were according to international standards, which are available and free for countries to implement for their own basin study. Special technical training sessions were also conducted to support the specific needs of the case study teams and the member countries participating in EPPM P1. The EPPM-dedicated website www.ccop.or.th/eppm is the repository of all records and information of the activities of the Programmes and also offers free download to the general public.



Map of the basin and structural elements

CCS-M PROGRAM

Signing of the Agreement between CCOP and Global Carbon Capture & Storage Institute (GCCSI) for the CCOP CO₂ Storage Mapping Program (CCS-M).

During the 60th CCOP Steering Committee Meeting in Ubon Ratchathani, Thailand (26 March 2013), CCOP and Global CCS Institute signed the Agreement to implement the Facilitation Phase (Year 1) of the 4-year CCS-M. The Agreement includes a fund commitment from GCCSI in the amount AUD0.5 Million to support the capacity building activities of CCS-M. This marks another milestone in CCOP with a new and very prestigious partner in GCCSI, a world leader in advocating for CCS as one of the options required to reduce greenhouse gas emissions, both from the power generation and industrial sources.

The goal of the CCS-M is to enable the government organizations in the CCOP Member Countries to:

1. Provide a high level overview of the potential for large-scale CO₂ storage;
2. Enhance their capacity and capability in the assessment of geological sites for the safe and long-term storage of CO₂; and
3. Increase their understanding of the potential of CO₂ for enhanced oil/gas recovery.



Signing Ceremony of CCS-M Program - The MoU was signed by Dr R Sukhyar, representing CCOP and Mr Holger Bietz representing GCCSI, and witnessed by the Dr Elmer Billedo, Vice-Chairman of the CCOP Steering Committee and Prof Dr He Qingcheng, CCOPTS Director.

Signing on behalf of CCOP is **Dr. R. Sukhyar**, Chairman of the CCOP Steering Committee and Permanent Representative of Indonesia to CCOP. **Mr. Holger Bietz**, General Manager for Projects, Financial and Commercial, signed on behalf of GCCSI. Signing as witnesses were **Prof. Dr. He Qingcheng**, CCOP Technical Secretariat and **Dr. Elmer Billedo**, Vice-Chairman, CCOP Steering Committee and Deputy Permanent Representative of the Philippines to CCOP.

The total budget requirement of CCS-M is USD2.0 Million. During the Facilitation Phase, the CCOPTS will continue to promote Program and seek for additional funding to support the technical activities planned for the next three (3) years.

CCS-M Launching Seminar (S1)



Ms. Marianne Dahaug, Minister Counselor of the Royal Norwegian Embassy - Jakarta, opened the Seminar

The Launching Seminar (S1) of CCS-M was held in Bali, Indonesia on 29 April 2013. This event was conducted by CCOP Technical Secretariat in cooperation with the Global CCS Institute (GCCSI), Norway's Ministry of Foreign Affairs through the Royal Norwegian Embassy - Jakarta, PETRAD and Indonesia's Ministry of Energy and Mineral Resources with a total of 42 participants. **Dr. Adichat Surinkum** (CCOP Technical Secretariat) and **Dr. Yunus Kusumahbrata** of Geological Agency Indonesia delivered the welcoming address while **Ms. Marianne Damhaug**, Minister Counselor of the Royal Norwegian Embassy Jakarta, gave the opening

address. The keynote addresses were delivered by **Ms. Tone Skogen** of Norway's Ministry of Petroleum and Energy and **Dr. Steve Whittaker** of the GCCSI.

CCS-M Training Course (T1): Geological Storage Selection and Characterization



Participants at the CCS-M Training Course (T1): Geological Storage Selection and Characterization

CCS-M T1 was held in Bali, Indonesia on 30 April – 3 May 2013. The 4-day Training Course was conducted right after the (S1) Launching Seminar of CCS-M. The main objective is to enhance the capacities of the participants from CCOP Member Countries in the assessment of geological sites for the safe and long term storage of CO₂. Leading the training course were **Prof. John Kaldi** and **Dr. Peter Neal**, prominent geoscientists from Australia's Cooperative Research Centre for Green-House Gas Technologies (CO2CRC). Also present were CCS experts from various Norwegian agencies that were invited courtesy of PETRAD - **Dr. Per Christer Lund** (Innovation

Norway- Tokyo), **Dr. Harald Johansen** (IFE CO₂ Center), and **Mr. Mike Carpenter** (DNV KEMA CCS). A total of 42 representatives from the member countries participated in T1.

CCS-M Training Course (T2): CO₂ Storage Capacity Estimation

CCS-M T2 was held on 20-23 August 2013 in Bangkok. This is the second training course conducted by the CCOPTS 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 are to enhance the knowledge of the participants on methodologies for calculating CO₂ 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 learning from these presentations were as follows:



Participants at the CCS-M Training Course (T2) "CO₂ Storage Capacity Estimation"

1. CO₂ can be stored in the depleted oil and gas fields and deep saline formations.
2. The technology for the geological storage of CO₂ is mature.
3. A comprehensive policy commitment to CCS is necessary – including a clear vision for 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.

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 representation of a possible geological CO₂ storage.

CCS-M C3S1: China Case Study - Seminar on CCS Policy Framework and Applied Technologies



Participants at the CCS-M C3S1: China Case Study - Seminar on CCS Policy Framework and Applied Technologies

The CCOPTS in cooperation with the Global CCS Institute, PETRAD, China's Ministry of Land and Resources, China Geological Survey (CGS) and SINOPEC conducted the CCS-M C3S1 on 6-8 November 2013 in Shanghai, China. The main objectives are to enhance the participants' knowledge on the elements for the development of a policy framework for CCS and the applied technologies in CO₂ capture, use and storage (CCUS).

The Seminar leveraged on the experiences of Norway, Australia and case studies from North America and Europe. The seminar was attended by 50 participants 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).

Norway's Commitment to Support the CCS-M Program

The Norwegian Government through the Royal Norwegian Embassy in Jakarta signed an Agreement last 28 November 2013 with the CCOP Technical Secretariat to support the CCS-M Program with a fund commitment of NOK5.0 Million. The new fund will be used cover the activities of CCS-M during the period 1 December 2013 – 31 December 2014. For details on the technical activities, please see the CCS-M Webpage, <http://www.ccop.or.th/ccsm>.

MLR-CCOP-CNECC SEMINAR ON CHINA-ASEAN INTERNATIONAL COOPERATION & EXCHANGES ON DEVELOPMENT OF UNCONVENTIONAL OIL & GAS RESOURCES

The Technology and International Cooperation Department and Strategic Research Center of Oil and Gas Resources (Ministry of Land and Natural Resources, China) in cooperation with CCOP and CNECC organized a seminar on "China-ASEAN International cooperation and exchanges on Development of Unconventional Oil & Gas Resources" on 12-14 November 2013 in Huajia Resort Hotel Hangzhou, China. The meeting was attended by 18 speakers from Cambodia, China, Korea, Malaysia, Thailand and Vietnam.

The purpose of this seminar was to provide a world-class meeting place for cooperation and information exchanges between China and ASEAN countries on the unconventional oil and gas resources. The seminar discussed on the present situation and latest progress on the development of the unconventional oil and gas resources, identifying ways to play an even more active role in control of development trends and cooperation exchange projects, and demonstrate the policies, regulations and management framework in this filed.

Regional Expert of CCOPTS, **Dr. Nguyen Thi Minh Ngoc**, presented an overview on Development of Unconventional Oil & Gas Resources in East & Southeast Asia – Role of CCOP and brought up the collaboration possibilities for capacity building on unconventional Oil/Gas resource survey and research for discussion. CCOPTS is in communication with the Strategic Research Center of Oil and Gas Resources for possibility to co-organize a workshop on shale gas in China in 2014.

GEOCHEMICAL BASELINE PROJECT

The 4-year CGS-CCOP-ASEAN Geochemical Mapping Project has been financially supported by China Geological Survey since 2012. The first stage (2012-2013) focused on Training and Manual Preparation with a CGS-CCOP-IUGS Geochemical Mapping Seminar held in March 2012 and a CGS-CCOP-ASEAN-IUGS Workshop on Geochemical Mapping held in September 2013 in Nanjing, China.

CGS-CCOP-ASEAN Workshop on Geochemical Mapping

Following the kick-off meeting in 2012 in Nanjing (China), the CGS-CCOP-ASEAN Workshop on Geochemical Mapping was held on 3-8 September 2013 in Nanning, China with attendance of 24 participants, including 12 from CCOP MCs (China, Cambodia, Lao PDR, Malaysia, Papua New Guinea, Philippines, Thailand, Vietnam), 2 from Mongolia, 1 from Greece, 8 from CGS (China) and 1 from CCOPTS. The workshop program included 2- day Indoor Lectures 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, 1-day Discussion Meeting on the CGS-CCOP-ASEAN Geochemical Mapping Manual and 2-day Field Sampling Training on global-scale floodplain/overbank sediment and soil sampling, national-scale stream sediment and soil sampling in tropical forest terrains. The discussion among the Project leader and

CCOP member countries was fruitful with plan for case studies for 2014 and 2015, starting in Lao PDR and PNG in the first quarter of 2014.

The next stage (2014-2015) of the project will focus on geochemical mapping with workshop on training and pilot study to test and refine the recommended manual drafted in 2013. In order to facilitate the implementation of this stage, CCOPTS in cooperation with the Project leader is forming a CCOP/ASEAN Working Group on Geochemical Mapping. The Working Group will include one Geochemist/Geologist and one management official from each country's geological authority, and will lead and coordinate their country's working group doing the geochemical mapping on global and regional/national scales. Member countries are called to nominate two (2) Geochemists/Geologists to be members of the subject Working Group.



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

DMR-CCOP GEOPARK SYMPOSIUM

The Royal Thai Department of Mineral Resources and CCOP Technical Secretariat, organized the East and Southeast Asia Geopark Symposium, which was held on 26-30 March 2013 at Sunee Grand Hotel, Ubon Ratchathani, Thailand with 40 participants from China, Finland, Indonesia, Japan, Laos, Malaysia, Vietnam and 160 other participants from Thailand. The symposium focused on issues related to geoheritage sites and proposed areas for geopark in South, Southeast and East Asia. Geoheritage sites can be used as geological evidences and correlation standards, and supporting materials for further geological researches, and in turn can help to enhance the community socio-economic benefits on the basis of integrated development and management.

The symposium was opened by **Dr. Phitya Pukaman**, Vice Minister of Ministry of Natural Resources and Environment of Thailand with 200 participants from CCOP Member Countries and local Thai participants. The symposium included one day technical presentations by Geopark Technical Experts from Finland, China, Japan, Vietnam, Thailand and Indonesia and exhibition displaying Geopark activities in Thailand. Moreover, the organizer also arranged a 3-day excursion to visit several geosites in Ubon Ratchathani and Kalasin provinces.

CCOP-GSJ/AIST PROJECT ON GROUNDWATER ASSESSMENT AND CONTROL IN THE CCOP REGION

GSJ/AIST generously continues its support for CCOP-GSJ/AIST Project on Groundwater, Phase II.

The CCOP-AIST Groundwater Project Phase II Meeting was held on 26-28 February in Hanoi, Vietnam with 18 participants from Cambodia, China, Indonesia, Japan, Korea, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand, Timor - Leste and Vietnam.



Dr Yohei Uchida, Project Leader, led the discussion at the meeting.

The workshop covered progress report of Groundwater Project Phase 2, Country Reports, Working Group Meeting on Progress report of hydrological mapping by Thailand and Vietnam, and Discussion for status and Working plan.

The follow-up activity: Mapping procedure - considering description of hydrological data will be carried out during the period of April 2013 to March 2014.

The CCOP-GSJ/AIST Groundwater Project Phase II will have its final meeting and workshop on 18-20 March 2014 in Bandung, Indonesia. In cooperation with the Geological Agency of Indonesia, this activity aims to share the current developments of groundwater activities in each country and future cooperation regarding groundwater.

GEO-ENVIRONMENT SECTOR

CCOP-GSJ/AIST PROJECT ON INTEGRATED GEOLOGICAL ASSESSMENT OF DELTAS IN SOUTHEAST ASIA PHASE 2 (DELSEA II PROJECT)

The DelSEA Project has been generously supported by GSJ/AIST, Japan since 2004. Phase II of the project (DelSEA II), has been conducted since 2008 jointly with IGCP-475 DeltaMAP project for annual meetings and seminars in order to foster exchange of modern knowledge on deltas, Quaternary geology, sequence stratigraphy, and geological coastal management and to enhance joint study for better understanding of deltaic coasts and geological assessment for coastal management.

CCOP-DelSEA Phase II Short course on Coastal Geology and Management

The short course was held on 16-23 March 2013 in Kuala Terengganu and Kota Bharu, Malaysia with 53 participants from Cambodia, China, Indonesia, Japan, Korea, Malaysia, Thailand, Timor-Leste and Vietnam. The training course included 3-day course lecture on Coastal Geology and Coastal Management, including core cutting, core description, and core interpretation, countries reports by CCOP member countries, and followed by 2-day Geological Excursion and field discussion along the coasts from Terengganu to Kota Bharu (Kelantan delta), Malaysia.



Training on core cutting, core description and core interpretation by Dr Saito Yoshiki, GSJ/AIST

ENVIRONMENTAL ANALYSIS SUPPORT PROGRAMME IN THE CCOP AND OTHER REGIONS

The 48th CCOP Steering Committees Meeting in Daejeon, Korea endorsed the Environmental Analysis Support Programme in the CCOP and Other Regions proposed by AIST/GSJ under the auspices of Japan Radioisotope Association and Iwate Medical University. This programme has continued supporting in-kind services on environmental specimens, which are analyzed by PIXE method. The service is still open up to the maximum number of 500 samples per year and it will be continued annually.

CCOP-UOT-DMR TECHNICAL SEMINAR AND WORKSHOP ON “MODERN REMOTE SENSING FOR INTEGRATED NATIONAL LAND SAFETY AND MANAGEMENT - INTERNATIONAL SATELLITE CONSTELLATION”

The Technical Seminar on “Modern Remote Sensing for Integrated National Land Safety and Management - International Satellite Constellation 2013” was jointly organized by University of Tokyo, VisionTech (Japan), Department of Minerals (DMR), Thailand and CCOP Technical Secretariat in Bangkok, Thailand on 20 March 2013 with participation of 54 participants, including 5 speakers, 45 participants from Thailand, Germany, Japan and 4 CCOPTS staff.

During the seminar, speakers presented natural hazard problems and mitigation plan in Thailand, and shared experiences on application of Remote Sensing tools for natural hazard monitoring and management. The last session of the seminar is the panel discussion focused on 3 main topics: 1) Future possibility of radar remote sensing for hazard monitoring; 2) Requirements for achievement of effective satellite monitoring system; 3) Possibility of future collaboration framework between Japan, Thailand and other CCOP countries.

CCOP-DMR-DPIM SEMINAR ON BEST PRACTICES ON MINING: SAFETY AND PUBLIC ENGAGEMENT

The seminar was held on 28-30 May 2013 in Thailand, with participation of 7 participants from CCOP member countries, 26 participants from Thailand and all of CCOP staff. During the 1-day seminar, participants discussed on the UNITED NATIONS Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC) 2009, listened to presentation of countries’ reports and shared experiences on mineral resources, mining safety and public engagement in mineral development, environmental impact issues and its mitigation measures and mine rehabilitation.



CCOP participants visited the Cement Factory and Limestone Open Pit under operation by Siam City Cement Group (SCG CEMENT Co. Ltd.) in Kaeng Khoi district, Saraburi province

The one-day seminar was followed by a short visit to Geological Museum of Thailand under guidance by DMR and 2 days of excursion to Cement Factory and Limestone Open Pit under operation by Siam City Cement Group (SCG CEMENT Co. Ltd.) in Kaeng Khoi district, Saraburi province, Perlite mine at Pnomchat hill, Lopburi province, Chatree Gold Mine under operation by Akara Gold Mining Co. Ltd. and ore sample storage in Phichit province and Construction Sand Quarry operated by the Concrete Product and Aggregate Co. Ltd. at Phak Hai district in Ayutthaya province.

CCOP/KIGAM PROJECT: “SOLUTION FOR GROUNDWATER PROBLEMS IN CCOP REGION”

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

CCOP Technical Secretariat organized the subject training course in cooperation with International School for Geoscience Resources (IS-Geo) of Korea Institute of Geoscience and Mineral Resources (KIGAM) on 24 June to 9 July 2013 in Daejeon, Korea. This training course is within the framework of the 4-year (2013-2017) CCOP-KIGAM Project “Solution for groundwater problems in CCOP region”, kindly supported by KIGAM, Korea with attendance of 17 participants from CCOP member countries and 1 participant from CCOPTS.

The aim of the training course is to provide participants from CCOP member countries with a clear understanding of fundamental concepts, theory and application of groundwater and to share information, best practices on groundwater in member countries.



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

CCOP-KIGAM-DGR-DMR-AIT Technical Workshop on Solution for Groundwater Problems in CCOP Region

On 7–10 October 2013, the CCOP Technical Secretariat, together with Korea Institute of Geoscience and Mineral Resources (KIGAM, Korea), Department of Groundwater Resources (DGR, Thailand), Department of Mineral Resources (DMR, Thailand) and Asian Institute of Technology (AIT, Thailand) has successfully co-organized the CCOP-KIGAM-DGR-DMR-AIT Technical Workshop on “Solution for groundwater problems in CCOP region” in Pathumthani, Thailand, with 25 participants from CCOP Member Countries, project leader from KIGAM, 1 invited guest, 3 resource persons and 4 CCOP staff. This is one of collaboration activities between CCOP, KIGAM, DGR, DMR and AIT, within the framework of the CCOP-KIGAM Project on “Solution for groundwater problems in CCOP region”, kindly supported by KIGAM, Korea.

The workshop included a two-day seminar with keynote presentations by KIGAM, AIT, countries’ report presentation and plenary discussion, followed by a visit to Geological Museum of DMR (Thailand) and the Groundwater Regional Center 2 in Suphan Buri Province. Presentation of countries’ reports focused on hot issues of groundwater utilization and management. The obtained information is a useful output for planning of case study areas and program of the following project activities. Participants later visited the project areas for “Groundwater purification for drinking water for elementary school” and “Groundwater for agricultural irrigation system”.

CCOPTS is in communication with KIGAM (Korea) on planning for the project activities of the Step 2 – “Finding cooperative measures to solve the groundwater problems” in 2014.

THE 2nd G-EVER INTERNATIONAL SYMPOSIUM AND THE 1st IUGS & SCJ INTERNATIONAL WORKSHOP

The CCOP Technical Secretariat, together with G-EVER Consortium, Geological Survey of Japan (GSJ), National Institute of Advanced Industrial Science and Technology (AIST) the International Union of Geological Sciences (IUGS), Science Council of Japan (SCJ) co-organized the 2nd G-EVER International Symposium and the 1st IUGS & SCJ International Workshop on 19-20 October 2013 in Sendai City Information & Industrial Plaza, Japan. The symposium and workshop aimed to encourage extensive discussions on the present situation of natural disaster mitigation from earthquake, tsunami, volcanic eruption and landslide in the Asia and Pacific regions.

The topics are (1) important research works and priorities to make strong resilience to our society, (2) ideal hazard maps which are essential to the society and Asia-Pacific scale hazard assessment activities, and (3) importance of contributions to solid earth science. The symposium and workshop were attended by 40 participants with 30 talks, 26 posters and intensive discussions on next-decade mitigation processes to reduce the risks of natural hazards.

CCOP- VIGMR - DMR PROJECT ON COMMUNITY-BASED LANDSLIDE MITIGATION

During the 60th CCOP Steering Committee in March 2013 in Ubon Ratchathani - Thailand, landslide geologists of Thai team and Vietnam team visited the Land Watch Network in Ubon Ratchathani and initiated the cooperation project proposal on landslide mitigation.

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 held on 17 July 2013 in Bangkok, Thailand includes a seminar followed by a 3-day excursion to visit models of Community Based Landslide Mitigation in Phetchabun, Uttaradit and Chiang Mai provinces. The seminar and fieldtrip were 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 the country reports. On 18 July, participants visited the first group of Community Based Landslide Mitigation in Thailand and joined the simulation exercise of local network in response to landslide in Lom Sak district, Phetchabun Province. A short stop at Phitsanulok province introduced the participants on position of the subducting plate boundary, where Thai geologists are conducting seismic survey for the Sirikit oil field lying in the Phitsanulok Basin. On 19 July, participants discussed with local coordinators of the community network for Landslide Mitigation in Lablao District, Uttaradit Province and visited some rehabilitation locations along the way to Chiang Mai. On 20 July, participants joined the Training course for locals on Community Based Landslide Mitigation in Doi Saket District, Chiang Mai. Community of Pa Miang local residents and Pa Miang Municipal rescue officers took part in the training course.



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

CCOP- VIGMR - DMR Seminar on Community Based Landslide Mitigation

Within the framework of the CCOP-DMR-VIGMR Project on Landslide Mitigation, the CCOP-VIGMR-DMR seminar on Community Based Landslide Mitigation was held on 19 – 20 November 2013 in Hanoi city and Bac Kan province, Vietnam. The seminar aimed to contribute to exchange knowledge of community based network for landslide and geohazard mitigation. The current status of landslide investigation in Vietnam, Thailand and other CCOP member countries were presented in this seminar. The venue on 19 November 2013 in Hanoi was held in the meeting room of Vietnam Petroleum Institute (VPI). The seminar included a half-day presentation followed by a one-and-a-half day excursion to visit models of Community Based Landslide Mitigation in Bac Kan province. The seminar and fieldtrip were attended by 30 participants, including 4 nominated scientists from CCOP member countries (Indonesia, Malaysia, Thailand and Vietnam), 24 scientists from the Vietnam Institute of Geosciences and Mineral Resources and 2 CCOPTS staff. During 19-20 November 2013, participants traveled to Bac Kan province to visit the case study area of Community Based Landslide Mitigation in Vietnam. In the morning of 20 November, participants had a meeting with the local authorities.

Landslide Watch Network establishing, and capacity building activities for knowledge exchange among resource persons from Thailand, Vietnam and other interested CCOP member countries are planned for 2014.

KIGAM/IS-GEO-CCOP REGULAR TRAINING COURSES

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

The International School for Geoscience Resources of KIGAM coordinated with CCOP to present 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 the capabilities of the cooperating 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, Vietnam). During the two weeks, the participants received lectures on 2 modules: 1) Tide-dominated Coasts and Human Impacts and 2) Wave-dominated Coasts and Coastal Geohazards, taken part to the Western Korean Coast (Tide-dominated) and Eastern Korean Coast (Wave-dominated) and also entailed a briefing with country report at the end of the course.

GEO-INFORMATION SECTOR

CCOP BOOK PROJECT: “STONE HERITAGE IN EAST AND SOUTHEAST ASIA”

CCOP-GSJ/AIST Meeting of Project “Stone Heritage in East and Southeast Asia”

The Stone Geoheritage Meeting was held in Sendai, 22 October 2013 at Sendai International Center, in conjunction with the 49th Annual Session in Sendai. The meeting was attended by 17 participants from Japan, Cambodia, Indonesia, Malaysia, Lao PDR, Papua New Guinea, Vietnam, United Kingdom and CCOPTS. During the meeting, participants listened to the project introduction by Dr. Hirokazu Kato – the project leader, presentations on stone geoheritages in CCOP countries and discussed on the book content and working schedule. Questions were raised on the project title, stone geoheritage definition and temporal/spatial classification to be used, working scope and plan. The project leader and CCOPTS will communicate with the national coordinators for further discussion and detail guidance.

ASEAN HARMONIZED GEOLOGY PROJECT (Asean Seamless Geology Project)

The ASEAN Harmonized Geology Project was endorsed by the ASOMM Database Committee on 28 August, 2013. As a kick-off activity, an open discussion on ASEAN Harmonized Geology was held on 21 October 2013, in adjacent to the 49th CCOP Annual Session. The meeting started with an introduction of ASEAN Seamless Geology and followed by discussion on cooperation activities of seamless geology in CCOP/Indochina region and National Geological Maps of ASEAN. A total of 10 representatives of ASEAN countries and the organizations concerned to the ASEAN Harmonized Geology were in attendance, including participants from Thailand, Malaysia, Myanmar, Indonesia, Philippines, Lao PDR, Japan and Vietnam.

EXPERT MEETING ON WEB-BASED GIS AND RECENT GEOSCIENCE DATABASE

Geological Survey of Japan in collaboration with CCOPTS organized the Expert Meeting on Web-based GIS and Recent Geoscience Database on 25 October 2013 in Sendai International Center, Sendai, Japan, in adjacent to the 49th CCOP Annual Session. The meeting was attended by 20 participants from China, Indonesia, Japan, Malaysia, Myanmar, Thailand and Vietnam. Presentations and discussion focused on the web-based GIS developed for geoscience data management. The recent technology of web-based GIS and examples of its application in database management programs in the CCOP region were also presented. The applications are 1) mineral resources database, 2) compilation of seamless geology, 3) groundwater monitoring system, and 4) geo-hazard monitoring system.

CCOP HIGH EDUCATION SUPPORT NETWORK PROGRAM

The CCOP High Education Support Network Program was proposed by a group of professors from Yamaguchi University (Japan), Asian Institute of Technology (AIT, Thailand) and CCOPTS. On 22 October 2013 in Sendai, Japan, the first meeting was held in conjunction with the 49th CCOP Annual Session with 16 participants from Japan, Korea, Malaysia, Indonesia, Thailand, Papua New Guinea, Vietnam and CCOPTS. The objective of this CCOP High Education Support Network Program was determined as to support young staff in CCOP member countries related institutes and surveys who want to study master or doctor course in the university and to make efforts to give opportunity to study higher education for such young staffs.

Initially, the Network Supporting Countries include Japan (Yamaguchi University, Akita University, Kanazawa University, Nagoya University and Tohoku University), Korea, China, Europe, America, and Oceania. The next meeting of the CCOP High Education Support Network Program is scheduled on 4 March 2014 in Chiang Mai, Thailand, in conjunction with the 62nd CCOP Steering Committee. Other member countries in CCOP Network are welcomed to participate and facilitate further connection for the network.

INTEGRATED GEOPHYSICAL DATA PROCESSING (IGDP) FOR CCOP

The 57th CCOP SC Meeting held on March 2011 in Chiangmai, Thailand endorsed the IGDP Project, which was proposed and funded by the China Geological Survey with the aim of enabling CCOP and ASEAN member countries to continuously benefit from modern information technology around the world, by enhancing the ability and capacity in the field of geo-data management and processing. Software modification and translation into English has been done and a user manual is also ready.



Dr Zang Minghua and resource persons from China are training the CCOP participants on using the IGDP software for Integrated Processing of Geophysical and Geochemical Data

CCOP-CGS Capability Enhancing on Integrated Geophysical and Geochemical Data Processing Project (IGDP) Training/Workshop

The training course was held in 18-20 June, 2013 in Kunming, China. Twelve geophysicists and Geochemists representing eleven CCOP Member Countries, one from Myanmar, and fifteen Chinese participants attended the event hosted by the IGDP Project Leader, **Prof. Dr. Zhang Minghua**.

There were 21 participants from MCs, 3 distinguished guests, 3 resources persons and 2 CCOPTS. During the first day, participants from 12 countries (Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Malaysia, Papua New Guinea, Thailand, Timor-Leste, Vietnam and Myanmar) delivered country reports summarizing their national geophysical and geochemical data processing activities and shared information on the status of their survey programs. All participants were guided by CGS colleagues in installation of IGDP software in compatibility with MapInfo. An introduction to ICIS-IGDP software and usage training session was conducted including 3D modeling and inversion and GM data preprocessing. Future plans for the project were discussed.

AUTOMATED MANAGEMENT AND OPERATION SYSTEM (AMOS)

China Geological Survey (CGS) has finished the design of an office automation system for CCOP Technical Secretariat, and the system development is ongoing.

FELLOWSHIPS AND GRANTS

East Asia Geoscience and Environmental Research (EAGER) Project

The EAGER Project is a trust fund set up in the Geological Society of America with personal contribution of Dr. Maurice "Ric" Terman, CCOP Honorary Advisor, to be used for funding research in geoscience in the region. Under the programme, a grant will be made available for research on Geoscience and Environment in East and Southeast Asia to candidates from the Member Country hosting the CCOP Annual Session since 2003.

The EAGER Grant for 2013 was awarded to **Mr. Kazuya Ishitsuka**, a PhD student in Kyoto University at the 49th CCOP Annual Session held in Sendai, Japan. The title of his research proposal is "**Mapping and understanding of the evolution of displacement in aquifer system after the reduction of groundwater usage by using satellite imagery**".



Ms Franca Schwarz, Chairman of the CCOP Advisory Group presenting the award to Mr Kazuya Ishitsuka, the successful EAGER grantee for 2013.

MEETINGS AND MISSIONS

Mission to Member Countries:

- Courtesy visit to Myanmar: On 10-11 June 2013, CCOPTS Director Dr. Adichat Surinkum together with GSJ Director General Dr. Eikichi Tsukuda and GSJ Senior specialist Dr. Yasukuni Okubo, made a courtesy visit to Dr. Ye Myint Swe, Director General and U (Mr.) Toe Aung Kyaw, Director at the Department of Geological Survey and Mineral Exploration, Ministry of Mines, Naypyitaw, Myanmar with discussion about the invitation to the CCOP Annual Session in Japan, to be members of CCOP and on the topic of ASEAN Mineral Resources DB Training conducted by Japan and ASEAN Seamless Geology Project.

Mission trip for participation in Conferences / Organizations / Meetings:

- 3-6 February 2013: CCS-M Coordinator Mr Simplicio Caluyong participated in the SPE Applied Technology Workshop (ATW) entitled, "Carbon Capture and Storage - Emphasis on Offshore Carbonate Reservoirs" in Penang, Malaysia. He presented the CCS-M Program in the Workshop and also met with Dr. Steve Whittaker, a senior reservoir engineer of Global CCS Institute and representatives of CO2 CRC of Australia, to explore areas of cooperation within the context of the CCS-M Program.
- 11-19 February 2013: The CCOPTS Regional Expert Dr. Nguyen Thi Minh Ngoc attended the 4th PAGES Open Science Meeting (OSM) 2013: The past – a compass for future earth in Goa, India.
- 25 March - 4 April 2013: CCOPTS Director Prof. Dr. He Qingcheng attended the second meeting of the Project on Comparative research of groundwater management in the coastal areas in Southeast Asia at the Division for water resources planning and investigation for the south of Vietnam in Ho Chi Minh city, Vietnam.
- 23-25 April 2013 CCS-M Coordinator Mr. Simplicio Caluyong attended "UNECE Expert Group on Resource Classification Fourth Session", Geneva, Switzerland.
- 25 April-1 May 2013: CCOPTS Director Dr. Adichat Surinkum and Regional Expert Dr. Nguyen Thi Minh Ngoc attended the 69th session of the Economic and Social Commission for Asia and the Pacific (ESCAP) in Bangkok, Thailand, and the side event on "Towards resilient coastal communities: Results and opportunities for regional cooperation (ESCAP Trust Fund for Tsunami, Disasters and Climate Preparedness)".
- 8 May 2013, CCOPTS Director Dr. Adichat Surinkum had a meeting with Dr. Yasukuni Okubo of the Geological Survey of Japan (GSJ), AIST at CCOP office with discussions on future cooperation between CCOP and GSJ/AIST, including the ASEAN seamless geology project, Bangkok, Thailand.
- 8-10 May 2013, CCOPTS Director Dr. Adichat Surinkum attended the "Seminar on Marine Coastal Area Management Approach for the Department of Mineral Resources (DMR), Thailand" in Rayong, Thailand.
- 14-16 May 2013, Regional Expert Dr. Nguyen Thi Minh Ngoc took part in the field trip to Fang Geothermal Field in Chiang Mai and Mae Chan Hotsprings in Chiang Rai, Thailand with geothermal experts from JMG – Malaysia and DMR - Thailand.
- 15-21 May 2013, CCOPTS Director Dr. Adichat Surinkum and CCS-M Coordinator Mr. Simplicio Caluyong attended the "75th ASCOPE National Committee and Associate meetings", Kuala Lumpur, Malaysia.
- 20 May 2013, CCOPTS Director Dr. Adichat Surinkum and Regional Expert Dr. Nguyen Thi Minh Ngoc had a meeting with Dr. Pham Huy Giao, AIT with discussion on possibilities for AIT-CCOP cooperation. An MOA has been drafted and will be submitted to both sides for consideration and approval.
- 21 May 2013, CCS-M Coordinator Mr. Simplicio Caluyong attended "ASEAN CCS Workshop", Bandung, Indonesia. Mr. Caluyong participated in the Workshop as one of the speakers in the session on CCS Policy and Planning.
- 22 May 2013, CCOPTS Director Dr. Adichat Surinkum and staff of CCOP Technical Secretariat had a meeting with the Project Leader from the Geological Survey of Japan (GSJ), AIST, Dr. Yohei Uchida, Prof. Isao Takashima of Akita University, Dr. Punya Charusiri of the Department of Geology in the Chulalongkorn University at the Chulalongkorn University, Bangkok. Under the CCOP-GSJ/AIST Groundwater Project, the 'Development of Renewable Energy from Ground-Coupled Heat Pump System in the CCOP Region' will be undertaken, as a sub-project. The meeting was held to discuss this sub-project, and the pilot study which is planned to be in the city of Bangkok or nearby.

- 28 May 2013, CCS-M Coordinator Mr. Simplicio Caluyong participated in the Conference Calls with the Bureau of the Expert Group on Resource Classification on 28 May 2013. CCOPTS is a member of the Bureau and regular conference calls are organized by the Secretariat at UNECE' Committee on Sustainable Energy (Geneva) to discuss items related to UNFC-2009.
- 4 June 2013, CCOPTS Director Dr. Adichat Surinkum attended the meeting on "Preliminary geothermal field survey" with the Geothermal Working Team, consisting of PTT Public Company Limited, Department of Groundwater Resources, Department of Alternative Energy and Energy Efficiency, and DMR, Chiang Rai, Thailand.
- 5-7 June 2013, CCOPTS Director Dr. Adichat Surinkum attended a "Seminar on Mineral Resources Classification Approach for DMR", in Nakhon Nayok, Thailand. Dr Adichat was the honored speaker in the Conceptual Frame work on Mineral Resources Classification Approach for DMR.
- 12-13 June 2013, CCOPTS Director Dr. Adichat Surinkum attended the "3rd South East Asian Industrial Minerals Conference", Jakarta, Indonesia. Dr. Adichat was guest speaker on the topic of "Government plans for the Industrial Minerals of Thailand and development in the domestic industrial minerals sector."
- 14 June 2013, CCOPTS Director Dr. Adichat Surinkum and Regional Expert Dr. Nguyen Thi Minh Ngoc had a meeting with Dr. Terzan Atmaca, German Team Leader of the Lao-German TC Project "Support for the Mining Sector" and Dr Arne Hoffmann-Rothe, Head of the International Cooperation Unit Asia of BGR, at the CCOPTS office in Bangkok with discussions on cooperation in organizing workshops in 2014 on ground water protection or/and state management of the mineral sector.
- 25-27 June 2013, CCOPTS Director Dr. Adichat Surinkum and TS Assistant for Project Operation and Information, Ms. Piriya Boonsit, attended a "Workshop on ASEAN Mineral Database and Information System", Bali, Indonesia.
- 28 July 2013, CCOPTS Director Dr. Adichat Surinkum attended as an invited speaker on the topic of "The natural resources in Southeast Asia and Thailand's capabilities to develop infrastructure projects" in the DMR's seminar on "Subsurface Geophysical Investigation" held in Nakhon Sawan, Thailand.
- 31 July 2013, CCOPTS Director Dr. Adichat Surinkum attended as an invited speaker at the DMR's seminar on "Detailed Investigation in Heavy Minerals - Rare Earth Elements Potential in Ranong province" held in Bangkok, Thailand.
- 5 August 2013, CCOPTS Director Dr. Adichat Surinkum attended as an invited speaker at the brainstorming session of the DMR's seminar on "Detailed Investigation in Tin Minerals potential areas in Phangnga Province" at Bang-zai subdistrict Administrative Organization (SAO), Takuapah district, Phangnga province, southern of Thailand.
- 6 August 2013, CCOPTS Director Dr. Adichat Surinkum attended as an invited speaker on the topic of "The natural resources in Southeast Asia and Thailand's capabilities to develop infrastructure projects" held at Phichit Plaza Hotel in Phichit province, Thailand.
- 9 August 2013, CCOPTS Director Dr. Adichat Surinkum, attended as an invited speaker at the seminar "Cause Cracks in the 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, CCOPTS Director Dr. Adichat Surinkum attended at the DMR's seminar "Landslide Prevention and Alleviation", organized at Paklong School, Krungching, Noopitam, Nakhon Si Thammarat, Thailand.
- 24 August 2013, CCOPTS Director Dr. Adichat Surinkum, attended as an invited speaker at the Honorary Advisor Mobile Activity: "Tracking in Paleo Tethys Sea and Fossil Evolution" held along the route of Trung-Thung Wa-La Ngu, Satun province, South Thailand.
- 27 August 2013, CCOPTS Director Dr. Adichat Surinkum, Regional Expert Dr. Nguyen Thi Minh Ngoc and CCOPTS 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.
- 28 August 2013, on behalf of CCOP, CCOPTS Director Dr. Adichat Surinkum signed a renewed Memorandum of Understanding with Asian Institute of Technology (AIT) for Strengthening Cooperation in Geosciences at AIT meeting room, Pathumthani province.

- 28 August 2013 (evening), CCOPTS Director Dr. Adichat Surinkum attended as an invited speaker at the brainstorming discussion session at the DMR's seminar on "Excursion for mineral potential areas in Rayong Province, East of Thailand, and reporting mineral exploration projects in 2013".
- 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, Bangkok, Thailand.
- 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.
- 26 September 2013, CCOPTS Director Dr. Adichat Surinkum an invited honoured speaker on the possible approach for development and management on fossil sites and geological museums at the DMR's seminar on Fossil Protection at Kanchanaburi Province, Thailand. The aim of this seminar is to exchange experiences among DMR official on the implementation of the Fossil Protection Act.
- 4-8 November 2013, CCOPTS Regional Expert Dr. Nguyen Thi Minh Ngoc attended as an invited speaker at the International Ramsar Wetland Workshop in Queenscliff, Australia.
- 6-8 November 2013, CCOPTS Director Dr. Adichat Surinkum attended CCOP CO2 Storage Mapping Program (CCS-M), China Case Study Seminar 1 (C3S1): CCS Policy Framework and Applied Technologies.
- 11-13 November 2013, CCOPTS Director Dr. Adichat Surinkum attended ASEAN++2013: Moving Forward, the 11th International Conference on Mining, Materials and Petroleum Engineering and the 7th International Conference on Earth Resources Technology ASEAN Forum on Clean Coal Technology at Centara Duangtawan Hotel, Chiang Mai, Thailand.
- 18 November 2013, CCOPTS welcomed PETRAD Project Director Dr. Claes B. Reksten and Norwegian Petroleum Directorate Senior Geologist Resource Assessments Mr. Per Blystad visit at CCOPTS office, Bangkok.
- 28–30 November 2013, CCS-M Coordinator Mr. Simplicio Caluyong attended the 10th ASCOPE Conference & Exhibition 2013 and deliver a presentation on "The CCOP CO2 Storage Mapping Program (CCS-M) – a CCS regional capacity building program" at the ASCOPE C&E in Ho Chi Minh, Vietnam.
- 26-29 November 2013, CCOPTS Director Dr. Adichat Surinkum attended the 13th ASEAN Senior Officials Meeting on Minerals (13th ASOMM), the 4th ASEAN Ministerial Meeting on Minerals (AMMIN) and Association Meetings in Bali, Indonesia.
- 27-28 November 2013, CCOPTS Regional Expert Dr. Nguyen Thi Minh Ngoc attended as an invited speaker on: "CCOP and Its role in regional capacity building for geohazards mitigation" at the ADPC-NGI Regional Meeting under Asian Program for Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM) held in Bangkok, Thailand.
- 4 December 2013, CCOPTS Director Dr. Adichat Surinkum, CCS-M Coordinator Mr. Simplicio Caluyong and GEUS Senior Geophysical Adviser Mr. Ioannis Abatzis visited the Embassy of Denmark in Thailand for continuing collaboration with Denmark, particularly as CCOP continues its journey towards sustainable development of the regions natural resources guided by our strategic focus of "Geoscience for a Changing Earth".
- 11 December 2013, CCOPTS welcomed Mr Wolff Andrew, Conference Manager of Metal Bulletin Events in Asia and Mr Jason Coles, the Head of Asian events (Euromoney Institutional Investor (Jersey) Ltd.) visit at the CCOP office in Bangkok, Thailand and discussed further about cooperation in holding the upcoming South East Asian Industrial Minerals conference in Bangkok 2014.
- 16 December 2013, CCOPTS Regional Expert Dr. Nguyen Thi Minh Ngoc attended the 4th Evening Cafés - an informal knowledge exchange and networking session held regularly in Bangkok, Thailand by the Asia Europe Foundation (ASEF) and the Institute for Global Environmental Strategies (IGES).
- 18 December 2013, CCOPTS welcomed Ass. Prof. Dr Pham Huy Giao, Asian Institute of Technology visit at the CCOP office in Bangkok, Thailand with discussion on CCOP High Education Support Network Program and other cooperation activities between AIT and CCOP.
- 21-23 December 2013, CCOPTS Director Dr. Adichat Surinkum, visited the investigation site of Geochemical Mapping Project of Thai Department of Mineral Resources (DMR).

PUBLICATIONS

The following publications were produced during the year. The workshop and seminar reports and proceedings of the CCOP-Norway Cooperation Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM Program) and the CCOP CO₂ Storage Mapping Program (CCS-M) were published on the CCOP website.

GENERAL PUBLICATIONS

CCOP E-News Vol. 4 No. 1, April 2013

The CCOP E-News is meant to give the latest news and information on CCOP activities around the region and worldwide. This replaces the former printed CCOP Newsletter and will be issued several times a year. The Vol.4 No.1 can be downloaded at CCOP website in PDF format from this link: http://www.ccop.or.th/download/e-news/CCOP_e-news2013-04v4n1.pdf

CCOP E-News Vol. 4 No. 2, July 2013

This volume can be downloaded at CCOP website in PDF format from this link: http://www.ccop.or.th/download/e-news/CCOP_e-news2013-07v4n2.pdf

CCOP E-News Vol. 4 No. 3, October 2013

This volume can be downloaded at CCOP website in PDF format from this link: http://www.ccop.or.th/download/e-news/CCOP_e-news2013-10v4n3.pdf

CCOP Annual Session Proceedings

Proceedings of the 48th CCOP Annual Session Part I

The Proceedings of the 48th CCOP Annual Session held in Langkawi, Malaysia on 5-8 November 2012 is 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 filesize.

Publication of the 48th CCOP Annual Session Part II

This publication in the volume 59, Bulletin of the Geological Society of Malaysia of the Thematic Session on "Geoscience Innovations for Sustainable Development: The Future We Want" at the 48th CCOP Annual Session held in Langkawi, Malaysia on 22-23 November 2012 has been completed in late 2013. Volume 59 is a collection of 15 papers based on basic, applied and policy research on geoscience. The first five articles are thematic papers presented at the 48th CCOP Annual Session held from 5-8 November 2012 in Langkawi, Malaysia and the other papers were papers presented at the National Geoscience Conference and the Petroleum Geology Conference and Exhibition.

The printed copies of this volume will be distributed at the coming 62nd CCOP Steering Committee Meeting in Chiangmai, Thailand. Printing was sponsored by the Geological Agency of Malaysia (JMG) and UKM. Its PDF file of 114 pages in color, is around 4MB filesize and can be downloaded from this link, http://www.ccop.or.th/download/as/48as2_GSM_Bull59S.pdf.

CCOP Steering Committee Meeting Reports

Report of the 59th CCOP Steering Committee Meeting

Report including the minutes of the Steering Committee Meeting held in 9-10 November 2012, Langkawi, Malaysia, has been published electronically in PDF format.

Report of the 60th CCOP Steering Committee Meeting

Report including the minutes of the Steering Committee Meeting held in Ubon Ratchathani, Thailand in March 2013 has been published electronically in PDF format.

Technical Activities Reports/Proceedings

Project Report on CCOP-GSJ/AIST-MONRE Groundwater Project Phase II Meeting, 26-28 February 2013, Hanoi, Vietnam

This report includes country reports from Cambodia, China, Indonesia, Japan, Korea, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand, Timor-Leste and Vietnam, in various topics relevant to the project. It is of 146 pages in color.

EPPM Program: The workshop and seminar reports and proceedings of these activities were published on the CCOP website, <http://www.ccop.or.th/eppm/>.

CCS-M Program: The workshop and seminar reports and proceedings of these activities were published on the CCOP website, <http://www.ccop.or.th/ccsm/>.

FINANCIAL HIGHLIGHTS

From January 1 to December 31, 2013, Member Countries' total cash contributions amounted to **USD 419,111.92**, that consists of Cambodia (USD 5,000), China (USD 50,000), Indonesia (USD 40,000), Japan (USD 40,000), Korea (USD 60,000), Lao PDR (USD 10,000), Malaysia (USD 50,000), Papua New Guinea (USD 10,000), Philippines (USD 40,000), Thailand (USD 40,000), Timor-Leste (USD 10,000), Vietnam (USD 25,000). Thailand cash contribution for 2014 was received in advance since 2013 amounting to ****USD 39,111.92**. (Table 1).

Member Countries	2012 Contribution Received in 2011	2012 Contribution Received in 2012	2013 Contribution Received in 2013	2014 Contribution Received in 2013	2014 Contribution Expected to Receive
Cambodia	-	5,000.00	5,000.00	-	5,000.00
China	-	50,000.00	50,000.00	-	50,000.00
Indonesia	-	40,000.00	40,000.00	-	40,000.00
Japan	-	40,000.00	40,000.00	-	50,000.00
Korea	-	60,000.00	60,000.00	-	60,000.00
Lao PDR	-	10,000.00	10,000.00	-	10,000.00
Malaysia	-	50,000.00	50,000.00	-	50,000.00
Papua New Guinea	10,000.00	*	10,000.00	-	10,000.00
Philippines	-	40,000.00	40,000.00	-	40,000.00
Singapore	-	-	-	-	-
Thailand	-	40,000.00	40,000.00	39,111.92	**
Timor-Leste	-	10,000.00	10,000.00	-	10,000.00
Vietnam	-	15,000.00	25,000.00	-	25,000.00
TOTAL	10,000.00	360,000.00	380,000.00	39,111.92	350,000.00

Table 1. Cash Contributions of Member Countries for 2012-2013 (Ending 31 December 2013)

*Papua New Guinea cash contribution for 2012 was received in advance since 2011

**Thailand cash contribution for 2014 was received in advance since 2013 .

It is different from expected amount because of the loss of exchange rate from Thai Bahts to US Dollars.

In addition to Member Countries' contributions, the amount of **USD 79,541.01** earned from the management of projects during January-December 2013 period which from "CCOP-GSJ/AIST-MONRE/CWRPI Groundwater Project Phase II Meeting" (USD 4,050.00), "CCOP-GSJ/AIST-JMG-UMT Short Course on Coastal/ Quaternary Geology and Remote Sensing" (USD 4,000.00), "CCOP-UOT-DMR Technical Seminar and Workshop on Modern Remote Sensing for Integrated National Land Safety and Management-International Satellite Constellation" (USD 853.24), "Global Carbon Capture and Storage Institute" (GCCSI), Australia for "CCOP-CO2 Storage Mapping Program" (CCS-M) (USD 13,001.04), the contribution from Royal Norwegian Embassy-Jakarta for "CCS-M Launching Seminar" (S1) (USD 4,147.30), "CCOP-CGS Capability Enhancing on Integrated Geophysical & Geochemical Data Processing Project (IGDP) Training/Workshop" (USD 2,992.74), GETECH Royalties of Licensing Magnetic Data for Southeast Asia (USD 26,000.00), "CCOP-KIGAM Technical Workshop on Solution for Groundwater Problems in CCOP Region" (USD 4,387.00), "Global Carbon Capture and Storage Institute" (GCCSI), Australia for "CCOP-CO2 Storage Mapping Program" (CCS-M) (USD 10,000.80), Non refund for "CCOP-UOT-DMR Technical Seminar and Workshop on Modern Remote Sensing for Integrated National Land Safety and Management-International Satellite Constellation" (USD 1,838.85), Non refund for "CCOP-KIGAM Technical Workshop on Solution for Groundwater Problems in CCOP Region" (USD 8,270.04) (Table 2).

Organized With	Activities	Country	Period	Amount (USD)
GSJ/AIST-MONRE/CWRPI	Groundwater Project Phase II Meeting	Hanoi, Vietnam	February 26-28, 2013	4,050.00
GSJ/AIST-JMG-UMT	Short Course on Coastal/ Quaternary Geology and Remote Sensing	Terengganu and Kota Bharu, Malaysia	March 10-16, 2013	4,000.00
University of Tokyo-DMR	Technical Seminar and Workshop on Modern Remote Sensing for Integrated National Land Safety and Management- International Satellite Constellation	Bangkok Thailand	March 20, 2013	853.24
GCCSI	CCOP-CO2 Storage Mapping Program (CCS-M)	Bangkok Thailand	Year 1 (1 of 2)	13,001.04
RNE-Jakarta	CCS-M Launching Seminar (S1)	Bali, Indonesia	April 29, 2013	4,147.30
CGS	Capability Enhancing on Integrated Geophysical & Geochemical Data Processing Project (IGDP) Training/ Workshop	Kunming, China	June 18-20, 2013	2,992.74 (Received on November 2013)
GETECH	Royalties of Licensing Magnetic Data for Southeast Asia	United Kingdom	September 25, 2013	26,000.00
KIGAM	Technical Workshop on Solution for Groundwater Problems in CCOP Region	Bangkok, Thailand	October 7-9, 2013	4,387.00
GCCSI	CCOP-CO2 Storage Mapping Program (CCS-M)	Bangkok, Thailand	Year 2 (2 of 2)	10,000.80
	Non refund for Technical Seminar and Workshop on Modern Remote Sensing for Integrated National Land Safety and Management- International Satellite Constellation			1,838.85
	Non refund for Technical Workshop on Solution for Groundwater Problems in CCOP Region			8,270.04
Total Project Management Income				79,541.01
Net Total Project Management Income for Budget Year 2013				79,541.01

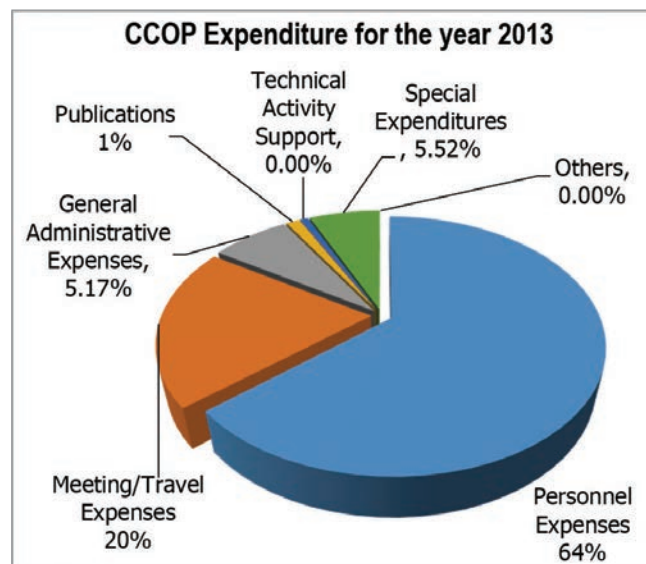
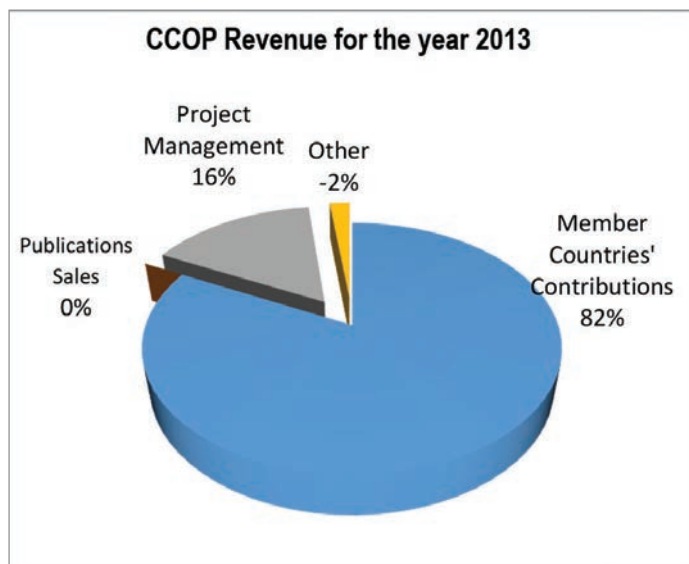
Table 2. Management Income from Execution of Project and Activity (January 1 - December 31, 2013)
Target revenue of Project Management Income FY 2013, USD 53,050.00

Other incomes during the period amounted to **USD (-9,720.19)** from interest earned (USD 1,652.05), Processed from Sale of Publications (USD-), Loss on Conversion Currencies (USD -11,413.43), and miscellaneous incomes (USD 41.19). The total income during the period was **USD 488,932.74**. The expenditure of **USD 441,289.65** was incurred from operation and administrative support. The cash balance as of ending December 2013 amounted to **USD 762,119.83**.

The Technical Secretariat office premise is continuously provided by the Royal Thai Government, through the kind arrangements of the Department of Mineral Resources (DMR), Ministry of Environment and Natural Resources, at the CCOPTS Building, DMR Complex, Rama VI Road, Bangkok, Thailand.

DESCRIPTION	2012		2013	
	USD	%	USD	%
Fund Balance	780,827.95		781,055.00	
Income:				
Member Countries' Contributions	360,000.00	88.17	419,111.92	85.72
Publications sales	-	-	-	-
Project management	38,140.69	9.34	79,541.01	16.27
Others	10,181.80	2.49	(9,720.19)	(1.99)
Total Income	408,322.49	100.00	488,932.74	100.00
Expenditures :				
Personnel expenses	267,974.37	65.76	281,574.33	63.81
Meeting / travel expenses	91,931.08	22.56	89,373.61	20.25
General administrative expenses	21,059.71	5.17	31,947.64	7.24
Publications	4,013.89	0.99	5,741.10	1.30
Technical activity support	-	-	3,301.18	0.75
Special expenditures	22,507.46	5.52	29,351.79	6.65
Others	-	-	-	-
Total Expenditure	407,486.51	100.00	441,289.65	100.00
Income over/(under) expenses	835.98		47,643.09	
Total Fund Balance before adjustment.	781,663.93		828,698.09	
Adjusting entries				
Unrealized gain/(loss) on exchange rate for Retained Earning	(608.93)		3,524.46	
Tax payable	781,055.00		-	
Year-end Balance			832,222.55	
Adjustment to reflect actual cash inflow/(outflow) :				
Received in Advance GEM	3,408.57		-	
Office equipment (net)	(74,452.37)		(68,226.10)	
Advance	(4,513.41)		(3,047.45)	
Tax deductible	184.62		1,170.83	
Year-end Cash Balance	705,682.41		762,119.83	

Table 3: CCOP Financial Statement for the year ended 31 December 2013 (amount in US Dollars)



DESCRIPTION	EPPM FUND					
	2008 USD	2009 USD	2010 USD	2011 USD	2012 USD	2013 USD
Fund Balance	-	355,260.87	132,940.82	299,254.60	391,613.11	200,657.62
Income :						
Received from Fund	370,919.88	503,494.51	780,304.48	543,724.68	175,635.80	-
Others	106,578.63	3,019.85	5,273.26	(734.40)	34,997.08	(545.67)
Total Income	477,498.51	506,514.36	785,577.74	542,990.28	210,632.88	(545.67)
Expenditures :						
Technical Activities Expenses	123,205.05	725,971.30	613,677.83	452,104.08	400,180.83	112,780.88
Expenses	123,205.05	725,971.30	613,677.83	452,104.08	400,180.83	112,780.88
Total Expenditure	354,293.46	(219,456.94)	171,899.91	90,886.20	(189,547.95)	(113,326.55)
<i>Income over/(under) expenses</i>						
Adjusting entries :						
Unrealized gain/(loss) on exchange rate for Retained Earning	967.41	(2,863.11)	(5,586.13)	1,472.31	(1,407.54)	511.15
Year-end Balance	355,260.87	132,940.82	299,254.60	391,613.11	200,657.62	87,842.22
<i>Adjustment to reflect actual cash inflow/(outflow):</i>						
Tax deductible	-	-	22.57	-	-	-
Advance	(3,635.31)	-	-	-	-	-
Remittance to CCOP	-	-	-	-	-	-
Year-end Cash Balance	351,625.56	132,940.82	299,277.17	391,613.11	200,657.62	87,842.22

Table 4: Projects Financial Statement: CCOP MFA-NORWAY
For the year ended 31 December 2013
(amount in US Dollars)

Fund Balance as of June 30, 2013, the remaining amount of USD 87,842.22 was transferred to the Norwegian Ministry of Foreign Affairs on July 31, 2013.

Description	CCS-M Fund 2013 (USD)
Fund Balance	-
Income :	
Received from Fund	287,523.00
Received from RNE-Jakarta	868,391.40
Others	(3,023.10)
Total Income	1,152,891.30
Expenditures :	
Technical Activities Expenses	294,857.71
Total Expenditure	294,857.71
Income over/(under) expenses	858,033.59
Adjusting entries :	-
Unrealized gain/(loss) on exchange rate for Retained Earning	2,044.48
Year-end Balance	860,078.07
Adjustment to reflect actual cash inflow/(outflow):	-
Tax deductible	-
Advance	(5,261.56)
Remittance to CCOP General Fund	-
Year-end Cash Balance	854,816.51

Table 5: Projects Financial Statement: CCOP-CCS-M Fund
For the year ended 31 December 2013
(amount in US Dollars)

LIST OF CONTACTS

CCOP STEERING COMMITTEE MEMBER COUNTRIES PERMANENT REPRESENTATIVES (13)

The Steering Committee is a policy making body of CCOP, which shall establish policies and principles for CCOP activities, approve work plan, budget, accounts for each year, new programme proposals, establish subsidiary bodies, appoint the Director, receive and consider the reports of Director on the functions delegated to him.

CAMBODIA:

H.E. Mr. Sok Khavan

Permanent Representative of Cambodia to CCOP

Acting Director General Cambodian National Petroleum Authority (CNPA)
#13-14 Russian Confederation Blvd Khan Dangkor, P.O. Box 1442 Phnom Penh, Cambodia

CHINA:

Dr. Li Jinfa

Permanent Representative of China to CCOP

Deputy Director-General, China Geological Survey (CGS)
45 Fuwai Street, Xicheng District Beijing 100037 People's Republic of China.

INDONESIA:

Dr. R. Sukhyar

Chairman, CCOP Steering Committee
Permanent Representative of Indonesia to CCOP

Head, Geological Agency Ministry of Energy and Mineral Resources (MEMR)
Jalan Jenderal Gatot Subroto Kav. 49 Jakarta 12950, Indonesia

JAPAN:

Dr. Eikichi Tsukuda

Permanent Representative of Japan to CCOP

Director-General, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology
Higashi 1-1-1, AIST Central 7, Tsukuba Ibaraki 305-8567, Japan

KOREA:

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