

CCOP E-News

Coordinating Committee for Geoscience Programmes in East and Southeast Asia

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

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



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MESSAGE FROM DIRECTOR

The severe flooding of Bangkok during the latter part of 2011 caused the inevitable cancellation of the 48th (2011) Session of CCOP and of its associated Thematic Session. This means that this year's Session of CCOP, due to be held in Langkawi, Malaysia in November, now becomes its 48th Session.

During the last year Thailand has aptly demonstrated its great resilience in taking rapid steps to recover from the tragic events of 2011.

The recent natural disasters of flooding in Bangkok, the earthquake and tsunami in Japan and volcanic activity in Indonesia, serve to underline the ongoing importance of geohazards research, protection and mitigation in the CCOP programme and of efforts to increase public awareness of the importance of Geoscience in daily life. These topics are certain to be discussed during the forthcoming 48th Session of CCOP and especially at the accompanying Thematic Session, “Geoscience Innovations for Sustainable Development” and also in the workshop on “Natural Hazards and Climate Change Adaption” (See below)

The recent addition of the new Regional Expert at CCOP Technical Secretariat completes its new structure in place. The new balanced budget system has also been in use since the beginning of the year 2012. The CCOP Technical Secretariat has firmed up its internal organization and operation gearing towards better and efficient services to its stakeholders. However it is now facing challenges. With the funding policies shifting from this region to Africa, efforts are being directed towards prospects of funding support and cooperation from ASEAN, and from within the CCOP Member Countries, while still looking for opportunities from its Cooperating Countries and Organizations.

News From The Technical Secretariat

New Regional Expert



Dr, Nguyen Thi Minh NGOC joined the CCOP Technical Secretariat as Regional Expert on 16 August 2012 and is its newest member.

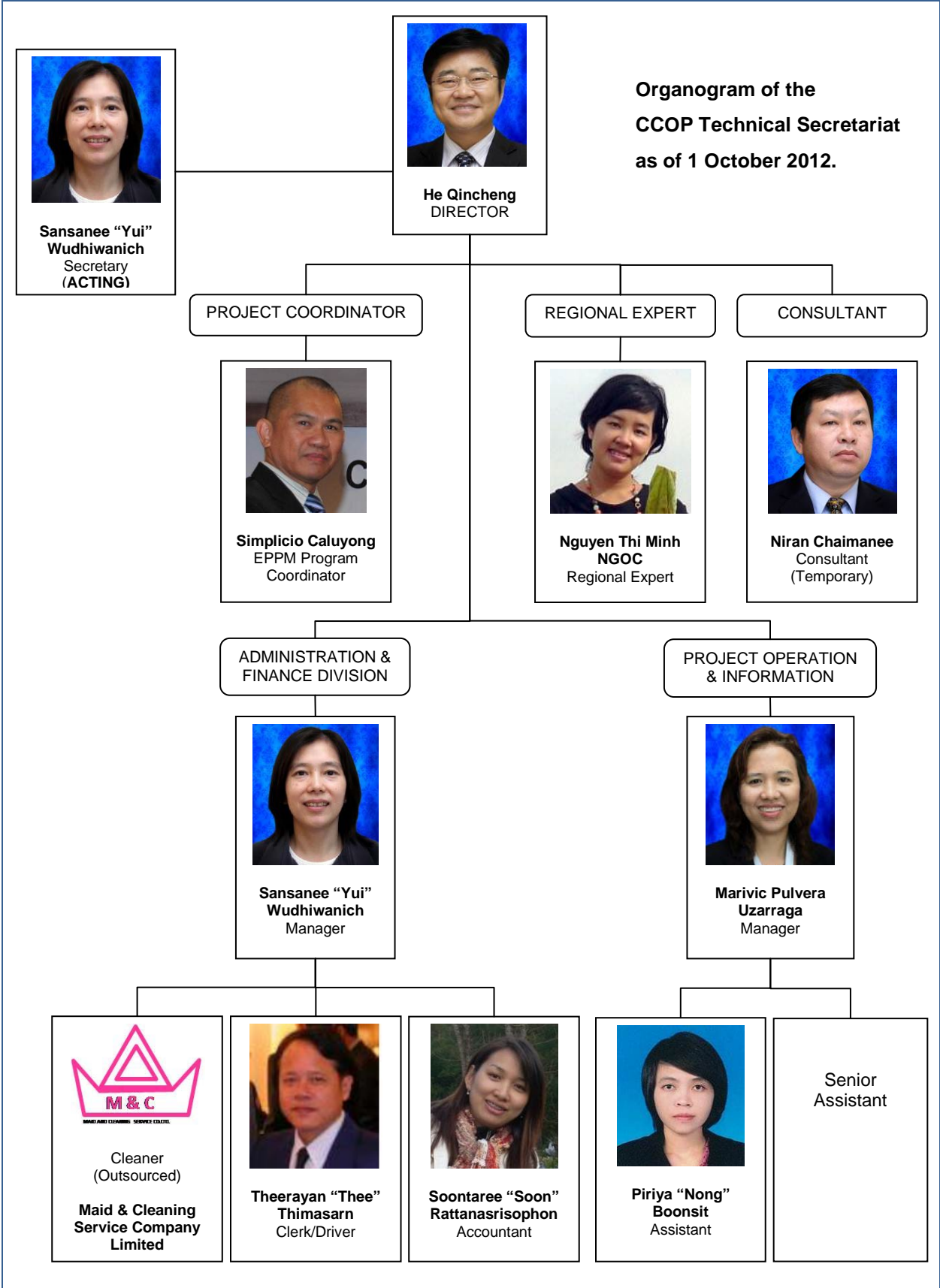
Ms Ngoc was awarded a PhD degree in Applied Geology in 2006 from the Ernst-Moritz-Arndt University of Greifswald, Germany, for her research on “*Recent geochemical and mineralogical alteration processes in the tropical coastal sediments of Vietnam*”. Coming to CCOPTS with eight years of experience as a lecturer and researcher in Hanoi University of Science (HUS) and three subsequent years as an official project coordinator in the Science, Technology and International Cooperation Department of the General Department of Geology and Minerals of Vietnam (GDGMV), she can be expected to provide a wide spectrum of relevant services for CCOP’s Member Countries.

Her background and scientific expertise is focused on sustainable management of geological resources (i.e. minerals and wetlands) based on vulnerability assessment², integrated coastal zone management, compilation of geo-environmental and geohazards maps, climate change assessment and adaptation strategies and also applications of clay minerals. She has previously worked as the contact person of Hanoi University of Science in the COASTMAN program (2001 – 2007) and of GDGMV for the National Target Program to Respond to Climate Change and also for the 11nd ASEAN Senior Officials Meeting on Minerals. In addition she has participated in several international cooperation projects.

On a personal note, her philosophy is that $1 + 1 > 2$ and her favorite quote is: “Individually, we are one drop. Together, we are an ocean.” She is excited at being a part of the CCOP family, and looks forward to contributing to CCOP’s further progress towards achieving its vision.

¹ <http://www.youscribe.com/catalogue/rapports-et-theses/savoirs/recent-geochemical-and-mineralogical-alteration-processes-in-tropical-1428752>

² http://www.google.co.th/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CCgQFjAB&url=http%3A%2F%2Fnepjol.info%2Findex.php%2FJOWE%2Farticle%2Fdownload%2F1850%2F1844&ei=xi1IUMuCJlfrQf124GgDA&usq=AFQjCNE8YbY_zdVZwmwq8HnbSBBsH3h0nQ&sig2=Jw1cR1A0h4aRZ0scp8regw



The 48th Annual Session of CCOP and 11th Thematic Session, will be held in Langkawi, Malaysia

Previous Annual Sessions in Malaysia: Notes from the past.

CCOP was founded in 1966, originally with four Member Countries. In 1968, Malaysia was present as an observer at the fifth session of CCOP in Tokyo and became a full Member Country shortly afterwards. In fact that 1968 Session was the first truly Annual Session as the first four Sessions had been held at the rate of two each year during the years of 1966 and 1967. Appropriately it was at this first 'Annual Session' that the acronym CCOP was officially used for the infant organisation.

Some eight years later, in **1976**, the year of CCOP's tenth anniversary, **Malaysia** hosted the **13th Session** of CCOP which was held in Kuala Lumpur. At this session, the Government of Norway was represented for the first time. Also, on the occasion of this tenth anniversary session of CCOP, the Committee decided that a number of experts who had made very substantial contributions to CCOP's activities, but who had now retired from government service, should be nominated as Honorary Advisers and would be welcome to attend future Annual Sessions. The first six advisers nominated were Prof, Dr Hans Cloos (Germany), Prof Masami Hayakawa (Japan), Prof Shigeru Oda (Japan), Dr K O Emery (USA). Mr J M Rayner (Australia), Mr Leo W Stach (Australia).

In **1983** Malaysia hosted the **20th** Session of CCOP, again in Kuala Lumpur. By this time it was becoming clear that the days of UNDP financial and technical support to CCOP would eventually come to an end. In an opening address the Executive Secretary of ESCAP touched on this problem which, if not solved speedily and decisively, could spell the end of CCOP in its role as a leading organisation for resource exploration and development. UNDP funding for the post of the Chief Technical Adviser/Project Manager (ie Director) and for institutional support would cease after 1984, and continued UNDP support after that period would depend on assessment of the response from Member Countries and their efforts to support and maintain the CCOP work programmes and to transform CCOP into a truly inter-governmental body. Present Member Country contributions would not be sufficient to maintain the administrative support and to implement the present work programmes. Should sufficient funding from alternative sources, not be forthcoming, the responsibility would fall on Member Countries to increase their contributions. The current (1983) session of CCOP would be one of the most important decision-making meetings since the formation of CCOP. This was essentially the start of the lengthy process of discussion and debate that eventually resulted in CCOP becoming an independent, Intergovernmental Organisation in 1987.

In **1994**, Kuala Lumpur saw Malaysia host the **31st Session** of CCOP. During the year several important changes were noted; first was that the Steering Committee had modified the name of CCOP to the **Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia** and the same time the mandate of CCOP was amended to read: "The purpose of CCOP is to carry out joint applied geoscience programmes for sustainable development of the coastal and offshore areas of East and Southeast Asia". Secondly, the first Oil and Gas Resources Management (OGM) Project, supported by Norway, was completed and delegates agreed that this was one of the most successful CCOP projects completed to date.

The **40th Session** of CCOP, held in **2003** in **Malaysia** also included the first of the regular Thematic Sessions to be published as Part II of the Proceedings of the Annual Session. Papers on the subject of 'Raising Awareness of the Importance of Geoscience and

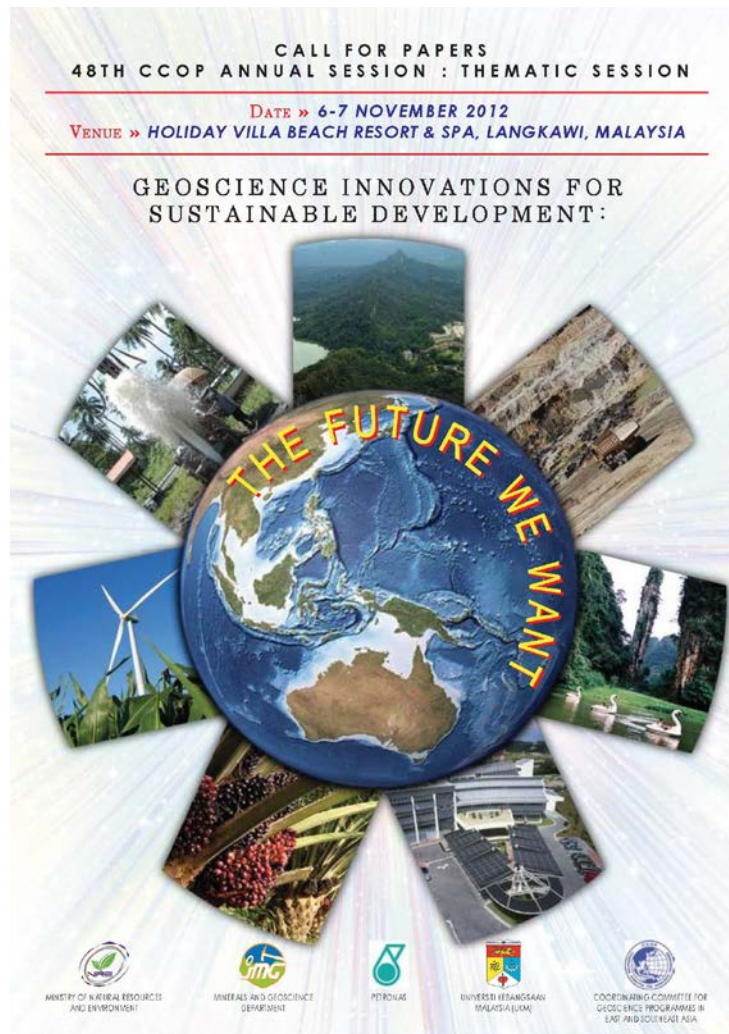
the Promotion of Geoscience Information and Services' were presented. Also of interest to attendees at this years (48th) Session in Langkawi is the fact that the 2003 recipient of the East Asia Geoscience and Environmental Research (EAGER) award (under a Trust fund set up in GSA with the personal contribution of Dr Maurice 'Ric' Terman) was **Ms Marilah Sarman**, Malaysia, for her research project, '**Geological Heritage Resources Database for Conservation and sustainable use; The Case of Langkawi Island**'.

All the above is history and now we can look forward with eager anticipation to see what the 48th (2012) Session of CCOP might hold.

For updates on this event see this link: <http://www.ccop.or.th/activity/280>

The 2012 Thematic Session

This year's Thematic Session will be jointly organized by UKM with the Ministry of Natural Resources and Environment, Malaysia, the Minerals and Geoscience Department, Malaysia, Petronas and the CCOP Technical Secretariat. To be held on the 6th and 7th November, the session aims to show-case geoscience innovations contributing to sustainable development by Member Countries' geoscience organizations, either alone or as part of a multi-disciplinary effort, particularly in relation to a attaining a green economy.



News From The CCOP Georesources Sector

A concept for a new project: A CO₂ Storage Atlas of the CCOP Region

- A CCS capacity-building Program in CCOP

A. Introduction/Background

Climate change is a matter of worldwide concern and the extent to which human activity is a major driver of such change is widely debated. There is now widespread agreement that increased CO₂ emissions during recent decades of industrial development have contributed significantly to the problem. To counter this tendency, research concerning the possibilities for carbon capture and storage as a means of reducing the amount of CO₂ released to the atmosphere from power stations and other facilities burning fossil fuels, is now being conducted in many countries. Several of the CCOP Member Countries (MC) are becoming involved in such programs, not only looking at the potential new sources of 'clean' renewable energy such as geothermal, hydro, wind and solar energy but also for the potential **Carbon Capture and Storage (CCS)**.

In an analysis by the International Energy Agency (IEA), CCS provides 19 percent of the reduction in CO₂ emissions required until 2050 to stabilize the atmospheric CO₂ concentration at 450 parts per million. Technological approaches such as CCS are needed that will effectively reduce CO₂ emissions, while allowing economic growth and prosperity with its associated energy use. Storage of CO₂ in geological formations has therefore emerges as an important potential measure to reduce global emissions. CCS holds great promise as part of a portfolio of technologies that will enable the governments in the MC (and the rest of the world) to effectively address climate change while meeting the energy demands of an ever increasing global population.

The **CCOP CO₂ Storage Atlas** will be developed to present the best available estimates of potential CO₂ storage resource determined by each of the MC's based on an established and standard methodologies. A **CO₂ storage resource estimate** is defined as the volume of porous and permeable rocks available for CO₂ storage and accessible to injected CO₂ via drilled and completed wellbores. Carbon dioxide storage resource assessments do not include economic or regulatory constraints; only physical constraints to define the accessible part of the subsurface are applied.

There is significant technical potential for storing CO₂ in geological formations around the world. Producing oil and gas fields, abandoned oil and gas fields and other formations such as saline aquifers are all candidates for such storage. Storage in oil and gas reservoirs that are no longer in operation is a good solution in terms of geology because these structures are likely to be impermeable after having held oil and gas for millions of years. Other formations are also considered to be secure storage alternatives for CO₂.

Environmentally sound storage of CO₂ is a precondition for a successful CCS chain. Consequently, the mapping, qualification and verification of storage sites are indispensable for CCS as a climate change mitigation measure. It is important to have the best possible understanding of what can be the CO₂ storage potential. These factors necessitate an enhanced understanding of the methodologies and workflow that will be involved within the mapping and investigation of CO₂ storage sites. The production of this CO₂ storage atlas is at the very center of this effort, and the atlas will be a key component in the development of aquifers in the MC as storage sites for CO₂.

The development of the atlas will use available data that will be provided by the country and will not be comprehensive; however, it is anticipated that CO₂ storage resource estimates, as well as geological formation maps, will be updated when more data are available in the county level. The works will also include the application of GIS system, to convey information in map form. For the future, it is expected that, through the ongoing efforts or various research projects in the MCs related to CCS Storage, quality of data and conceptual understanding of the CCS process will improve, resulting in more refined CO₂ storage estimates.

The Program aims to enhance the capacities of the CCOP Member Countries in developing CO₂ geological storage information to provide a high-level overview of the potential for large-scale carbon storage in the CCOP region.

B. Key Outcomes

1. **Enhanced capacity of the CCOP member countries on CCS**, particularly on mapping the CO₂ storage potential that will be useful in the development of the legal framework for regulating geological storage of CO₂
2. The Program will attempt to establish the first **Atlas of CO₂ Storage in the CCOP region**, with information on CO₂ stationary source and storage resource data. *With active collaboration, consensus, and resources, the CCOP MC together with partner organizations in cooperating countries can demonstrate a partnership in addressing unique challenges that will affect the world.*
3. **Mitigating GHG emissions** requires the development and application of a portfolio of technologies. The technology identified as having the greatest potential to mitigate GHG emissions from large-scale fossil fuel usage is CCS.
4. **Facilitate the sharing of information** to foster and enhance data exchange on CO₂ sources and storage formations in support of a GIS system, which is typically used to convey information in map form. The aim is to create a distributed database, rather than a central repository, where data from different states, provinces, or organizations can be accessed via a common portal and in similar format.
5. **Form a consensus on the methodology** to be used in estimating the CO₂ storage potential of various types of CO₂ storage systems. This will be particularly relevant for cross-border storage studies and ensure compatible estimates of storage potential in the region.
6. **Promote potential collaboration** on research, development, and demonstration (RD&D) related to CCS. This includes sharing efforts to evaluate alternative uses of CCS technologies, such as EOR or ECBM recovery.
7. CCS combined with power generation and gas processing is expected to play a significant role in many CCOP Countries in the near future. The deployment of CCS is technically viable and safe, under appropriate management regimes.
8. **A guideline for National CO₂ Storage Mapping – a useful and easy to use reference.**

C. Scope of Work

Program implementation:

Facilitating phase: July – Dec. 2013

Objectives:

- a) To have a common and deeper understanding on the Program's goal and objectives, buying in the participants into the Program,
 - i) To agree upon on the mode of implementation - methodologies and workflow to be used
 - ii) Sustainability and knowledge sharing - the roles and responsibilities of member countries and partner organizations in the Program.
- b) To learn from current International CO2 storage Programs and experience, and to agree for the standard calculation methodology in order to produce readily comparable CO2 storage resource estimates for the CCOP region.
- c) Signing the Memorandum of Understanding (MOU) for the MC hosting the case studies.

During this phase, a kick off seminar and workshops will be conducted. Towards the end of this phase, an intensive 15-day course on CCS geological storage assessment (including field work) will be conducted in one (or two) of the case study host countries. All the CCOP member countries will be invited to participate. Also to be invited are the representative of cooperating countries and partner organizations.

Phase 1 (2 years) 2014-2015

The Case Study (CS) focused on a potential CO2 storage will be the main capacity building activity of the Program. Three (3) MCs will be requested to host the CS and to provide the relevant data and expertise (if available). The CS will cover the following

1. Types of Geological storage and the trapping mechanisms,
2. Criteria for selection of CO2 Storage sites and characterization of aquifers and structures, and
3. Estimation of storage capacity.

Dynamics:

Series of the themed workshops will be conducted in the countries hosting the case studies and all MCs will be invited. A host country can also request r expert visits- these should be done prior to a workshop, particularly if the visiting expert(s) is also the resource person of a workshop scheduled in that particular (host) country. The participants (at least 2) from a CS host country will be funded by the Program. Some of the participants from MCs not hosting the CS activities will also be funded by the Program. However, their sponsorship and number of participants to be sponsored will be determined at the discretion of the Program Coordinator in the CCOP Technical Secretariat.

A website dedicated to the Program will be established - for guidelines and information dissemination and for easy access to all, including the general public.

a) 3 Case Studies

- a. Case Study 1 – proposed to be hosted by Indonesia (offshore)
- b. Case Study 2 – proposed to be hosted by China (onshore)
- c. Case Study 3 – proposed to be hosted by Malaysia (offshore)

The Case Study (CS) – “**Learning by Doing**” will cover the following

- a. Use the workflow and methodology agreed upon during the Facilitation Phase in mapping of potential CO₂ storage sites. Any refinements to the workflow and methodology should be done in this period.
- b. Criteria for selection of CO₂ Storage sites (to focus on the physical constraints to define the accessible part of the subsurface, not to include economic or regulatory constraints). The parameters used and source of the data to establish the criteria should be understood by all participants.
- c. To use data that is provided by the host country in order to calculate CO₂ storage resource estimates using key parameters, such as: depositional environment, diagenesis, bulk volume from area and thickness, porosity, permeability and net/gross values. Data sets and knowledge from other similar studies will also be used. The data sets may not be comprehensive, however, it is anticipated that CO₂ storage resource estimates, as well as geological information, will be updated when sufficient new data are acquired. *It is important to note that, in practice, every storage site will require a detailed, comprehensive assessment of the particular characteristics that will determine its capacity to store CO₂ safely and securely.*
- d. Develop the Guidelines for developing a CCS Atlas – a record of the workflow and methodologies applied, lessons learned and best practices that would be available to all MCs. This Guideline would be useful when a country start its own CCS mapping projects.

The case study will be implemented through a series of technical workshops with field work, expert visits combined with coordination meetings. A country hosting a case study shall provide the necessary data to be used in the case study as well the expertise (if available). Ownership of the data used in the case studies will always remain with the host countries.

Phase 2 (1.5 years) 2016- June 2017

Application of Knowledge learned to specific CO₂ storage Projects in the MCs.

During the earlier Phases of the Program- implementation of the case studies, the capacity building for the entire MC focused on the “learning by doing” activities - calculating the CO₂ storage estimates using the established workflow and key parameters, as well as the data provided by the host countries. During the Phase 2 (or earlier), the MCs not hosting the CS will conduct their own CCS mapping Projects using the knowledge learned from earlier phases of the Program. The Guidelines for developing a CCS Atlas will be very useful during this Phase. During this Phase also, the CS host countries will also move to other potential areas, continuing the CCS mapping. Workshops / expert visits to supplement the on-going technical activities and field work will continue to be conducted and funded by the Program.

Towards the end of 2016 (Year 3), all mapped potential CO₂ storage areas in the MCs will be integrated to create the **Atlas of CO₂ Storage in the CCOP**. The Guidelines for creating the Atlas is continually improved, recording the following key elements.

1. Methodology

The methodology to estimate the CO₂ storage resources of the CCOP region will be based on established (standard) calculation methodology that has been agreed upon by all MCs and partner organizations at the Program start. The Program will look into established CO₂ storage resource estimation methodologies such as

- a) U.S. DOE's *Carbon Sequestration Atlas of the United States and Canada (Atlas III)*,
- b) Carbon Sequestration Leadership Forum methodology, and others.

Adopting a standard methodology will allow for the integration of data compiled by the MCs.

2. Geological Storage and Description

The geological storage of CO₂ has analogies with natural accumulations of petroleum and other gases, such as CO₂, which are trapped in the subsurface.

The simplest CO₂ storage involves injection into a depleted oil and gas field to occupy the pore space, which previously contained the produced fluid. In such cases, a CO₂ containment mechanism may be proven by the presence of petroleum. In some fields, CO₂ injection can be done, before the field is totally produced, to help extract oil that would otherwise have been unrecoverable, known as Enhanced Oil Recovery (EOR). However, in EOR, some of the injected CO₂ is reproduced with the oil, and thus only part of the CO₂ is permanently stored.

In other cases, the CO₂ may be injected into the reservoir rock below the zones where petroleum may be trapped, or into rock formations where oil and gas do not occur. These formations, which are normally filled with salt water and brines, are generally termed deep saline reservoirs or aquifers. These aquifers, therefore, are possibly of great potential for CO₂ storage. The CO₂ is trapped in these deep saline aquifers by a variety of natural processes that are well researched and understood. Learning about the various trapping mechanisms will be covered and recorded in the case studies of the Program.

3. Storage Options

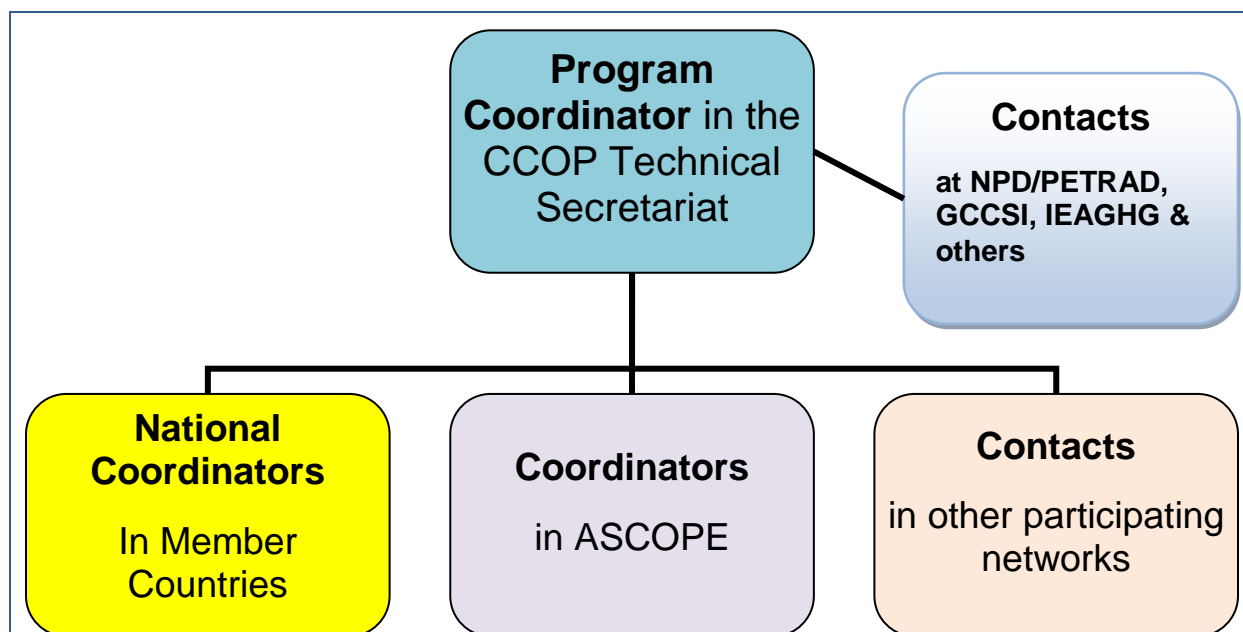
- a) Abandoned / depleted oil and gas fields
- b) Producing fields (EOR/EGR)
- c) Saline aquifers

4. Monitoring

Monitoring of injected CO₂ in a storage site is important for 2 reasons: 1) to see that the CO₂ is contained in the reservoir according to plans and predictions (models), and 2) if there are deviations, to provide data which can be used to update the reservoir models and support eventual mitigation measures. Various monitoring technologies and policies will also be discussed via the workshops.

D. Program Coordination And Inputs

The CCOP TS will provide general administration and management of the Program. The overall management of the Program will be the responsibility of the Program Coordinator, including the planning, budget, preparation and implementation of the activities. The Program Coordinator reports to the Director of the CCOP Technical Secretariat. CCOP will continue to retain the services of the EPPM Program Coordinator to serve as the new Program Coordinator. The coordination of the various activities of the Program at the national level is illustrated in the figure below.



The estimated total cost of the Program is USD2.50 Million. This amount does not include the in-kind cost to be shouldered by the countries hosting the technical activities. The Global CCS Institute has indicated support to the Program in the amount AUD0.5 Million, while IEAGHG can provide in-kind assistance- providing experts as resource persons during workshops/training free for the Program, or covering the cost of their attendance to the activities.

The possible partner Institutions to support the implementation of the Program are NPD and PETRAD (Norway), Global CCS Institute (Australia), IEAGHG (UK) and the agencies in the CCOP Member Countries hosting the case studies. As mentioned earlier, while some countries will be hosting the case studies, all the rest of the Member Countries of CCOP will be invited to participate in the Program's activities. A contact person (National Coordinator) will be assigned by the partner Institutions/Member Countries to coordinate directly with the CCOP TS Program Coordinator.

QA & QC and Program Steering Committees

A Quality Assurance and Quality Control committee will be set-up, and CCOP TS will invite experts in Norway and Global CCS Institute (& from other partners) to be a member of the QA & QC committee to periodically review the technical inputs and activities of the Program.

The Program Steering Committee will be set-up with members comprising the Program Coordinator, Director of CCOP Technical Secretariat, Representatives from NPD, Royal Norwegian Embassy and Global CCS Institute. The role of the Program Steering Committee is to be the main oversight of the program and will meet at least once a year and will be chaired by Chairman of the CCOP Steering Committee.

References:

1. *CO2 Storage Atlas, Norwegian North Sea, NPD 2011*
2. *CO2CRC: <http://co2crc.com.au/>*
3. *National Carbon Mapping and Infrastructure Plan – Australia, Carbon Storage Taskforce 2009, Dept of Resources, Energy and Tourism*
4. *The North American Carbon Storage Atlas (NACSA) 2012, 1st edition.*
5. *Assessment of Geological Storage Potential of Carbon Dioxide in the APEC Region, 2003*

News From The CCOP Geoenvironment Sector

Two workshops/meetings relevant to the Geoenvironment Sector will be held on **9 November** in conjunction with the **48th Annual Session** of CCOP, Langkawi, Malaysia as detailed below:

A Workshop on Natural Hazards and Climate Change Adaption

This half-day workshop is to be jointly organised by the Minerals and Geoscience Department of Malaysia (JMG), the Southeast Asia Disaster Prevention Research Institute of Universiti Kebangsaan Malaysia (SEADRI-UKM) and the Geological Survey of Finland (GTK). Brief theoretical backgrounds will be provided with “real world” examples of applying climate change adaption concepts in decision making processes. The workshop will be interactive, focusing on group discussions of the pros and cons of adaption options and their applicability, Contact ngocnguyen@ccop.or.th for further information/registration.

An Expert Meeting on Land Subsidence in Coastal Megacities.

Land subsidence is a geological hazard with potentially immense socio-economic impacts both in the short and long term, especially in urbanised coastal areas and deltas. It may be caused by either natural phenomena or by human activity or by a combination of these processes.

This expert meeting will focus on land subsidence issues in coastal megacities and other urban areas in South, Southeast and East Asia. Organised by Deltares (Netherlands) and Minerals and Geoscience Department (JMG, Malaysia) in conjunction with CCOP, it will provide a stimulating and high-level exchange of information (case studies with new methodologies, integrated approaches, geological to geotechnical and governance aspects of dealing with lands subsidence). The meeting will also provide an opportunity to discuss ideas for new cooperation projects within and between CCOP Member Countries.

News from Cooperating Countries and Cooperating Organisations

UKM Elevated to Cooperating Organization Status in CCOP

Joy Jacqueline Pereira, Tan Ching Tiong and Mohd Khairul Zain Ismail

CCOP and Universiti Kebangsaan Malaysia (UKM) signed a MoU for co-operation on 19 July 2007 in Bangi, Malaysia. Since then, a series of initiatives have led to shared experiences and genuine partnership between the organisations. On 21 May 2012, SEADPRI-UKM was formally informed that the 58th CCOP Steering Committee meeting had accepted UKM as a new CCOP Cooperating Organization in recognition of its record of collaboration in CCOP activities. The signing of the MoU between CCOP and UKM and UKM's subsequent elevation to 'CCOP Cooperating Organization' was strongly supported and facilitated by the Permanent Representative of Malaysia to the CCOP, the Director General of the Minerals and Geoscience Department, Malaysia.



Figure 1: Prof. Dr. He Qingcheng, Director of CCOP Technical Secretariat; Dato' Yunus Abdul Razak, Director General of the Minerals and Geoscience Department, Malaysia; and Mr. Chen Shick Pei, former Director and Honorary Fellow of CCOP, all of whom played a catalytic role in the elevation of UKM as a CCOP Cooperating Organization.

The close relationship between CCOP and UKM is guided by the Southeast Asia Disaster Prevention Research Institute (SEADPRI-UKM) and the Institute for Environment and Development (LESTARI-UKM). SEADPRI-UKM was established on 1 June 2008 to conduct multidisciplinary research on disaster prevention to support decision making and enhance capacity at local, state, national and international levels, particularly in Southeast Asia. Its vision is to be the leader in innovative research on holistic disaster prevention. Its three main areas of research relate to Climatic Hazards, Geological Hazards and Technological Hazards. LESTARI-UKM was established on 1 October 1994 as a multidisciplinary institute to achieve the goals of sustainable development through research and capacity development. LESTARI-UKM seeks to conduct multi-disciplinary and integrated research in balancing the trade-offs between environment and development and serve as a primary mover in influencing policy and in building capacity to meet the aspirations of sustainable development.

Many joint activities have been undertaken between UKM and CCOP over the past decade under the auspices of the Minerals and Geoscience Department of Malaysia. The activities were organized to recognize the importance of regional cooperation and build capacity of geoscientists in addressing issues related to sustainable development.

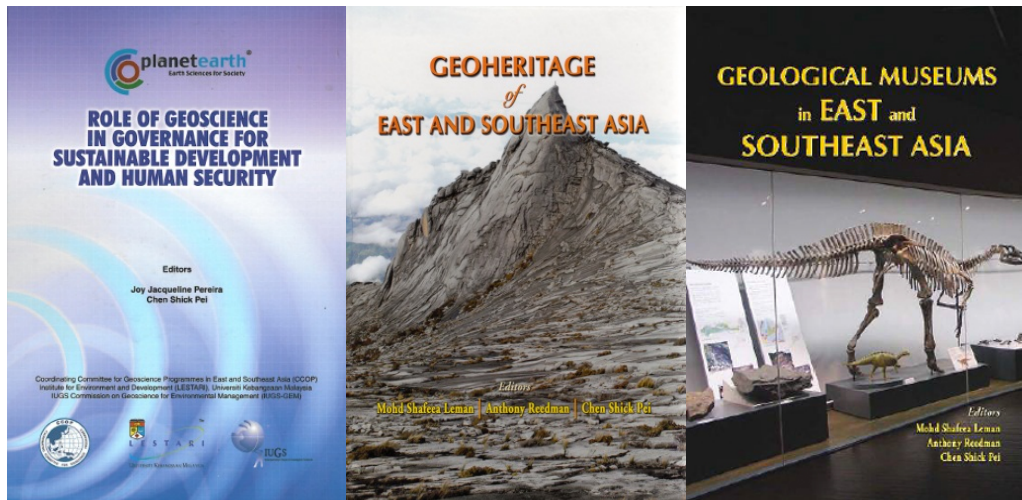


Figure 2: Joint Publications of CCOP and UKM: Role of Geoscience in Governance for Sustainable Development and Human Security (2008); Geoheritage of East and Southeast Asia (2008); and Geological Museums of East and Southeast Asia (2011).

Highlights of some of the current initiatives include the following:-

- Joint organization of the Thematic Session on “Geoscience Innovations for Sustainable Development: The Future We Want” to be held on 6-7 November 2012, in conjunction with the 48th CCOP Annual Session in Langkawi, Malaysia.
- Joint organization of the Workshop on Natural Hazards and Climate Change Adaptation to be held on 9 November 2012, in conjunction with the 48th CCOP Annual Session in Langkawi, Malaysia.
- Preparation of the Final Report of the CCOP-SEADPRI-UKM’s collaborative project on “Feasibility of Networking Petroleum Geoscience Institutions in East and Southeast Asia”.
- A proposed project on “Enhancing Climate Change Adaptation in Southeast Asia” was submitted to the ASEAN Secretariat under the India-ASEAN Green Fund mechanism in 2011. The project has been endorsed by ASEAN and was submitted to the Indian Government for approval in August 2012.

The years of collaboration between both the organisations has been sustained through the network of friends and colleagues within UKM, the CCOP Technical Secretariat as well as the Minerals and Geoscience Department of Malaysia. UKM recognizes the important role that CCOP plays as an intergovernmental organisation for geoscience in the East and Southeast Asian region, through its platform for cooperation and exchange between geosciences organizations. The mission and strategies of SEADPRI-UKM are very much in synergy with those of CCOP. Building on the success achieved from the cooperation in the past years, SEADPRI-UKM intends to anchor the relationship of UKM with CCOP and enhance support through joint research and training programmes. Geoscientists from the CCOP Technical Secretariat and Member Countries can pursue multidisciplinary post graduate work in SEADPRI-UKM leading to Masters and Ph.D degrees. With UKM being elevated to a Cooperating Organization of CCOP, additional resources can be leveraged to support future cooperative initiatives.

Mission Trips & Meetings

- CCOPTS Director, Prof Dr He Qingcheng, with Ms Marivic Pulvera Uzarraga, CCOPTS Project Operation and Information Manager, attended the **34th International Geological Congress (IGC)** held in Brisbane, Australia, 5-10 August 2012. See news article at this link: <http://www.ccop.or.th/article/ccop-at-igc-in-brisbane-australia>
- Following the 34IGC, the Director together with Ms Uzarraga, made a courtesy visit to the newly appointed Permanent Representative of Papua New Guinea (PNG) to CCOP, Mr Shadrach Himata, in Port Moresby on 12-14 August 2012. Mr Himata is now the Acting Secretary of PNG's Department of Mineral Policy and Geohazards Management (DMPGM), replacing Ms. Nellie James. See news article at this link: <http://www.ccop.or.th/article/mission-trip-to-papua-new-guinea>
- The Director, together with Mr. Simplicio Caluyong, EPPM Project Coordinator visited Nay Pyi Taw, Myanmar on 21-23 August 2012 to meet with the representatives of the Myanmar Oil and Gas Enterprise (MOGE), Ministry of Energy and the Department of Geological Survey and Mineral Exploration (DGSE) to discuss participation of Myanmar to the proposed extension of EPPM P1 Project as well as Myanmar’s membership of CCOP. See news article at this link: <http://www.ccop.or.th/article/ccopts-visit-to-myanmar-21-23-aug-2012>
- Ms Uzarraga participated in the **Training Program on Mineral Resource Database for ASEAN (ENMD)** at AOTS Tokyo Kenshu Center, Japan, 18–26 September 2012.

Upcoming CCOP Activities

| Date | Activity | Venue |
|----------------|---|--------------------|
| 4-8 Nov 2012 | 48 th CCOP Annual Session http://www.ccop.or.th/activity/280 | Langkawi, Malaysia |
| 9-10 Nov 2012 | 59 th CCOP Steering Committee Meeting | Langkawi, Malaysia |
| 9 Nov 2012 | JMG-SEADPRI-GTK-CCOP Workshop on Natural Hazards and Climate Change Adaptation http://www.ccop.or.th/activity/284 | Langkawi, Malaysia |
| 9 Nov 2012 | JMG-Deltares-CCOP Expert Meeting on Land Subsidence in Coastal Megacities http://www.ccop.or.th/activity/285 | Langkawi, Malaysia |
| 5-6 Dec 2012 | CCOP-Norway Training Course on CCS: Evaluation of CO2 Storage Potential | Bandung, Indonesia |
| 26-28 Feb 2012 | CCOP-GSJ/AIST-CRWPI -Groundwater Phase-II Meeting | Hanoi, Vietnam |

*Items with TBC are those to be confirmed.

For More Information

CCOPTS Director: **He Qingcheng**

Editor: **Anthony Reedman**

Contributors: **Niran Chaimanee, Nguyen Thi Minh Ngoc, Simplicio Caluyong, Marivic Pulvera Uzarraga** (Co-Editor & Layout).

CCOP Website: <http://www.ccop.or.th>

CCOP Facebook Page: <http://www.facebook.com/pages/CCOP/185755662682?ref=ts>

Address: **CCOP Technical Secretariat, CCOP Building, 75/10 Rama VI Road, Phayathai, Ratchathewi, Bangkok, 10400, Thailand**

Tel: **+66 (0) 2644 5468** Fax: **+66 (0) 2644 5429** Email: ccopts@ccop.or.th