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**REVIEW OF ISSUES PERTINENT TO THE SUBSIDIARY STRUCTURE OF
THE COMMISSION, INCLUDING THE PROGRAMME PERFORMANCE
REPORT FOR THE BIENNIUM 2008-2009 AND THE WORK OF THE
ESCAP REGIONAL INSTITUTIONS: ENVIRONMENT AND
DEVELOPMENT**

(Item 3 (d) of the provisional agenda)

**REPORT OF THE COORDINATING COMMITTEE FOR
GEOSCIENCE PROGRAMMES IN EAST AND SOUTHEAST ASIA ***

Note by the secretariat

The secretariat transmits to the Commission the report submitted by the Coordinating Committee for Geoscience Programmes in East and Southeast Asia for information.

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SUMMARY

CCOP had successfully carried out most of its planned activities for the year 2009 focused on enhancing coordination of the geoscience programmes of the national geoscientific institutions of member countries, continued human resource development and institutional capacity building, greater flow of technical information between the member countries, cooperating countries and organizations of CCOP. Cooperating countries and organizations continued to provide technical support for activities contributing to sustainable geo-resources and environmentally sound development in the CCOP region. Member countries also provided in-kind support to CCOP work programmes to optimize the benefits of the support provided by the cooperating countries and organizations.

During the year, a total of 26 activities including seminars, workshops and meetings were organized and attended by 1,179 participants from the member countries. This comprises 15 activities in the geo-resources sector, 10 in the geo-environment sector and 1 in the geo-information sector.

In the Energy Programme of Geo-resources sector, the Cooperation Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM) supported by the Royal Norwegian Government was implemented and operated. This program incorporates 3 projects: (1) Petroleum Resource Management with a focus on Natural Gas; (2) Natural Gas Field Development and Environmental Issues (P2); and (3) Metadata on Natural Gas Resources of the CCOP Region (P3). The series of dedicated bilateral PETRAD seminars on specialized topics in the petroleum sector requested by CCOP Member Countries was implemented.

In the Mineral Programme, under the Community and Small-Scale Mining in Asia and Pacific (CASM Asia-Pacific) The workshop on "*GERAS*" a *Computer Simulation Software for Environmental Studies* was held in Bangkok, Thailand on 23 January 2009. With the support from Geological Survey of Japan, CCOP is closely cooperating with University of Delhi to develop an internet-based CASM-Asia database. The database is being prepared to put on the CCOP website. In the Groundwater Programme, GSJ/AIST generously continues its support for CCOP-GSJ/AIST Project on Groundwater, Phase II with the kick-off meeting held in Bangkok on 1-2 October 2009.

For the Geo-environment sector, Field Tsunami Risk Reduction Measure Project continued with the second phase with the supported by the Royal Norwegian government. During the year, National Workshops for Indonesia and the Philippines were carried out. The international workshop on Geosciences' role on the issues of coastal geohazards was organized by KIGAM, Korea under CCOP GeoCoast Project. The Integrated Geological Assessment of Deltas in Southeast Asia (DelSEA) project continued with a phase II supporting by Geological Survey of Japan. Funded by the German Ministry of Economical Cooperation and Development (BMZ) and in cooperation with the Federal Institute for Geosciences and Natural Resources in Hannover (BGR), CCOP organized workshops on Management of Georisks – The role of Geological Agencies in Government Practice of Risk Reduction from Natural Disaster at Yogyakarta, Indonesia and on Geological Storage of CO₂ at Bangkok Thailand. The Environmental Analysis Support Programme in the CCOP and other region project continued, providing in-kind services on environmental specimens, which are analysed by PIXE method.

For the Geo-information sector, under the CCOP Geoheritage Book Project, the Geological Museums of East and Southeast Asia book is aimed at being a companion volume for the 2008 CCOP book entitled "Geoheritage of East and Southeast Asia" which was published in December 2008 and has generally been well received. The OneGeology-Global established a 1G Steering Group, comprising of 6 members, of which the CCOP TS Director is one, representing Asia. The First Steering Group Meeting was held on 23-24 April 2009, in Paris, France and the Director-General of the Geological Survey of Japan, AIST participated the meeting, on behalf of the CCOP TS.

GEO Grid Training Course and Workshop on GEO-Grid and Asian Geoinformation Infrastructure was carried out to exchange and discuss strategies for geoscience information the CCOP Member Countries. The CCOP Metadata project continued with a phase II funded and technically supported by China Geological Survey (CGS) and the CCOP Standard for

Geoinformation Metadata has been published in hardcopy with CDROM on October 2009. Consequently, the Metadata System based on this standard has been developed, and installed at the CCOP TS on December 2009 for beta testing. The East Asia Geoscience and Environmental Research (EAGER) Project continued, providing a grant for researches in Geoscience and Environment in East and Southeast Asia to candidates from the Member Country hosting the CCOP Annual Session.

ESCAP and CCOP continued to maintain frequent consultations and close cooperation through conducting technical activities, mutual participation in major annual meetings, networking and exchange of publications. ESCAP and CCOP are playing an active role and should strengthen cooperation in the post tsunami risk assessment, disaster rehabilitation and mitigation efforts.

Introduction

The Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP) is an intergovernmental organization with the purpose of carrying out joint applied geoscience programmes for sustainable development in East and Southeast Asia.

The CCOP “Coordinating Committee for Offshore Prospecting in Asia” was first established in 1966 by China, Japan, Republic of Korea and The Philippines under the auspices of ESCAP and the United Nations. CCOP became an independent intergovernmental organization in 1987 based on the common understanding of its Member Countries and the aspirations of the United Nations. The name was changed in 1994 to Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia. During this period, CCOP devoted itself to the coordination of, and cooperation in, scientific activities related to coastal and offshore areas with respect to geological/geophysical surveys, regional map compilations, database development, development of human resources and transfer of state of the art technology. In 2001, CCOP has reviewed and redefined its programmes and activities accompanied by a name-change to Coordinating Committee for Geoscience Programmes in East and Southeast Asia. A new strategic plan was formulated with the focus on the following:

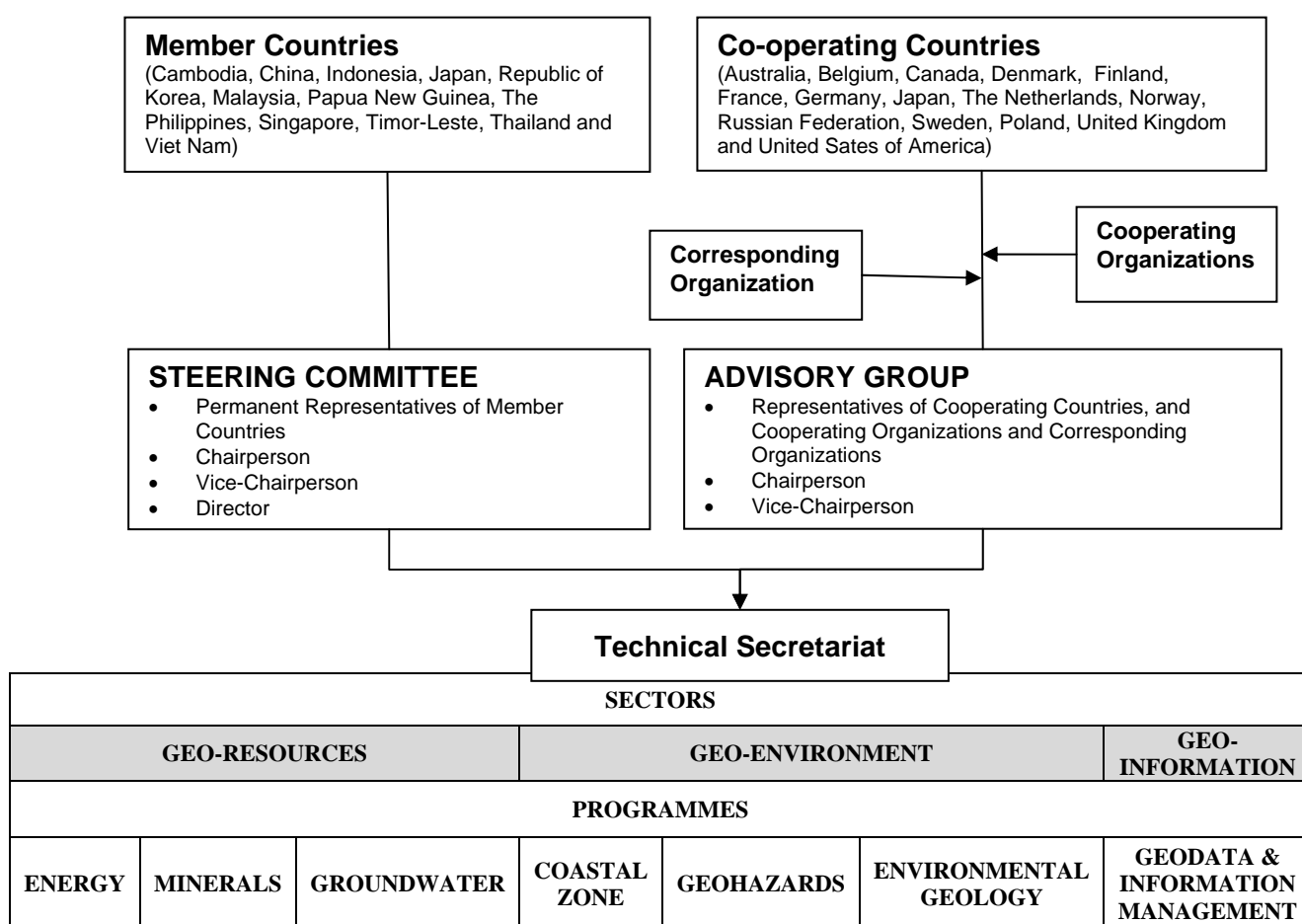
- ❑ Enhanced coordination of the geoscience programmes of the national geoscientific institutions of the CCOP member countries in order to promote cooperation and to maximize the benefits of programmes of regional significance.
- ❑ Continued human resource development and institutional capacity building in accord with national priorities in order to achieve greater regional self-sufficiency in providing the geoscience inputs to sustainable economic development, sound environmental management and improvement of the welfare of the people of the region.
- ❑ A greater flow of technical information between the member countries, cooperating countries and cooperating organizations of CCOP in order to share such information for their mutual benefit, to learn from each other’s experience and to identify further opportunities for cooperation in capacity building.

With the new Strategic Plan, CCOP’s technical activities were divided into three sectors and seven programmes that will allow the adoption of clear targets for the achievement of CCOP’s strategic objectives (Figure1).

- the **geo-resources sector**, consisting of the minerals programme, energy programme and groundwater programme;
- the **geo-environment sector**, consisting of coastal zone programme, geohazards programme and environmental geology programme;
- the **geoinformation sector** with the geodata and geoscience information management programme.

CCOP has 12 member countries; Cambodia, China, Indonesia, Japan, Malaysia, Papua New Guinea, The Philippines, Republic of Korea, Singapore, Timor-Leste, Thailand and Viet Nam. CCOP is being supported by 15 cooperating countries and 13 international organizations.

Figure 1. Operational Organization Chart of CCOP



The CCOP Technical Secretariat is responsible for the coordination of all activities carried out by CCOP. The Secretariat is headed by a Director, who reports to the CCOP Steering Committee consisting of one permanent representative from each member country. The Headquarters of the CCOP Technical Secretariat is located in Bangkok, Thailand.

CCOP's achievements have proven that it is a successful organization with following advantages in regional cooperation.

- Data exchange and sharing of institutional and administrative experiences
- Regional data compilation and regional resource mapping
- Training and human resource development

- Standardization of resource classification and nomenclature
- Harmonization of regulatory environment
- Joint investment promotion

CCOP's financial source includes the cash contributions made by the member countries, project management cost received from major projects and other incomes. Funds for most technical activities are provided under project support to activity by concerned cooperating countries, member countries and organizations.

I. Technical Activities

A number of workshops, seminars, training courses, working group meetings and expert visits were conducted during the reporting period. The Technical Secretariat has exceeded most of its planned targets under the three sectors on Geo-resources, Geo-environment and Geo-information, 7 programmes. During the reporting period 1 January to 31 December 2009, a total of 26 activities were carried out and attended by 1,179 participants from the Member Countries (**Table 1**). Aiming at capacity building, knowledge sharing and technology transfer, these activities were highly appreciated by the participants.

Table 1. Summary of CCOP Member Countries' Participation in Technical Activities

Sector	No. of activities	No. of participants
Geo-resources	15 (*5)	694 (*318)
Geo-environment	10	469
Geo-information	1	16
TOTAL	26	1,179

*CCOP-PETRAD Seminars

1. GEO-RESOURCES SECTOR

1-A. ENERGY PROGRAMME

1) CCOP-Norway Cooperation Program for Enhancing Public Petroleum Management of the CCOP Member Countries (EPPM)

The CCOP TS continues the implementation of the 4-year 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).

During the reporting period, a total of six (6) capacity-building workshops and one (1) Seminar were conducted. The titles of these activities are indicated below:

1. **EPPM P2W1:** Workshop on development of natural gas resources with high CO₂ & Carbon Capture and Storage (CCS) in CCOP, Bali, Indonesia, 17-20 March 2009.
2. **EPPM P3W1:** Workshop on metadata standards & requirement analysis for the CCOP Natural Gas Database Metadata, 1-3 April 2009, Shanghai, People's Republic of China.

3. **EPPM P1W1:** Workshop on the North Sumatra - Mergui Basin cross border case study - geology and tectonic setting, 12-14 May 2009, Krabi, Thailand.
4. **EPPM P2W2:** Workshop on natural gas field development with high CO₂ and H₂S - a case study on the Puguang Gas Field in Sichuan Basin, China, 15-18 September 2009.
5. **EPPM P3W2:** Workshop on metadata system development - Davao City, Philippines, 7-9 October 2009.
6. **EPPM Program Annual Seminar (S2):** on CCS Awareness & Networking of Petroleum Geoscience Institutes in the CCOP Region, 16-17 November 2009, Bangkok, Thailand.
7. **EPPM P2W3:** Workshop on the use of CO₂ for EOR and IOR and Gas Hydrates as Potential Energy Source, 8-11 December 2009, Danang, Vietnam.

A total of 299 participants attended the activities conducted in the period, mostly management representatives of regulatory and research organizations dealing on upstream oil and gas sector as well as representatives from environmental agencies, academes and national oil companies. Female participants represent ~30% of the total number of participants - among the highest in CCOP activities. Timor Leste, a new Member Country of CCOP is already participating actively in the EPPM Program activities.

2) CCOP/ASCOPE/PETRAD Programmes

With the technical and financial support of Royal Norwegian Government, CCOP/PETRAD cooperation to undertake activities at the request of CCOP Member Countries remained active and successful. The following seminars during report period 1 January to 31 December 2009, five seminars were held with the 381 participants have been organized in cooperation with CCOP and ASCOPE.

- **CCOP-PETRAD-PETRONAS Seminar on Integrated Operations** in Kuala Lumpur, Malaysia on 10-12 February 2009.
- **CCOP-PETRAD EPPM: Workshop on Development of Natural Gas Resources with High CO₂ and Carbon Capture and Storage (CCS) in CCOP was co-organized with PETRAD and LEMIGAS.** Completed with 55 participants. Time ? and where did you get it?
- **CCOP-PETRAD-ASCOPE Workshop on CO₂** in Manila, Philippines on 23-24 April 2009, completed with 47 participants.
- **CCOP-PETRAD-BPMIGAS-INTSOK Seminar on Stranded Gas** in Yogyakarta, Indonesia on 11-15 May 2009, completed with 141 participants.
- **CCOP-PETRAD-SINOPEC-MLR-CGS Workshop on Petroleum Resource Assessment** in Qingdao, China on 23-26 June 2009, completed with 75 participants.
- **CCOP-PETRAD-MLR-CGS-CNPC Seminar on Technology for Exploration of the Non-Structure Oil Pools and Unconventional Resource Play** in Dalian, China on 24-26 August 2009, completed with 51 participants.

- **CCOP-PETRAD EPPM Workshop on Natural gas Field with High CO₂ and H₂S - a case study of the Puguang Gas Field in Sichuan Basin, China** in Chengdu, China, completed with 42 participants.
- **CCOP-PETRAD EPPM Workshop on the Use of CO₂ for IOR and EOR and Gas Hydrates as Potential Energy Source** in Danang, Vietnam (report under EPPM Activities).

1-B. MINERALS PROGRAMME

1) CCOP-USGS Global Mineral Resource Assessment Project

The CCOP-USGS Global Mineral Resource Assessment Project (GMRAP) is part of a 5-year initiative to assess the identified and undiscovered non-fuel mineral resource of the world. The outcomes of CCOP-USGS cooperation in GMRAP are planned to be disseminated among CCOP Member, Cooperating Countries and Organizations through presentation in the dissemination meeting schedule in 2010.

2) Community and Small-Scale Mining in Asia (CASM-Asia) Project

Under recurrent activities of the project, CCOP was cooperating with two projects supported by JSPS (Japan Society for the Promotion of Science). The workshop on *CCOP-DMR-AIST-CASM Asia-Pacific Colloquium on "GERAS" A Computer Simulation Software for Environmental Studies* was held in Bangkok, Thailand on 23 January 2009. With the support from Geological Survey of Japan, CCOP is closely cooperating with University of Delhi to develop an internet-based CASM-Asia database. The database is being prepared to put on the CCOP website. In the year 2009.

1-C. GROUNDWATER PROGRAMME

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 with the Bangkok kick-off meeting was held on 1-2 October 2009. The meeting has agreed that "Seawater intrusion" "Land subsidence" and "Groundwater pollution" are the keywords to make a phase II project on the next stage. The first meeting on CCOP-GSJ/AIST Hydrological Mapping under CCOP Groundwater Project will be held on 2-3 March 2010, in Bangkok, Thailand aiming at finalized the three-year project proposal on hydrological mapping in Cambodia, Thailand and Vietnam.

2. GEO-ENVIRONMENT SECTOR

2-A. GEOHAZARDS PROGRAMME

1) Workshop "Management of Georisks - The role of Geological Agencies in Government Practice of Risk Reduction from Natural Disaster"

The aim of the workshop was to disseminate the results of the Indonesian-German Cooperation Projects of best practice and methodologies of georisk assessment and raising awareness as developed in GAI-BGR technical cooperation projects in Bandung und Banda Aceh to a professional audience of the CCOP member countries with interests in the field of Natural Disaster risk reduction and mitigation. The workshop, including field trips, was carried out during 23-25 June 2009 at Yorjakarta, Indonesia with the total number of 47 participants.

2) Tsunami Risk Reduction Measure Phase 2

During the report period, NGI started to work on technical aspects regarding the seismo-tectonics of the South China Sea region. Indonesia and the Philippines were identified as the case-study countries. The Philippines and Indonesia National Workshops were organized during 27-29 May 2009 and 1-3 June 2009 respectively with focus on audiences from local authorities with total number of participants of 159. The International Dissemination Symposium on the Tsunami Phase II Study and Training programme were organized by CCOP and Indonesia during 1-4 December 2009 with the total number of 91 participants locally and internationally.

3) GeoCoast; Geohazard Assessment in Asia and South Pacific Coasts

The GeoCoast project was introduced with an aim of promoting capacity-building of the Southeast and South Pacific countries in order to mitigate or adapt to coastal geohazards from the geological point of view. The International workshop on Geosciences' role on the issues of coastal geohazards was organized by CCOP-KIGAM during 1-4 September 2009 at Daejeon, Korea with the participants from CCOP Member Countries and South Pacific Countries.

2-B. COASTAL ZONE PROGRAMME

1) CCOP-GSJ/AIST Project on Integrated Geological Assessment of Deltas in Southeast Asia Phase 2 (DelSEA II Project)

CCOP had on-going activities with AIST/GSJ, Japan in 2008. DelSEA II Project (Integrated Geological Assessment for Deltas in Southeast and East Asia Phase 2 Project). The activity in collaboration between CCOP, Korea Institute of Geoscience & Mineral Resources (KIGAM) and AIST/ Geological Survey of Japan (GSJ) was organized in Daejeon, Korea on 3-5 March 2009 under the title "Workshop on Geological Studies for Coastal Areas, Onshore and Offshore: New Approaches and Concepts." The second activity was conducted jointly with Asia-Africa Science Platform program (JSPS) on the seminar on Coastal Erosion in Deltas for better understanding deltaic coasts and geological assessment for coastal management.

2-C. ENVIRONMENTAL GEOLOGY PROGRAMME

1) 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. The service is still open up to the maximum number of 500 samples per year and it will be continued through next year.

2) BGR-CCOP Workshop on Geological Storage of CO₂

The workshop was organized by CCOP and BGR, Germany with an aim of capacity building in developing CCOP Member Countries regarding the regulation of geological CO₂ storage as one mitigation option for reducing greenhouse gas emissions. The workshop (including fieldtrip) was carried out in Bangkok, Thailand during 22-26 June 2009. The total number of participant was 64.

3. GEO-INFORMATION SECTOR

1) GEO Grid

The GEO (Global Earth Observation) Grid is aiming at providing an E-Science Infrastructure for worldwide Earth Sciences communities to accelerate GEO sciences based on the concept that relevant data and computation are virtually integrated with a certain access control and ease-of-use interface enabled by a set of Grid and Web service technologies. On 17-18 March 2009, a Workshop on GEO Grid and Asian Geoinformation Infrastructure was organized by CCOP and the National Institute of Advanced Industrial Science and Technology (AIST), Japan.

2) OneGeology-CCOP

To date, CCOP's 1:2M Geologic Map of East and Southeast Asia and the 1:1M Geologic Maps of Indonesia, Japan, Korea, Philippines and Thailand have been made available and accessible through the portal, <http://portal.onegeology.org/>. The OneGeology-Global established a 1G Steering Group, comprising of 6 members, of which the CCOP TS Director is one, representing Asia. The First Steering Group Meeting was held on 23-24 April 2009, in Paris, France. The Director-General of the Geological Survey of Japan, AIST participated the meeting, on behalf of the CCOP TS Director who unfortunately couldn't attend the meeting.

3) CCOP Metadata Phase II

The CCOP Metadata Project Phase II has the objective of developing a comprehensive CCOP Metadata Standard for Geoscience in conformance with ISO19115 International Metadata Standard. On 1-3 April 2009, the Project cooperated with the EPPM's Workshop on Metadata Standards and Requirement Analysis for CCOP Natural Gas Resources Metadata held in Shanghai, China. The CCOP Standard for Geoinformation Metadata has been published in hardcopy with CDROM on October 2009. Consequently, the Metadata System based on this standard has been developed, and installed at the CCOP TS on December 2009 for beta testing.

4) CCOP Book Project 2009: "Geological Museums of East and Southeast Asia"

The planned book is aimed at being a companion volume for the 2008 CCOP book entitled "Geoheritage of East and Southeast Asia" which was published in December 2008 and has generally been well received. Taken together these two books will complete CCOP's central contribution to the UN International Year of Planet Earth (IYPE). It is planned to publish the 'Museums' book before the official ending of IYPE, that is June 2010.

4. FELLOWSHIPS AND GRANTS

1) East Asia Geoscience and Environmental Research (EAGER) Project

The EAGER Project is a trust fund set up in the Geological Society of America 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 deferred EAGER grant for 2008 and the grant for 2009 were awarded to Thailand and Vietnam respectively.

II. New Initiatives for 2010

1) Hostility on Geological Factors for Human Health in E & SE Asia.

Effects of global warming and climate change have contributed to the intensifying of surface geological processes and the severe weather condition resulting in the rapid change of the earth's surface. Drastic increase of soil erosion rate and the deteriorating of environmental condition have contributed to the growing number of cases on toxic contamination. The condition is even worse in naturally high toxic element content such as mining or mineralized areas. East and Southeast Asia is among the fastest growing region in term of economic development. Therefore, a vast quantity of geological resources, especially minerals, petroleum and construction materials have been extracted. In order to mitigate and prevent such health problem caused by geological factor, it is important that we gather the potential areas, understand the connection between geological factor and health. As well, be able to make use of geological material that human can gain some health benefit.

2) Geo-morphological Alterations Relating to Climate Change Impacts ; case study on the Upper Gulf of Thailand

Climate change consequences affect human living both in direct and secondary ways. So, it is necessary to understand the related geological processes because it is the basic knowledge, which can reveal the past events and forecast the arriving outcomes of climate change impacts. However, not only the natural climate change impacts that regulate the present outcomes but the man-made basis also play a significant role in climate change issue.

III. Publications

Eighteen newsletters, proceedings and reports were published during the reporting period. 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) were published on the CCOP website.

IV. Cooperation with ESCAP

ESCAP and CCOP continued to maintain frequent consultations and close cooperation through conducting technical activities, networking and exchange of publications. CCOP reports to the ESCAP Commission Sessions, takes part in the related technical meetings and participates in the Sub-Committee Meeting on Environment and Sustainable Development and ICT Committee Session.

ESCAP and CCOP are playing an active role in addressing regional energy security issues, disaster rehabilitation and mitigation efforts. CCOP values the opportunity to work together with ESCAP in the design and implementation of all of its programmes. CCOP has also several other initiatives on geohazards, coastal zone environment and groundwater, which provide a basis for further cooperation.

Acknowledgements

CCOP would like to thank all the member countries, cooperating countries and organizations for their support. The generosity of the Royal Thai Government, through the Department of Mineral Resources, in providing the office premise for the CCOP Technical Secretariat, and facilitating its smooth and efficient operation is gratefully acknowledged.

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