









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

## PROGRAMME LEAFLET

P2 W2: Workshop on Natural Gas Field with High CO<sub>2</sub> and H2S – a case study of the Puguang Gas Field in Sichuan Basin, China

15-18 September 2009 Chengdu, China

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

#### Project 2 (P2), Natural Gas Field Development and Environmental Issues

**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

#### A. Objectives:

To develop the capacities of the CCOP Member Countries regarding development of natural gas with high
 CO2 & H2S including options for the geological storage, to be enabled by knowledge and experiences

#### B. Workshop content:

- 1. Opening Ceremony
- 2. Technical Sessions
  - a. Development of natural gas with CO2 & H2S
    - i. Technology & case studies
    - ii. Phase behavior of natural gas with CO2 & H2S
    - iii. Forecasting and prevention of sulfur deposit
    - iv. Monitoring
  - b. Fracture prediction
    - i. Mechanism of fracturing
    - ii. Methods of prediction
    - iii. Modeling
  - c. Group Discussion, consultation & presentations
- 3. Evaluation, awarding of certificates and closing ceremony
- 4. Field Trip

#### C. Participants & resource persons

- 1. Representatives from the CCOP Member Countries with background on the topic will be invited to participate in the workshop. Also to be invited are representatives from ASCOPE, NOC's of China as well as academic institutions and research institutes (through CGS).
- 2. Resources persons from the CCOP and PETRAD networks.

#### D. Date & Venue

Date: 15-18 Sept 2009
 Venue: Chengdu, China

## **Program**

|              | Day 1: 15 Sep 2009, Tuesday                                      |                                        |
|--------------|------------------------------------------------------------------|----------------------------------------|
| 0830         | Registration                                                     | CCOP TS                                |
| 0900         | Opening Ceremony                                                 | CCOP TS                                |
|              | Welcoming Remarks                                                |                                        |
|              | - Mr. Zhang Jixing                                               |                                        |
|              | Deputy Director General                                          |                                        |
|              | Foreign Affairs Bureau                                           |                                        |
|              | SINOPEC                                                          |                                        |
|              | - Dr. Oystein Berg                                               |                                        |
|              | Managing Director                                                |                                        |
|              | PETRAD, Norway                                                   |                                        |
|              | Opening Address                                                  |                                        |
|              | Mr. Jiang Shijin, (on behalf of Dr. Zhang Hongtao)               |                                        |
|              | Director, Division of International Cooperation                  |                                        |
|              | China Geological Survey                                          |                                        |
|              | Exchange of tokens                                               | CCOP TS                                |
|              | Group Photo session                                              | CCOP TS                                |
| 0930         | Coffee/tea break                                                 | 0001 10                                |
| 1000         | Workshop Introduction                                            | Mr. S. P. Caluyong,                    |
| 1000         | - Updates on the EPPM Program                                    | EPPM Coordinator                       |
|              | - Summary report of P2W1- Bali                                   | CCOP TS                                |
| 1100         | Development and Production of Natural Gas in China               | PROF. JIPING PAN<br>MLR                |
| 1200         | Lunch                                                            |                                        |
| 1300         | The Development of Puguang Sour Gas Field                        | MR. ZENG PING                          |
|              | - a case study of natural gas development with high CO2 & H2S    | SINOPEC                                |
| 1400         | Acid Gas Disposal in Practice                                    | Mr. Bert Van Der Meer                  |
|              |                                                                  | TNO, Netherlands                       |
| 1500         | Coffee/tea                                                       |                                        |
| <b>1530</b>  | Subsurface Waste Gas Storage Capacity                            | Mr. Bert Van Der Meer                  |
| 4.600        |                                                                  | TNO, Netherlands                       |
| 1600         | Summary for Day 1                                                | EPPM Coordinator                       |
| 1830         | Welcome Dinner (smart casual, venue: Old Tea-House)              | Kindly hosted by                       |
|              | Day 2: 16 Sep, Wednesday                                         | SINOPEC                                |
| 0830         | 1                                                                | MR. SU JINYI                           |
| 0030         | The fracture prediction of tight clastic gas reservoir of the XC | SINOPEC                                |
|              | gas field of West Sichuan depression                             |                                        |
| 0915         | Developments in Wellbore Geophysical Data to Evaluate            | Mr. Doug Murray                        |
|              | Open Fractures                                                   | Schlumberger                           |
|              | - Technical Area: formation Evaluation / Petrophysics /          |                                        |
|              | Borehole Geophysics                                              |                                        |
| 1015         | - Best practices and Case studies                                |                                        |
| 1015         | Coffee/tea break                                                 | Dr Li Limina                           |
| 1045         | Discontinuum based modeling                                      | <b>Dr. Li Liming</b> SINTEF, Norway    |
| 1200         | Lunch                                                            | SINTLE, NOI way                        |
| 1300         | GSSP Shelter in H2S Operation                                    | Mrs. Liu Pingnan                       |
| <b>4</b> 000 | I GOOT OHERE HITHE OPERATOR                                      | ······································ |

|              | Country report on natural gas development in the Member                         | Member Countries  |
|--------------|---------------------------------------------------------------------------------|-------------------|
|              | Countries (max. 20 minutes)                                                     |                   |
|              | - Overview of geology & map showing gas fields and markets                      |                   |
|              | - Gas resources & potential                                                     |                   |
|              | - Current supply demand scenario (outlook for the next 10                       |                   |
|              | years)                                                                          |                   |
|              | <ul> <li>Natural gas development policy &amp; roadmap</li> </ul>                |                   |
|              | <ul> <li>Identify projects and/or research activities (current &amp;</li> </ul> |                   |
|              | planned) related to natural gas development – institutions                      |                   |
|              | involved & contact details                                                      |                   |
|              | - Issues & Challenges (including environmental issues)                          |                   |
| 1500         | Coffee/tea                                                                      |                   |
| 1530         | Continue with Country Presentations                                             | Member Countries  |
| 1630         | Summary for Day 2                                                               | EPPM Coordinator  |
|              | Day 3: 17 Sep, Thursday                                                         |                   |
| 0830         | Workshop: Addressing natural gas development                                    | Member Countries  |
|              | issues/challenges in the CCOP Region                                            |                   |
|              | - Indentifying the issues & challenges and possible                             |                   |
|              | solutions                                                                       |                   |
|              | <ul> <li>Research &amp; development – identify ongoing projects, how</li> </ul> |                   |
|              | projects of similar nature can be shared (resources,                            |                   |
|              | capacities, experiences/lessons learned, etc) among the                         |                   |
|              | Member Countries                                                                |                   |
|              | - Data & information sharing - how this can be done, what                       |                   |
|              | would be the role of CCOP Technical Secretariat & Member                        |                   |
|              | Countries                                                                       |                   |
|              | - What capacities need to be developed? Enhanced?                               |                   |
|              | - What & how can we contribute to address the                                   |                   |
|              | environmental issues related to natural gas development?                        |                   |
|              | <ul> <li>How do we convey the message to our policy</li> </ul>                  |                   |
|              | makers?                                                                         |                   |
| 1200         | - Group presentations                                                           |                   |
| 1200         | Lunch                                                                           | EDDM Coordinator  |
| 1300<br>1330 | Workshop summary & Way forward                                                  | EPPM Coordinator  |
| 1330         | Workshop evaluation & closing ceremony - Evaluation                             | CCOP TS/PETRAD    |
|              | - Awarding of certificates                                                      |                   |
|              | - Brief presentation of the field trip (SINOPEC)                                |                   |
|              | - Closing remarks                                                               |                   |
| 1500         | Cofffee/tea                                                                     |                   |
| 1830         | Farewell Dinner (smart casual, venue: 25 <sup>th</sup> Fl., Water Hotel)        | Hosted by CCOP TS |
| 1050         | Turewen Dinner (Smart eastar, Venae. 25) Th, Water Hotely                       | nosted by ddor 15 |
|              | Day 4: 18 Sep 2009, Friday                                                      |                   |
|              | 1-day Field Trip                                                                | Hosted by CCOP TS |
| 0730         | Departure from Hotel                                                            |                   |
| 1030         | Visit Dinosaur Museum                                                           |                   |
| 1200         | Lunch at Zigong                                                                 |                   |
| 1300         | Visit Well Shenhai and the Salt History Museum                                  |                   |
| 1630         | Departure from Zigong                                                           |                   |
| 1930         | Arrive at Water Hotel                                                           |                   |







## **EPPM Project 2 Workshop 2:**

# Workshop on Natural Gas Field with High CO2 and H2S – a case study of the Puguang Gas Field in Sichuan Basin, China 15-18 September 2009, Chengdu, China

| DISTINGUISHED GUESTS |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| NAME                 | POSITION / ADDRESS                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| 1) MR. JIANG SHIJIN  | Director, Division of International Cooperation (on behalf of Prof. Zhang Hongdao, Permanent Representative of China to CCOP) China Geological Survey 45 Fuwai Street, Xicheng District Beijing 100037, People's Republic of China Tel: (86-10) 5858 4680, Fax: (86-10) 5858 4681 E-mail: jshijin@mail.cgs.gov.cn                                                                                                                                          |  |
| 2) MR. TANG JIAGUI   | Deputy General Manager of SINOPEC Southwest Engineering Company (on behalf of Mr. Ma Yongzheng, Deputy Permanent Representative of China to CCOP) Division Director, Department of International Cooperation, Science and Technology, Ministry of Land and Resources (MLR) No. 64, Funei Street, Xicheng District Beijing 100812, People's Republic of China Tel: (86-10) 6655 8407, Fax: (86-10) 6612 7247 E-mail: yzma@mail.mlr.gov.cn, ma yzh@yahoo.com |  |
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| 5) PROF. XU XIANGRONG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | President                                                             |
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| 5) PROF. AU AIANGRONG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                       |
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| VA SV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SINOPEC Southwest Company                                             |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Petroleum Management and Administration (PETRAD)                      |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | P.O. Box 600, N-4003 STAVANGER, Norway                                |
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| ING. BERT VAN DER MEER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | The Netherlands Institute of Applied Geoscience TNO                   |
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| 96                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14 Jiu Xianqiao Road, Chaoyang District                               |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Uniteam International Beijing                                         |
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| LIST OF PARTICIPANTS       |                                                                                                                                                                                                                                                                                                                                                                    |  |  |
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PRESENTATION TOPIC: 1) Acid Gas Disposal in Practice
2) Subsurface Waste Gas Storage Capacity

Ing. Bert van der Meer graduated from the Technical University School of Amsterdam and has more than 32 years experience of all aspects of reservoir engineering and numerical simulation of subsurface fluid flow. He is a leading expert in CO2 storage in aquifers and depleted gas/oil reservoirs. The storage of CO<sub>2</sub> in coalbeds and the subsequently production of coalbed methane (CBM-ECBM). He has published a large number of papers covering the results of research activities related to CO2 storage in the subsurface. Furthermore, he is/was a member of several steering committees of CO<sub>2</sub> storage projects. As a senior consultant he conducted a large number of field studies and numerical reservoir simulation studies of oil and gas fields located in several hydrocarbon producing basins all over the world, including various compositional reservoir simulation studies to model gas/condensate recovery in carbonate reservoirs. As a senior reservoir engineer, he was assigned to various institutional support projects, including lecturing, training (formal courses, on-the-job). Training assignments include: YEPIC (Yemen), YEPDASP (Yemen), and Surinam projects. In a large International group of experts he conducted a review the hydrocarbons in-place and the recoverable reserves in Denmark. As a senior reservoir engineer, he was assigned to a large International group of Experts to study the possibilities of rehabilitation of the West Siberian Samotlor field.



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# <u>PRESENTATION:</u> Developments in Wellbore Geophysical Data to Evaluate Open Natural Fractures

**Technical Area: Formation Evaluation / Petrophysics / Borehole** 

Geophysics

#### Short Bio data:

Doug Murray is a Formation Evaluation Principal with Schlumberger Oilfield Services based in Beijing, China. He started his career as a wireline field engineer in Canada in 1982 and has held various positions in the field, management, engineering and formation evaluation. His career includes assignments to Canada, Algeria, Nigeria, Saudi Arabia, Trinidad & Tobago, Argentina, Japan and China.

He holds a Bachelors degree in electrical engineering from Lakehead University, Canada and a Masters degree in Management from Hull University, England.

#### Abstract:

In hard-rock environments like, many producing reservoirs in China, natural fractures play an important role in production. A good understanding of fracture attributes and their potential producibility are necessary for optimal well completion and maximum production.

The latest generation borehole resistivity image and sonic measurements, and their associated interpretations mark a significant leap forward in the understanding of natural fractures. The combination of near wellbore resistivity image analysis, sonic monopole, sonic dipole, low frequency sonic Stoneley measurements and the newly developing deeper reading (~15 meters) borehole acoustic reflection imaging technique provides a powerful technique to evaluate open natural fractures.

With reference to field examples, predominantly from the USA and China a summary of the recently developed and developing techniques applicable to open natural fracture evaluation is presented.



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#### PRESENTATION TOPIC: Discontinuum based modeling

#### **Short Biodata:**

Dr. Liming Li is a research scientist in SINTEF Petroleum Research, Norway. He obtained PhD in Formation Evaluation from Norwegian University of Science and Technology (2002), MSc in Rock Mechanics (1989) and BSc in Mining Engineering (1981) from Central South University of Science and Technology, China.

His main research interests are in the areas of geomechanics and rock physics, particularly in numerical modeling.

#### Abstract:

Rock is a heterogeneous material and often contains discontinuities at different scales. When the stress in the rock is altered, the discontinuities at smaller scale may coalesce into discontinuities at larger scale. For example, microcracks become macrocracks, or fractures and faults. The approaches to model rock can be divided into the continuum based method and the discontinuum based method, depending on if the discontinuities and the damage evolution in the rock are indirectly or directly modeled.

With an overview of different approaches, this presentation will focus on the discontinuum based method, mainly the discrete element method. The principle of that method will be briefly introduced, including the implementation of different fluid coupling algorithms and the thermal coupling scheme. Examples will be shown to illustrate how this method is used to study rock failure and fracturing process, wave propagation in heterogeneous media, stress effects on rock mechanical and petrophysical properties, geomechanical issues at different scales and so on.

In addition to above topic, a brief presentation will be given on "R&D projects at SINTEF Petroleum Research".



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PRESENTATION TOPIC: The fracture prediction of tight clastic gas reservoir of the XC

gas field of west Sichuan depression

#### Short Bio data:

Work in southwest petroleum branch SINOPEC from 2008

Engaged in seismic data interpretation and reservoir prediction.

#### **Abstract:**

The xujiahe formation of west Sichuan depression possesses the condition of forming big gasfields. The gas reservoir of xujiahe formation is buried depth, the sand body is compact and the heterogeneities are strong. The gas forms scale with the help of improving the penetrability with fracture. This article introduces some methods to predict the fracture with using PP&PS, from big scale fracture to small scale fracture, such as seismic attribute, geometric attribute, weak amplitude, PP/PS azimuthal anisotropy. At last, we talk about the fracture comprehensive evaluation.



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PRESENTATION TOPIC: The Development of Puguang Sour Gas Field

#### Short Bio data:

Conferred the doctorate degree on engineering at South-West Petroleum University (SWPU). Working at EPRIS since 2006.

#### **Abstract:**

- 1. An overview of Puguang sour gas field
- 2. Development of sour gas phase
- 3. Prediction of elemental sulfur deposited and treatment



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PRESENTATION TOPIC: Development and Production of Natural Gas in China

#### **Short Bio data:**

In June, 1998, graduated from Petroleum University of China (Beijing), and got degree of Master of petroleum geology. In June 2001, graduated from China Geosciences of University (Beijing), and gained Ph. D. of petroleum geology. In July, 2001, have got my job in Ministry of Land and Resources, China, and have started to be engaged in the study of petroleum geology and research of development strategy and planning of oil and gas resources.

From September, 2004 to November, 2005, appointed vice mayor of Pengzhou City of Sichuan Province and, and was in charge of petrochemical industry and some administrative affairs.

From August, 2007 to January, 2008, joined in international mineral resources management in Canada and worked in Ministry of Northern Development and Mines, Ontario, Canada.

In the past years, Taken part in national research projects "China Sustainable Supply Strategy of Oil and Gas Resources", "Development Strategy of China Oil Industry" by MLR, "Mid-Long Term Development Planning of China Petroleum Industry" by National Development and Reform Committee (NDRC), "Development Strategy of China Offshore Oil Industry" by MLR. Now join in national petroleum geological survey and assessment by MLR, and lead projects "Study of Policies of Development of Marginal Petroleum Resource" and "Research of Development Policies of Shale Gas "by National Energy Administration (NEA).

#### **Abstract:**

China has good geological conditions for natural gas accumulations, and has rich gas resource. It has been assessed that there is about 27 Tcms of recoverable gas resources in China, more than70% of which concentrate on the less than 10 basins. By the end of 2008, over 200 gas fields have been discovered in China, total in-place reserve of natural gas in China adds up to 7.83 Tcms. Since 1990s, gas reserve has increased fast, and gas exploration enters a stage of fast reserve growth. Totally, development and production of natural gas in China obviously drop behind gas exploration. By the end of 2008, gas production has reached 77.5 Bcms. Recently, China's gas market has developed rapidly, and gas consumption has increased sharply. However, some serious issues and challenges are so unfavorable to development of China's gas industry in the coming years. Strengthen gas E&D and constructions of infrastructures, reform polices of gas prices and tax, open more gas markets to private investors are measures and suggestions to ensure healthy and fast development of China's gas industry.



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PRESENTATION TOPIC: GSSP shelter in H2S operation

#### Main contents:

1.H2S is a big challenge for gas field development and high risk for the operation during H2S accident, examples in China with lessons

2. The international rules for H2S operation

3.How GSSP shelters can protect people's live during H2S operation, practical exemples in Kazakstan. The importance of GSSP shelters both for safety production and for environmental protection during H2S operation.

4. The development of GSSP shelter technilogy and utilization in China

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#### PETRAD'S REPRESENTATAIVE



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#### Dr. Øystein Berg

Dr. Berg holds a BSc in Civil Engineering from Queens University of Belfast, Northern Ireland, as well as a Postgraduate Diploma in Industrial Administration and PhD in Business Administration from The Management Centre, Bradford, England.

Dr. Berg worked as a Management Consultant for the IKO Consultancy Group from 1976 to 1978. He was then appointed by the Norwegian Petroleum Directorate as Project Manager for 1/3 of the largest Safety Research Programme ever undertaken in Norway, 'Safety on the Norwegian Continental Shelf'. Dr. Berg was managed a total of 51 R&D projects from 1978 until 1981.

Between 1981 and 1989, Dr. Berg held various positions in the Norwegian Petroleum Directorate such as Director for the Department of Marine Technology, Director of the Strategy Department in the Safety Division and also deputized as Director of Safety.

In 1989 Dr. Berg was called upon by the Norwegian Government to develop the Petrad Programme (International Programme for Petroleum Management and Administration). Currently Dr. Berg serves as Managing Director for Petrad.

Dr. Berg has participated in a large number of national and international advisory committees in the petroleum sector and within R&D. He has since 1984 been Advisor to Government Agencies and National Oil Companies in East and South East Asia through the CCOP and ASCOPE Organizations. Prior to establishing Petrad, Dr. Berg also lectured on topics related to industrial maintenance, risk and reliability and safety in the offshore petroleum industry in USA, Asia and Europe.

Dr. Berg received in 2004 the "Friendship Award" from the Chinese Government for long standing cooperation on knowledge transfer in the petroleum sector. This is the highest award given to foreigners by the Chinese Government.

Dr. Berg was in May 2006 appointed to the Academic Advisory Board of University Teknologi Petronas, Malaysia, under the Chairmanship of former Prime Minister of Malaysia, Dr. Mahathir Mohamed. From 2007 Dr. Berg has been a member of the 3 man nominations committee for the Malaysian 'Merdeka Award' – Health, Science and Technology category.

## **NOTE FOR INFORMATION**

| Accommodation                  | Water Hotel & Spa                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | Address: No.53-57, Taisheng South Road, Chengdu, China. Zip: 610016                                                                                                                                                                                                                                                                                                                                         |
|                                | Tel.: +8628-82988888 Fax: +8628-82988777                                                                                                                                                                                                                                                                                                                                                                    |
|                                | Website: http://www.water-hotel.com/                                                                                                                                                                                                                                                                                                                                                                        |
| CCOP Group<br>Hotel Room Rates | Single / Twin occupancy RMB 380. (~ USD 57) nett / room / night (incl. buffet breakfast)                                                                                                                                                                                                                                                                                                                    |
|                                | The above rates are inclusive of service charge and government tax. Upon checking in at the hotel, delegates may be requested to provide your credit card imprint or cash payment for one night accommodation for guarantee. Please be prepared for such request.                                                                                                                                           |
|                                | CCOP, as the organizer, will reserve the hotel rooms on behalf of all delegates. Single rooms will be automatically reserved for each nominated delegate both sponsored and own-cost unless requested otherwise. Cancellation of room or no show will incur one night room charge which will fully be borne by the delegate. Any inquiry in regard to room reservation should be directed to the organizer. |
| Meeting Venue                  | Ziyantang Room, 12 <sup>th</sup> Floor                                                                                                                                                                                                                                                                                                                                                                      |
| Meeting Package                | 2 coffee breaks and 1 Lunch during the workshop will be sponsored by the project to both sponsored and own-cost foreign delegates.                                                                                                                                                                                                                                                                          |
| Internet                       | Complimentary: Free of charge                                                                                                                                                                                                                                                                                                                                                                               |
| Evening Functions              | Welcome Dinner on Tuesday 15 September (kindly hosted by SINOPEC)                                                                                                                                                                                                                                                                                                                                           |
|                                | Farewell Dinner on Thursday 17 September (kindly hosted by CCOP-EPPM)                                                                                                                                                                                                                                                                                                                                       |
|                                | Details to be announced, Round-trip transport from Hotel will be provided, if required.                                                                                                                                                                                                                                                                                                                     |
| Excursion                      | 1-day excursion organized and sponsored by CCOP-EPPM on 18 September.                                                                                                                                                                                                                                                                                                                                       |
| Airport Transfer               | Round-trip transfer service is arranged in coordination with SINOPEC&CGS to both sponsored and own-cost foreign delegates according to their flight schedules.  Representatives from SINOPEC will wait at the arrival hall with CCOP signage.                                                                                                                                                               |
|                                | Note: Passengers no longer have to pay airport departure tax in China.                                                                                                                                                                                                                                                                                                                                      |

| Visa Requirements                    | Delegates will receive "Acceptance Letter" issued by the CCOP as organizer via fax and/or E-mail for the travel approval from their organizations and will receive "Official Invitation Letter" from Ministry of Land and Resources (MLR), China via fax and/or E-mail to apply and obtain entry visa to China in advance.                                                                                                                                                                                         |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                      | Note: The delegates must possess a passport valid for at least six months upon arrival                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Sponsorship                          | Daily Subsistence Allowance (DSA): will be distributed to sponsored participants at registration on 15 September from 8:30-9:00 am. This DSA covers accommodation (based on single occupancy rate), meals and any incidental expenses. Sponsored participants are to settle the payment of their room and personal expenses with the hotel directly. In case of compulsory overnight transit, the cost of extra nights will also be calculated into the DSA and assistance will be provided for hotel reservation. |
|                                      | <b>Air-tickets:</b> Sponsored participants are kindly requested to purchase the air-ticket for reimbursement upon the provision of original receipt indicating CCOP-approved airfare.                                                                                                                                                                                                                                                                                                                              |
| Travel Insurance                     | Delegates are strongly recommended to obtain the travel insurance plan that suits their needs.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Activity Record                      | A USB drive will be provided to all participants to record the presentations, final name list with contact details of delegates and pictures.                                                                                                                                                                                                                                                                                                                                                                      |
| Currency                             | USD 1 ~ RMB 6.7 (as of July 2009)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Climate                              | Autumn Season, temperature is 18-29° C                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Time Zone                            | GMT+8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| For more information, please contact | Mr. Simplicio P. Caluyong  EPPM Project Coordinator  CCOP Technical Secretariat  CCOP Building  75/10 Rama VI Rd., Phayathai, Ratchathewi, Bangkok 10400, Thailand  Tel: +66 (0) 2644 5468 ext. 503, Fax: +66 (0) 2644 5431, Mobile +66 (0) 81 827 0527  E-mail sim@ccop.or.th, Website: www.ccop.or.th, Skype: Sim Caluyong                                                                                                                                                                                       |



# PETRAD – INTERNATIONAL PROGRAMME FOR PETROLEUM MANAGEMENT AND ADMINISTRATION

Petrad is a Norwegian Government Foundation established in 1989 to facilitate sharing of knowledge and experience on Petroleum Management, Administration and Technology between managers and experts within Governments and National Oil Companies.

Petrad arranges tailor-made courses and seminars covering a wide range of topics on the management of petroleum resources. The activities are conducted in Norway and abroad lasting from 1 day to 10 weeks. The courses and seminars have a practical focus.

Petrad also conducts Training Needs Assessments and assistance with Institutional Development.

Petrad draw on resource persons and lecturers from the total Norwegian and International petroleum industry. They hold considerable experience from senior managerial and technical positions with Government, Operating-, Engineering- and Service Companies, Consultancies, R&D Institutions and Universities.

Petrad has arranged a total of more than 400 courses and seminars with more than 14.000 participants from 98 countries.

#### PETRAD PRODUCTS & SERVICES

#### **8-WEEK COURSES**

(Stavanger, Norway – annually)

- Petroleum Policy and Resource Management
- Petroleum Development and Operations

#### TRAINING MODULES

(World wide – on request)

- Policy and Management of Petroleum Sector development
- Good Governance
- Resource management
- Revenue management
- Environment management
- Legislation Licensing
- Contracts for the Petroleum Sector
- Local Content Anti-corruption
- Petroleum Sector Understanding for the Civil Society
- Fiscal Metering Data Management
- Downstream Petroleum Management
- HSE Health, Safety and Environment Management

#### TAILOR MADE SEMINARS

(World Wide – on request)

- All topics within petroleum management, administration and technology

## TNA – TRAINING NEEDS ASSESSMENT

(World Wide – on request)

#### INSTITUTIONAL DEVELOPMENT

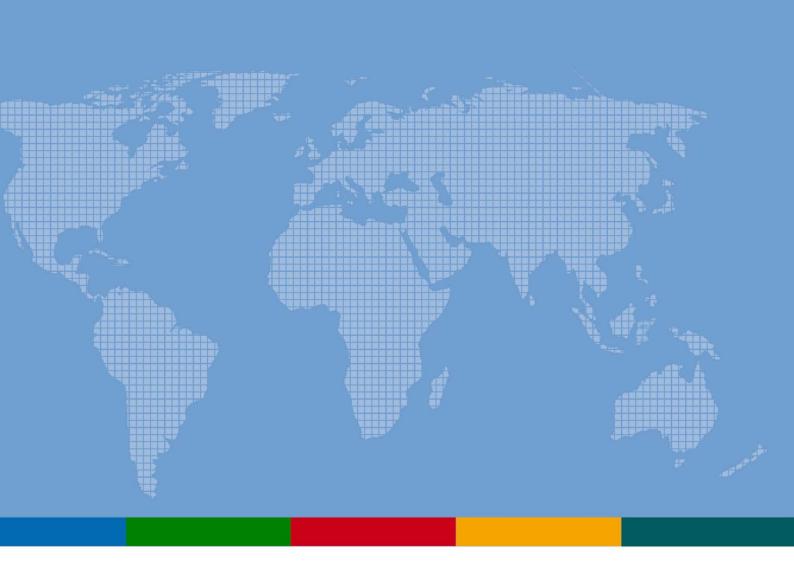
(World Wide – on request)

For further information please contact:

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