CCOP-DANIDA
Institutional Capacity Building Project ICB-CCOP1
Training Course in digital mapping: From Data Catch to Depth Map
GIS in Hydrocarbon Exploration
4-7 June 2007, Bali, Indonesia

Date and Venue:

The training course was held on 4-7 June 2007 at the Inna Kuta Beach Hotel, Bali, Indonesia
Address: Jl. Pantai Kuta 1, Kuta PO.Box 3393, Denpasar 80361 Bali - Indonesia
Phone: 62-361-751361 Fax: 62-361-751362
E-mail: http://www.innakutabeach.com/home.asp

Local Organizer: LEMIGAS

Participants:

Thirty-four (34) geoscientists from Cambodia, China, Indonesia, Korea, Malaysia, The Philippines, Thailand and Vietnam, eight (8) CCOP Member Countries attended the training course. Among them, three (3) participants are female.

The detailed list of participants is attached as Annex 1.

Program:

The training course is designed for knowledge transfer on digital mapping, the methodology and related software application for the project case study. The three distinguished lecturers from GEUS were invited as the resource persons, as well as one expert from LEMIGAS.

To meet the expectations of the oil industry and to ease the workflow towards mature prospects, it is important to use state-of-the-art procedures in digital mapping. The course is schemed to briefly guide participants through the more important steps in digital mapping in hydrocarbon exploration. The course presents a general Geographic Information System (ArcGIS), special software for grid interpolation (Landmark) and the physical background for conversion of two-way travel time maps to depth maps. The lectures consist of theory as well as hands-on exercise. The detailed program of the training course is provided as Annex 2.
Background of the Training Course:

This training course is arranged as an introduction into digital mapping, especially for the people involved in the cross-border case study mapping.

A large number of parameters have to be taken into account during the generation of digital maps. A comprehensive knowledge of the mapping toolbox is crucial for the quality of the evolving maps.

Participants would be introduced and given opportunities to practice on a series of tools which are common for the geological mapping. Special efforts are put into the selection of gridding type and algorithms to be utilized for given data distributions. The resemblances of the applied methods would be discussed.

At the same time, the course will take all participants together with geoscientists who are involved in mapping projects in different regions of East and Southeast Asia. This will provide participants with a unique opportunity to discuss with their colleagues of the common grounds needed for the cross-border mapping project. The topics include the type of spheroid, projection and projection code to use and what type of depth conversion would be prudent.

Record of the Training Courses:

At the opening ceremony on the first morning of the training course, Dr. Hee-Young Chun, Director of CCOP Technical Secretariat, made the welcome address to all participants from CCOP Member Countries. He said that the ICB-CCOP 1 project was of great importance for the region. He mentioned, besides the geoscientific aspects, it had great significance in promoting cross-border understanding and cooperation. Finally, on behalf of CCOP, he expressed his sincere thanks to the Royal Danish Government through the Royal Danish Embassy in Bangkok for the generous support for this Project. And his appreciation went to Mr. Bambang Dwiyanto, the Permanent Representative of Indonesia to CCOP, Head of Geological Agency for his support and Mr. Hadi Purnomo for his gracious presence in this ICB-CCOP1 Opening Ceremony of the Training Course, as well as the strong support from local organizer, Lemigas (Annex 3 Dr. Chun’s speech).

Subsequently, on behalf of Mr. Bambang Dwiyanto, Permanent Representative of Indonesia to CCOP, Head of Geological Agency of Indonesia, Mr. Hadi Purnomo, Head of LEMIGAS, National Coordinator of Geo-resources sector to CCOP, made the opening address. He reviewed the involvement of Indonesia in the implementation of the ICB-CCOP1 Project. He said the technology transfer, experience sharing and regional cooperation promotion through the implementation of the ICB-CCOP1 Project is opportune demand and benefits to the CCOP Member Countries under the circumstance of high oil price and increasing of oil consumption. He also expressed the gratitude to the donor, DANIDA and the cooperation from CCOP Technical Secretariat and his willing for the success of conducting the training course. Then, he announced
the training officially opened (Annex 4 Mr. Purnomo’s address).

Afterward, Mr. Ioannis Abatzis, Permanent Representative of Denmark to CCOP, Senior Advisor of ICB-CCOP1 Project addressed his welcome remarks with brief review of the ICB-CCOP1 Project.

The training courses composed of three parts: lecture, discussion and exercise. The three (3) full-day indoor training started with Mr. Ioannis Abatzis’ instruction on the topic of “Knowledge Integration and Dissemination for the Exploration and Production of Oil and Gas Resources”. Then the instructors made very informative presentations to all participants respectively, from ArcGIS software application to Zmap Plus software application. The resource persons from GEUS brought 7 laptops with pre-installed Landmark and ArcGIS software to facilitate the exercise for all participants. Meanwhile, most of the participants’ laptops were installed with the ArcGIS software (free trace version) for practice. In the last afternoon, Mr. Suliantara, Lead of Remote Sensing and Geographic Information System, LEMIGAS made presentation on “Application Geographic Information System Technology in Oil and Gas Activities”. He introduced the construction and application of GIS technology in Indonesia and shared their current achievements and experience with all participants.

Since this training course was well-prepared with theoretical methodology instructions and intensive exercises, all the participants from CCOP Member Countries were deeply involved in it, and most of them asked the questions interactively to the instructors and actively participated in discussion, especially the participants from Indonesia, Korea, Malaysia and Vietnam. At the end of the indoor training course, the certificates were issued to all participants. And the evaluation form of the training courses has been distributed to all participants. The evaluation form was very integrative including the content of training, instructor, organizing, accommodation and impact, etc. The feedback was received immediately which would help improving the organizing of the future training courses (Annex 5).

Inputs of the training course were mainly derived from the knowledge and experience of the three invited resources persons from GEUS, as well as one expert from LEMIGAS. The knowledge, new technology, and experience were delivered throughout the training. Experts’ generous contributions were highly appreciated.

Through the common efforts, the training course was very successfully conducted. By the end of this training, participants had a better understanding of how to:

- Generate custom basemap and cross section pictures, adding various margin features, seismic data and posted wells
- Choose the correct gridding method to use with different data forms and in various situations
- Understand the various gridding algorithms and their associated parameters and how to choose the optimal setting using a work map
- Employ various operations to generate and/or refine grids and data
- Perform advanced picture-oriented tasks
The impact of the training course is obvious. As the participants mentioned in their evaluation form, this training met their expectations very well. The knowledge, technology and experience will not only benefit the participants themselves in their work but also their colleagues in their institute in the near future for their research projects. Some of them will apply the knowledge learned from the training to the ICB-CCOP1 Project case study. Like most participants mentioned, they are very satisfied with the arrangement of the training course. After three-day indoor training, the last day was arranged for excursion. The local host, LEMIGAS, kindly sponsored the welcome dinner and arranged all participants to go to the newly-founded Batur Volcano Museum, which not only provided an unique opportunity to all participants to get more knowledge on volcanic geology but also offered a good chance to enjoy the beautiful scenery of Bali as well as the culture and tradition of Indonesia. This activity enhanced the understanding of Indonesian culture and developed the friendship among all participants, which promoted the cultural diversity and built harmony within the society of the CCOP Member Countries.
Group photo of all the ICB-CCOP1, 1st Indonesia Training Course participants

Opening Ceremony on 4 June, 2007
CCOP-DANIDA Institutional Capacity Building Project ICB-CCOP1
Training Course in digital mapping: From Data Catch to Depth Map
GIS in Hydrocarbon Exploration
4-7 June 2007, Bali, Indonesia

Lecture by Mr. Ioannis Abatzis
Lecture by Mr. Bjorn Hermansen
Lecture by Mr. Peter Britze
Lecture by Dr. Peter Japsen
Lecture by Mr. Suliantara
Discussing
Welcome Dinner hosted by LEMIGAS

Performance during the Welcome Dinner
Participants Visiting Batur Volcano Museum

Volcanic Geology of Batur Volcano

Participants Visiting Model of Batur Volcano

Participants Visiting Batur Volcano Museum

Participants Visiting Lake inside the Batur Volcano Crater
## DISTINGUISHED GUESTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION / ADDRESS</th>
</tr>
</thead>
</table>
| 1) MR. HADI PURNOMO         | Head  
LEMIGAS  
National Coordinator for Geo-resources sector, CCOP  
Jalan Ciledug Raya, Kav. 109, Cipulir, Keb-Lama  
Jakarta Selatan 12230, Indonesia  
E-mail: kapus@lemigas.esdm.go.id |
| 2) MR. IOANNIS ABATZIS      | Representative of Denmark to CCOP  
Senior Advisor  
Geological Survey of Denmark & Greenland (GEUS)  
Oester Voldgade 10, 1350 Copenhagen K, Denmark  
Tel: (45) 3814 2516, Mobile: (45) 2030 7012  
Fax: (45) 3814 2050  
E-mail: ia@geus.dk |

## RESOURCE PERSONS

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION / ADDRESS</th>
</tr>
</thead>
</table>
| 1) DR. PETER JAPSEN         | Research Geophysicist  
Senior Research Scientist  
Geological Survey of Denmark & Greenland (GEUS)  
Tel: (45) 3814 2000  
Fax: (45) 3814 2050  
E-mail: pj@geus.dk |
| 2) MR. BJORN HERMANSEN      | GIS-coordinator, Senior Adviser  
Head of GIS-laboratory  
Geological Survey of Denmark & Greenland (GEUS)  
Tel: (45) 3814 2000  
Fax: (45) 3814 2050  
E-mail: bjh@geus.dk |
| 3) MR. PETER BRITZE         | Petroleum Geologist  
Senior Adviser  
Geological Survey of Denmark & Greenland (GEUS)  
Tel: (45) 3814 2000  
Fax: (45) 3814 2050  
E-mail: pbr@geus.dk |
### FINAL LIST OF PARTICIPANTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION / ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAMBODIA</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 1) MR. SAMNANG CHAP | Staff  
Cambodian National Petroleum Authority (CNPA)  
#13-14 Russian Federation Blvd., Sangkat Kakab,  
Khan Dangkor, P.O. Box 1442,  
Phnom Penh, CAMBODIA  
Tel: (855 12) 943 344 , Fax: (855 23) 855 989  
E-mail: socheat63@hotmail.com |
| **CHINA** | |
| 2) DR. CAI FENG | Chief Researcher  
Qingdao Institute of Marine Geology  
62 Fuzhou Rd. Qingdao,  
Shandong, 266071, People’s Republic of China  
Tel: 86-0532-8575 5821  
Fax: 86-0532-8572 0553  
E-mail: gdcfeng@cgs.gov.cn |
| 3) DR. ZHANG YONG (OWN COST) | Engineer  
Qingdao Institute of Marine Geology  
62 Fuzhou Rd. Qingdao,  
Shandong, 266071, People’s Republic of China  
Tel: 86-0532-8077 8376  
Fax: 86-0532-8572 0553  
E-mail: robot_zhang@263.net |
| 4) DR. WANG LIAOLIANG (OWN COST) | Deputy Director  
Guangzhou Marine Geological Survey, CGS  
No. 188, Guanghai Road, Huangpu District  
Guangzhou, 510760, People’s Republic of China  
Tel: (86-20) 82251651  
Fax: (86-20) 87765102  
E-mail: liaoliangwang@163.com |
<table>
<thead>
<tr>
<th></th>
<th>Name and Title</th>
<th>Institution and Address</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>MR. WAN RONGSHENG (OWN COST)</td>
<td>Geologist, Guangzhou Marine Geological Survey, CGS</td>
<td>Tel: (86-20) 8225 0352, Fax: (86-20) 8776 5102, E-mail: <a href="mailto:wanrsh@sohu.com">wanrsh@sohu.com</a></td>
</tr>
<tr>
<td>6</td>
<td>MR. DONG BEN SONG (OWN COST)</td>
<td>Senior Engineer, CNOOC Limited</td>
<td>Tel: (86-10) 8452 2039, Fax: (86-10) 6401 1987, E-mail: <a href="mailto:dongbs@cnooc.com.cn">dongbs@cnooc.com.cn</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>INDONESIA</strong></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>MR. IMAM SETIADI</td>
<td>Geophysicist, Centre for Geological Survey, Geological Agency, Ministry of Energy and</td>
<td>Tel: (62-22) 720 3205, Fax: (62-22) 720 2669, E-mail: <a href="mailto:imam_setiadi@grdc.esdm.go.id">imam_setiadi@grdc.esdm.go.id</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mineral Resources</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>MR. SIGIT ARSO WIBISONO (OWN COST)</td>
<td>Staff on Fossil Fuel Energy, Centre for Geo-Resources, Geological Agency, Ministry of Energy and Mineral Resources</td>
<td>Tel: (62-2) 520 2698/ (62-81) 380192450, E-mail: <a href="mailto:sigit_102@yahoo.com">sigit_102@yahoo.com</a></td>
</tr>
<tr>
<td>9</td>
<td>MR. SUKAHAR EKA ADI SAPUTRA (OWN COST)</td>
<td>Geologist, Centre for Geological Survey, Geological Agency, Ministry of Energy and Mineral Resources</td>
<td>Tel: (62-22) 720 3245 ext. 226, Fax: (62-22) 720 2669, E-mail: <a href="mailto:sukahareka@grdc.esdm.go.id">sukahareka@grdc.esdm.go.id</a></td>
</tr>
<tr>
<td>10</td>
<td>MR. EDDY MULYADI (OWN COST)</td>
<td>Chief of Planning and Reporting Division, Secretariat of Geological Agency</td>
<td>Tel: (62-22) 721 7321, E-mail: <a href="mailto:eddy@bgl.esdm.go.id">eddy@bgl.esdm.go.id</a>, <a href="mailto:eddy@vri.esdm.go.id">eddy@vri.esdm.go.id</a></td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Position</td>
<td>Company</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>----------</td>
<td>---------</td>
</tr>
<tr>
<td>11)</td>
<td>MR. FACHRURAIZIE (OWN COST)</td>
<td>Geomatatic Data Processing</td>
<td>EP Technology Centre PERTAMINA Hulu</td>
</tr>
<tr>
<td>12)</td>
<td>MR. HAFZAL HANIEF (OWN COST)</td>
<td>Geomatic Specialist</td>
<td>EPTC PT PERTAMINA Hulu</td>
</tr>
<tr>
<td>13)</td>
<td>MR. SAIFUL ANAM (OWN COST)</td>
<td>Staff of geomatic department</td>
<td>PT PERTAMINA-EP</td>
</tr>
<tr>
<td>14)</td>
<td>MR. HADI PURWANA (OWN COST)</td>
<td>Geomatics staff</td>
<td>PT PERTAMINA-EP</td>
</tr>
<tr>
<td>15)</td>
<td>MR. SULISTYA HASTUTI WAHTU (OWN COST)</td>
<td>Head of Field Survey</td>
<td>BPMIGAS</td>
</tr>
<tr>
<td>16)</td>
<td>MR. CHANDRA NEGARA (OWN COST)</td>
<td>Exploration Geologist</td>
<td>BPMIGAS</td>
</tr>
</tbody>
</table>
| **17)** Mr. Surya Widyantoro  
(Own Cost) | Geologist Exploration  
Government Executive Agency for Upstream Oil & Gas  
Business Activity (BPMIGAS)  
Patra Office Tower 22nd floor Wing 1V  
JL. Jend. Gatot Subroto Kav. 32-34  
Jakarta 12950, Indonesia  
Tel: (62-21) 5290 0246 ext. 4917  
Fax: (62-21) 5290 0889  
E-mail: suryaw@bpmigas.com |
| **18)** Mrs. Dwi Hendayanti  
(Own Cost) | Data Management Coordinator  
Pearl Oil  
Jl. HR Rasuna Said Blok 8-5 Kav 2-3  
Kuningan, Jakarta 12950, Indonesia  
Tel: (62-21) 5790 3903 ext. 227  
Fax: (62-21) 5790 4023  
E-mail: dwi_hendayanti@jkt.pearlenergy.com |
| **19)** Mr. Rumlan Dwiyatno  
(Own Cost) | Chief Geophysicist  
PETROCHINA International Bangko LTD.  
Jln. H.R. Rasanasaid Block X-7, Kav 5  
Jakarta 12940, Indonesia  
Tel: (62-21) 5794 5300  
Fax: (62-21) 5794 5301  
E-mail: r.dwiyatno@petrochina.co.id |
| **20)** Mr. SaptO Agus Sudarmanto  
(Own Cost) | Petroleum Engineer  
JOB Pertamina-Petrochina Salawati  
Patra Office Tower 15th floor  
Jl jend. Gatot Subroto Kav 32-34, Indonesia  
Tel: (62-21) 520 1624  
Fax: (62-21) 525 4915  
E-mail: saptO@jobppej-pps.com |
| **21)** Mr. Mochammad Yunus  
(Own Cost) | Chief Geologist  
Joint Operating Body Pertamina-Petrochina East Java  
Patra Office Tower 5th floor  
Jl jend. Gatot Subroto Kav 32-34, Indonesia  
Tel: (62-21) 520 1622  
Fax: (62-21) 529 0651  
E-mail: m.yunus@jobppej-pps.com |
| **22)** Mr. Hari Supiyanto  
(Own Cost) | Advisor Geophysical Field Operation  
PT CHEVRON Pacific Indonesia  
PT CPI, Rumbai, Pekanbaru, 28271, Indonesia  
Tel: (62-7) 5194 4563  
Fax: (62-7) 5194 2079  
E-mail: hrsupiy@chevron.com |
<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
<th>Address</th>
<th>Telephone</th>
<th>Facsimile</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALAYSIA</td>
<td>MS. NORZILAH BT. JAFFAR</td>
<td>Data Management Executive</td>
<td>Exploration &amp; Production</td>
<td>PETRONAS</td>
<td>Tel: (603) 2331 3065 Fax: (603) 2331 5956</td>
<td><a href="mailto:zilah@petronas.com.my">zilah@petronas.com.my</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Level 23, Tower 2, PETRONAS Twin Towers,</td>
<td>Kuala Lumpur City Centre, 50088, Kuala Lumpur, Malaysia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHILIPPINES</td>
<td>MR. RONALD ALLAN FUA BONIQUIT</td>
<td>Science Research Specialist II</td>
<td>Department of Energy</td>
<td>Energy Center, Merritt Road, Fort Bonifacio, Taguig City, Metro Manila, Philippines</td>
<td>Tel: (632) 812 4016 Fax: (632) 840 2206</td>
<td><a href="mailto:rboniquit@doe.gov.ph">rboniquit@doe.gov.ph</a>, <a href="mailto:rafboniquit@gmail.com">rafboniquit@gmail.com</a></td>
<td></td>
</tr>
<tr>
<td>KOREA</td>
<td>DR. SEONG-PIL KIM</td>
<td>Senior Research Scientist</td>
<td>Korea Institute of Geoscience and Mineral Resources (KIGAM) Petroleum and Marine Resources Division</td>
<td>Kajeong 30, Yuseong, Daejeon, 305-350, Korea</td>
<td>Tel: (82 42) 868 3192 Fax: (82 42) 868 3417</td>
<td><a href="mailto:spkim@kigam.re.kr">spkim@kigam.re.kr</a></td>
<td></td>
</tr>
<tr>
<td>THAILAND</td>
<td>MR. PORNCHAI PONGKORN</td>
<td>Geologist</td>
<td>Department of Mineral Fuels (DMF)</td>
<td>Ministry of Energy, Shinnawatra Tower III, 24th Floor, Viphavadi Rangsit Rd., Chatuchak, Bangkok 10400, THAILAND</td>
<td>Tel.: (66-2) 791 8300 ext. 5509 Fax.: (66-2) 791 8349, 791 8357</td>
<td><a href="mailto:pornchai@dmf.go.th">pornchai@dmf.go.th</a>, <a href="mailto:pornchai@hotmail.com">pornchai@hotmail.com</a></td>
<td></td>
</tr>
<tr>
<td>VIETNAM</td>
<td>DR. NGUYEN THE HUNG</td>
<td>Expert on Seismic and Geophysical Data Interpretation</td>
<td>Vietnam Petroleum Institute</td>
<td>Trungkinh, Yenhoa, Caugiay, Hanoi, Vietnam</td>
<td>Tel: 84-4-784 3061/ 84-9-1324 8580 Fax: 84-4-784 4156</td>
<td><a href="mailto:hungnt@vpihn.pv.com.vn">hungnt@vpihn.pv.com.vn</a></td>
<td></td>
</tr>
<tr>
<td>LOCAL ORGANIZING COMMITTEE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **1) MR. ADJI GATOT TJIPTONO**  
(OWN COST)  
[Image](#)  
Marketing Manager  
LEMIGAS  
Jl. Cileduk Raya Kav 109  
Jakarta Selatan 12230, Indonesia  
Tel: (62-21) 722 2583  
Fax: (62-21) 722 6011  
E-mail: tjiptono@lemigas.esdm.go.id |
| **2) MR. HERRU LASTIADI SETIAWAN**  
(OWN COST)  
[Image](#)  
Geologist  
Exploration Division  
R & D Center for Oil and Gas Technology “LEMIGAS”  
Jl. Cileduk Raya, Cipulir, Jakarta 12230  
Indonesia  
Tel: (62-21) 7394422 ext. 1314  
Fax: (62-21) 7246150  
E-mail: herruls@lemigas.esdm.go.id |
| **3) MR. SUDARMAN SOFYAN**  
(OWN COST)  
[Image](#)  
Head of Sub-surface Imaging Group  
Exploration Division  
R & D Center for Oil and Gas Technology “LEMIGAS”  
Jl. Cileduk Raya, Cipulir, Jakarta 12230  
Indonesia  
Tel: (62-21) 7394422 ext. 1338  
Fax. (62-21) 7246150  
E-mail: sudarmans@lemigas.esdm.go.id |
| **4) MR. DJOKO SUNARJANTO**  
(OWN COST)  
[Image](#)  
Geologist  
R & D Center for Oil and Gas Technology “LEMIGAS”  
Jl. Cileduk Raya, Cipulir, Jakarta 12230  
Indonesia  
Tel: (62-21) 722 2583  
Fax. (62-21) 724 6011  
E-mail: djoko.snj@lemigas.esdm.go.id |
| **5) MRS. DIANA DWIYANARTI**  
(OWN COST)  
[Image](#)  
Petroleum Engineer  
PPPTMGB LEMIGAS  
JL. Ciledug Raya Kav 109  
Cipulir, Kebayoran Lama, Indonesia  
Tel: (62-21) 739 3948  
Fax: (62-21) 722 2978  
E-mail: dd_diana@lemigas.esdm.go.id |
<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honorary Advisor, CCOP</td>
<td>MR. CHEN SHICK PEI</td>
<td>24th Floor, Suite 244-245, Thai CC Tower 889, Sathorn Tai Road, Bangkok 10120, Thailand  Tel. (66-2) 672 3080 to 81 Fax. (66-2) 672 3082  E-mail: <a href="mailto:spchen@ccop.or.th">spchen@ccop.or.th</a>, <a href="mailto:ccopts@ccop.or.th">ccopts@ccop.or.th</a>  Website: <a href="http://www.ccop.or.th">http://www.ccop.or.th</a></td>
</tr>
<tr>
<td>Director</td>
<td>DR. HEE-YOUNG CHUN</td>
<td>CCOP Technical Secretariat  24th Floor, Suite 244-245, Thai CC Tower 889, Sathorn Tai Road, Bangkok 10120, Thailand  Tel. (66-2) 672 3080 to 81 Fax. (66-2) 672 3082  E-mail: <a href="mailto:ccopts@ccop.or.th">ccopts@ccop.or.th</a>  Website: <a href="http://www.ccop.or.th">http://www.ccop.or.th</a></td>
</tr>
<tr>
<td>ICB-CCOP1 Project Coordinator</td>
<td>MR. LIU LIQUN</td>
<td>CCOP Technical Secretariat  24th Floor, Suite 244-245, Thai CC Tower 889, Sathorn Tai Road, Bangkok 10120, Thailand  Tel. (66-2) 672 3080 to 81, Mobile: (66-81) 985 5765 Fax. (66-2) 672 3082  E-mail: <a href="mailto:liu@ccop.or.th">liu@ccop.or.th</a></td>
</tr>
<tr>
<td>Assistant to Technical Division</td>
<td>MS. VAREERAT UNWERAWATTANA</td>
<td>CCOP Technical Secretariat  24th Floor, Suite 244-245, Thai CC Tower 889, Sathorn Tai Road, Bangkok 10120, Thailand  Tel. (66-2) 672 3080 to 81, Mobile: (66-81) 856 2233 Fax. (66-2) 672 3082  E-mail: <a href="mailto:may@ccop.or.th">may@ccop.or.th</a></td>
</tr>
</tbody>
</table>
**Annex2**

CCOP-DANIDA Institutional Capacity Building Project  
ICB-CCOP1  

Training Course in digital mapping: From Data Catch to Depth Map  
GIS in Hydrocarbon Exploration  
4-7 June 2007, Bali, Indonesia  

**Program**

**Day 1: Sunday 3 June**  
Arrival of Participants / Check-in Hotel

**Day 2: Monday 4 June**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Registration</td>
</tr>
<tr>
<td>09:00</td>
<td>Welcome Address by</td>
</tr>
<tr>
<td></td>
<td>- <strong>Dr. Hee-Young Chun</strong>, Director of CCOP Technical Secretariat</td>
</tr>
<tr>
<td></td>
<td>Opening Remark by</td>
</tr>
<tr>
<td></td>
<td>- <strong>Mr. Hadi Purnomo</strong>, Head of LEMIGAS, National Coordinator of Geo-resources sector to CCOP, on behalf of <strong>Mr. Bambang Dwiyanto</strong>, Permanent Representative of Indonesia to CCOP, Head of Geological Agency of Indonesia</td>
</tr>
<tr>
<td></td>
<td>Remarks from</td>
</tr>
<tr>
<td></td>
<td>- <strong>Mr. Ioannis Abatzis</strong>, Permanent Representative of Denmark to CCOP, Senior Advisor of ICB-CCOP1 Project</td>
</tr>
<tr>
<td>09:30</td>
<td>Group Photo &amp; Coffee/tea break</td>
</tr>
<tr>
<td>09:50</td>
<td>Introduction</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Training I: Introduction to the GIS data types, data catch and basic concepts</strong></td>
</tr>
<tr>
<td></td>
<td>- Data catch into GIS and the derived data types</td>
</tr>
<tr>
<td></td>
<td>- Often used GIS methods and handling of geographic projection through metadata</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch Break</td>
</tr>
<tr>
<td>13:30</td>
<td><strong>Training II: Introduction to storing and retrieving digital maps</strong></td>
</tr>
<tr>
<td></td>
<td>- Storing data in feature data set and geodatabases</td>
</tr>
<tr>
<td></td>
<td>- Retrieving and selecting data set</td>
</tr>
<tr>
<td></td>
<td>- Setting symbology</td>
</tr>
<tr>
<td>15:00</td>
<td>Coffee/tea break</td>
</tr>
<tr>
<td>15:15</td>
<td><strong>Training III: Introduction to combining data and performing simple GIS analysis</strong></td>
</tr>
<tr>
<td></td>
<td>- Combining data set into new map themes</td>
</tr>
<tr>
<td></td>
<td>- GIS analysis on one or more data sets</td>
</tr>
<tr>
<td>16:30</td>
<td>End of Day</td>
</tr>
</tbody>
</table>
18:00 Welcome Dinner (sponsored by LEMIGAS and Geological Agency of Indonesia)

**Day 3: Tuesday 5 June**

08:30 Training IV: Overview of workflow
- From seismic interpretation to time and depth mapping.
- Gridding – how to produce reliable grids with Zmap+.  
10:00 Coffee/ tea break
10:15 Training V: Non-default gridding
- Point gridding plus
- Gridding procedures
- Algorithms
12:00 Lunch Break
13:30 Training VI: Alternative gridding procedures
- Contour Gridding
- Line Gridding
- Trend Gridding
- Trendform Gridding
15:00 Coffee/tea break
15:15 Training VII: Interval velocities and conversion of traveltimes to depths
- Time-depth data from wells, check shot surveys, sonic logs, interval velocities
- Definition of main units for depth conversion
- Velocity-depth anomalies relative to linear trends
- Velocity-anomaly depth conversion
16:30 End of day

**Day 4: Wednesday 6 June**

08:30 Training VIII: Regional velocity-depth variations: A record of overpressure and erosion
- Definition of normal velocity-depth trends
- Negative burial anomaly and missing section
- Positive burial anomaly and overpressure
10:00 Coffee/ tea break
10:15 Training IX: Regional velocity-depth variations and depth conversion
- A normal velocity-depth trend for shale
- Mapping of velocity-depth anomalies
- gridding procedures
- Input grids and output grids
12:00 Lunch Break
13:30 Training X: Integrating calculated grids in GIS analysis
- Converting data sets
- Further analysis
- Viewing the results in a map
15:00 Coffee/tea break
15:15  Presentation by Mr. Suliantara, LEMIGAS
       “Application of the Geographic Information System Technology in Oil and Gas
       Activities”
15:45  Certification
16:00  Wrap up
17:00  End of day

**Day 5: Thursday 7 June**

08:00  Excursion (sponsored by ICB-CCOP1 project)

       Farewell Dinner (sponsored by ICB-CCOP1 project)

**Day 6: Friday 8 June**

Check out from Hotel/ Departure of participants

**Note:** For participants who want to run ArcGIS on your own PCs, it is strongly recommended that you bring with you a laptop PC with the Windows XP Operation System installed.
Annex 3

SPEECH BY DIRECTOR OF CCOP TECHNICAL SECRETARIAT
DR. HEE YONG CHUN

at the opening ceremony of ICB-CCOP1
Training Course in digital mapping: From Data Catch to Depth Map
GIS in Hydrocarbon Exploration
4-7 June 2007, Bali, Indonesia

MR. HADI PURNOMO, Head, LEMIGAS
Mr. Chen Shick Pei, Honorary advisor of CCOP
Mr Ioannis Abatzis, Senior Advisor to ICB-CCOP 1 Project, Representative of Denmark to CCOP
Mr Liu Liquan, ICB-CCOP 1 Coordinator
MR. SUDARMAN SOFYAN, Indonesia National Coordinator to ICB-CCOP 1, Head of Sub-surface Imaging Group, Exploration Division, R & D Center for Oil and Gas Technology “LEMIGAS”

Dear Guest Speakers,
Ladies and Gentlemen

Good Morning,

On behalf of CCOP, I would like to extend a very warm welcome to everybody to this Training Course in digital mapping: From Data Catch to Depth Map, GIS in Hydrocarbon Exploration under the ICB-CCOP 1 Project. In this august opening ceremony this morning, we would like to express our deep appreciation to Mr. Hadi Purnomo, Head of Lemigas and National Coordinator for Geo-resources sector to CCOP for giving us his valuable time to be with us to grace this opening ceremony and to deliver the opening speech.

The ICB-CCOP 1 project is of great importance for the region. Besides the geoscientific aspects, it has great significance in promoting cross-border understanding and cooperation. We are pleased to share with you the fact that it is the first time that cross-border case studies have been jointly conducted by the neighboring countries, and other non case study Member Countries have also an opportunity to participate under the ICB-CCOP 1 Project. This working arrangement will enable the better integration and greater enhancement of existing knowledge of the petroleum systems in the region that can contribute to attracting investment for the sustainable development of the hydrocarbon potentials. This cross border case study model could well serve as the model for case studies of other CCOP projects in the future.

This digital mapping training is one of the planned ICB-CCOP1 Project activities which would help in the conduct of the case study and to enhance the expertise of Member Countries’ scientists. To complement this, the project supported the provision of 5 sets of the latest GIS software ArcView 9.2 to the 5 case study host countries.

The ICB-CCOP 1 project is now at final stage, only 6 months away to the end of this 3-year
project. I am pleased to say that with the good cooperation and support of the Member Countries, it has made excellent progress, despite its inherent complex nature, and all the activities are being implemented as planned. We foresee that the project can fully attain its objectives and make the impact as expected.

The comprehensive presentation of the project implementation has been made during the recently held 49th CCOP Steering Committee Meeting in LangKawi, Malaysia. It provides myself an opportunity to understand more on implementation and the progress of this project. Being the new director of CCOP Technical Secretariat from 1 June, two days ago, I would like to continually support the implementation of this project. I also want to take this opportunity to express thanks to Mr. Chen Shick Pei, previous director of CCOP Technical Secretariat, Mr. Chen has been heavily involved in the initiatives, proposals, inception phases and implementations of the project. His enthusiasm combined with his excellent skill and good connection with CCOP Member Countries has made tremendous contributions to the progress during the project implementation. We appreciated all his great contribution. To conclude, we would like to say a big thank you to Lemigas for hosting this event and providing a resource person. On behalf of the participants, we would like to thank the resource persons, DR. PETER JAPSEN, MR. BJORN HERMANSEN and MR. PETER BRITZE from the Geological Survey of Denmark and Greenland, and MR. SULLIANTARA from Lemigas for sharing with us their valuable knowledge in the conduct of the trainings. We also thank Mr. Liu Liqun, the ICB-CCOP1 Project Coordinator for the efficient coordination of the project, and the staff of the CCOP Technical Secretariat for their hard work in the overall arrangement for this event.

On behalf of CCOP, we would like to thank the Royal Danish Government through the Royal Danish Embassy in Bangkok for the generous support for this Project.

Before I end, I would, once again, like to thank MR. BAMBANG DWIYANTO, the Permanent Representative of Indonisia to CCOP and Head of Geological Agency for his support and MR. HADI PURNOMO for his gracious presence in this ICB-CCOP1 Opening Ceremony of the Training Course. Our special appreciation goes to Mr. Ioannis Abatzis, Representative of Denmark to CCOP, Senior Advisor of the Geological Survey of Denmark and Greenland (GEUS) for his untiring efforts in rendering useful advice and guidance for the project. I would also like to thank our CCOP Member Countries, the national project coordinators and their colleagues for their cooperation, support and participation in the project activities and the case studies.

I wish you all a successful Training Course,

Thank you and Terima kasih
Annex 4

SPEECH BY HEAD OF LEMIGAS
NATIONAL COORDINATOR FOR GEO-RESOURCES SECTOR, CCOP
MR. HADI PURNOMO
ON BEHALF OF MR. BAMBANG DWIYANTO, PERMANENT
REPRESENTATIVE OF INDONESIA TO CCOP, HEAD OF GEOLOGICAL
AGENCY OF INDONESIA

at the opening ceremony of ICB-CCOP1
Training Course in digital mapping: From Data Catch to Depth Map
GIS in Hydrocarbon Exploration
4-7 June 2007, Bali, Indonesia

Former Director and Director of CCOP, Mr. Chen Shick Pei and Dr. Hee-Young Chun
Representative of Royal Denish Government in CCOP, Mr. Ioannis Abatzis
ICB-CCOP1 Project Coordinator, Mr. Liu Liqun
Resource persons and all participants

Distinguished guests,

I would like to extend my warm welcome to all participants, particularly to those who come from abroad to attend this training. This is the first course or training on the Institutional Capacity Building (ICB) sponsored by CCOP in Indonesia.

This training is a part of a series of ICB-CCOP1 Project activities in building and upgrading Institutional Capacity of Member Countries in the field of hydrocarbon exploration and production. I believe that this training will encourage cross-border cooperation in geosciences which has been initiated with two case studies at the cross border basins. I hope it will impact the optimization, utilization and development of natural resources.

Digital mapping and GIS are very demanding tools in most geoscience activities in the world. It includes mapping of geology, geophysics and reservoir (GGR) data for the purpose of hydrocarbon exploration and production, land used mapping for planning, groundwater mapping, mineral resources mapping, hazard maps etc. These data will become a database which can simply be retrieved in the form of geosciences maps. The accuracy will be strongly controlled by data quality and its resolution. Therefore, this specific topic is very useful for explorationists and decision makers.

Ladies and Gentlemen,

In hydrocarbon exploration, the integrated digital maps of the GGR data can be easily used in assessing the hydrocarbon potential of distribution and quality of reservoir rock, source rocks, traps and other aspect of petroleum geology. These information will encourage further exploration activities.
In term of geosciences cross-border cooperation, it will easily implement joint research among the Member Countries to utilize natural resources in that area. The digital mapping and GIS can easily integrate data and information and encourage further natural resources exploration. The understanding of cross-border geology can be solved and reduced the level of geological uncertainty and finally reduce the exploration risk.

Ladies and Gentlemen,

In the last few years, oil and gas price has increased significantly. However, there is unbalance between demand and supply. Production from old oil and gas fields are declining, and no significant new discoveries, it is high cost for secondary recovery etc. This condition can create more business opportunities in oil and gas, and encourages exploration activities.

As you may know that Indonesia has more than 60 hydrocarbon bearing Tertiary Sedimentary Basins. However, only about 15 of them in the status of production which are mostly situated in the western side of this country. Some other basins have been drilled with discovery but not producing yet, and the rest are undiscovered or un-drilled and less exploration activities. They include fore-arc basin, some basin in eastern Indonesia and deep-sea area. Therefore, I hope that CCOP forums such as this one can be used to strengthen cooperation among Member Countries and developed opportunities in oil and gas through cross-border exploration and increase investment.

Ladies and Gentlemen,

In this opportunity, I would like to express my great appreciation to the Director of CCOP, Mr. Chen Shick Pei and Dr. Hee Young Chun for their cooperation. My deepest gratitude should be addressed to the Royal Danish Government for the continue support given to CCOP’s activities on the petroleum sector. This acknowledgement also goes to CCOP Technical Secretariat which organizes this workshop as well as other agencies that contribute in preparing and coordinating this training.

Finally, I wish all of you a successful training and I hope that this training of the Indonesian ICB-CCOP will generate an effective progress of the case study, and last but not least, I wish you all an enjoyable stay in Kuta, Bali.

Thank you.
EVALUATION FORM

In order to improve the quality of our training courses, your feedbacks and comments are essential and highly valuable. Please feel free to answer to the following questions and return to secretariat staff. We appreciate your cooperation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Excellent</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Were the Guest speakers well prepared?</td>
<td>10</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Were the Guest speakers knowledgeable?</td>
<td>13</td>
<td>12</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Presentations (explanation, demonstration and Q&amp;A)</td>
<td>12</td>
<td>11</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Did the Guest speakers help you with your needs and requirements?</td>
<td>9</td>
<td>16</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Was there a good mixture of theory and practice?</td>
<td>9</td>
<td>13</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Were the examples good?</td>
<td>10</td>
<td>15</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Was the Training relevant and beneficial to your job?</td>
<td>8</td>
<td>13</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Overall Training assessment</td>
<td>12</td>
<td>12</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) Did the Training meet your expectations?</td>
<td>10</td>
<td>9</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10) How many people in your institution/company/organization will benefit from the Training? (please give an estimation in number)
Average is around 20 people in each agency.
11) What changes do you think could be made to improve the Training?
   (quality of Training handout, content, venue, facilities, etc.)?
   - Summary of lesson learnt for the day
   - Provide a full version of software will be helpful, if the project fund allowed
   - Give more practice than theory, from raw data, how to convert data, import data etc.
   - Big training room
   - More slides & case study

12) How would you put value to the knowledge learned?
   - Start building GIS for our division’s needs
   - To share it with others when I come back to the office
   - Apply in my work environment
   - It’s a wide range of knowledge talking and will give many productions from theory to application

13) Comments on food, accommodation and the venue for the Training
   - Excellent location, good food and accommodation

14) Suggestion of topics to other ICB activities.
   - Seismic interpretation and Seismic stratigraphy
   - Remote sensing
   - Sharing of GIS usages by CCOP MC
   - Data management for exploration and production in hydrocarbon
   - Knowledge management
   - Coastal hazard and GIS