



COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES

IN EAST AND SOUTHEAST ASIA (CCOP)

52nd CCOP Annual Session

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Member Country Report of MYANMAR

1 July 2015 – 30 June 2016

Dr. Ye Myint Swe

Director General

**Department of Geological Survey and Mineral Exploration
Ministry of Natural Resources and Environmental Conservation**

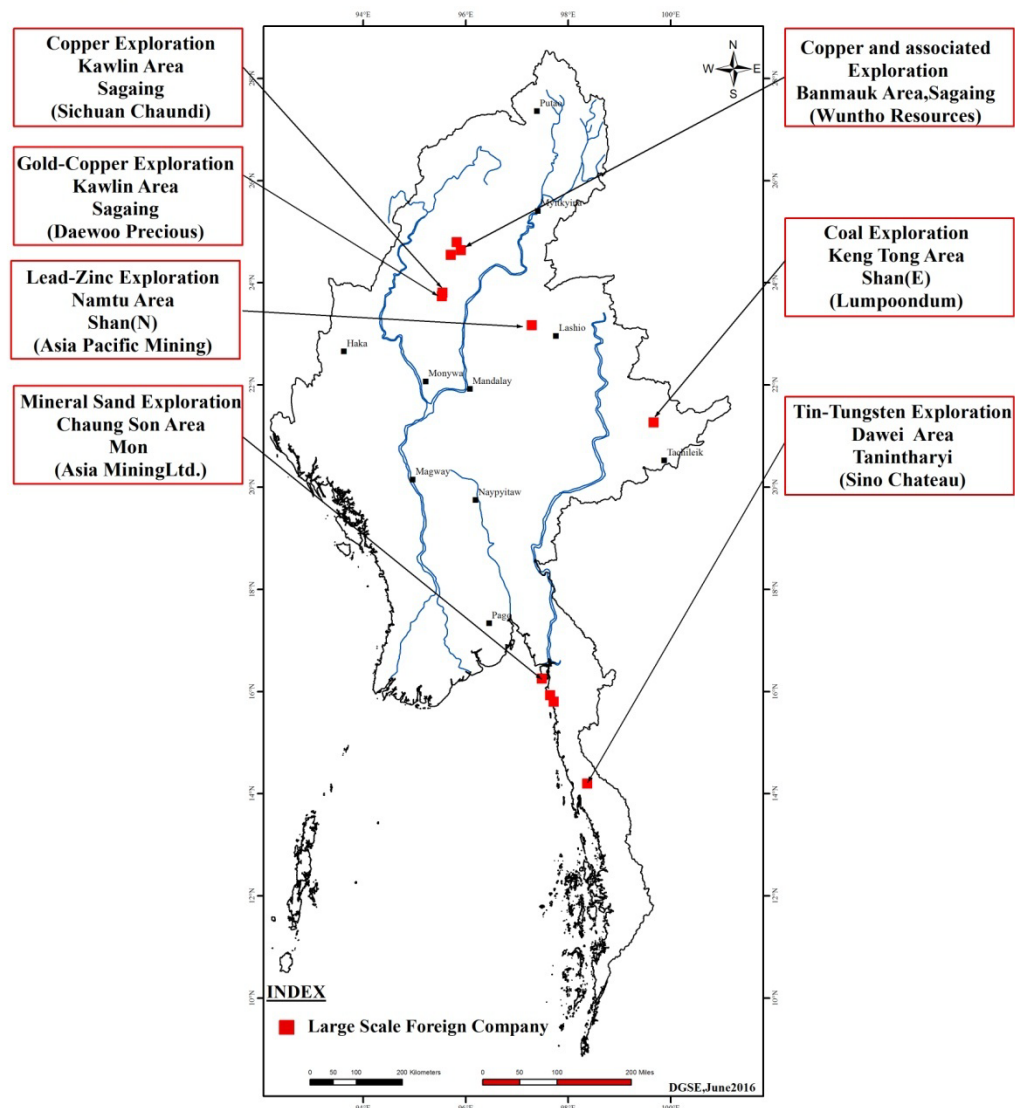
October, 2016

MINERAL PROGRAMME

- Every year, DGSE has planned for specific field works in regional geological mapping and mineral exploration.
- In 2015-2016 Budget year, DGSE has carried out Regional Geological Mapping at Naung Cho Township, Northern Shan State and coal exploration works at Kani-Minkin area, Sagaing Region.
- Total of **0.18** MMt of Coal reserve was estimated. Graphite exploration project was also carried out at Shwemyintin areas, Singu Township, Mandalay Region.
- Total of **0.96** MMt of Graphite reserve was estimated. Total of **0.0044** MMt of Lead reserve was also estimated in the Kyauk Htet area, Kalaw Township, Southern Shan State.



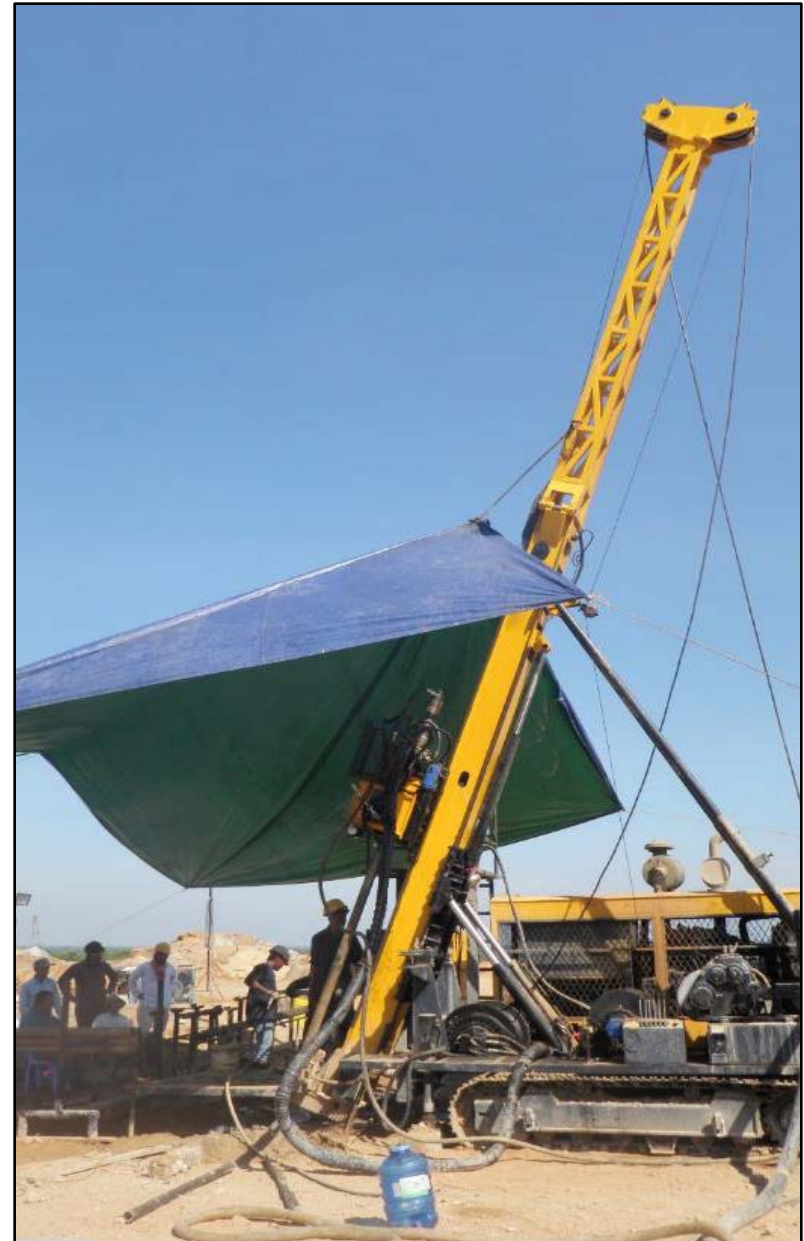
Location Map of DGSE and Joint Venture Exploration Projects



- [The DGSE and KIGAM](#) joint survey team has conducted chromite exploration at Bophivum area in terms of regional and detail geological mapping, geochemical and geophysical surveys and trenching.
- From the field survey 15 chromite outcrops and 29 localities of chromite floats dispersion are recorded.
- The 1st phase drilling programme has completed in October 2015. There are 6 drill holes with total depth of 589.38 meters were completed and 1.5 meter thick Chromite ore zone (Leopard ore) was found in drill hole BDH - 05.



- ❑ Joint survey team of **DGSE and JOGMEC** had conducted preliminary investigation of antimony, copper, gold, tin-tungsten and Rare Earth Elements (REE) at Shan and Kayah States, Mandalay and Sagaing Regions.
- ❑ JOGMEC has completed drilling works at Mwebwe Taung copper prospect at Kalaw area, Southern Shan State.
- ❑ Now both parties are preparing for the three year extension period of MoM (Memorandum of Meeting) from 1st April 2016 up to 31st March 2019.



- According to the MoU, [GTK has organized GIS training to DGSE staffs](#) and using GIS techniques in field works.
- Geological database, mineral database and mine leased database training programs are ongoing process up to December 2016.
- Now DGSE staffs are conducting in digitization of 1:50000 geological mapped by using GIS techniques, lead by GTK experts. In early 2016, practical field investigation for digital geological mapping techniques has also conducted by DGSE geologists in Shwe Min Bon, Southern Shan State area.



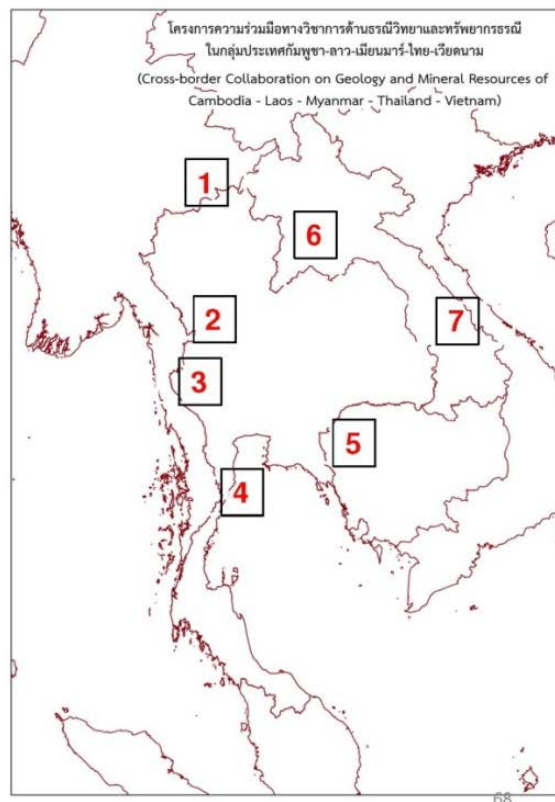
CLMTV cross - border collaboration, Myanmar (DGSE) - Thailand (DMR and CCOP) activities have done geological field survey in selected project areas which are Mae Sai - Tachileik area, Maesot - Myawaddy area and Dawei - Kachanaburi area between July and August, 2016. Joint field party correlated the more details of geology and structural geology in study area in order to link and correlate data between Thailand - Myanmar.

Details of Project

Project Sites

joint study areas at a scale of 1:1,000,000 with geological discontinuous boundaries as follows;

- 1) Mae Sai – Tachileik
- 2) Maesot – Myawaddy
- 3) Dawei – Kanchanaburi
- 4) PrachuapKhiri Khan – Myeik
- 5) Chanthaburi – Battambang
- 6) Loei – Nongkhai – Vientiane
- 7) Mukdahan – Savannakhet – Hue – Danan



**Myanmar delegation
participation CLMTV
Geosciences projects meeting,
at Chaing Rai, Thailand, May,
2016.**

- [CLMTV](#) cross - border collaboration, [Myanmar \(DGSE\) - Thailand \(DMR and CCOP\)](#) activities have done geological field survey in selected project areas which are Mae Sai - Tachileik area, Maesot - Myawaddy area and Dawei - Kachanaburi area between July and August, 2016.
- [DGSE-DMR](#) cooperation under CLMTV collaboration project activity has carried out as a site visit to Active Sagaing Fault area, Mt. Popa volcanic area and Singu gemstone prospect.
- After site visit trip, DGSE - DMR [proposed the comparative studies on](#)
 - (1) Geological map compilation and correlation of Cambodia-Laos-Myanmar-Thailand-Vietnam,
 - (2) Comparative Studies on Mineral Resources Potential,
 - (3) The technical cooperation on geohazard study (Active fault and Landslide studies) within a period of 6 years (2016-2021) as an initiative work in order to strengthen bilateral cooperation and improve the work and research level.



Mae Sai - Tachileik area, Maesot - Myawaddy area



Singu gemstone prospect

The Memorandum of Understanding (MoU) between DGSE and GSJ on 16th June 2015 for the cooperation in Geoscience and Mineral Resources sector. Joint field survey was done at the Tannintharyi Region, Southern part of Myanmar for the potential of Tin - Tungsten and Rare Earth Elements (REE) in late 2015 and at the Kyaington and Tachileik, Shan State for study of gold, copper mineralization system in May 2016.



Joint venture mineral exploration with Foreign Companies.

- [Daewoo Precious Resources Co., Ltd., Korea](#) is carrying out copper exploration at Shangalon area, Sagaing Region.
- [Sichuan Chuandi \(Myanmar\) Mining Co., Ltd., China](#) is conducting copper exploration at Kawlin area, Sagaing Region.
- [Asia Mining Ltd. Australia](#) is carrying out feasibility study of heavy sand at Mon State.
- [Asia Pacific Mining Ltd., Australia](#) is implementing for lead, zinc exploration at Namtu, Bawdwin area, Northern Shan State.
- [Wuntho Resources Co., Ltd., Australia](#) is implementing for copper and associated mineral prospecting and Helchain, Pinhinka and Namaw area, Banmauk Township, Sagaing Region.
- [Lumpoondum Mining Co., Ltd., Thailand](#) is implementing for coal exploration at Mong Lap, Wankyon area, Kiangtong Township, Shan State.
- [Sino Chateau Co., Ltd., England](#) is implementing for Tin Tungsten and associated minerals exploration at Wa Gone area, Dawei Township, Tanintharyi Region.



Airborne survey in Copper exploration project of Daewoo Precious Resources Co., Ltd., Shangalon Area, Sagaing Region



Assistance Required from CCOP/ Other Member Countries in Support of Future Activities

- Request for post-graduate scholarships in the field of Geosciences and Geotechnical Engineering for the Human Resources Development (HRD).
- Request for Geological, Geochemical, and Geophysical Training abroad as well as short course training in Myanmar.
- Request for assistance in training on the application of remote sensing in geological mapping.
- Request Grant Aid program for the training and upgrading of DGSE laboratory facilities equipments.

Assistance Offered to CCOP / Other Member Countries in Support of Future Activities

- Cooperation and coordination with CCOP member counties in future activities.
- Sharing experience on geological mapping and gemstone and mineral exploration.

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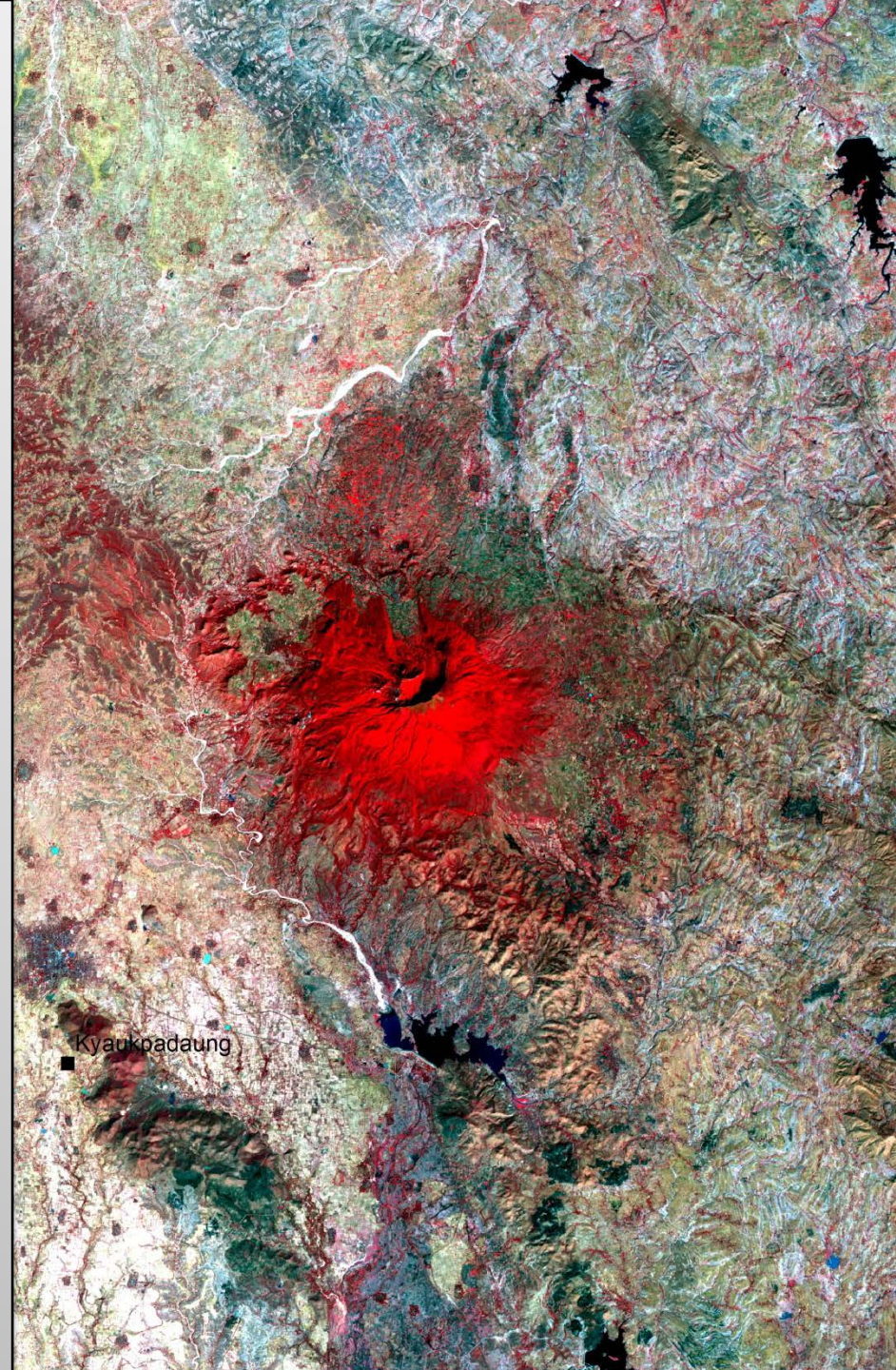
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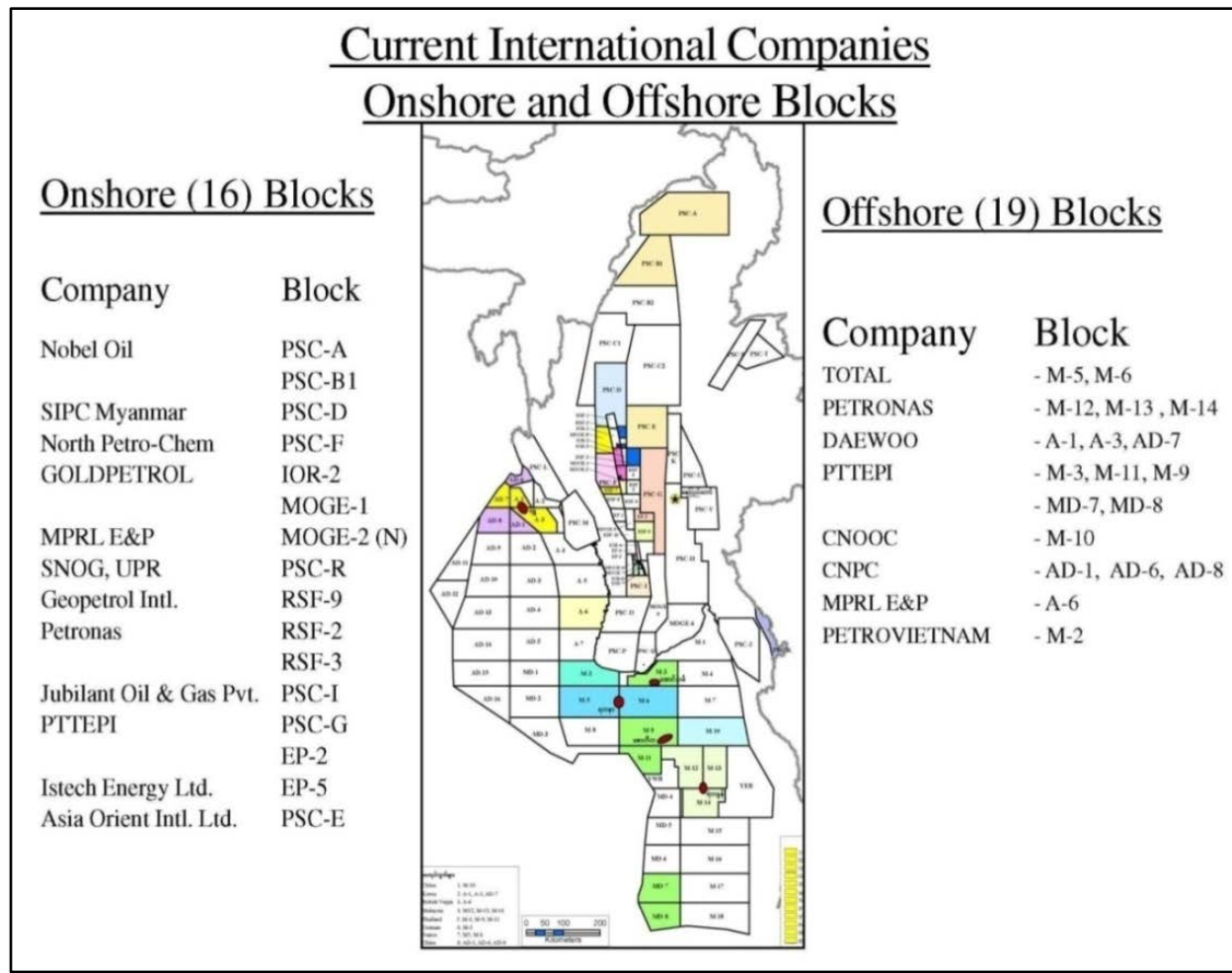
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- **MOGE** is a 100% State owned enterprise and responsible for exploration and exploitation of oil and gas, to supply natural gas and CNG for industries and transportation vehicles and cooperation with foreign companies for PSC.
- **In Budget year 2015-2016**, 25 wells have been drilled in respective oil and gas fields. A total of 17 oil and gas fields have been operated in producing, including 7403 (BOPD) oil and 53.819 (MMSCFD) gas mainly produced from the sedimentary basin of Myanmar.



2015-16 Oil and Gas Production Activity

Sr.	Name of Oil/Gas Field	Basin	Discovery Year	Cum. Production		Production (24.1.2016)	
				Oil (Million Bls)	Gas (bcf)	Oil (BOPD)	Gas (MMSCFD)
1	Yenangyaung	CMB	1887	235.9	40.852	1,601	0.300
2	LETPANDO	CMB	1974	5.6	10.623	1381	0.127
3	Mann	CMB	1970	120.5	124.302	1340	1.941
4	Chauk/Lanywa	CMB	1902	152.0	134.941	1261	0.203
5	KANNI	CMB	1985	17.3	33.021	583	-
6	HTAUKSHABIN	CMB	1978	24.7	34.582	536	0.567
7	NYAUNGDON	ADB	1999	2.6	277.858	203	15.601
8	THARGYITAUNG/SABE	CMB	2001	2.6	46.467	144	2.200
9	MAUBIN(SOUTH)	ADB	2006	0.0	15.823	100	15.357
10	SHWEPYITHA	PEB	1967	4.0	92.046	92	0.040
11	Pyay	PEB	1965	12.8	117.370	80	0.101
12	Myanaung	PEB	1964	23.2	49.090	36	0.102
13	KYAUKKWET	CMB	1995	0.4	38.410	21	10.33
14	Tagaing-Dahatpin	CMB	2007	0.8	0.000	14	-
15	APYAUK	ADB	1991	0.3	332.961	10	5.217
16	AYADAW	CMB	1893	7.2	148.751	1	1.627
17	PEPPI	CMB	1976	0.02	14.169	-	0.1064
Onshore Total						7,403	53.819

2015-16 Production Sharing Contract Activity

14 International Oil Companies for exploration under the Contract of PSC

No	Company	Block
1	NOBEL OIL (RUSSIA)	PSC-E
2	JUBILANT (INDIA)	PSC-1
3	PTTEP SA (THAILAND)	PSC-G/EP-2/MOGE-3
4	PT ISTECH (INDIN)	EP-5
5	GEOPETROL	RSF-9
6	ONGC (INDIA)	PSC-B2/EP-3
7	ENI (ITALY)	PSC-K/RSF-5
8	PVT (PARKISTAN)	PSC-O/PSC-J
9	PHEC (CANADA)	PSC-C1/PSC-H
10	CAOG (LUXENBOURG)	MOGE-4
11	JSOC (RUSSIA)	EP-4
12	MPRL	IOR-4/IOR-6
13	BNP (BRUNEI)	EP-1

Proposed Future Activity

- To drill at least one semi-exploration well of Shwezettaw Oil Sand Group in Yanangyat Area (IOR-1)
- MOGE's appraisal and development plan of Gas/Condensate reservoir of Tabyin Fm, tested and proved in Patolon-1 (Block-D) by SIPC.
- 2D Seismic surveys in Letpando, Yenamma and Myaungmya Areas to locate favorable exploration well location.

Assistance Offered to CCOP / Other Member Countries in Support of Future Activities

- to participate in the study of the Unconventional Oil and Gas potential in the country with the cooperation of CCOP organization and has planned to make geological field mapping and collecting samples of source rock in prospecting sedimentary basin.
- Similarly, there is a plan to conduct mapping for CO₂ storage in our depleted reservoirs.
- Due to limitation of capacity building and technical know-how Myanmar would like to request for the support and assistance in prospect evaluation for Unconventional Hydrocarbon resources.

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GROUNDWATER PROGRAMME

- *The volume of groundwater extraction is rapidly increasing all over the country due to population growth, agricultural extension, urban expansion and industrial development projects.*
- *El-Nino event also hit the country in 2016 and which lead to increase water shortage problems in some states and regions and resulted more extraction of groundwater because unavailability of surface water source.*
- *The systematic management on sustainability of groundwater resources in the country is urgently needed. Irrigation and Water Utilization Management Department is one of the key player for groundwater management.*



Annual Review of Individual Technical Activities

- ☐ Tubewell drilling for agricultural water supply
- ☐ Tubewell drilling for rural water supply and drinking water supply
- ☐ Surface and sub-surface Geophysical Investigations for groundwater exploration
- ☐ Pumping out test in some groundwater irrigation project areas for aquifer sustainability
- ☐ Water quality analyzing for both drinking and irrigation purposes
- ☐ Planning of construction for groundwater monitoring stations across the country

Proposed Future Activities

- ☐ Construction of groundwater monitoring stations
- ☐ Hydrogeological mapping
- ☐ Re-estimation of groundwater potential
- ☐ Water quality testing and monitoring
- ☐ Capacity building for hydrogeology and groundwater engineering

Assistance required from CCOP in support of future activities

- ☐ Request for technical support including training, workshop, seminar and scholarship for hydrogeology and groundwater engineering.

Assistance offered to CCOP/Other Member Countries in support of future activities

- ☐ Cooperation and Coordination with CCOP/other member countries in the future.

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GEO-HAZARD PROGRAMME

- ❑ *During late 2015 to mid 2016, Department of Geological Survey and Mineral Exploration (DGSE) has been carrying out geological investigation of potential landslide area including Mawchi Sn-W mine at Kayah State, Phakant Jade mine at Kachin State and Kyaikhtiyoe Pagoda Area at Mon State.*
- ❑ **The Geo-hazards in the Phakant jade mine area**, Kachin State is characterized by landslide, rock fall, subsidence, flood, debris flows mainly caused by unsystematic mining and solid waste disposal of Jade mining operation. Recently, the Ministry of Natural Resources and Environmental Conservation (MONREC) and DGSE have been carrying out investigation, monitoring and mitigation of potential hazard zones.



Landslide hazard at waste dump in Phakant Jade Mine

Mawchi Mine Landslide

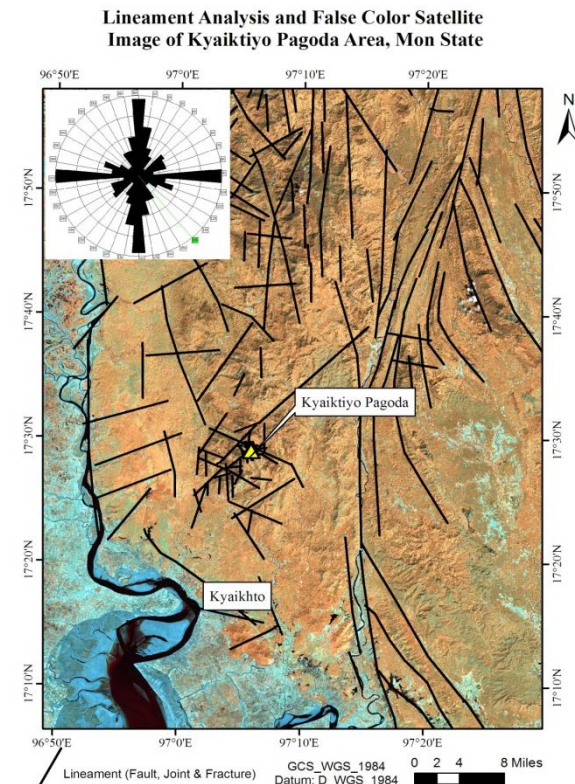
- ❑ The landslide hazard at the Mawchi Mine area is mainly caused by abnormally high over loading pore-water pressure in the soil during prolong heavy rain, especially in the high angle slope area.
- ❑ DGSE has conducted landslide investigation and recommended Regional Government for future mitigation and prevention of landslide hazard as well as relocation of local villages.



Landslide recently occurred in Mawchi Mine Area

Kyaikhtiyo Pagoda conducted geotechnical investigation

- ❑ DGSE has also conducted geotechnical investigation of potential landslide hazard at the Kyaikhtiyo Pagoda area in early 2016. In this study, over-loading infrastructures, high angle slopes with large cracks in the top soils were investigated.
- ❑ The geotechnical team also recommended to regional government for awareness and prevention for landslide hazard at the Kyaikhtiyo Pagoda.



Overloading infractures in the Top of Kyaikhtiyo Pagoda

Proposed Future Activities

- ☐ Cooperation study on not only landslides investigation and mitigation but also events of earthquake in Myanmar.

Proposed Future Activities

- ☐ Workshop or training course related to landslide investigation and earthquake in CCOP member countries.
- ☐ To promote exchange of information in the field of geo-hazards management in order to setting up of an international cooperation network on geo-hazards prevention and mitigation.

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GEO-DATA AND INFORMATION MANAGEMENT PROGRAMME

- *According to the MoU between the Department of Geological Survey and Mineral Exploration (DGSE) and Geological Survey of Finland (GTK), the GIS training course has conducted in both practical field works and Laboratory of digital geological mapping techniques and data management.*
- *In addition, ASEAN Web-based mineral resources database training program led by GSJ including worksop at Nay Pyi Taw and field trip investigation at Tahileik area has carried out with the aid of JICA.*



Union Minister for the Ministry of Natural Resources and Environmental Conservation attending the opening ceremony of Workshop on ASEAN Web-based Mineral Database at Tungapuri Hotel, Nay Pyi Taw, Myanmar

ASEAN Mineral Database Programme

- ❑ Under the ASEAN Mineral Database Programme, a new database structure is being discussed before uploading data/information into a Web GIS system.



Assistance Required from CCOP in Support of Future Activities

- ❑ Under the ASEAN Mineral Database Framework, trainings on Web-GIS were organized by JICA's expert. More training on Web-GIS are requested from Japan, in particular on the Installation of Server to use Web-GIS Standard.

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The End

Thank for your Attention

The background of the slide features a misty, atmospheric landscape. In the foreground, two Buddhist monks in saffron robes stand on a grassy bank, each holding a large, flat, circular red umbrella. Behind them, a series of traditional Burmese pagodas with tiered spires are visible, their forms softened by the mist. The scene is framed by lush green trees on the right side.

We hope there'll be more cooperation between Myanmar and your country in the near future.