

# **OVERVIEW OF MYANMAR MINING INDUSTRY**

**OPPORTUNITIES & CHALLENGES**

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# **Overview of Myanmar Mining Industry** **(Overview and Challenges)**

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# Myanmar, Some facts

- **Area** 676,577 sq.km
- **Population** 60.16 million
- **Road Length** 127,942 km
- **No. of Airports** 24
- **International Airport** 3
- **International wharfs** 34
- **Installed Power<sub>[2009]</sub>** 2,355 MW
- **Power generation<sub>[2009]</sub>** 6,622million KWH

# Mineral occurrences identified

- **58 minerals**

- ❖ **Gold, Copper, Tin, Tungsten**
- ❖ **Lead, Zinc, Silver, Nickel, Iron, Rare Earth**
- ❖ **Coal , Industrial Minerals**
- ❖ **Gems and Jade**

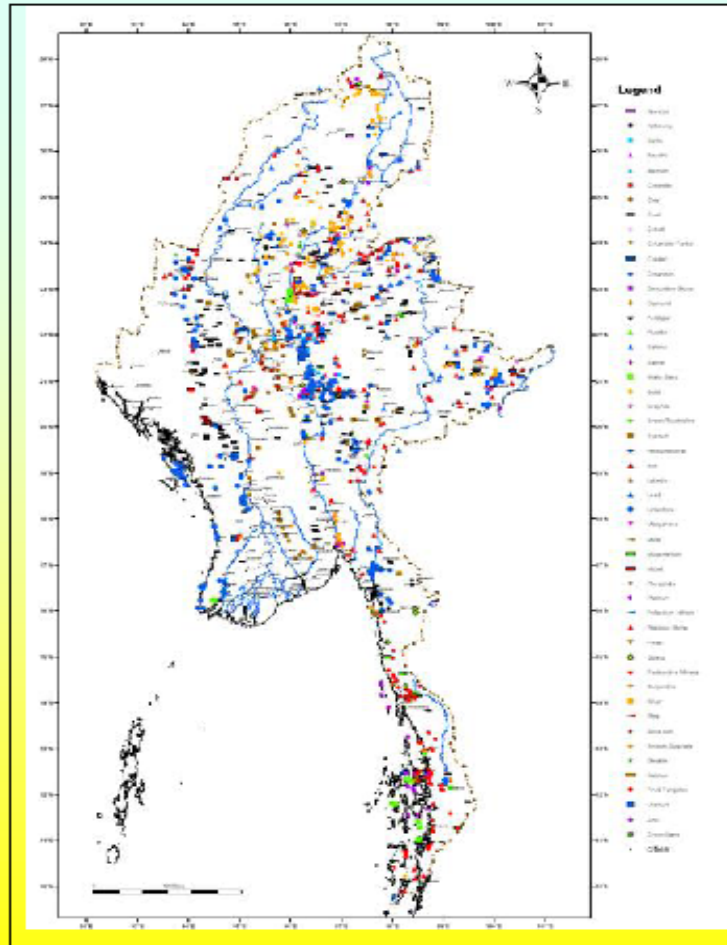
# Rare Earth Minerals

- ▣ *Note:* :

Exploration data for Rare Earth Minerals are quite limited. Extensive exploration works yet to be undertaken

# Mineral occurrence map of Myanmar

## 4. MINERAL OCCURENCES MAP OF MYANMAR



62 commodities of mineral about 2000 mineral occurrences are recorded.

### MAJOR MINERALS

#### PRECIOUS STONES

- Jade, Ruby, Sapphire and other Gems stones

#### PRECIOUS METAL

- Gold, Silver, PGM

#### METALLIC MINERAL

- Copper, Lead, Zinc, Titanium, Telluride
- Tin, Tungsten, Bismuth, Molybdenum, Cobalt,
- Nickel, Chromite, Iron, Manganese,-

#### NONMETALLIC MINERAL

- Barite, Fluorite, Quartz, Feldspar, Beryllium
- Heavy mineral, Bauxite, Phosphate,
- Glass sand, Zircon sand, Graphite, Asbestos

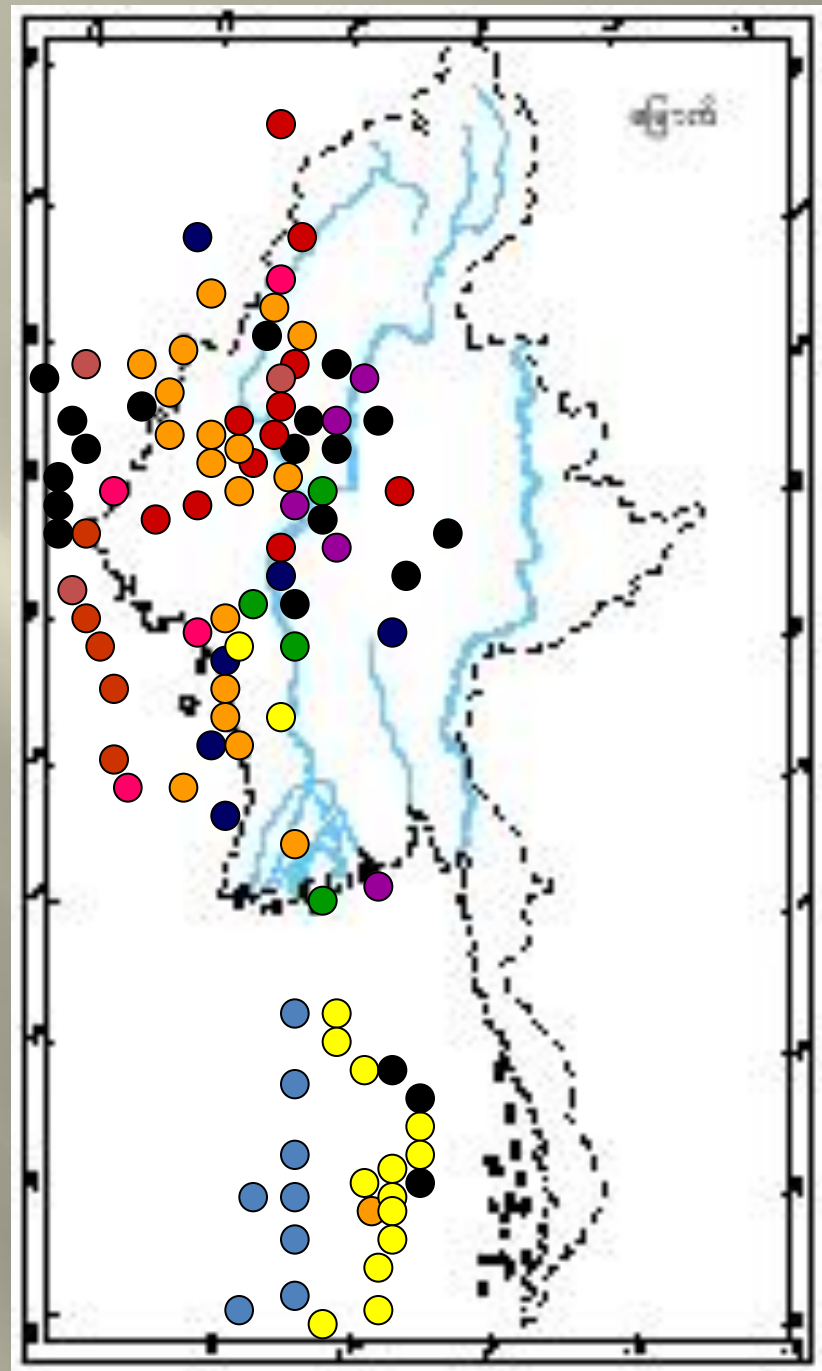
#### INDUSTRIAL MINERAL

- Limestone, Feldspar, Clay, Bentonite

#### ENERGY MINERAL

- Coal, Oil Shale

- Gold
- Gems & Jade
- Copper
- Coal
- Nickel
- Antimony
- Lead, Silver, Zinc
- Tin, Wolfram
- Pearl
- Iron & Steel
- Limestone

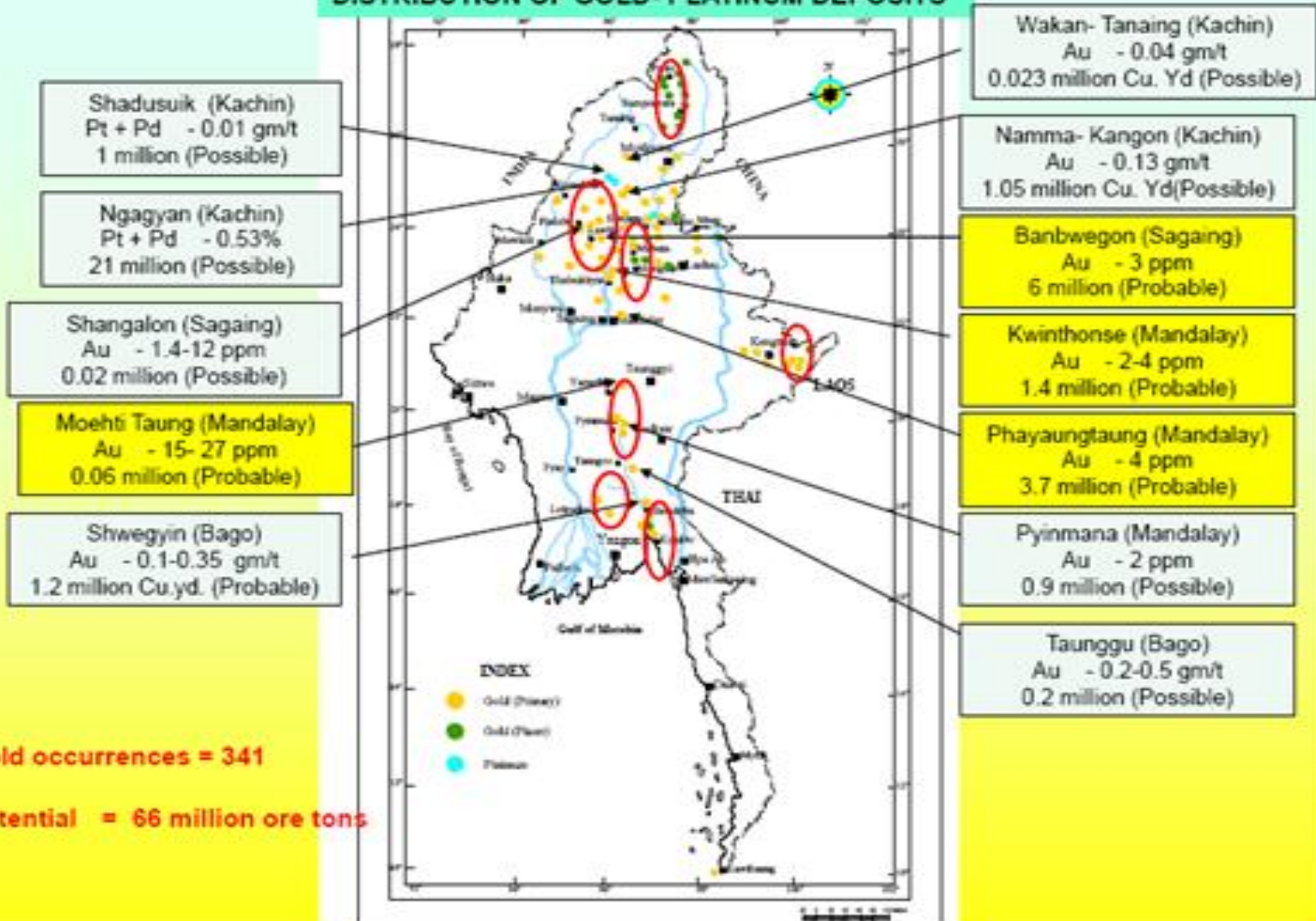


# Location of mineral deposits

- Occurrence of Mineral deposits are observed all over Myanmar except along eastern most and Ayeyarwady delta areas.
- Detailed field exploration activities are envisaged.
- Infrastructure development in mineral deposit locations will encourage economic exploitation.

# Gold Platinum Deposits

## DISTRIBUTION OF GOLD- PLATINUM DEPOSITS

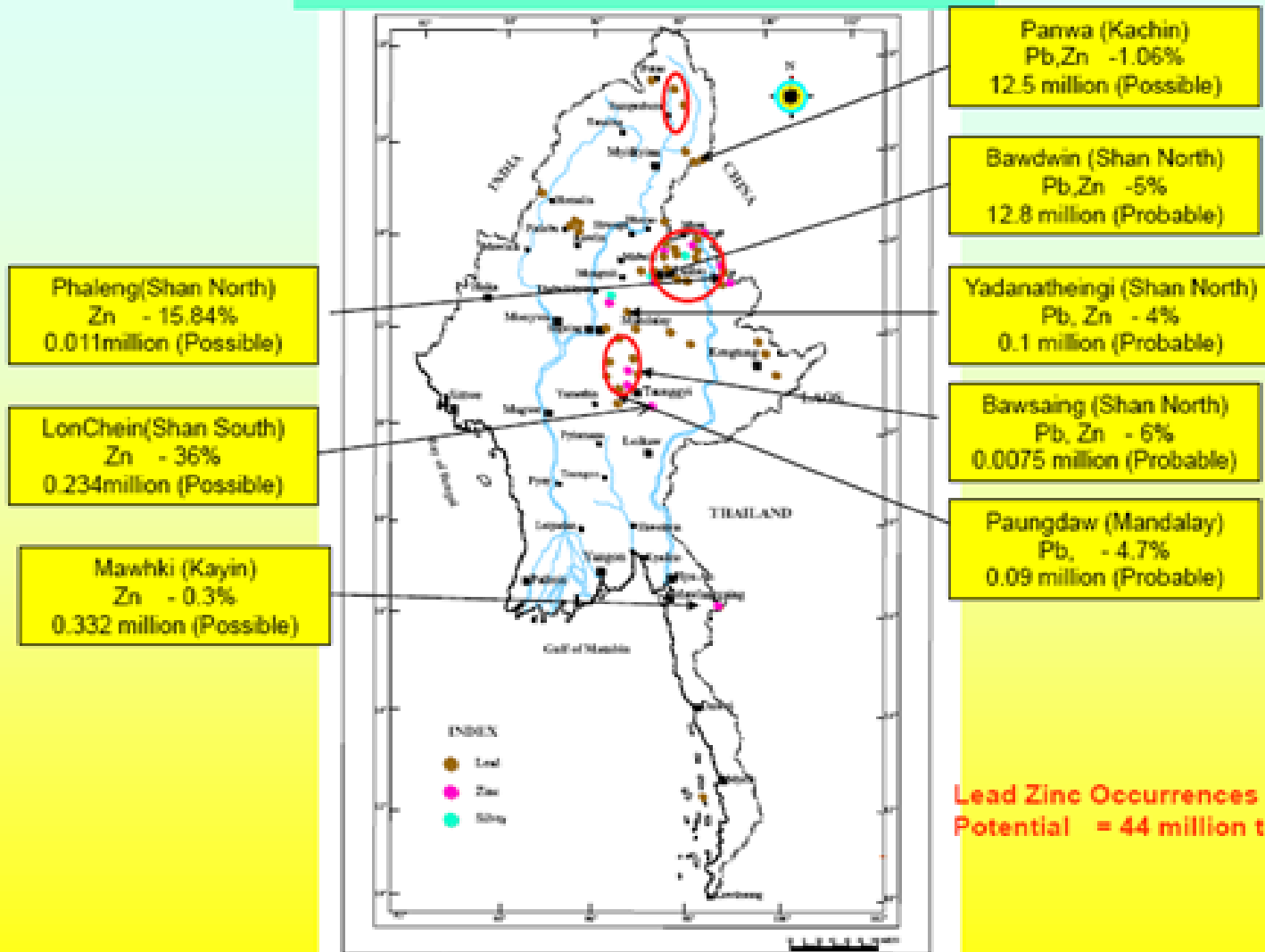


Gold occurrences = 341

Potential = 66 million ore tons

# Copper Deposits of Myanmar

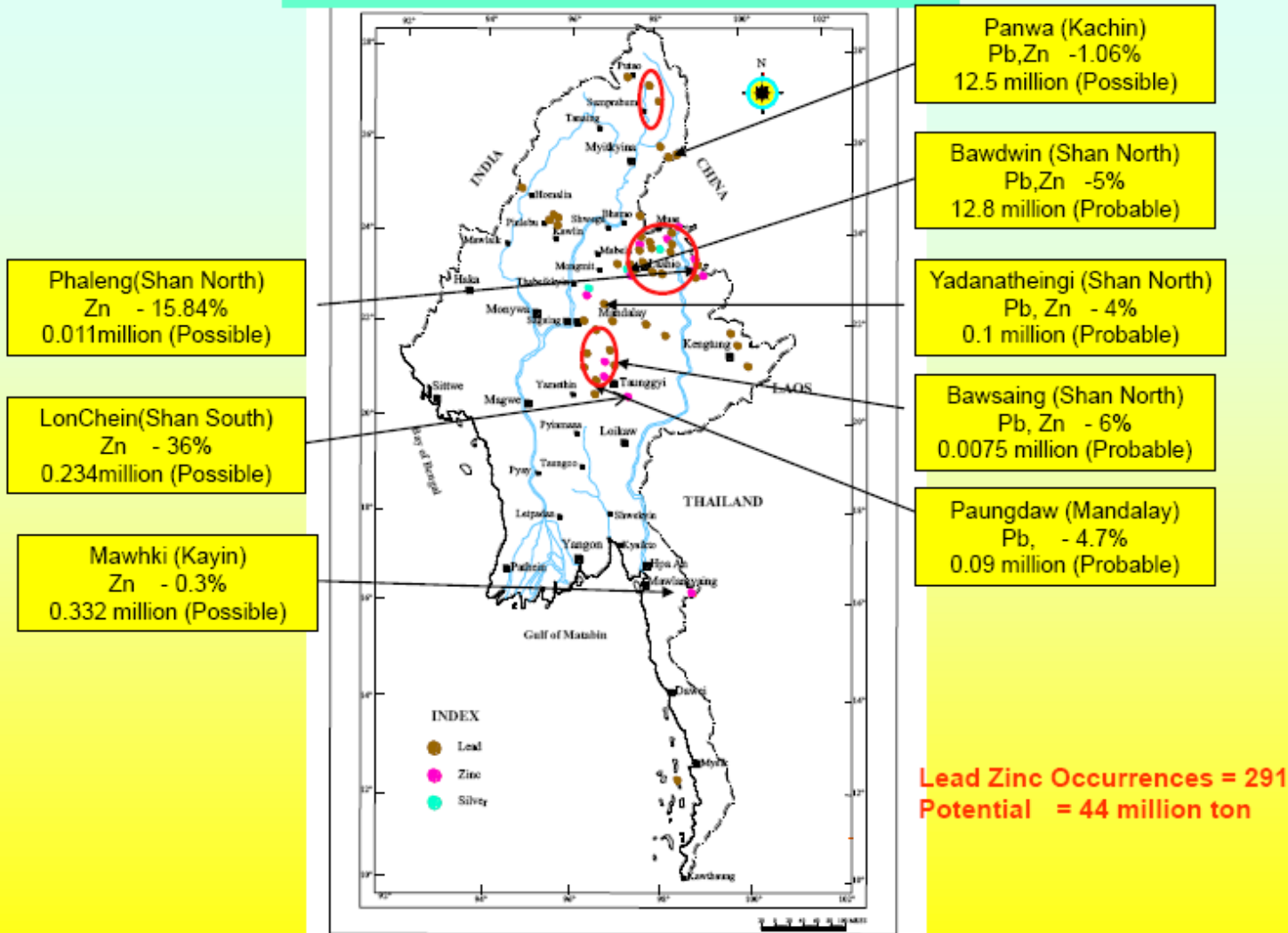
## DISTRIBUTION OF LEAD-ZINC-SILVER DEPOSIT



**Lead Zinc Occurrences = 291**  
**Potential = 44 million ton**

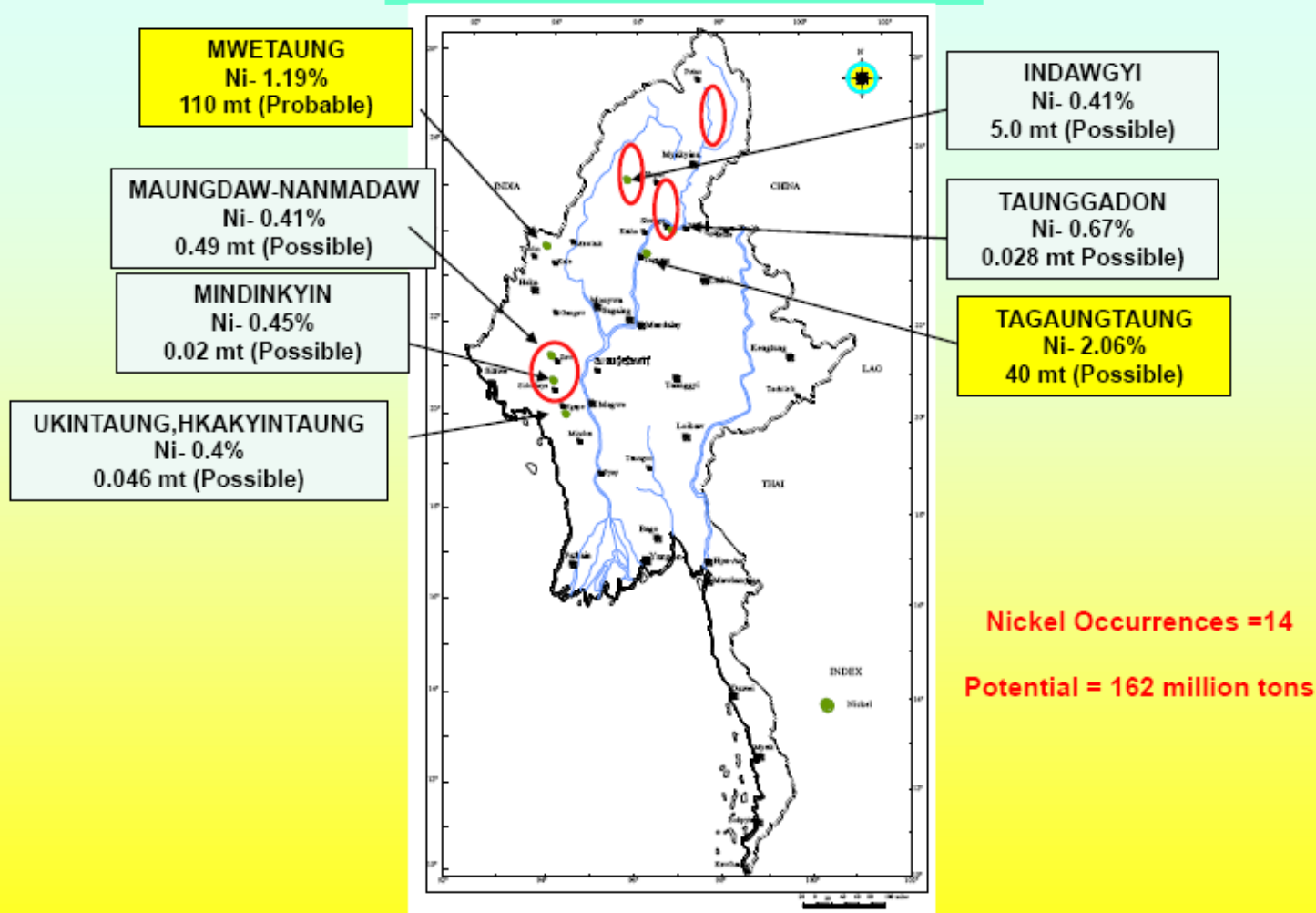
# Lead-zinc Deposits

## DISTRIBUTION OF LEAD-ZINC-SILVER DEPOSIT

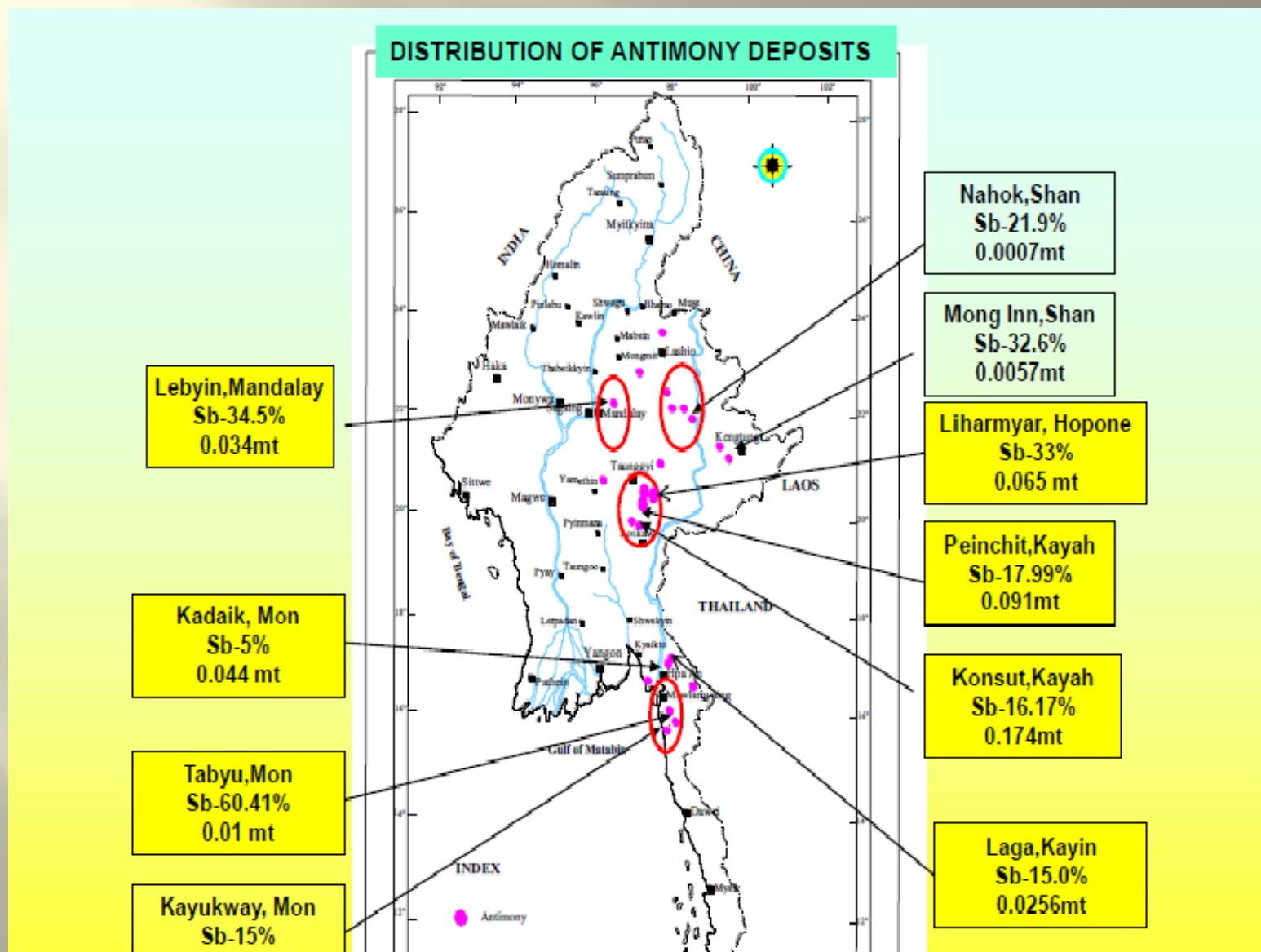


# Nickel deposits of Myanmar

## DISTRIBUTION OF NICKEL DEPOSITS



# Antimony Deposits of Myanmar



# Tin-Tungsten Deposits

## DISTRIBUTION OF TIN - TUNGSTEN DEPOSITS

Tin- Tungsten deposits= 480

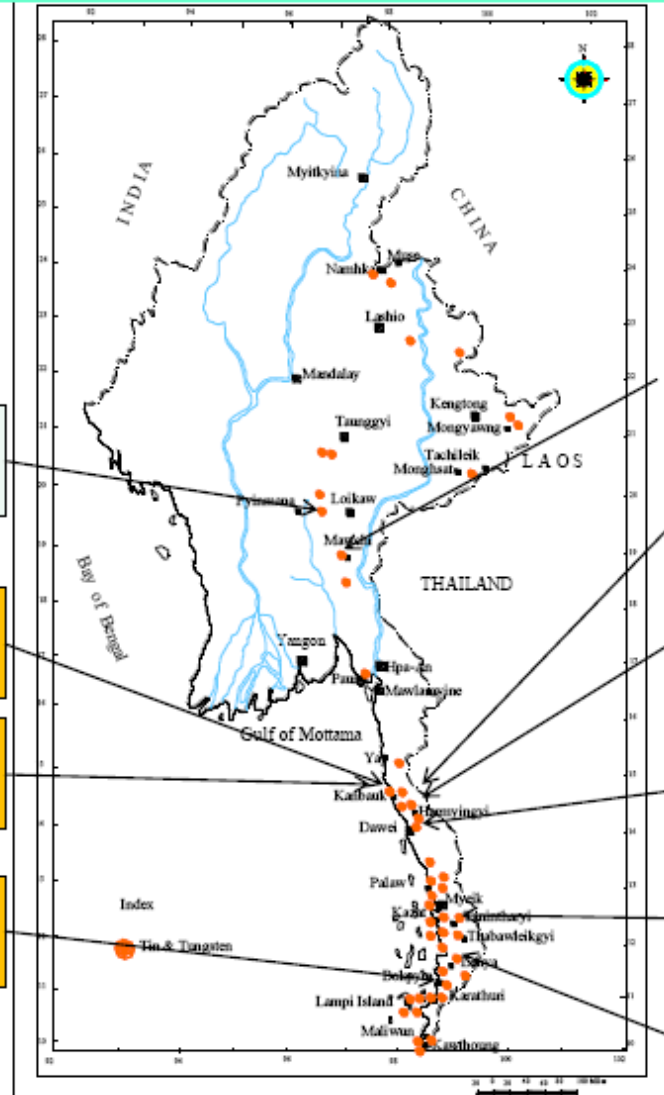
Potential = 40 million tons

Padatchaung (Primary)  
Sn – 0.11%, WO<sub>3</sub> -0.81%  
0.46 million (Probable)

Heinze (Placer)  
Sn – 0.2- 0.3 lb/cu.yd.  
0.012 million (Possible)

Kanbauk( Primary/ Placer)  
Sn – 0.59%, 0.56 lb/cu.yd.  
0.00865 million (Possible)

Atwin Bokpyin (Placer)  
Sn – 0.56 lb/cu.yd.  
0.0036 million (Probable)



Mawchi (Primary)  
Sn – 0.32%  
31 million (Probable)

Hermyingyi (Primary)  
Sn – 0.37%  
0.698 million (Probable)

Heinda (Placer)  
Sn – 0.68 lb/cu.yd.  
0.013 million (Probable)

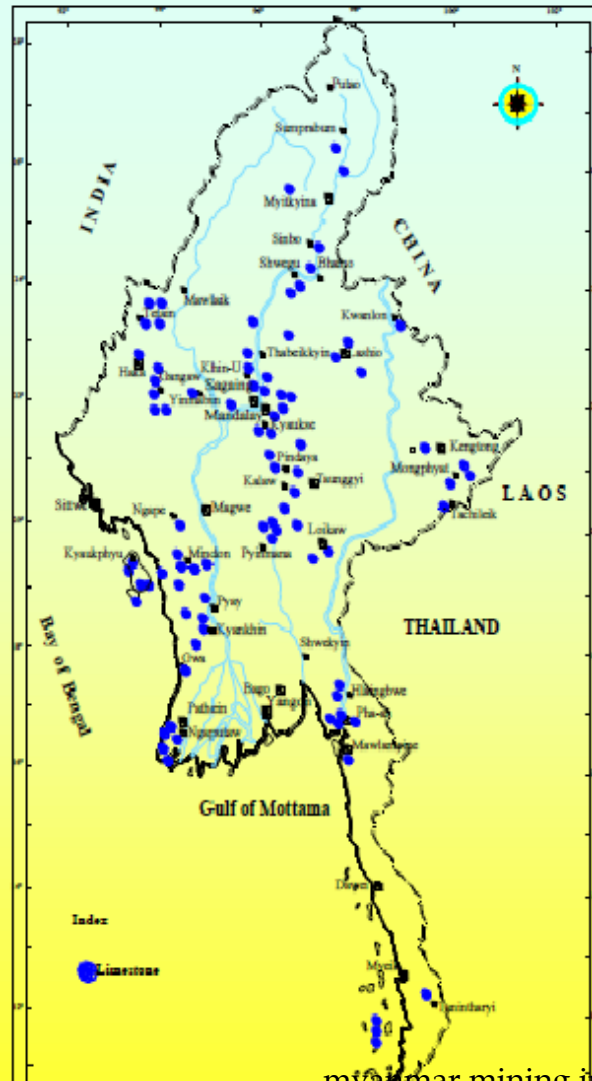
KyaukmeTaung,  
Pagaye(Placer)  
Sn – 0.5 lb/cu.yd.  
0.001 million (Probable)

Theindaw(Placer)  
Sn – 0.36 lb/cu.yd.  
0.0016 million (Probable)

Manawlon(Placer)  
Sn – 0.6 lb/cu.yd.  
0.0021 million (Probable)

# Distribution of Limestone Deposits

## DISTRIBUTION OF LIMESTONE DEPOSITS

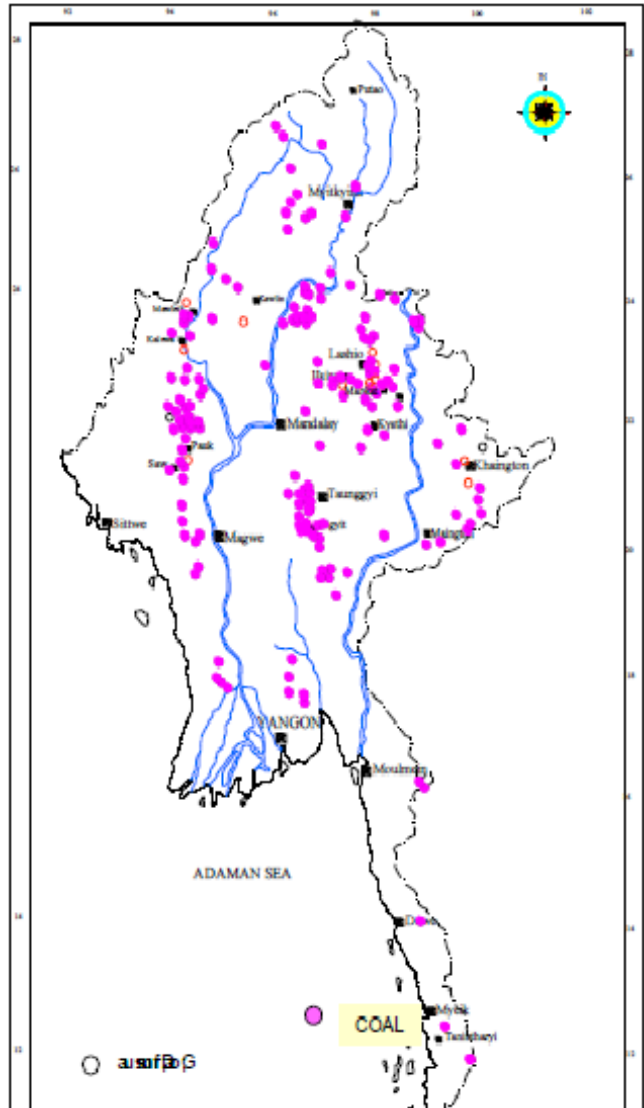


Lime stone deposits = 452

Potential = 58800 million tons

# Distribution of Coal Deposits

## DISTRIBUTION OF COAL DEPOSITS



**COAL OCCURENCES = 495**

**Potential = 490 million tons**

# Mineral Products

## *Exports*

- ❖ Jade , Gems
- ❖ Copper , Lead , Zinc
- ❖ Tin, Tungsten, FerroNickel
- ❖ Manganese dioxide

## *Domestic*

- ❖ Gold
- ❖ Limestone, Marble, Coal
- ❖ Barytes, Bentonite, Other Industrial Minerals

# Type of Business Activities

- **Exploration**

  - Green Field Exploration

  - Reconnaissance for Development

- **Production**

  - Production Sharing Agreement

- **Other Businesses as permitted under FIL2013**

# Organization of Ministry of Mines

- **Department of Mines**
- **Department of Geological Survey and Mineral Exploration**
- **No.1 Mining Enterprise**
- **No.2 Mining Enterprise**
- **No.3 Mining Enterprise**
- **Myanma Gems Enterprise**
- **Myanma Salt and Marine Chemicals Enterprise**
- **Myanmar Pearl Enterprise**

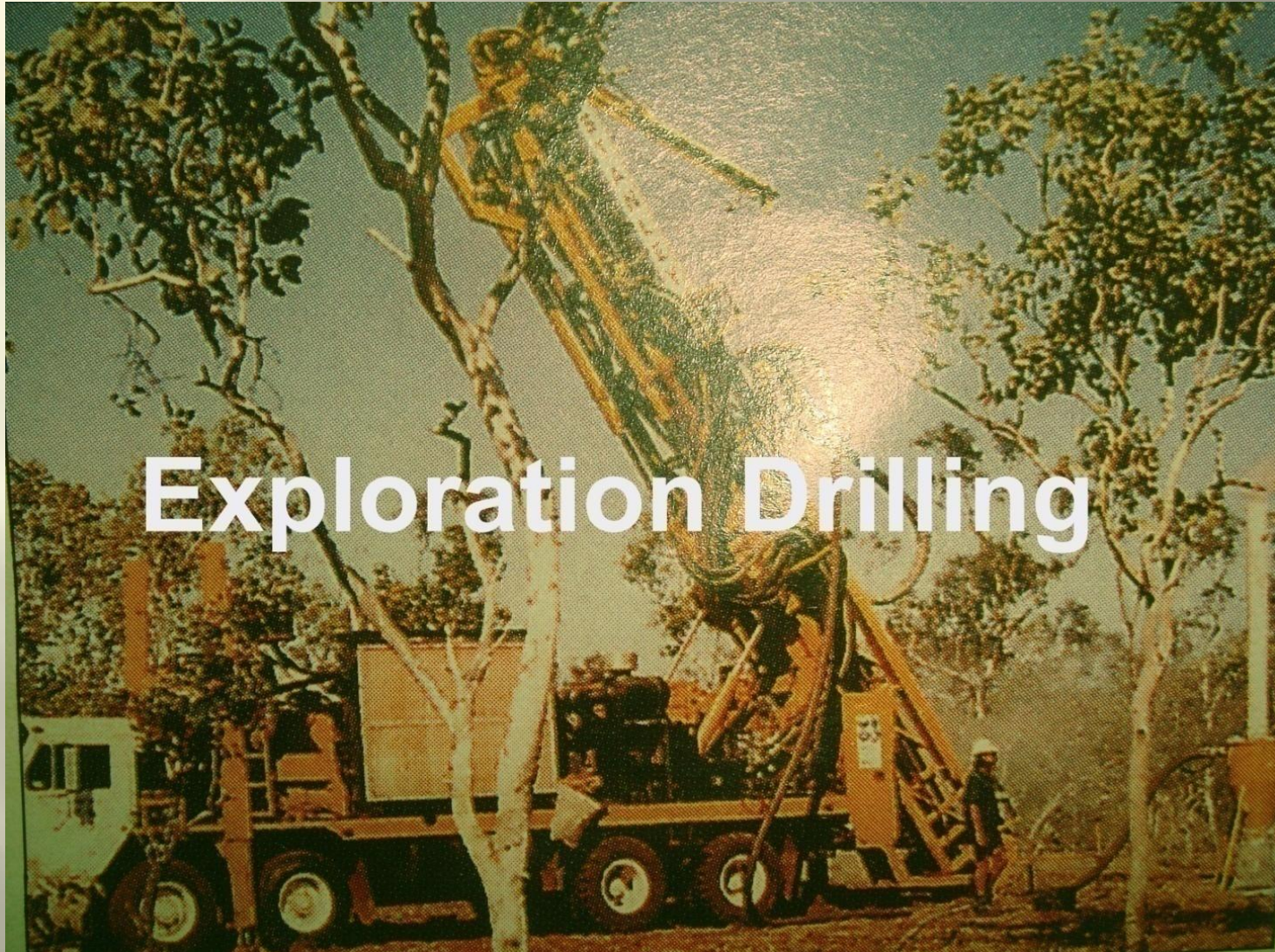
# Investor's Profile

- **Name of Company**
- **Registration Documents**
  - ✓ **Country of registration**
  - ✓ **Type of company**
- **Financial Status and standing**
  - ✓ **Assets**
  - ✓ **Previous year's balance sheet**
- **Notarization and Endorsements**
  - ✓ **Myanmar Embassy's Endorsement**

# **Mining Activities allowed for Foreign Investment**

- ❖ **Exploration, Exploitation, Production and Marketing of non-metallic industrial minerals, such as coal, limestone, gypsum, etc.**
- ❖ **Marble quarrying and production and marketing of marble blocks and slabs**
- ❖ **Carrying out other quarrying industries and marketing of products thereof**
- ❖ **Metallic minerals in cooperation with respective government enterprise on PSC basis**

# Mineral exploration



# Essentials for Exploration Proposal

- ❖ **Area Location,**
- ❖ **Type of Minerals**
- ❖ **General description of Area**
- ❖ **Exploration Techniques**
- ❖ **Proposed Exploration Expenses**
- ❖ **Transfer of Technical knowhow**
- ❖ **Signature Bonus**
- ❖ **Minimum Expenditure Commitment**
- ❖ **Employment**
- ❖ **Technical Knowhow Transfer**
- ❖ **I E E , E S I A , E M P and C S R**

# Large Scale Production



Typical open cut mine operation

# Essentials for Mineral Production Proposal

- ❖ **Area Clearance**
- ❖ **Type of Mineral(s)**
- ❖ **Investment Capital**
- ❖ **Signature Bonus**
- ❖ **Scale of Production**
- ❖ **Mine Life**
- ❖ **Production Sharing Split Ratio**
- ❖ **Employment**
- ❖ **Technology Transfer**
- ❖ **I E E , E S I A and E M P and C S R**
- ❖ **Rehabilitation of Abandoned Mine Land**

# Requirements for Operation

- ❑ **Transport and Logistics**
- ❑ **Communication**
- ❑ **Human Resource**

# Mine operation Logistics

- ❑ **Purchase, transport ,storage and consumption of Raw materials, spares and wear parts**
- ❑ **Marketing, transport, delivery and shipment of products**

# Port facility in Myanmar

## Number of Ports in the Myanmar coastline - 9

- **Yangon** [Yangon Region];
- **Sittwe, Kyaukphyu, Thandwe** [Rakhine State]
- **Patheingyi** [Ayeyerwady Region]
- **Mawlamyine** [Mon State]
- **Dawei, Myeik, Kawthoung** [Tanintharyi Region]

**Vessel Size in Yangon port-167 LOA/9M draft/15,000DWT**

**Vessel Size in Thilawa port-200 LOA/9M draft/20,000DWT**

**Cargo handle for export and import in 2006=12 million tons**

# Road Distances in Myanmar

- **Yangon - Mandalay** 688 km
- **Yangon - Sittwe** 895 km
- **Yangon - Patheingyi** 181 km
- **Mandalay - Muse (China border)** 461 km
- **Mandalay - Tamu (India border)** 535 km
- **Mandalay - Tachileik (Thai border)** 939 km
- **Yangon - Myawady (Thai border)** 446 km
- **Yangon - Kawthoung (Thai border)** 1192 km

# Communication

## ICT Infrastructure

- National backbone** : Fiber link between major cities
- Cross border Fiber Link** : India-Myanmar  
China-Myanmar  
Thai-Myanmar
- International Link** : Sea-Me-We(3) Cable  
: Satellite
- Last Mile Link** : Dedicated Link  
: ADSL/Wireless Broad Band Access  
: MPT Satellite Terminal
- Special networks** : Ministry of Science and Technology  
Network  
: Educational Intranet  
: Medical education network  
: Industrial Network

# Brief Population Statistics

## *A Comparison Between Myanmar and Thailand*

| Particulars         | unit         | Myanmar | Thailand |
|---------------------|--------------|---------|----------|
| Land Area           | Sq.km '000]  | 676,577 | 513,120  |
| Population          | '000'        | 60,163  | 67,312   |
| Population Density  | Person/sq.km | 88.9    | 131.2    |
| Urban Population    | percent      | 31.9    | 33.8     |
| Adult Literacy      | percent      | 91.9    | 94.1     |
| Youth (15-29) popn. | '000'        | 15'376  | 15.762   |
|                     |              |         |          |

# Availability of skilled labor

- Organizational arrangement
- Technological level of mine extraction operation
- On the job training facilities
- Stability of labor force

# Environmental Protection

- ❖ Organizational arrangements
- ❖ Action plans E M P
- ❖ Monitoring mechanism enforcement,
- ❖ Management of Abandoned Mine Lands

# Organizational Arrangement

- ❖ To be established in the Project
- ❖ Corresponding with Public Authorities
- ❖ Correspondence with local communities

# Corporate Social Responsibility

## ❖ Social Impact Assessment

Impact of the Project on rural community, customs and traditions

## ❖ Community Interrelation

Labor recruiting, know-how sharing

## ❖ Implied Responsibility

Complementariness to the rural community, Education, Health

# Management of Abandoned Mine Lands

## ➤ **Nature of Mine Operation**

*Mining method, ore winning process, use of chemicals, final product*

## ➤ **Impact Assessment**

*Waste rock disposal. Tailings discharge, waste water drainage, Effects on the environment, Location of natural drainage such as rivers.*

## ➤ **Mitigation Measures**

*Management of waste rock dumps, neutralization of polluted tailings discharge*

## ➤ **Allocation of Funds**

*Funds to be allocated in the operating cost and disbursement procedures to ensure the rehabilitation measures*

# Issues and Challenges

- Legal and organizational matters
- Economics of the Venture, world market price
- Availability of skilled labors in the mine area
- Power Security
- Responsibility of the Management
  - ✓ Technical and administrative aspects
  - ✓ Logistics
  - ✓ Regional development
- Environmental Protection

**THANK YOU  
FOR  
YOUR KIND ATTENTION**