# OVERVIEW ON MINERAL RESOURCE CLASSIFICATION OF THAILAND

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Introduction

- Mineral resources Thailand
  - \> 40 types, including industrial rocks, have been found.
  - ≈ 20 types are currently exploited.

- Mineral quantities (as of the end of 2010)
  - Total remaining quantities ≈20 MMTs
  - Total remaining minable reserves/resources ≈6,000 MTs.

- Resource classification schemes
  - *Past*: based loosely on CRISCO
  - *Present*: modified UNFC-1997.

(Source: *DMR, 2006*)
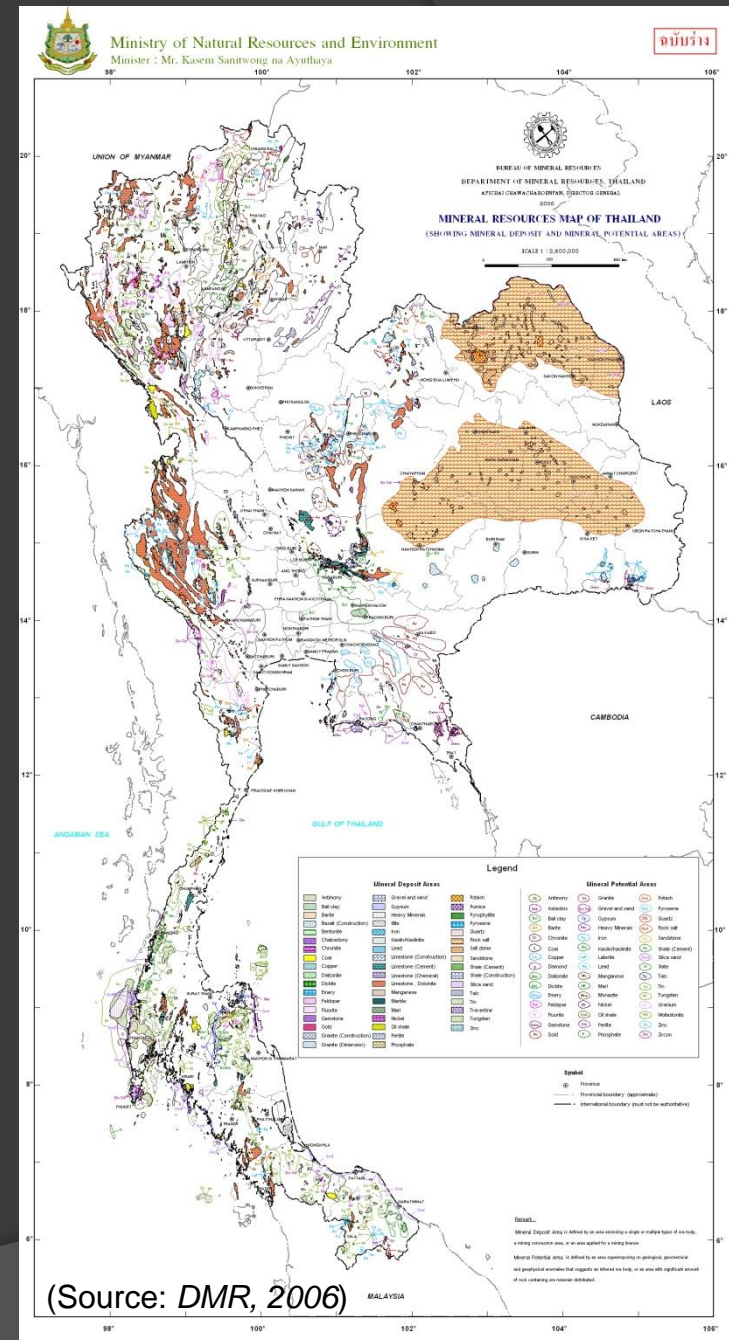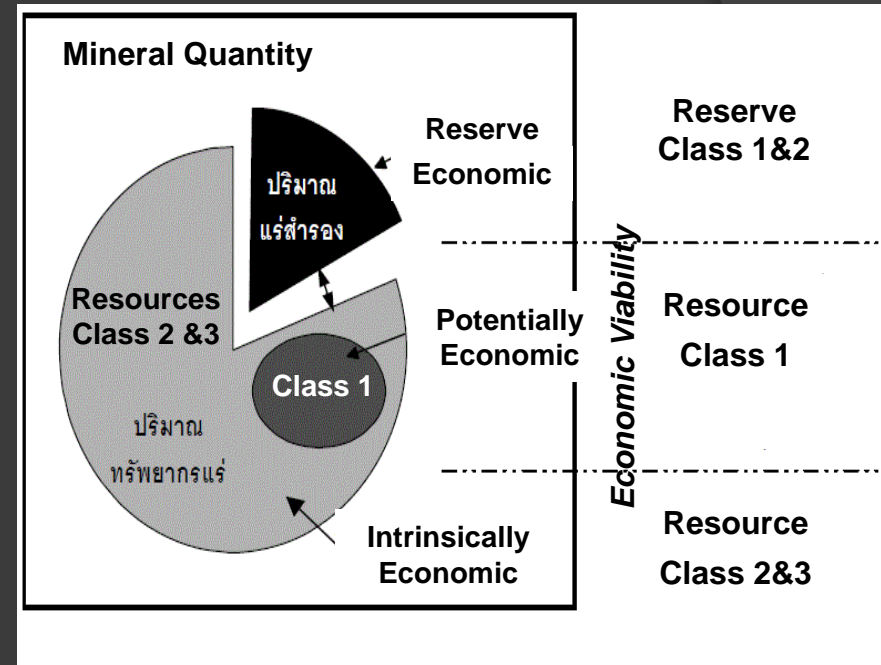
DMR's Reserve/Resource Classification:
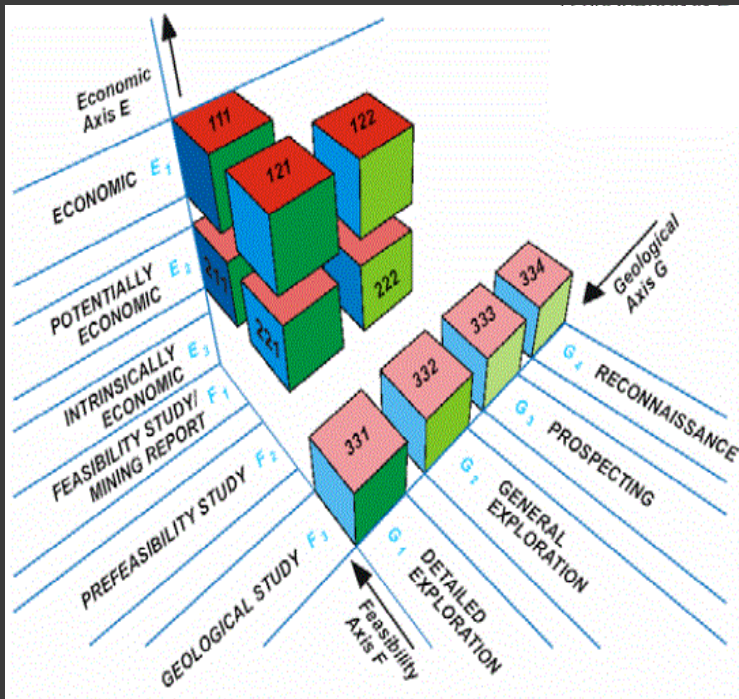
3-axes UNFC-1997 Principle

• In 2000, DMR adopted the principle of the UNFC-1997 due to its universal and flexibility.

• However, some parts of the reserve/resource terminology have been modified and harmonized into the existing system of the DMR.

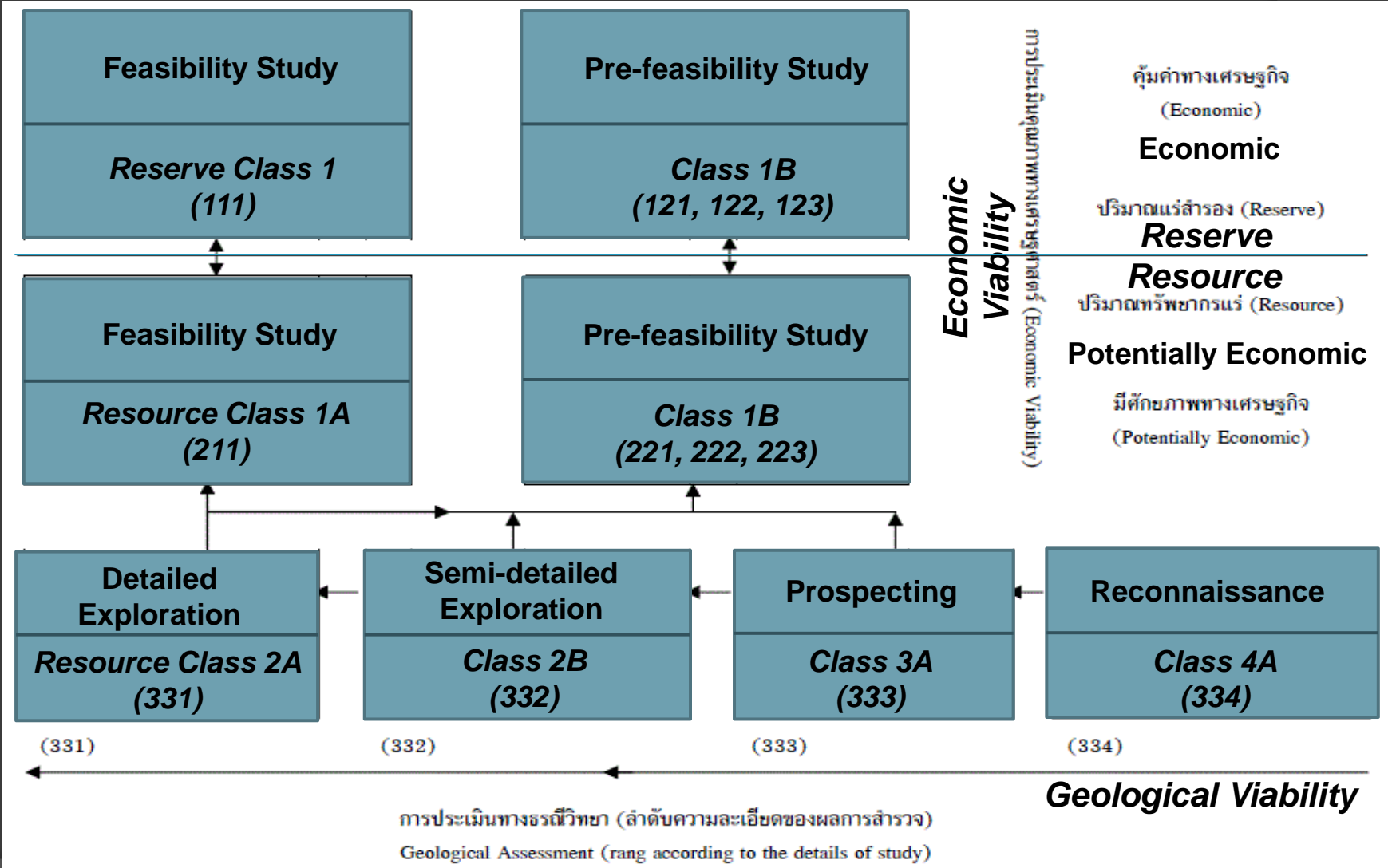# DMR's Reserve/Resource Classification:
adapted from UNFC-1997

Terminology & Critiria

- **Mineral quantity** = *Mineral reserve + Mineral resource*

- **Reserve Class 1&2**: *In-production mining licenses*

- **Resource Class 1**: *Pending/On-hold/Expired mining licenses*

- **Resource Class 2&3**: *Exploration results*

DMR's Mineral Quantity Assessment and Classification:
adapted from UNFC-1997

DMR's Mineral Quantity Assessment and Classification:
reporting table

Reporting Table of a Resource/Reserve Commodity   =>   8 Classes

United Nations International Framework Classification for Resource/Reserve

- Solid Fuel and Mineral Commodity -

Deposit/ Mine Name	Feasibility Study / Mining Report		Prefeasibility Study		Geological Study			
	Economic (111)	Potentially Economic (211)	Economic (121, 122, 123)	Potentially Economic (221, 222, 223)	Detailed Exploration (331)	Semi-detailed Exploration (332)	Prospecting (333)	Recon- naissance (334)
	Reserve/ Resource		Reserve/ Resource		Resource		Resource	
	Class 1A	Class 2A	Class 1B	Class 2B	Class 2A	Class 2B	Class 3A	Class 3B
Total								

122 = United Nations Framework Classification code

Implementation of
UNFC Resources Classification :
Examples

CASE 1: *Overall Reserve/Resource Figure (as of 2010)*

Mineral Type	Remained Minable Reserves (milliom tonnes)	Remained Mineral Resources[2] (million tonnes)	Remained Mineral Quantity (million tonnes)
I. Industrial Rocks	*mixture of Reserves &Class 1)*	*mixture of Resource Class 1, 2&3*	
Andesite	151	16,000	16,151
Basalt	101	42,100	42,201
Granite	265	11,000	11,266
Limestone (cement)	749	611,800	612,550
Limestone (construction)	1,935	293,000	294,935
Sandstone	30	31,000	31,031
Shale	86	115,000	115,086

Data sources: 1. *Department of Primary Industries and Mines*
2. *Department of Mineral Resources*

# CASE 1: *Overall Reserve/Resource Figure (cont.)*

Mineral Type	Remained Minable Reserves (milliom tonnes)	Remained Mineral Resources[2] (million tonnes)	Remained Mineral Quantity (million tonnes)
II. Non-metallic Minerals	*mixture of Reserves &Class 1)*	*mixture of Resource Class 1, 2&3*	
Barite	1.28	29.64	31
Clay	143	700	843
Dolomite	-	2,156	2,156
Fluorite	3.62	10.26	14
Gypsum	173	200	373
Potash	-	400,000	400,000
Potassium feldspar	0.96	900	901
Quartz	4.71	50.23	55
Rock salt	28	17,999,999	18,000,027
Silica sand	-	80	80
Sodium feldspar	235	4,500	4,735

| Mineral Type	Remained Minable Reserves (milliom tonnes)	Remained Mineral Resources[2] (million tonnes)	Remained Mineral Quantity (million tonnes)
III. Metallic Minerals	*mixture of Reserves &Class 1)*	*mixture of Resource Class 1, 2&3*	
Copper (metal)	1.14	0.36	1.50
Gold (metal)#	7.09	146.00	153
Iron	36	149.46	185
Silver (metal)#	38	430	468
Tin	0.06	1.00	1.07
Tungsten	0.12	1.00	1.12
Zinc	2.96	1.71	4.67

CASE 2: *Newly Exploration Projects*
*(*Mineral Exploration and Evaluation Project: *Chanthaburi 4/2003)*
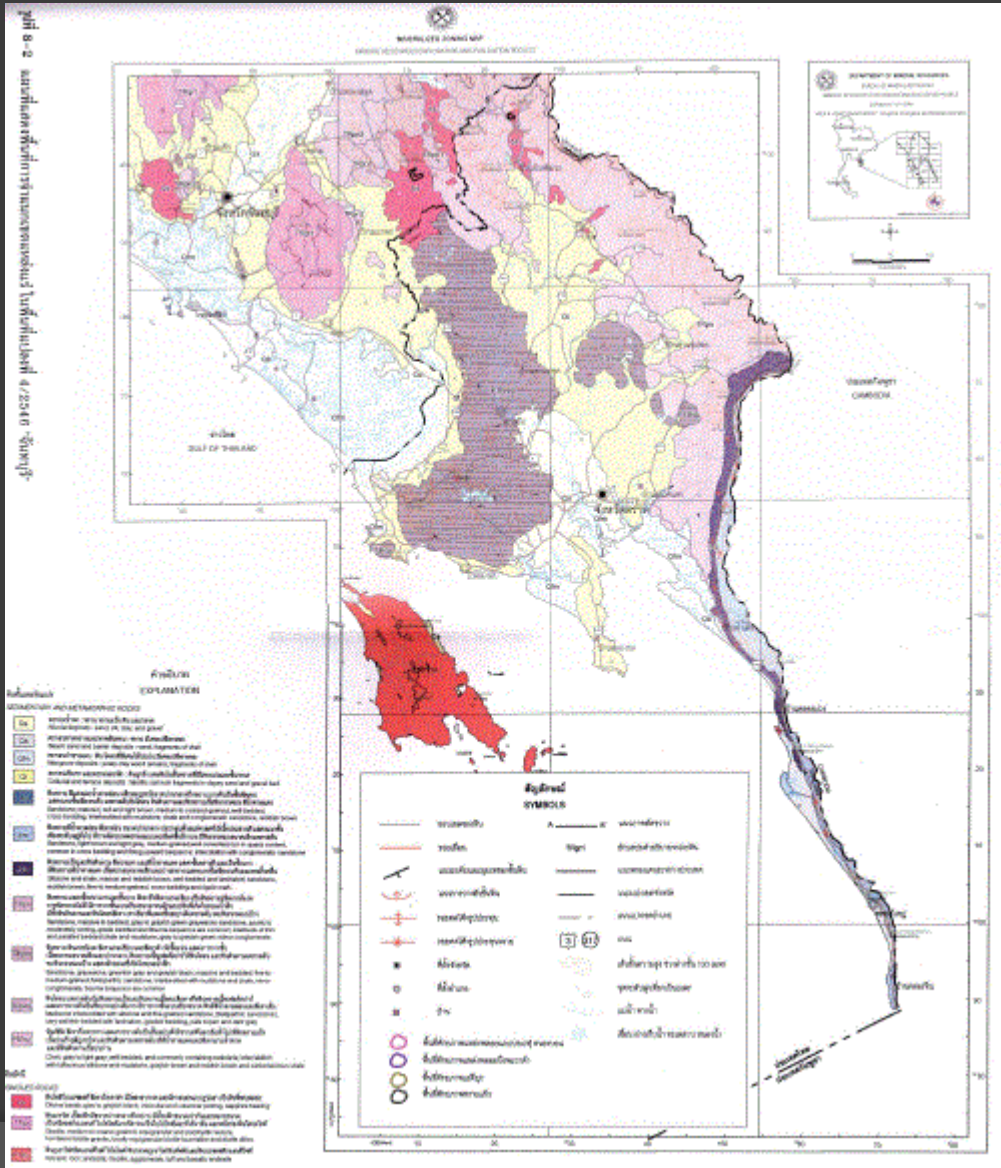

Exploration tasks:

- **Reconnaissance**
  - To define high mineral potential areas

- **Exploring in the defined high potential areas**
  - To pin point target areas

- **Exploring in the target areas**
  - To bound mineral deposit areas

- **Detailed investigating in the deposit areas**
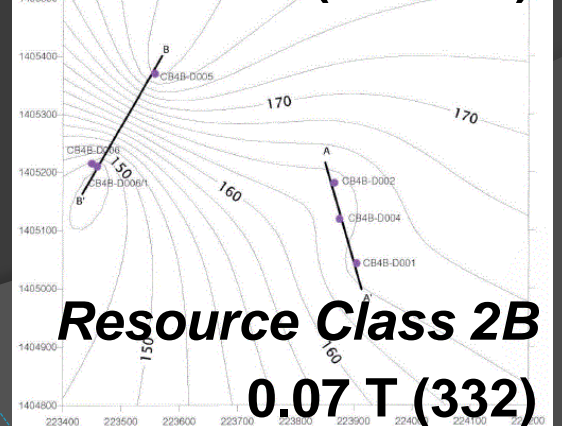 - To evaluate mineral resource.

Gem Corundum: **Total Resources 2.95 T**

Min. area I (1.1 km^2):

Resource Class 1A

2.88 T (331)

Min. area II (0.5 km^2):

Resource Class 2B
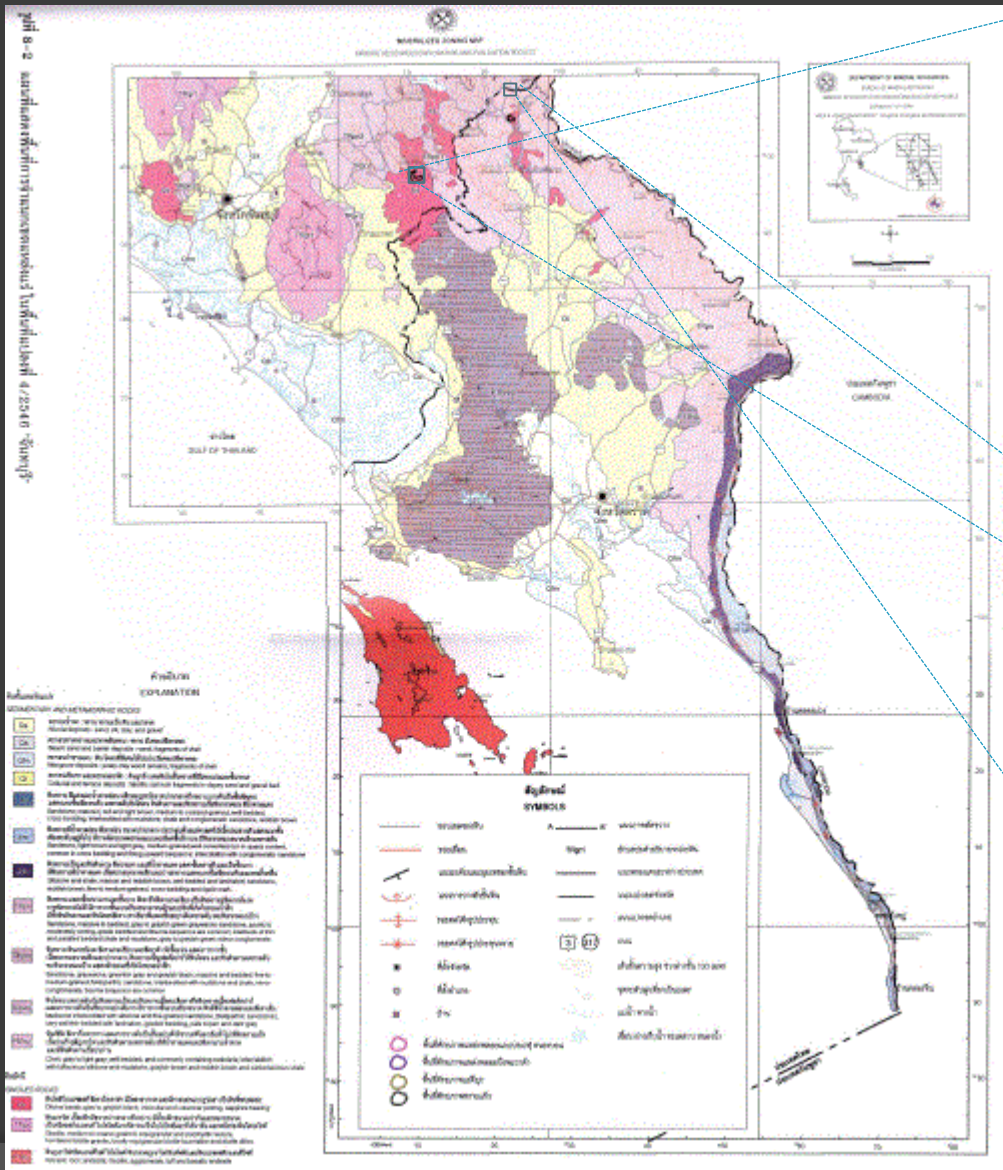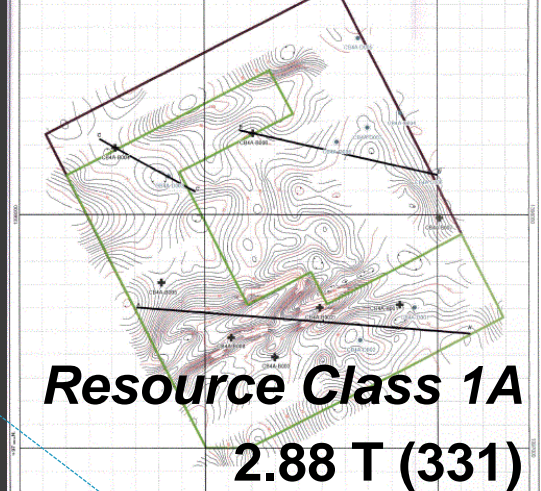
0.07 T (332)

Acknowledgement:

- Mr. **Wudhikan Sukserm** for the reserve/resource tables

Thank you for your attention