

7-1
Geologic Map of Northeast Region

Note:
 1) Data Source: World Geologic Map (USGS)
 2) Geological Units is based on geologic age

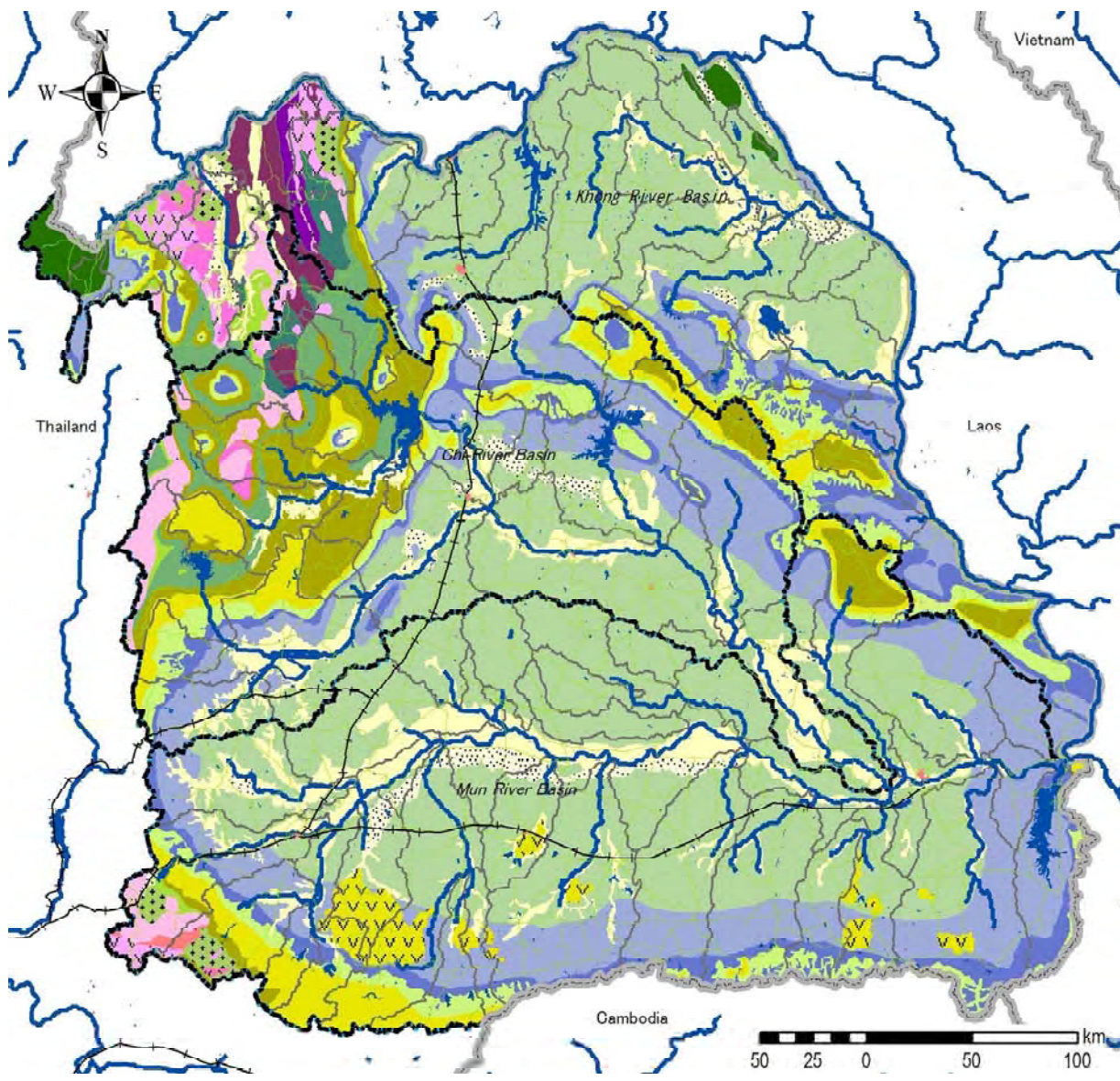
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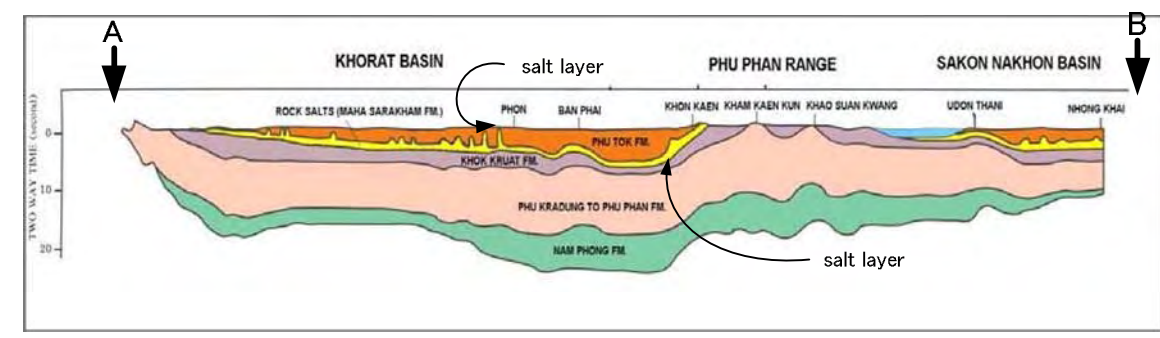
| Geologic Formation | |
|--------------------|-----------------------------|
| | Quaternary |
| | Quaternary-Tertiary |
| | Cretaceous |
| | Cretaceous |
| | Cretaceous |
| | Cretaceous |
| | Jurassic |
| | Jurassic |
| | Jurassic |
| | Triassic |
| | Triassic |
| | Triassic |
| | Permian |
| | Permian |
| | Permian |
| | Carboniferous |
| | Carboniferous |
| | Carboniferous |
| | Devonian |
| | Devonian |
| | Volcanic Rock (Mesozoic) |
| | Volcanic Rock (PR) |
| | Volcanic Rock (Basalt) |
| | Volcanic Rock (Ultra basic) |
| | Water Body |
| | Basin Boundary |
| | Rail |
| | Road |
| | River |

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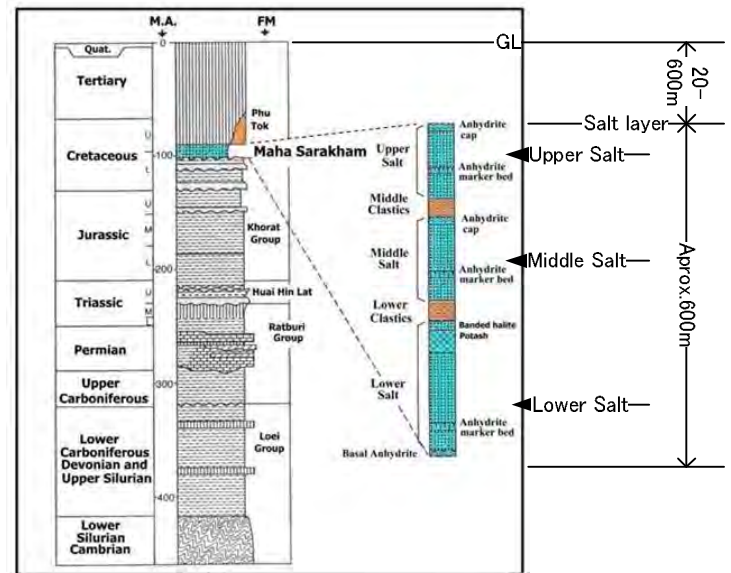
Geologic Map of Northeast Thailand (DMR, 1999)



Geologic Section (A-B) Nakhon Ratchashima(Khorat) -Udon Thani- Nhong Khai

Correlation Table of Geologic Formation in Northeast Thailand (DMR, 1999)

| Chronostratigraphy | Lithostratigraphic Units | Mega sequences | Depositional Environments | Tectonic Events |
|--------------------|--------------------------|--------------------|--|--|
| TERTIARY | THA CHANG FM | Himalayan | Fluvial | 5-10 Ma Late uplift |
| | Himalayan Unconformity | | | |
| | PHU TOK FM | | | |
| CRETACEOUS | MAHASARAKHAM FM | Pre-Himalayan | Playa lake | Uplift Inversion including Himalayan Orogeny |
| | KHOK KRUAAT FM | | | |
| | PHU PHAN FM | | | |
| JURASSIC | PHU PHAN FM | KHORAT GROUP | Fluvial and alluvial | Post - Indosinian II Foreland Basin Subsidence |
| | PHU KRADUNG FM | | | |
| | NAM PHONG FM | | | |
| TRIASSIC | HUAI HIN LAT GROUP | Pre-Indosinian II | Fluvial and lacustrine | Indosinian II Orogeny |
| | PHU PHAN FM | | | |
| | PHU PHAN FM | | | |
| PERMIAN | PHU PHAN FM | SARABURI GROUP | Shallow marine to shallow marine to basinal | Indosinian I Orogeny |
| | PHU PHAN FM | | | |
| | PHU PHAN FM | | | |
| CARBONIFEROUS | SHALLOW MARINE PLATFORM | WANG SAEFUNG GROUP | Shallow marine | Indosinian I Orogeny (200 ± 25 Ma) |
| | SHALLOW MARINE PLATFORM | | | |
| | SHALLOW MARINE PLATFORM | | | |
| DEVONIAN | SHALLOW MARINE PLATFORM | PAK CHOM GROUP | Shallow marine and allochthonous deep marine | Variscan Orogeny (300 ± 25 Ma) |
| | SHALLOW MARINE PLATFORM | | | |
| | SHALLOW MARINE PLATFORM | | | |
| SILURIAN | SHALLOW MARINE PLATFORM | NA MO GROUP | Pre-Caledonian | Caledonian Orogeny Regional low grade metamorphism |
| | SHALLOW MARINE PLATFORM | | | |
| | SHALLOW MARINE PLATFORM | | | |
| | Metamorphic Basement | | | |



Maha Sarakham Formation and Salt Layer (DMR, 1999)

7-2 Geologic Map and Salt Layer of Khong, Chi and Mun Basin

Note:
Data Source: Processed by JICA study Team using DGR data

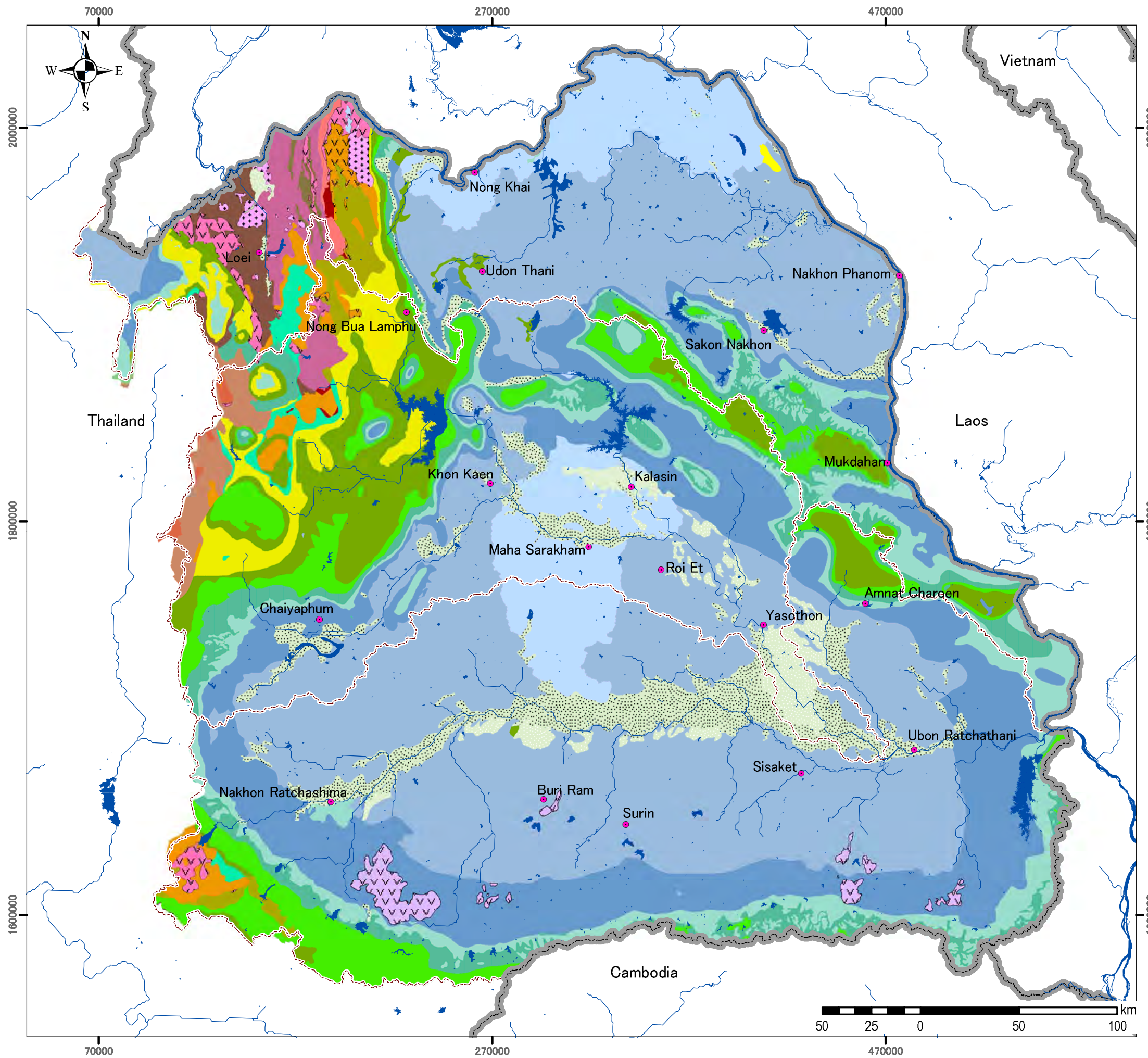
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- GEOLOGIC FORMATION**
- Quaternary
 - Quaternary-Tertiary
 - Cretaceous (Mahasarakham FM - Phu Tok FM)
 - Cretaceous (Khok Kruat FM)
 - Cretaceous (Phu Phan FM)
 - Cretaceous - Jurassic (Sao Khua FM)
 - Jurassic (Phra Wihan FM)
 - Jurassic (Phu Kradung FM)
 - Jurassic (Nam Phong FM)
 - Triassic (Phu Lpo FM)
 - Triassic (Phu Pra-MDH FM)
 - Triassic (Phu Pra-MDH FM)
 - Permian (Pha Dua - Hua Na Kham FM)
 - Permian (Pha Nok Khao FM)
 - Permian (Nam Duk FM)
 - Carboniferous (Upper)
 - Carboniferous (Middle)
 - Carboniferous (Lower)
 - Carboniferous - Devonian (Pak Chom GP)
 - Devonian (Pak Chom GP)
 - Igneous Rock (Mesozoic)
 - Igneous Rock (PR)
 - Igneous Rock (Basalt)
 - Igneous Rock (Ultra basic)
 - Water Body
 - Basin Boundary
 - Sub-basin Boundary
 - River

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7-3
Hydrogeologic Map of Northeast Region

Note:
 Data Source: Department of Groundwater Resources,
 Ministry of Industry

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Aquifer types

- Flood plain Deposits Aquifer
- Terrace Deposits Aquifers
- Tertiary-Cretaceous(Phu Thok)Aquifer
- Cretaceous(Phu Thok/Maha Sarakham)Aquifers
- Cretaceous(Maha Sarakham)Aquifers
- Cretaceous(Khok Kruat)Aquifers
- Cretaceous(Phuphan)Aquifers
- Cretaceous-Jurassic(Sao Khua)Aquifers
- Jurassic(Phra Wihan)Aquifers
- Jurassic(Phu Kradung)Aquifers
- Jurassic(Namphong)Aquifers
- Jurassic(Upper Khorat)Aquifer
- Jurassic(Middle Khorat)Aquifer
- Jurassic(Lower Khorat)Aquifer
- Permian(Nam Duk)Aquifers
- Triassic(Huai Hin Lat)Aquifers
- Permian Carbonate Aquifer
- Permian-Carboniferous Metasedments Aquifer
- Triassic Metasedments Aquifers
- Devonian Aquifers
- Carboniferous Aquifers
- Silurian Aquifers
- Silurian-Devonian Metamorphic Aquifer
- Clastic Sediment Aquifers
- Volcanic Aquifer
- Basaltic Aquifers
- Igneous Aquifers
- Granitic Aquifer
- Water body

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