

CCOP Geoscience Cooperation and Way Forward



60th CCOP Annual Session & 83rd Steering Committee Meeting
3 – 8 Nov 2024
Langkawi, Kedah, Malaysia



Dr. Songyang WU

Regional Expert, CCOP Technical Secretariat



Coordinating Committee for Geoscience Programmes in East and Southeast Asia

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1

Introduction of CCOP

2

CCOP Project / Activity in Geosciences

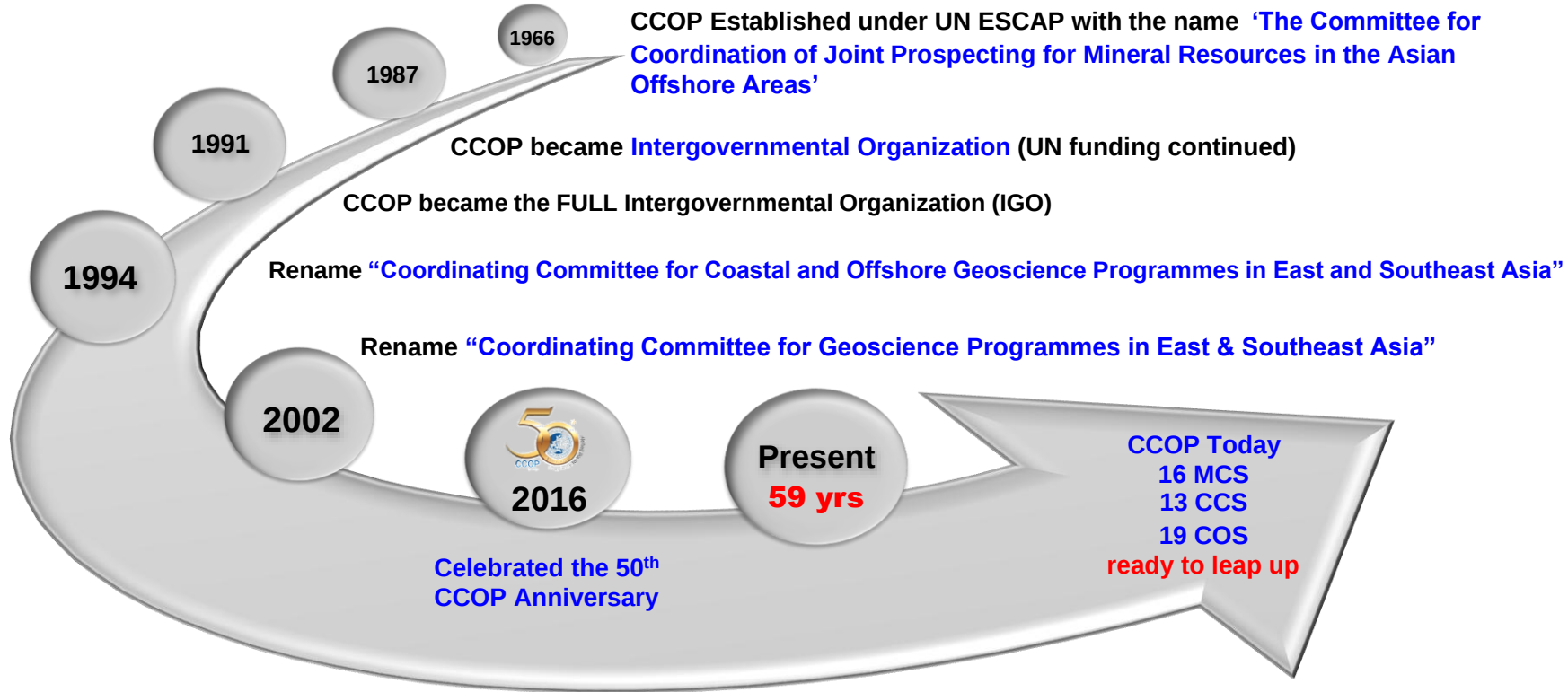
3

Way Forward

The logo of the Coordinating Committee for Geoscience Programmes (CCOP) is a circular emblem. It features a globe in the center with a grid of latitude and longitude lines. The text "CCOP" is at the top, "COORDINATING" is on the left, "COMMITTEE FOR GEOSCIENCE PROGRAMMES" is at the bottom, and "CCOP" is on the right.

Introduction of CCOP

CCOP: Coordinating Committee for Geoscience Programmes in East & Southeast Asia



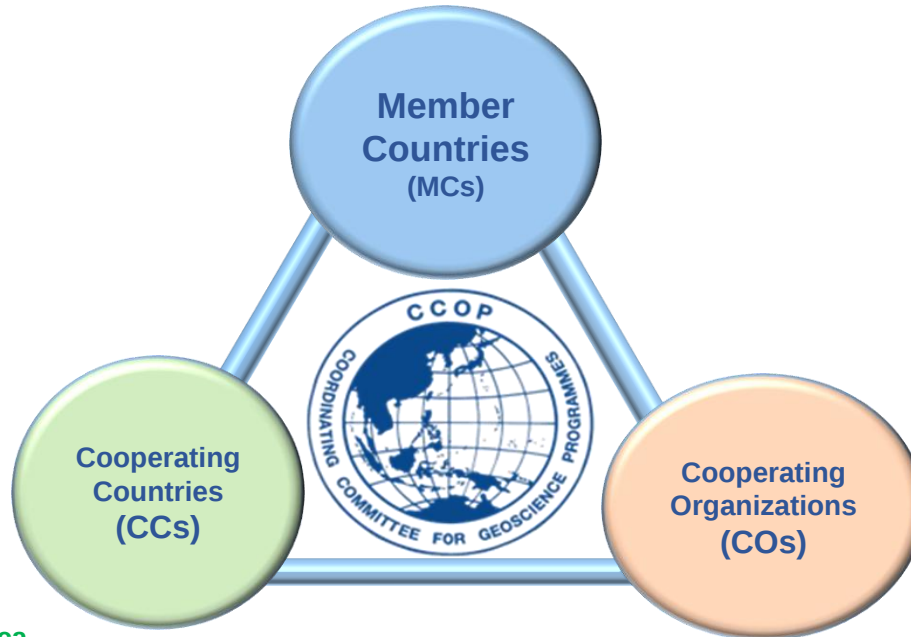
1. Brunei Darussalam
2. Cambodia (MME)
3. China (CGS)
4. Indonesia (GA)

5. Japan (GSJ, AIST)
6. Republic of Korea (KIGAM)
7. Lao PDR (DGM)
8. Malaysia (JMG)

9. Mongolia (NGS)
10. Myanmar (DGSE)
11. Papua New Guinea (DMPGM)
12. The Philippines (MGB)

13. Singapore
14. Thailand (DMR)
15. Timor-Leste (IGTL)
16. Vietnam (MOAE)

1. Australia
2. Belgium
3. Canada
4. Denmark
5. Finland
6. France
7. Germany
8. The Netherlands
9. Norway
10. Poland
11. Russian
12. United Kingdom
13. United States of America



1. ASCOPE
2. CIFEG
3. CPC
4. EURO-GEOSURVEYS
5. GETECH
6. IERI/GIST
7. IOC
8. IOMAC
9. IUGS
10. JICA
11. PETRAD
12. UN-ESCAP
13. SPC
14. UNEP
15. UNESCO
16. UKM
17. THE WORLD BANK
18. YES NETWORK
19. Hanyang University

Vision

The **Leading Intergovernmental Geoscience Organization** for **Sustainable Development** in East and Southeast Asia

Mission

To work together on advancing geoscience for **better lives on future earth**, in line with the goals of international conventions

Geoscience Partnership for Better Life and Digital Earth



VISION & MISSION

Strategic Aim 1

- 5 Objectives/ 20 Action Items
- Expert Groups
- Center of Excellence
- New Projects with CC/CO/MC



**Aim 1: Provision of
Geoscience Solutions,
Advice & Information**

Mission

To work together on
advancing geoscience
for better lives on
future earth & achieving
the goals of international
conventions

**Aim 2: Adapting to
Digital Transformation in
Geoscience for Future Earth**



**Aim 3: Promotion of Geoscience
Education, Capability Building,
and Outreach**



Strategic Aim 3

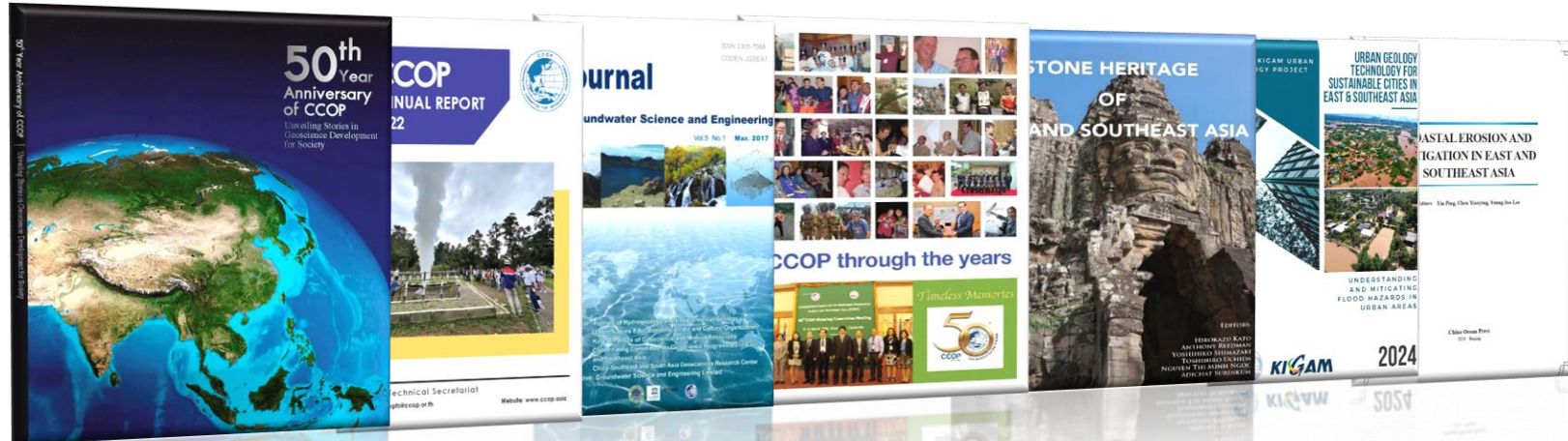
- 3 Objectives/ 9 Action Items
- Capacity Building/ Education/ Training
- Promotion of Young & Women Geoscientists
- Strengthening nurturing system of Experts

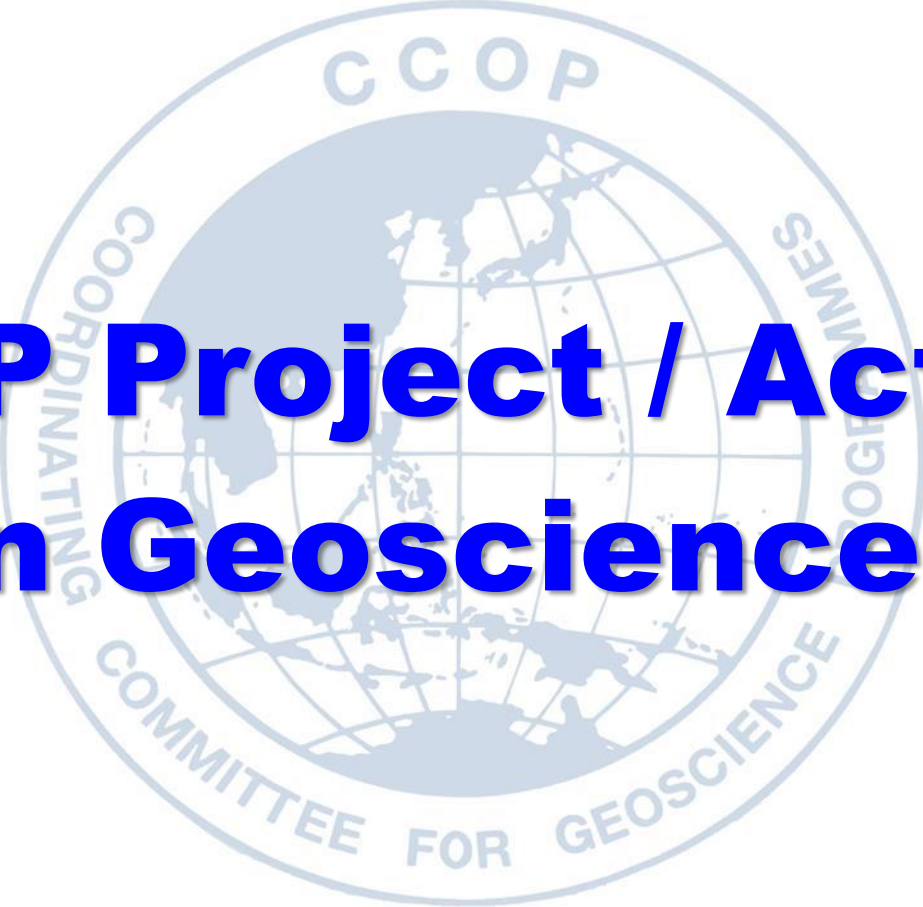
Strategic Aim 2

- 3 Objectives/ 9 Action Items
- Digitally transformed geoscience data management
- Data driven Discoveries & New Findings
- Developing digital Culture and Capability

In the past 59 years, CCOP has achieved

- **> 300** Cross-border Projects
- **> 860** Publications
- **> 40,000** Beneficiaries from E&SE Asia
- **> 1000** Workshops & Trainings



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CCOP Project / Activity in Geosciences

I

Provision of Geoscience Solutions, Advice and Reliable Information through Cooperation and Partnership

- CCOP-KIGAM Urban Geology Project
- CCOP-GSJ Groundwater Project
- CCOP-KIGAM Groundwater Project
- SEACA Project
- AKCF Project
- CCOP – ASEAN Partnership
- CCOP – UNECE Partnership
- CCOP – UNESCAP Partnership
- CCOP – RCUG Partnership
- CCOP – ECF Partnership

II

Adapting to Digital Transformation in Geoscience for Future Earth

- CCOP-KIGAM GDR Project
- CCOP-GSJ GSi Project
- CCOP-KIGAM Big Data and Machine Learning Project
- CCOP-GeoAI Data Society

III

Promotion of Geoscience Education, Capability Building and Outreach

- Hanyang University GETPP Program
- EAGER Award
- CCOP-IRCK Training Program
- CCOP Spring 2024 Seminars

1. Mineral Resources



ASEAN-Korea Cooperation Fund Project

- ❑ **Project Title:** Critical minerals management and strategy for sustainable environment in ASEAN
- ❑ **Duration:** 2024 – 2026 (**3 years**)
- ❑ **Proponents:**
 - CCOP
 - Geological Agency of Indonesia
- ❑ **Implementing Agency:**
 - CCOP
 - Korea Institute of Geoscience and Mineral Resources (KIGAM)
- ❑ **Funding Source:** ASEAN-KOREA Cooperation Fund (AKCF)
Budget: **5,683,632 USD**

AKCF

한 - 아세안 협력기금

ASEAN-KOREA
COOPERATION FUND



1. Mineral Resources

- AMS Critical minerals distribution maps and documents inventory

- Market demand analysis

- CCOP-ASEAN Cooperation Network on critical minerals

- Geological, geophysical & geochemical survey
- Sample analysis

- Data processing and interpretation
- Critical minerals management

Compilation
&
Analyzing

01

Knowledge
Improvement

02

Technical
Capacity
Building

03

Technology
&
Platform

04

- Training on Field Site
- 3D geological model construction

- Smart exploration technology
- Real-time data platform

OUTPUT

1. Mineral Resources

9

Workshop



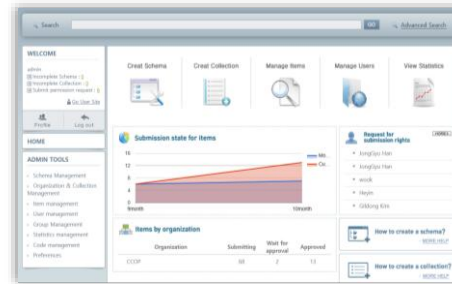
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Training



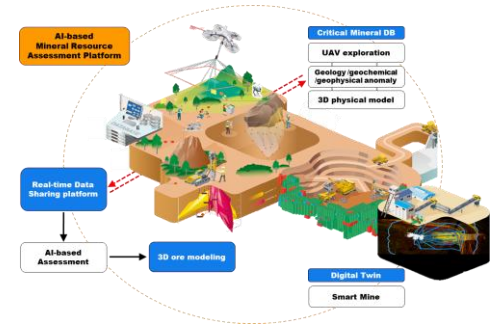
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Database

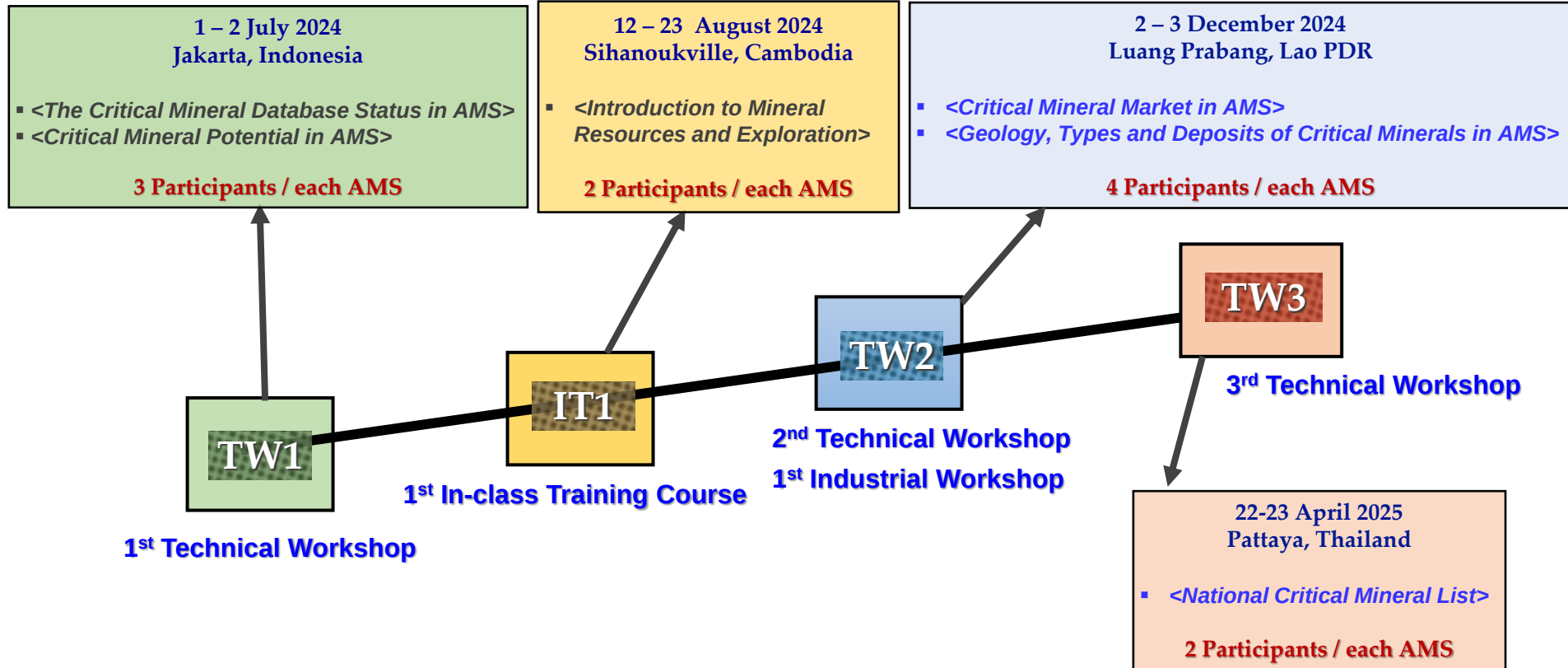


1

Smart
Technology



1. Mineral Resources



1. Mineral Resources



1. Mineral Resources

ASEAN Critical Mineral List

1st Version

No	Mineral	No	Mineral	No	Mineral
1	Antimony	20	Hafnium	39	Ruthenium
2	Arsenic	21	Indium	40	Scandium
3	Barium	22	Iron	41	Selenium
4	Bauxite	23	Kaolin	42	Silica
5	Beryllium	24	Lead	43	Silver
6	Bismuth	25	Lithium	44	Sulfur
7	Boron	26	Limestone	45	Strontium
8	Cadmium	27	Magnesium	46	Tantalum
9	Chromium	28	Manganese	47	Tellurium
10	Coal	29	Marble	48	Thorium
11	Cobalt	30	Mercury	49	Tin
12	Copper	31	Molybdenum	50	Titanium
13	Feldspar	32	Nickel	51	Tungsten
14	Fluorspar	33	Niobium	52	Uranium
15	Gallium	34	Palladium	53	Vanadium
16	Germanium	35	Phosphorus	54	Zinc
17	Graphite	36	Platinum	55	Zirconium
18	Gold	37	Potassium		
19	Gypsum	38	Rare Earth Element		

ASEAN CRITICAL MINERAL DATA PLATFORM

[Home](#)[About](#)[Data Search](#)[Contact](#)[ACMDP.org](#)

Data Hub for ASEAN Critical Minerals

Explore and Connect ASEAN's Critical Mineral Resources

[Dive into ACMDP](#)

Advanced Search



Data Search



Interactive Map

CCOP-KIGAM Urban Geology Project (2021-2024)

- ❑ **Project Title:** Urban Geology Technology Transfer for Sustainable Cities in East and Southeast Asia
- ❑ **Duration:** 2021 – 2024 (**4 years**)
- ❑ **Funding Source:** Korea Institute of Geoscience and Mineral Resources (KIGAM)
Budget: ~ 300,000 USD
- ❑ **Objectives:** Establishment of an international cooperative network, to share and promote the smart Integrated Solution Technology on urban geology within ASEAN



Sept 2022, Singapore



June 2023, Philippines



2. Urban Geology



CCOP-KIGAM-CGS Urban Geology Workshop 2024

Host: CCOP, KIGAM and CGS

Date: 12-14 June 2024

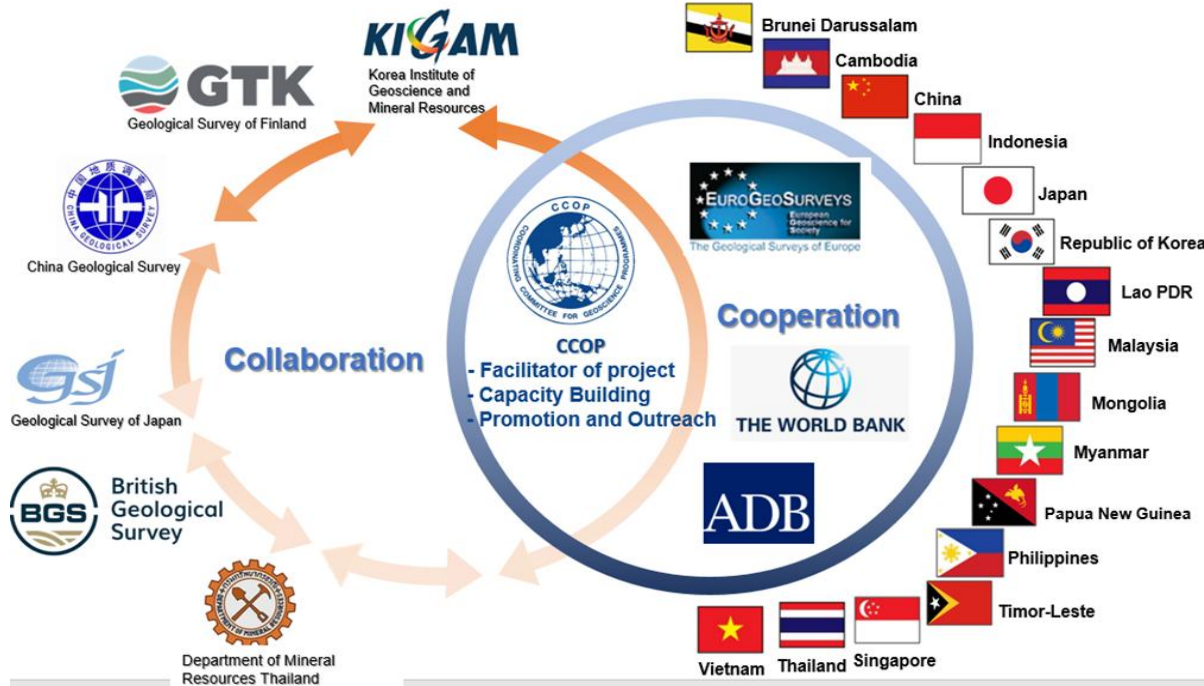
Venue: Hangzhou City, Zhejiang Province, China

Outcomes:

- More than 50 participants from 9 Member Countries, 1 Cooperating Country (*British Geological Survey*), 1 Cooperating Organization (*EuroGeoSurveys*).
- Shared insights and understanding in Flood Hazards in Urban Areas.



2. Urban Geology



**Global
Urban Geology
Cooperation
Network**

CCOP-GSJ Groundwater Projects

Source: Geological Survey of Japan

1. CCOP-GSJ Groundwater Project Phase I (2004-2009)
2. CCOP-GSJ Groundwater Project Phase II (2010-2014)
3. CCOP-GSJ Groundwater Project Phase III (2015-2019)



4. CCOP-GSJ Groundwater Project Phase IV (2019-2024)

- Kick off: Dec. 1-3, 2019 Bali, Indonesia
- Purpose: Advanced Database of Groundwater
- Joint groundwater projects to solve groundwater problems in CCOP region
- **Main objectives:**
 - Compiling Member Country's own groundwater data.
 - Use Open Web GIS System for publishing the data online
 - Use Web GIS System to publish the groundwater data compiled, https://ccop-gsi.org/gsi/ccop_water/



3. Groundwater



<CCOP-GSJ GW Workshop 2019>

2-4 December 2019, Bali, Indonesia



<CCOP-GSJ GW Workshop 2022>

9-11 March 2022, Online



<CCOP-GSJ-DGR GW Workshop 2023>

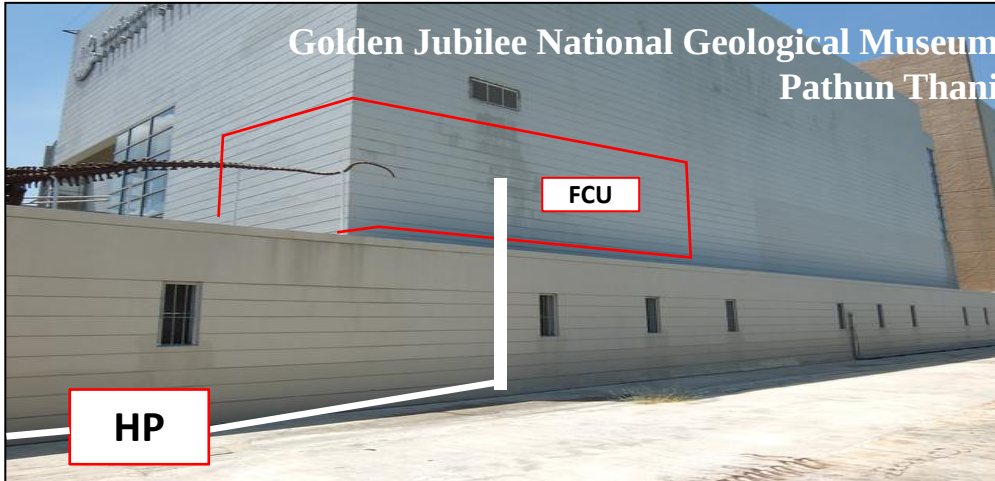
21-23 March 2023, Bangkok, Thailand



<CCOP-GSJ GW Workshop 2024>

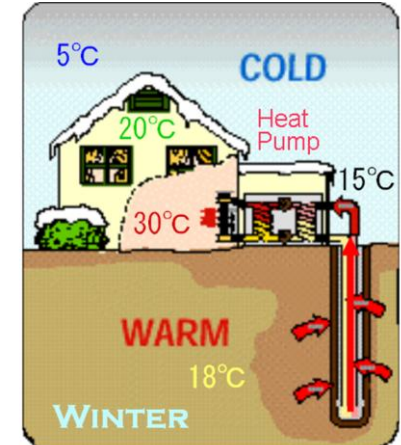
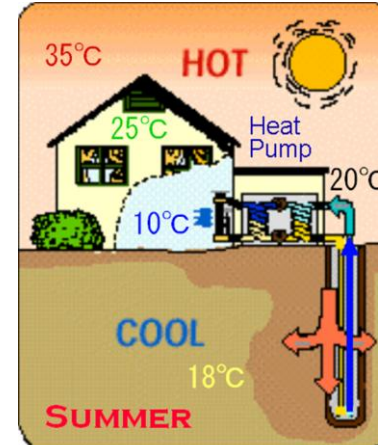
12-14 March 2024, Nha Trang, Vietnam

3. Groundwater



Ground Source Heat Pump (GSHP) System

- Provided GSHP techniques and technical advice
- 3 GSHP systems installed in Chulalongkorn University, Chulalongkorn University(Saraburi), Golden Jubilee National Geological Museum, Thailand and 1 GSHP system in Hanoi, Vietnam
- Tokyo Institute of Technology (TITech) collaborated a research program on GSHP in Thailand.



3. Groundwater



CCOP-GSJ Groundwater Project Report GW-10

Report of the CCOP-GSJ-GAI
Groundwater Project Phase IV Kick-off Meeting
2-4 December 2019, Bali, Indonesia



COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES
IN EAST AND SOUTHEAST ASIA (CCOP)
in cooperation with
GEOLOGICAL SURVEY OF JAPAN (GSJ), AIST

Gaurav Shrestha (Chief Editor)



CCOP-GSJ Groundwater Project Report GW-11

Report of the CCOP-GSJ
Groundwater Project Phase IV Meeting
9-10 March 2022 (Zoom Online Meeting)



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IN EAST AND SOUTHEAST ASIA (CCOP)
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GEOLOGICAL SURVEY OF JAPAN (GSJ), AIST

Gaurav Shrestha (Chief Editor)



CCOP-GSJ-DGR Groundwater Project Report GW-12

Report of the CCOP-GSJ-DGR
Groundwater Project Phase IV Meeting
21-23 March 2023, Bangkok, Thailand



COORDINATING COMMITTEE FOR GEOSCIENCE PROGRAMMES IN
EAST AND SOUTHEAST ASIA (CCOP)
in cooperation with
GEOLOGICAL SURVEY OF JAPAN (GSJ), AIST and
DEPARTMENT OF GROUNDWATER RESOURCES, THAILAND (DGR)

Gaurav Shrestha (Chief Editor)



CCOP-GSJ-VGD Groundwater Project Report GW-13

Report of the CCOP-GSJ-VGD
Groundwater Project Phase IV Meeting
12-14 March 2024, Nha Trang, Vietnam



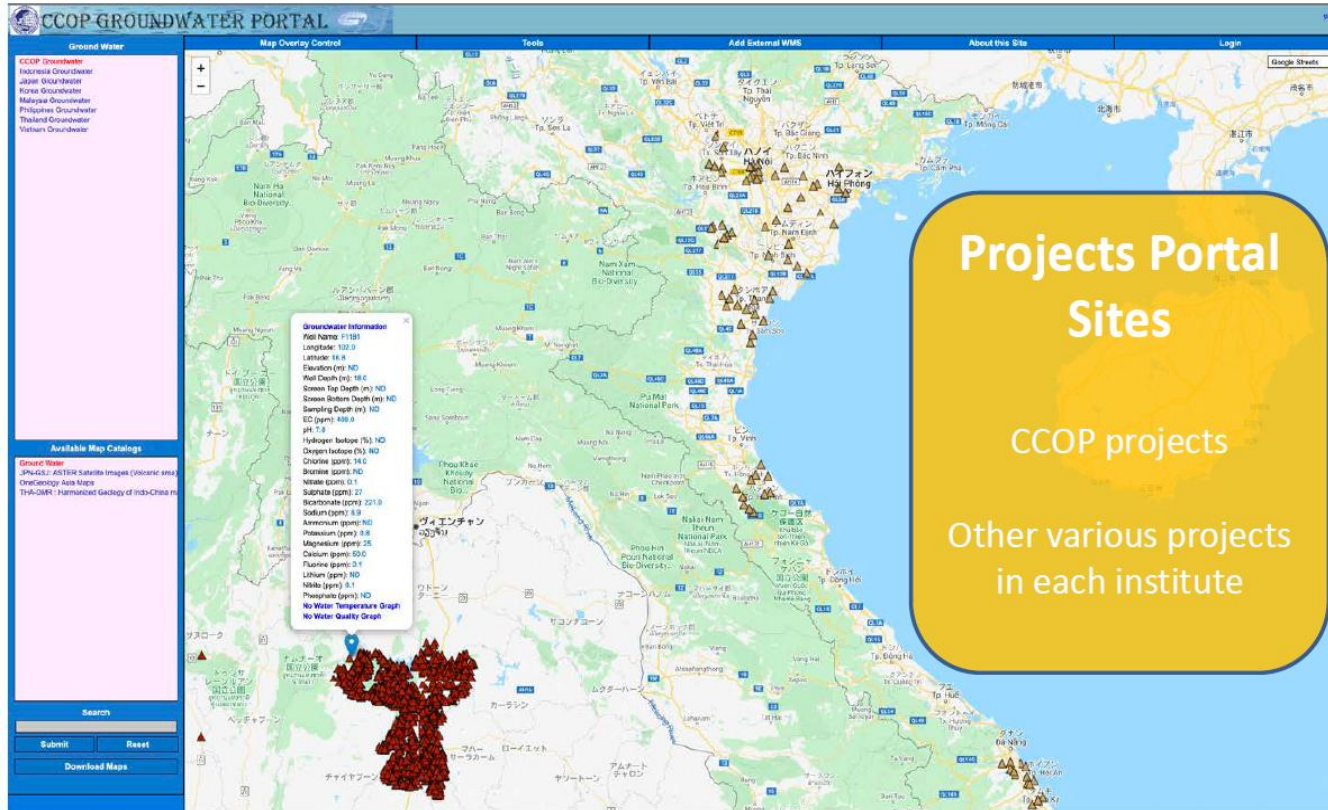
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Gaurav Shrestha (Chief Editor)

Report of CCOP-GSJ Groundwater Project Phase IV Available on <https://ccop.asia/e-library>

Total of 5,000+ groundwater well data in the <https://ccopgsi.org/gsi/groundwater/index.php>

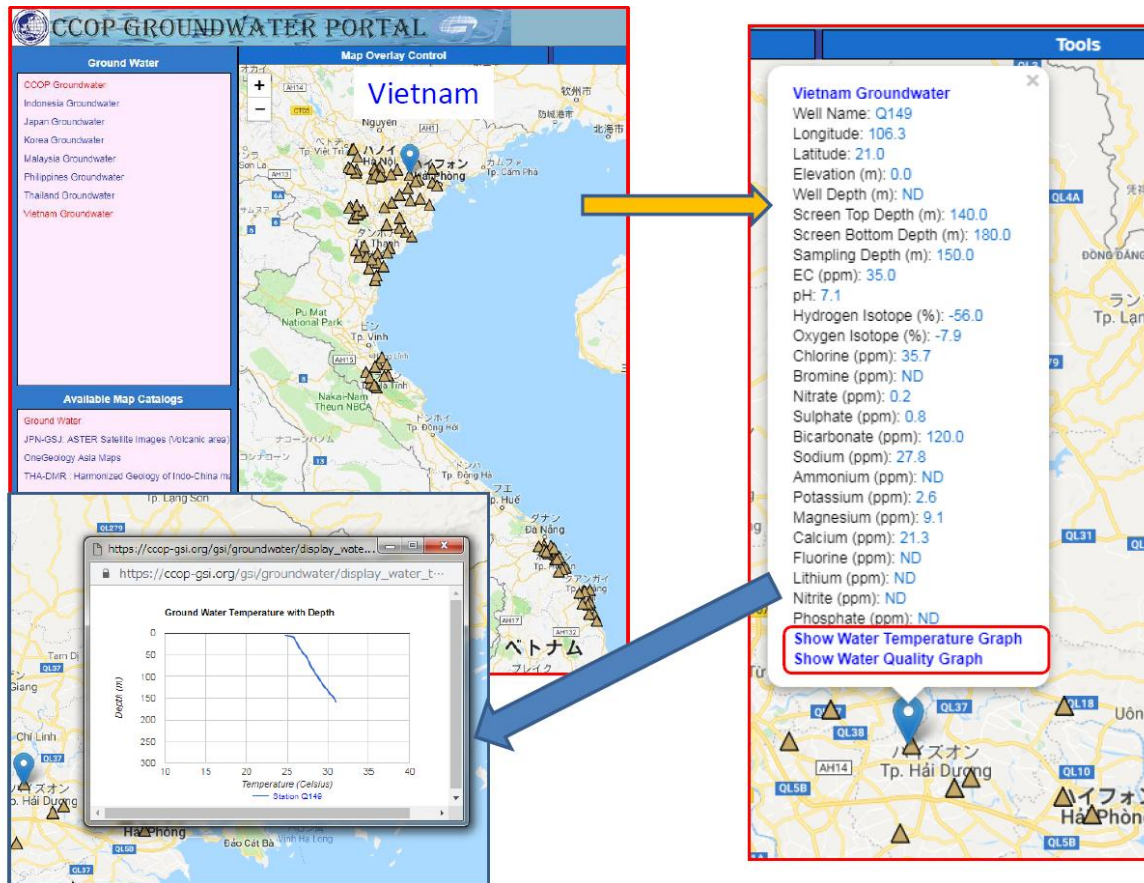
3. Groundwater



https://ccop-gsi.org/gsi/ccop_water/

**Groundwater
Information
System**

3. Groundwater



Country	No. of GW Wells
Brunei	1
Cambodia	1
Indonesia	292
Japan	853
Korea, RO	221
Malaysia	68
Myanmar	9
PNG	5
Philippines	1256
Thailand	2027
Vietnam	147

3. Groundwater



CCOP-KIGAM Groundwater Project

PHASE I (2013-2014) -----> Understanding groundwater issues

- CCOP-KIGAM-DGR-AIT Technical Workshop (2013.10)
- Jeju Water Forum (2014.10)

PHASE II (2015-2016) -----> Finding cooperative measures

- CCOP-KIGAM-UNESCO-DGR Workshop (2015.05, 2016. 06)
- Sustainable transboundary aquifer (TBA) management in GMS

PHASE III (2017-2019) -----> Taking cooperation actions

- CCOP-KIGAM-UNESCO-MME Workshop (2017, 2018, 2019)
- TBA monitoring well installation Cambodia & Lao PDR

PHASE IV (2020-2023)

- Vulnerability assessment to climate change of groundwater system in Greater Mekong Subregion
- Realization of Transboundary GW automatic monitoring network in GMS (10 wells in 5 GMS countries)



3. Groundwater

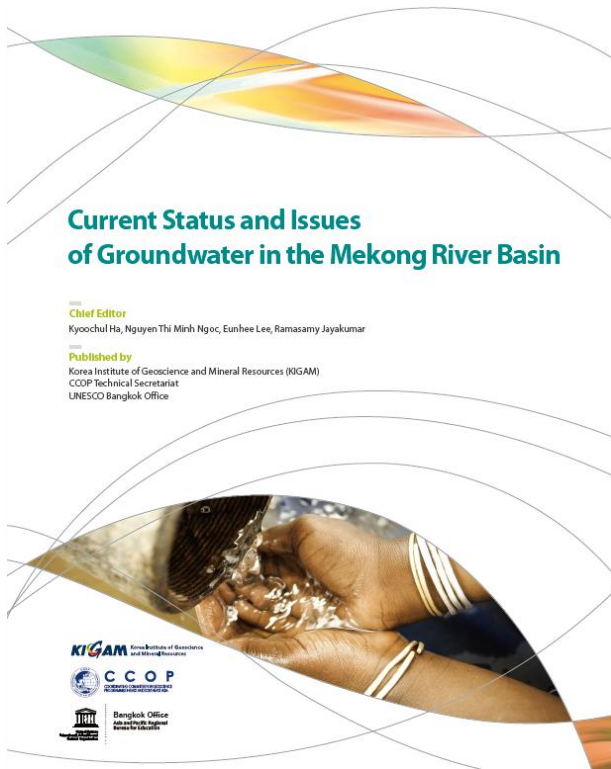


Phase I – III (2013-2019)

□ 7 Workshops/Forums

Attended by **200** participants
from **13** CCOP member
countries for information
exchanges and networking.

3. Groundwater



Country Report Publication

“Current Status and Issues of Groundwater in the Mekong River Basin”



Journal Special Issue

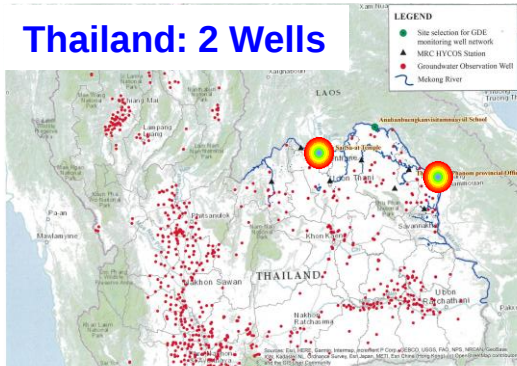
《Journal of Groundwater Science and Engineering》



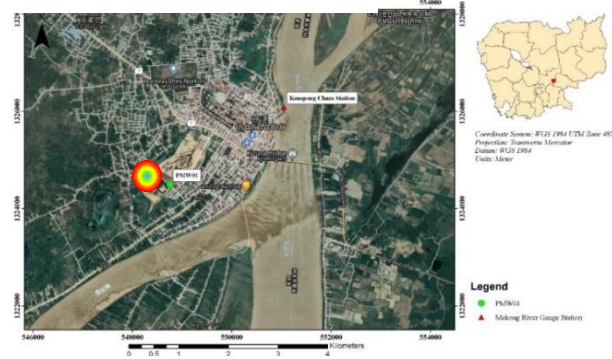
3. Groundwater

Newly developed
groundwater
monitoring wells

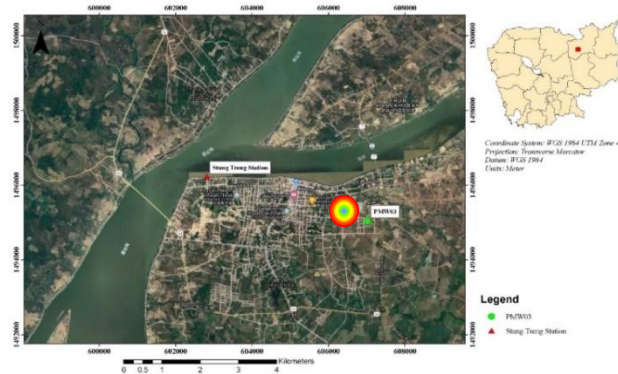
Thailand: 2 Wells



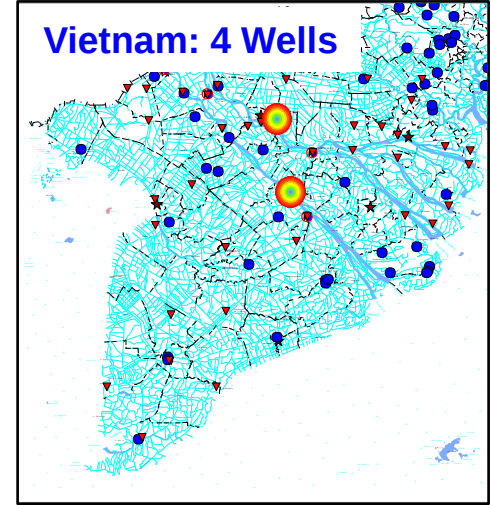
Cambodia: 2 Wells



Proposed Monitoring Well in Stung Treng Province



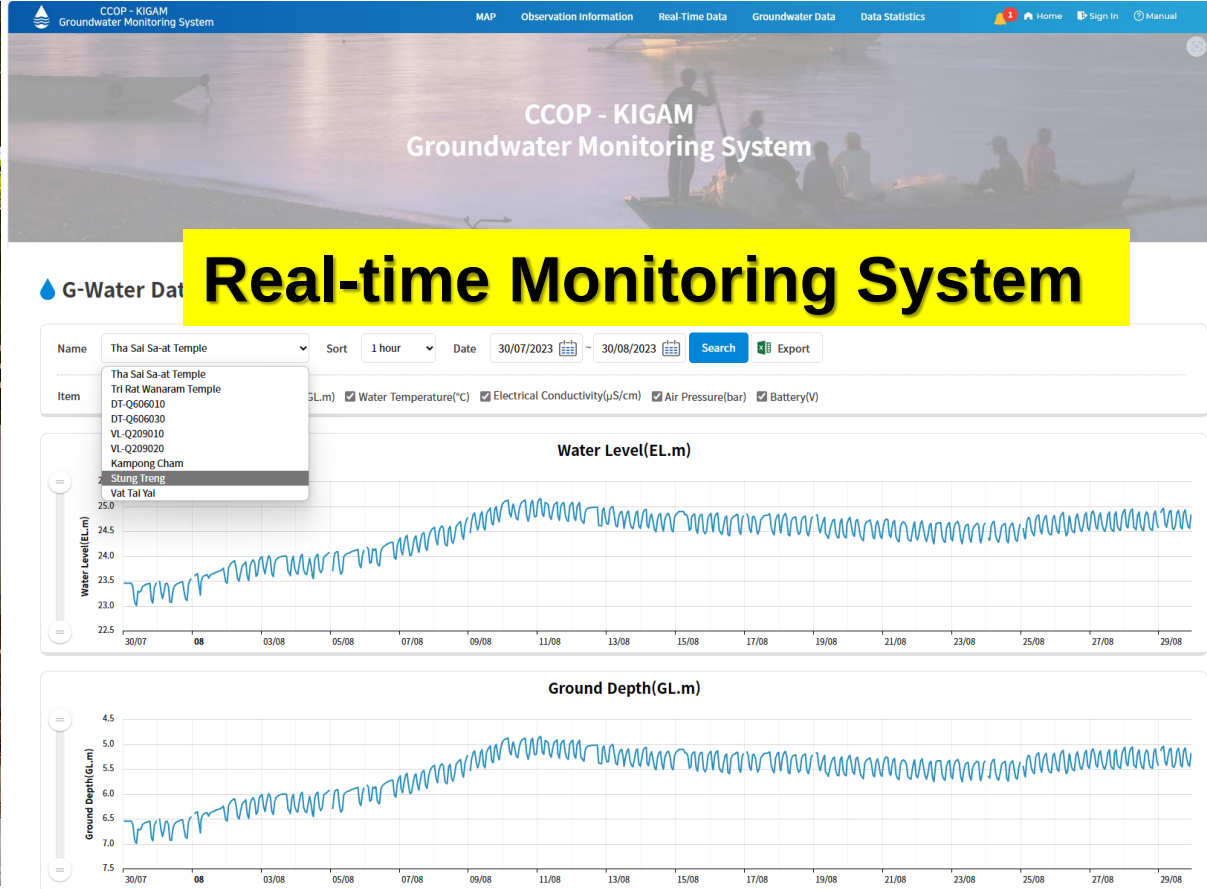
Vietnam: 4 Wells



Lao PDR: 1 Well



3. Groundwater



Geoinformation Sharing Infrastructure (GSI) Project

Source: Geological Survey of Japan

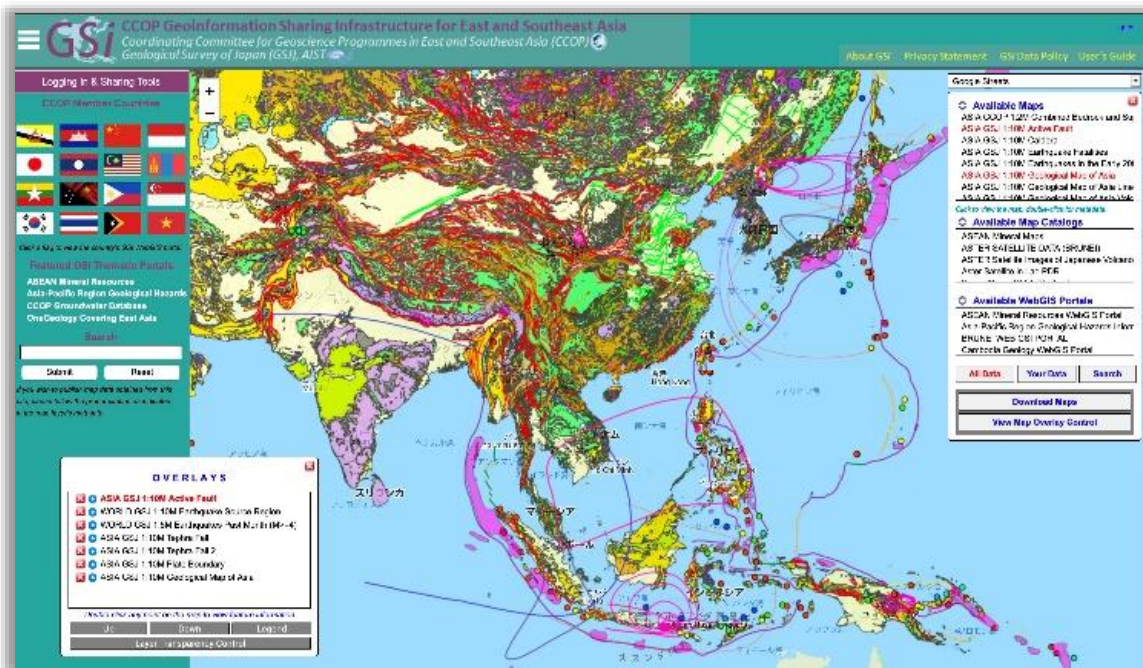
Duration: 2021 - 2025



- ✓ Compile various geoscientific information in CCOP countries, and construct a database on an open Web, using world standard formats and GIS.
- ✓ Promote digitization of geoscience data in CCOP countries in high quality
- ✓ Establish geoinformation comprehensive database and infrastructure in Asia and for the world



4. Geoinformation



<https://ccop-gsi.org/main/>

■ *Geology Data Storage*

As of March 2025, there are:

- ❑ 2,089 map layers
- ❑ 160 map catalogs
- ❑ 24 portal sites

accessible in the GSi System.

CCOP-KIGAM Geosamples Data Repository Project



Source: KIGAM

Duration: 2019 - 2024

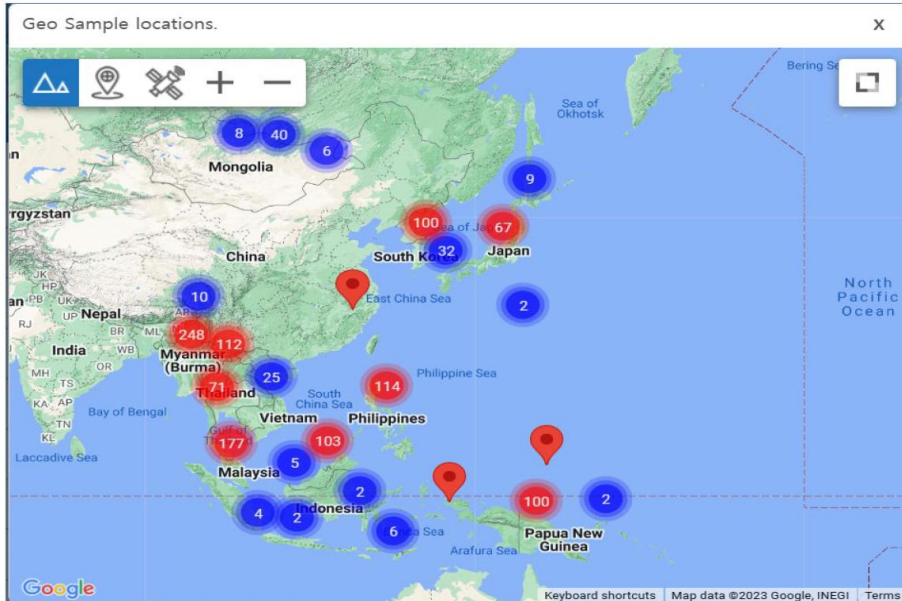


- To establish a regional geoscience data repository system
- To uniquely identify geoscience data using International Geo Sample Number (IGSN)
- To form a working group for the design and development of the GDR system
- To train the working group members in the use of the GDR system.

■ ***Geosample Storage***

■ ***Analysis Data Storage***

4. Geoinformation



14 Countries

Country	Geosample	Analysis data	Total	Rank
Myanmar	231	44	275	1
Malaysia	129	8	137	2
China	132	-	132	3
Japan	111	-	111	4
Laos	110	-	110	5
Thailand	106	-	106	6
Korea	102	5	106	7
Philippines	106	8	114	8
Brunei	97	9	106	9
Papua New Guinea	102	-	102	10
Mongolia	70	-	61	11
Indonesia	24	7	31	12
Vietnam	26	-	26	13
Cambodia	-	-	-	14
Total	1,346	81	1,427	

1,427 Data

ASEAN CRITICAL MINERAL DATA PLATFORM

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Data Hub for ASEAN Critical Minerals

Explore and Connect ASEAN's Critical Mineral Resources

Dive into ACMDP



Advanced Search



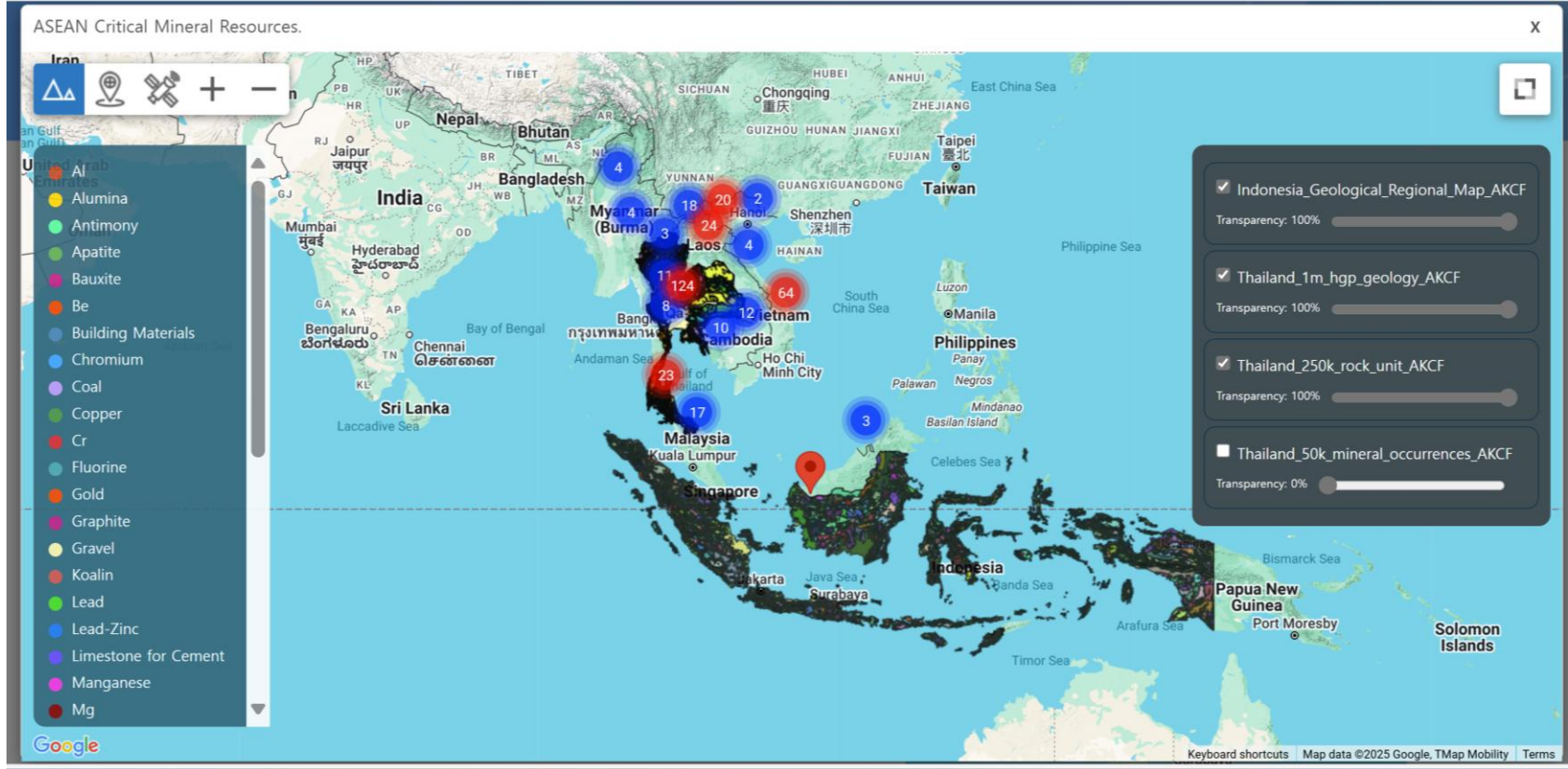
Data Search



Interactive Map

■ ***Mineral Resource Data Storage***

4. Geoinformation



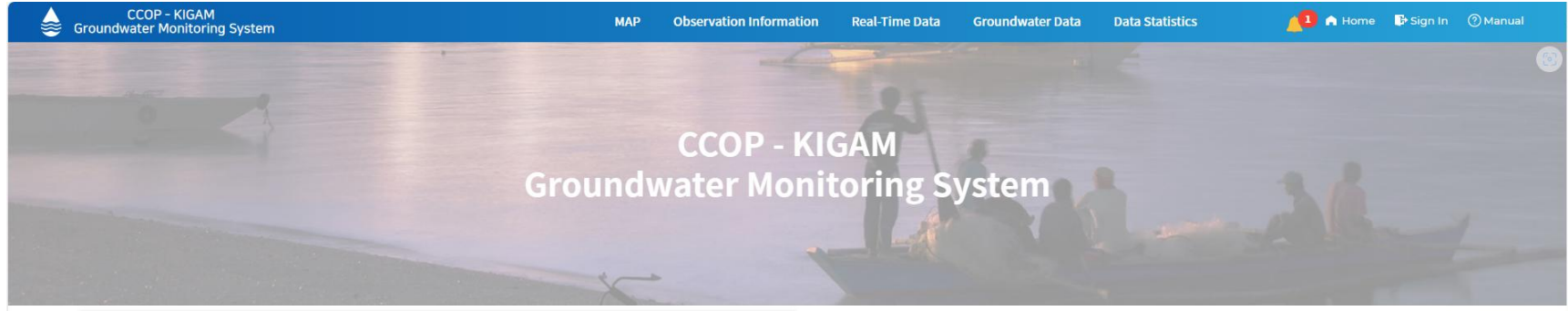
4. Geoinformation

Country	Geological Map			
	1 : 1 million		1 : 250K	
	Quantitiy	Data Type / Format	Quantitiy	Data Type / Format
Brunei Darussalam	1	Shape	-	-
Cambodia	1	Shape (1:700K)	14	Shape (1:200K)
	1	PDF	-	-
Indonesia	1	Shape	-	-
Lao PDR	1	JPG	-	-
Malaysia	1	Shape	-	-
Myanmar	1	Shape	-	-
Philippines	1	Shape	-	-
Thailand	1	Shape	1	Shape
Vietnam	-	-	-	-

4. Geoinformation

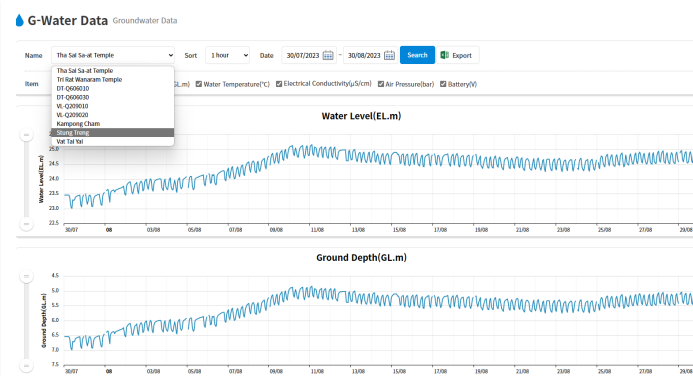
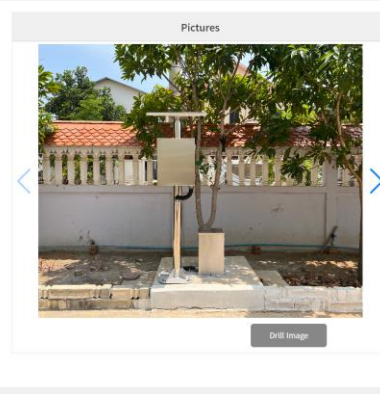
Country	Mineral Deposit Data (mines)	Related Report, Research Data (PDF, DOC)	Mineral Resource Map			
			1 : 1 million		1 : 250K	
			Quantitiy	Data Type / Format	Quantitiy	Data Type / Format
Brunei Darussalam	7	15	7	7	-	-
Cambodia	80	-	1	Shape	-	-
Indonesia	1472	-	1	Shape	-	-
Lao PDR	67	-	1	Shape	-	-
Malaysia	5	25	1	Shape	-	-
Myanmar	15	5	1	Shape	-	-
Philippines	54	-	1	Shape	-	-
Thailand	174	-	1	Shape (50k)	-	-
Vietnam	64	-	-	-	-	-

CCOP – KIGAM Groundwater Monitoring System



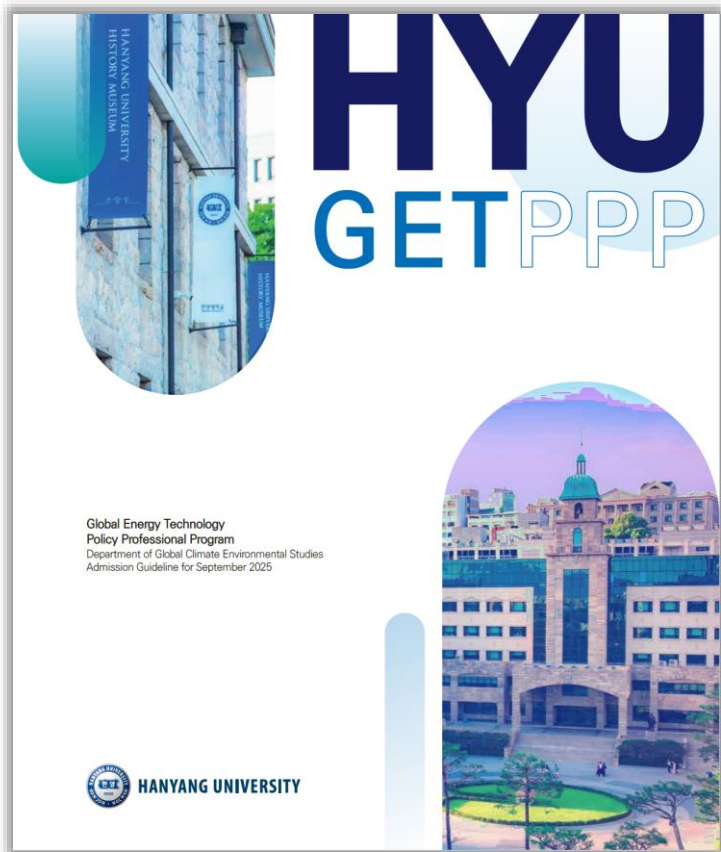
Information			
Well ID	Stung Treng	Country	Cambodia
Address	Ler Village, Sangkat Srah Ruesset, Stung Treng City, Stung Treng Province		
Longitude	105.989066	Latitude	13.521576
Elevation(m)	52.3	Well Depth(m)	70
Installation Date	26/04/2023	Sensor Depth(m)	20

Equipment			
RTU Model Name	STU-020	RTU S/N	100010010
RTU Installation Date	13/09/2022	RTU Maker	Sodasystem Inc.
Modem Tel	0715760303	Modem S/N	0310001
Protocol	TCP/IP	Mobile Technology	LTE



■ **Real-Time Data**

5. Capacity Building



CCOP — HYU GETPPP

- CCOP - Hanyang University **Global Energy Technology Policy Professional Program**.
- Provide **Master's and Ph.D.** programs from 2023, educating international **Energy-related Government officials** in the CCOP region.
- Tuition **FREE** & Living cost **SUBSIDY** (*1400 USD/mo*)
- 3-4 students/year
- Duration: 2023-2029

5. Capacity Building



Visit to Korean Gas Safety Corporation's
Hydrogen Safety Museum and
Energy Safety Demonstration Research Center



KIGAM International Network Forum



2024 Energy Forum for Development Cooperation Countries

CCOP EAGER Award



- ❑ The EAGER Award is a trust fund set up in the Geological Society of America with the personal contribution of **Dr. Maurice “Ric” Terman**, CCOP Honorary Advisor
- ❑ To be used every year for funding young researchers in geoscience in the CCOP region **since 2003**.
- ❑ The grant of **5,000 USD** will be provided to the selected winner through the evaluation by the CCOP Advisory Group.

5. Capacity Building

CCOP — ISGEO Training Program



YEAR	THEME
2013	Groundwater Theory & Application
2014	Groundwater Theory & Application Fundamentals on Geological Survey
2015	Exploration and Evaluation of Mineral Resources
2016	Groundwater and Environment Geochemistry Landslide and Slope Stability
2017	Petroleum Exploration, Development and Production Exploration and Development of Mineral Resources
2018	Unconventional Oil & Gas Resources
2019	Geological Mapping & Mineral Exploration
2020 (online)	Geological Mapping & Mineral Exploration
2021 (online)	Oil and Gas Hydrate
2022	Geopark Management
2023	Understanding the values of Geo-heritage
2024	Climate Change and Landslide
2025	Mining Technology and Sustainable Development

CCOP — UNECE Partnership

UNECE Resource Management Week 2024

Date: 22-26 April 2024

Venue: Palais des Nations, Geneva, Switzerland

Objectives

- Focused on the pivotal roles of the [United Nations Framework Classification for Resources](#) (UNFC) and the United Nations Resource Management System (UNRMS) in global resource management.

Outcomes:

- **Dr. Young Joo LEE** has participated and presented on the potential collaboration between the CCOP and the UNECE to establish an [International Center of Excellence \(ICE\)](#) at the CCOP office in Bangkok.
- This initiative aims to further enhance international cooperation in sustainable resource management.



CCOP — UNESCAP Partnership



80th Session of the ESCAP

Date: 22-26 April 2024

Venue: The United Nations Conference Centre in Bangkok, Thailand

Purpose:

- *Leveraging digital innovation for sustainable development in Asia and the Pacific”*

Outcomes:

- **Dr. Songyang Wu** attended the session and related side meetings and engaged in conversations with representatives from the UNESCAP Energy Division, exchanged views on possible collaboration in project cooperation, education and capacity building.
- **Attended a hybrid side meeting as the panellist**, organized by Mongolia, UK, IGF and ESCAP Energy Division, titled “*Technologies of the future - Role of critical minerals in digital infrastructure and SDGs*”.

CCOP — ASEAN Partnership



12th Joint Working Groups Meeting of the ASEAN Minerals Cooperation (JWG) and Its Associated Working Group Meetings/Event

Date: 13 – 16 August 2024

Venue: Jakarta, Indonesia

Objectives

- To update cooperation with Dialogue Partners and International Organizations, discuss the progress and achievements of the Working Groups

Outcomes:

- **Dr. Songyang Wu**, Regional Expert of the CCOP Technical Secretariat, attended the meeting on behalf of CCOP
- More than 230 participants will be benefited from the capacity building provided by the ASEAN-Korea Cooperation Fund Project.
- All ASEAN Member States and the ASEAN Secretariat expressed full support and looked forward to the successful implementation of the program.

CCOP — WCOGS Partnership



The Meeting was chaired by **Dr. Young Joo LEE**, Director of the CCOP Technical Secretariat and **Dr. Patrick Wall**, Scientific Policy Manager of EuroGeoSurveys.



with **Dr. David Applegate**,
Chief Scientist of the
U.S. Geological Survey (USGS)



with **Dr. Sonia Talwar**, Representative of Canada
to CCOP, Director General of Geological Survey of
Canada - Pacific, Natural Resources Canada (GSC)

1st World Community of Geological Surveys (WCOGS) Business Meeting

Date: 25-31 August 2024

Venue: Busan, Republic of Korea

Outcomes:

- **Attended by General Assembly of 33 WCOGS Member Leaders and Invited Guests from 18 countries** (Australia, Canada, Cuba, Czech Republic, France, Finland, Germany, India, Ireland, Republic of Korea, Netherlands, Poland, Portugal, Russian Federation, Slovenia, Spain, UK, USA) and **2 organizations** (CCOP, EuroGeoSurveys).

The logo of the CCOP (Coordinating Committee for Geoscience Programmes) is a circular emblem. It features a globe in the center with a grid of latitude and longitude lines. The text "CCOP" is at the top, "COORDINATING" is on the left, "COMMITTEE FOR" is at the bottom, and "GEOSCIENCE PROGRAMMES" is on the right, all in a circular arrangement around the globe.

Way Forward

❖ Cooperation & Networking

Leveraging the advantages of the CCOP as a regional intergovernmental platform to **promote DDE Platform, Products and Services** in E&SE Asia and beyond.

Paleontology

Stratigraphy

Tectonics

Sedimentology

Paleomagnetism

Geophysics

Mineralogy

Geochemistry

Hydrogeology

Geothermics

Geomorphology

Geochronology

Metamorphic petrology

Igneous petrology

Petroleum geology

Paleogeography

Geo-education

Geological mapping

Data science

Mathematic Geology

Big data

Platform

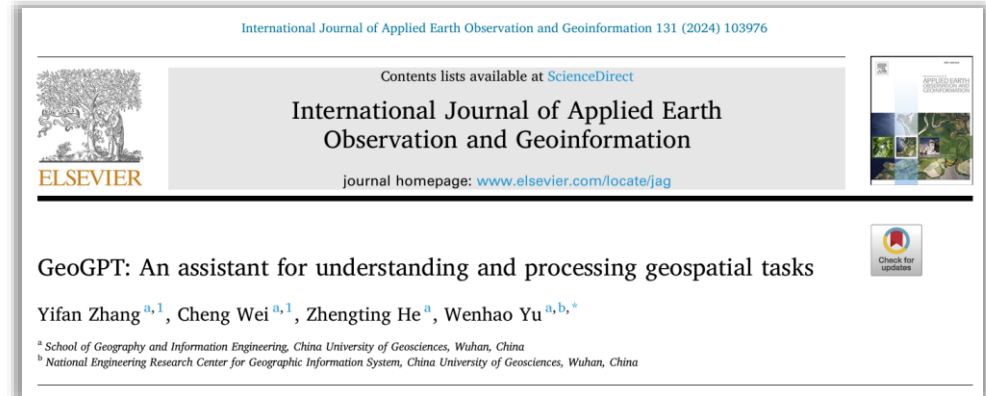
❖ Co-share and Build Database Platform

Joint development and sharing of geoscience data and platforms, leveraging national strengths in technology, data, and related fields, to advance the sustainable development of regional geoscience.



❖ Capacity Building

Further **advance the capacity building of geoscience talent** to enhance professional competence and practical capabilities, enabling effective responses to complex geological conditions and national development demands





THANK YOU
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