3-04　東・東南アジアの地質情報総合データベースの構築: CCOP 地質情報総合共有プロジェクト

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Constructing a comprehensive geoscience database in East and Southeast Asia: CCOP Geoinformation Sharing Infrastructure for East and Southeast Asia (GSi) Project

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The CCOP Geoinformation Sharing Infrastructure for East and Southeast Asia (GSi) project is one of the most important activities currently implemented by CCOP. The main objective of the project is to develop a web-based system for the sharing of geoscience information among the CCOP countries. The information system will also make geoscience information in the CCOP region easily accessible. The website of the GSi system is officially opened to the public on the first day of the 3rd CCOP GSi International Workshop, Langkawi, Malaysia. More than 570 data from 11 countries are currently available on the GSi system through the portal sites.

1. Introduction

The scope of the GSi project is to (1) compile various geoscientific information in the CCOP (Coordinating Committee for Geoscience Programmes in East and Southeast Asia; http://www.ccop.or.th/) member countries and construct a database on the open Web using world standard formats and GIS (Fig. 1), (2) promote digitization of geoscience data in the CCOP member countries at a high-quality level, and (3) establish a comprehensive geoinformation database and infrastructure in Asia. The project aims to share various geoscientific information on the GSi system, such as geological maps, geohazards, geophysical, mineral resources, geo-environment, groundwater, topographic maps and remote sensing data, with others in the world (Fig. 2). The duration of the project is from 2015 to 2020. The first version of the GSi system was officially opened to the public at the 3rd CCOP GSi International Workshop in Langkawi, Malaysia, from September 18 to 20, 2018 (Fig. 3).

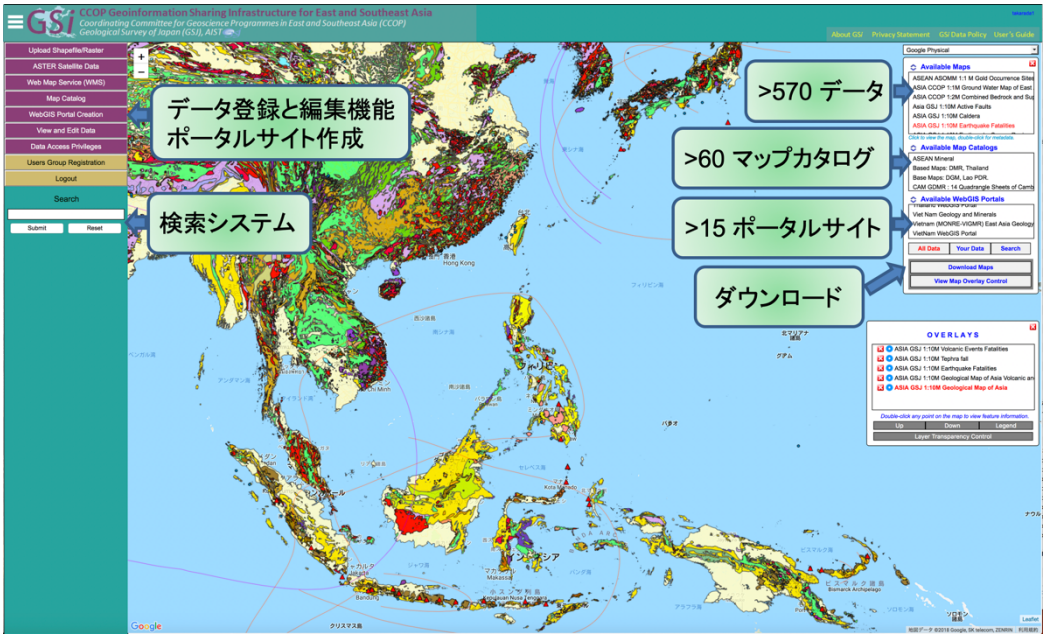

Fig. 1. The main portal site of the GSi System (https://ccop-gsi.org/main/).

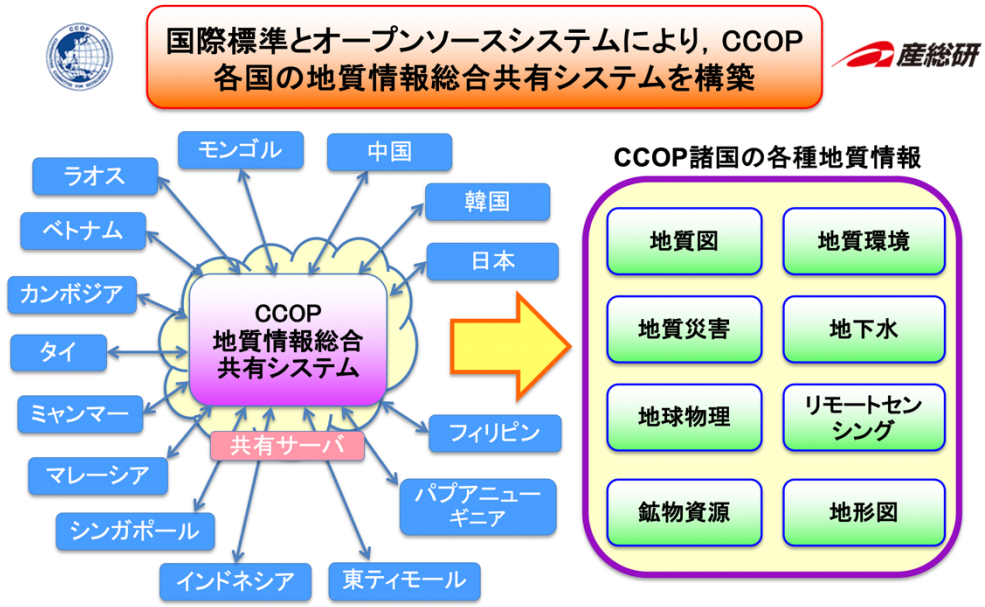

Fig. 2. The concept of the CCOP Geoinformation Sharing Infrastructure Project.

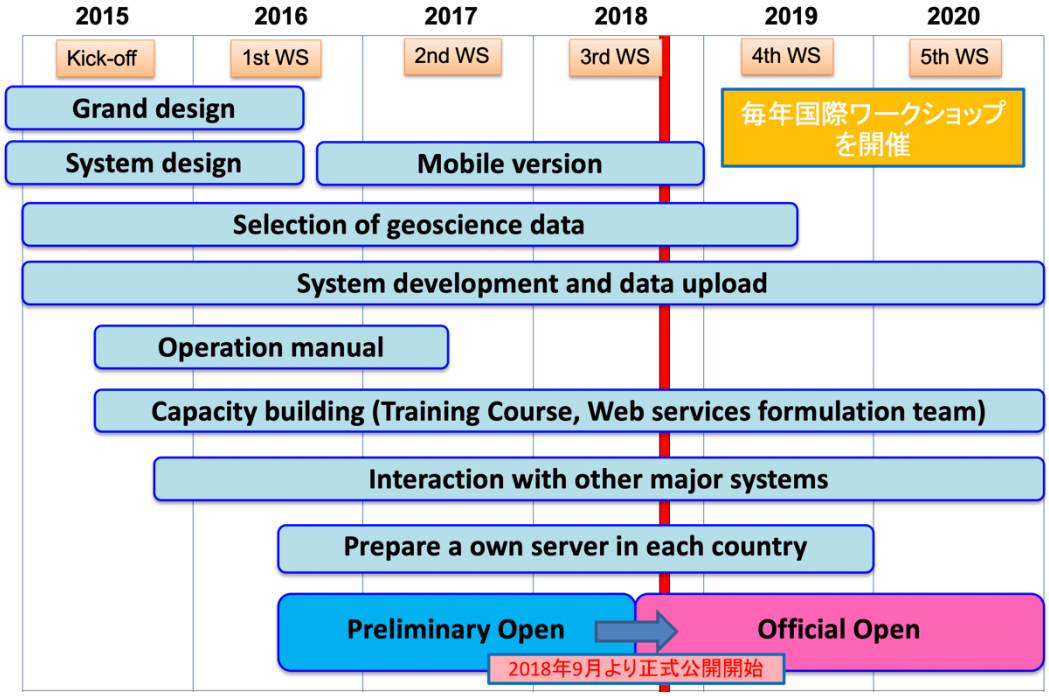

Fig. 3. Work plan of the CCOP Geoinformation Sharing Infrastructure Project.

2. Major goals of the CCOP GSi project

The major goals of the GSi project are classified into four: (1) geoinformation sharing, (2) delivery of geoscience knowledge to society, (3) international standardization, and (4) capacity building. Geoinformation sharing aims to enhance the collaboration and communication among the CCOP member countries, to establish the comprehensive database in East and Southeast Asia, to make data archive, to promote digitization, and to provide data analysis tools on the web. Delivery of geoscience knowledge to society aims to make geoscience information relevant and useful for society, to increase user accessibility, to provide the information on hazard mitigation and geo-environment, to make geoscience data freely available and understandable to users, and to provide visualization tools and data for outreach programs. International standardization aims to promote inter-operability using OGC (Open Geospatial Consortium)-based standards and web services (e.g., Web Map Service (WMS), Web Processing Service (WPS), Web Feature Service (WFS), Web Coverage Service (WCS), and Web Map Tile Service (WMTS)), to use Free and Open Source Software (FOSS), to increase the transparency of geological survey activities, and to collaborate with other projects such as Onegeology. Capacity building aims to hasten the transfer of WebGIS and database technology to the countries that need them through a training course, workshops, and the publication of cookbooks and online training materials.

3. CCOP GSi main and portal sites

The GSi main portal site (Fig. 1) provides web-based functions for spatial data rendering and analysis using WMS and WPS, respectively. It can also be used to download data in several formats (KML, PNG and PDF). The system follows the standard model of the Spatial Data Infrastructure (SDI). The system also provides the interface for the creation of a customized WebGIS portal for spatial data viewing and processing. Currently more than 15 portal sites including member country's sites, CCOP Groundwater, ASEAN Mineral Resources, and OneGeology covering East Asia are available (Figs. 4 and 5).

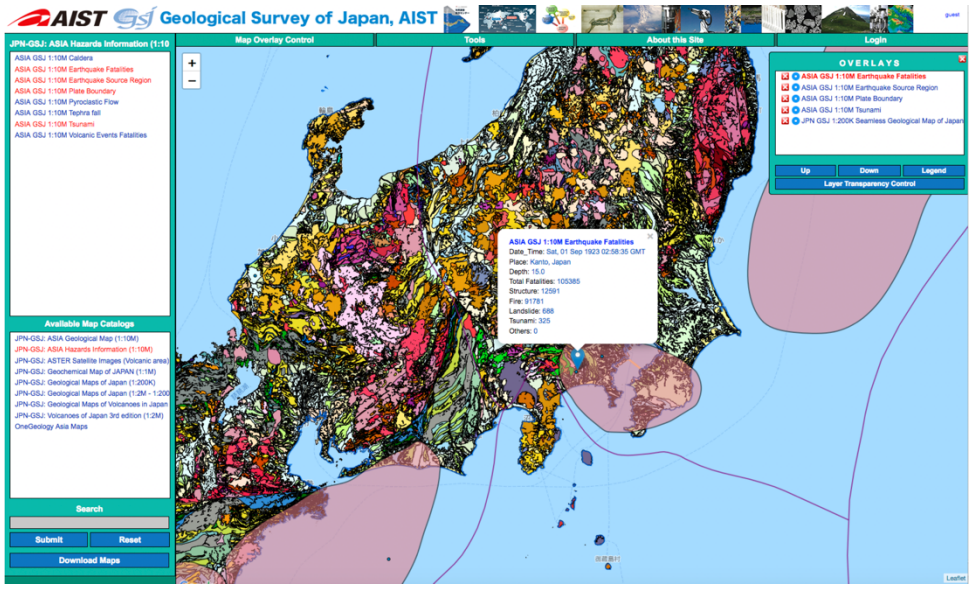

Fig. 4. The portal site of the Geological Survey of Japan (https://ccop-gsi.org/gsi/gsj_webgis/).

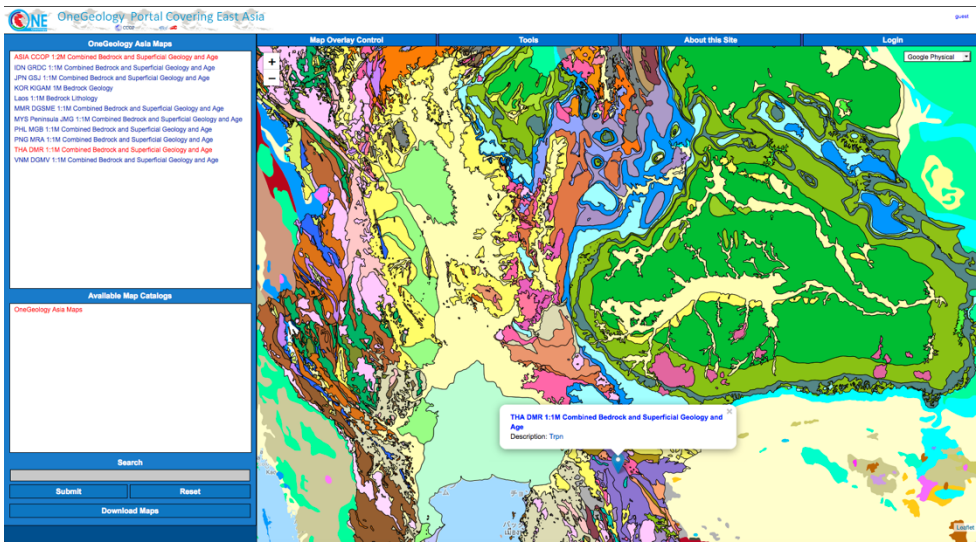

Fig. 5. OneGeology Portal covering East Asia (https://ccop-gsi.org/gsi/onegeologyasia/).

More than 420 maps are saved on the GSi system. The maps includes the following: 1:10M-1:50k geological maps, 1:1M-1:200k seamless geological maps, 1:10k-1:50k geological map of volcanoes, 1:10k-1:50k hazard zoning maps (earthquake, liquefaction, tsunami, volcano, flood and landslide), 1:1M seismotectonic map, 1:50k coastal erosion map, 1:250k Quaternary geology map, 1:1M geochemical map, 1:1M magnetic anomaly map, 1:750k-1:1M groundwater map, 1:50k hot spring distribution map, 1:250k-1:1M mineral resources map, ASTER satellite data, 1:100k road map, and 1:50k city map. Rendered data can be seen using GIS software and other Web Mapping Service clients (Fig. 6). Mobile version of GSi system is also available (Fig. 7).

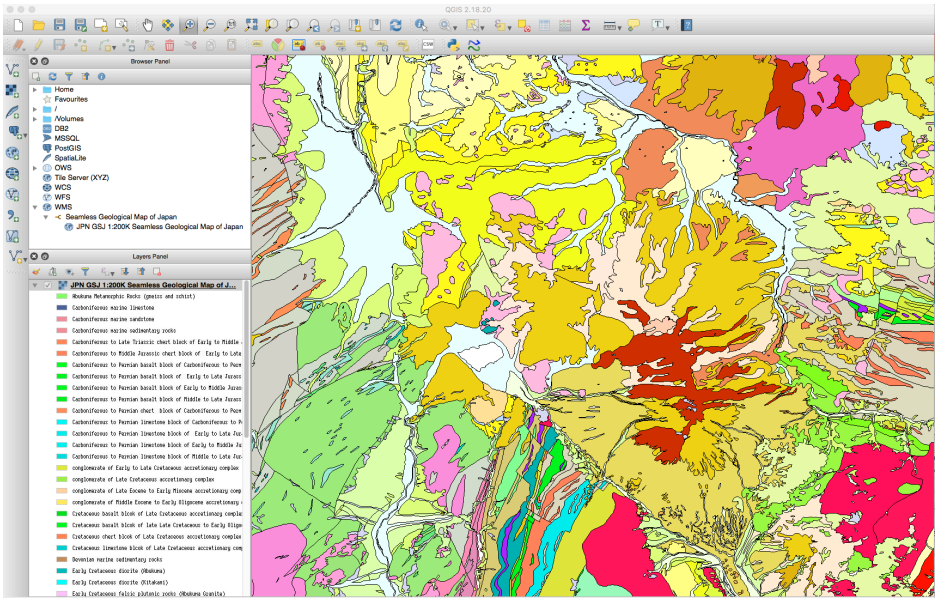

Fig. 6. 1:200k Seamless Geological Map of Japan displaying on QGIS software using WMS.

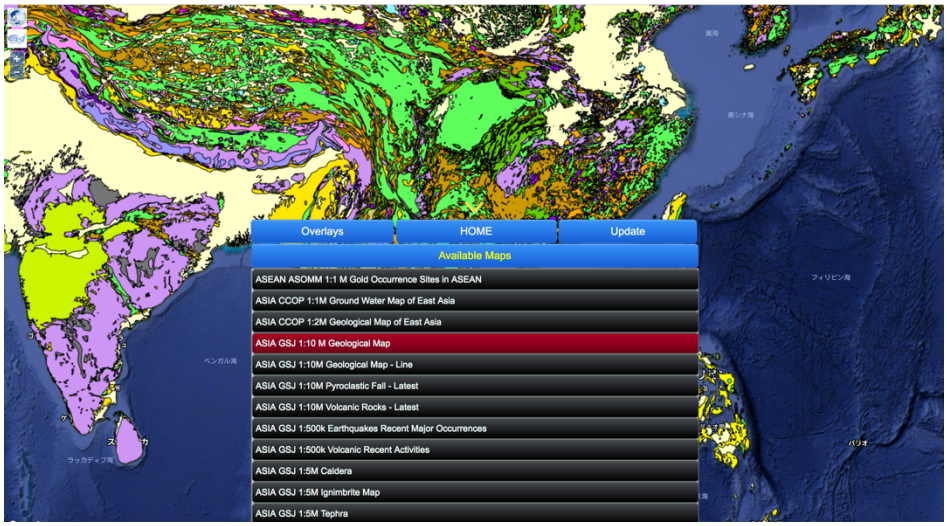

Fig. 7. The mobile version of COOP GSi main site (https://ccop-gsi.org/gsi-mobile).

Currently, the GSi project has four cloud servers, which are the CCOP GSi, GSJ Geoinfo, Geological Agency of Indonesia, and MGB servers. The GSi system will also host and provide data for some applications and data

analysis tools. Several mobile applications related to seismic and geological hazard mapping, field data capture and spatial data analysis are being developed.

Collaborating with other projects such as OneGeology, ASEAN Mineral Resources projects, and those implemented by CCOP such as Groundwater, CCS-M, 1:1M Harmonized Geological Map and KIGAM Unconventional Oil & Gas Resources Project is in progress.

4. CCOP GSi international workshops

The GSi project was initiated by the CCOP member countries in 2015. The kick-off meeting was held from September 1 to 2, 2015 in Bangkok, Thailand. The 1st CCOP GSi International Workshop was held in Solo, Indonesia, from September 20 to 22, 2016. The project plan, data policy and future strategies were discussed in the meeting and workshop. The GSi system was introduced during the 52nd Annual Session in Bangkok, Thailand, from October 31 to November 3, 2016.

The 2nd International Workshop was held at Luang Prabang, Lao PDR, from December 5 to 7, 2017, co-funded by the Ministry of Energy and Mines (MEM), Lao PDR (Fig. 8). Twenty-two (22) participants from the CCOP member countries (Cambodia, Japan, Republic of Korea, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand and Vietnam) including the staff of the Department of Geology and Minerals (DGM) of MEM and CCOP TS attended the workshop. The future activities and strategy of the project were discussed. A training on mobile applications and field data capturing system was conducted.

The 3rd International Workshop was held in Langkawi, Malaysia, from September 18 to 20, 2018, co-funded by the Department of Mineral and Geoscience (JMG), Malaysia (Fig. 9). Forty-three (43) participants from the CCOP member countries (Cambodia, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Myanmar, Papua New Guinea, Philippines, Thailand and Vietnam) including the staff of JMG and CCOP TS attended the workshop. The GSi main portal and customized portal sites (Figs. 10-20) are officially opened to the public on the first day of the workshop. The important activities in the next two years, specific goals, mobile system, GSi country portals, development team, hazard information system, natural resource information system, and collaboration with other major spatial information-related projects were discussed.

Fig. 8. The 2nd CCOP GSi International Workshop at Luang Prabang, Lao PDR.

Fig. 9. The 3rd CCOP GSi International Workshop at Langkawi, Malaysia.

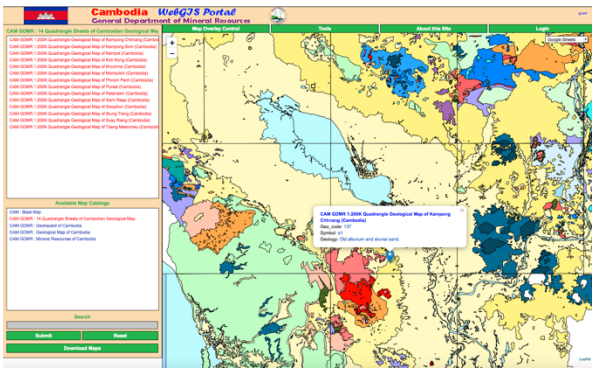

Fig. 10. The portal site of DGMR, Cambodia,
https://ccop-gsi.org/gsi/cambodia/

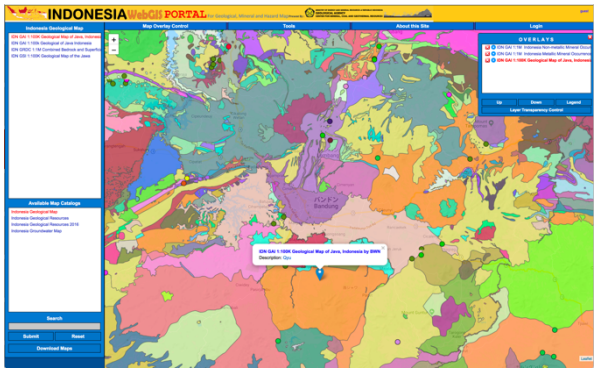

Fig. 11. The portal of Geological Agency, Indonesia,
https://ccop-gsi.org/gsi/idn/

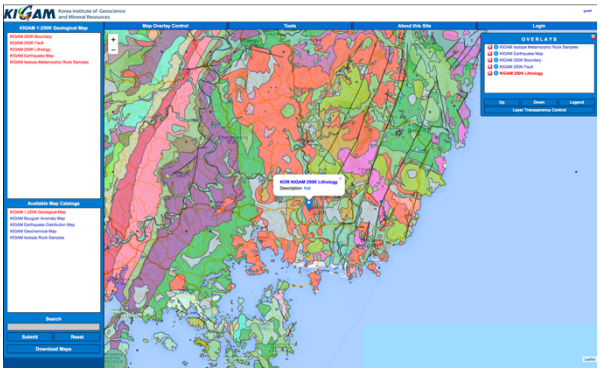

Fig. 12. The portal of KIGAM, Korea,
https://ccop-gsi.org/gsi/kigam1000/

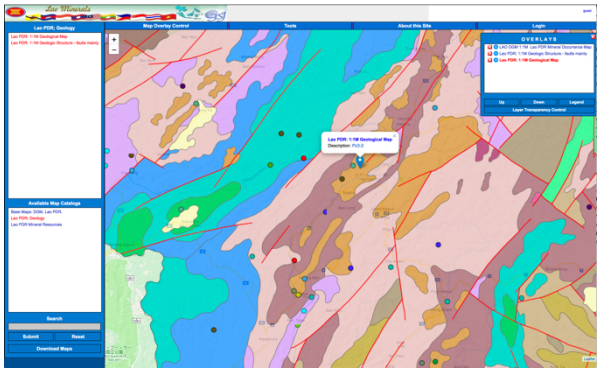

Fig. 13. The portal of DGM, Lao PDR,
https://ccop-gsi.org/gsi/Lao/

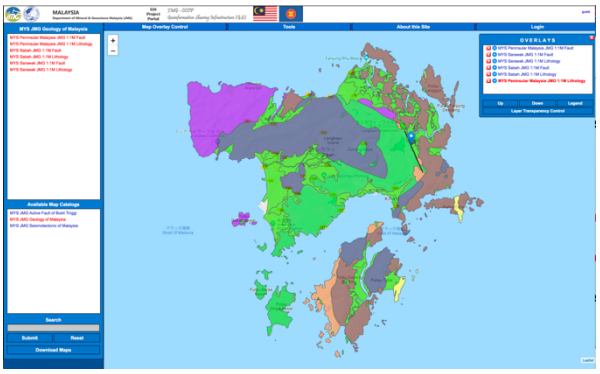

Fig. 14. The portal of JMG, Malaysia,
https://ccop-gsi.org/gsi/mys_ccopgsi_portal/

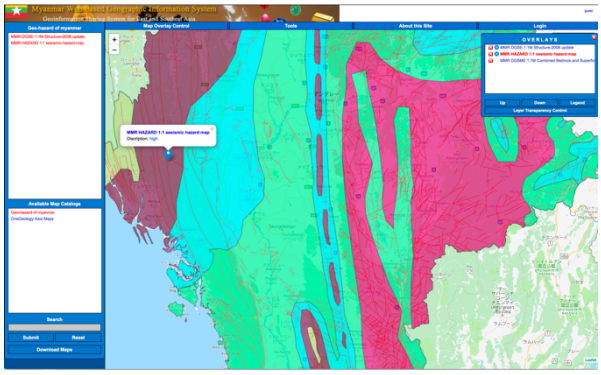

Fig. 15. The portal of DGSE, Myanmar,
https://ccop-gsi.org/gsi/myanmar/

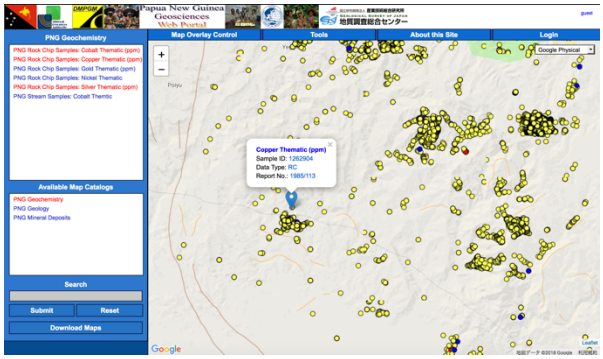

Fig. 16. The portal of MRA, Papua New Guinea, https://ccop-gsi.org/gsi/pngwebgisportal/

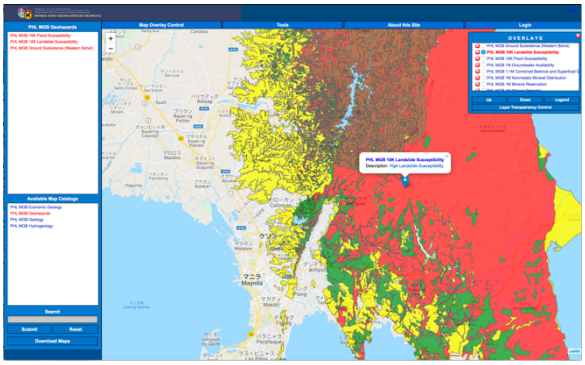

Fig. 17. The portal of MGB, the Philippines, https://ccop-gsi.org/gsi/phl_mgb

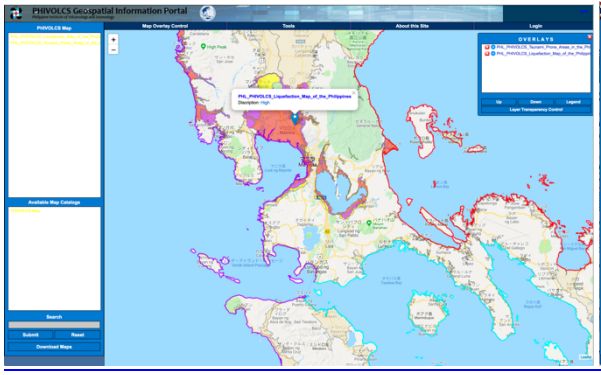

Fig. 18. The portal of PHIVOLCS, the Philippines, https://ccop-gsi.org/gsi/phivolcs/

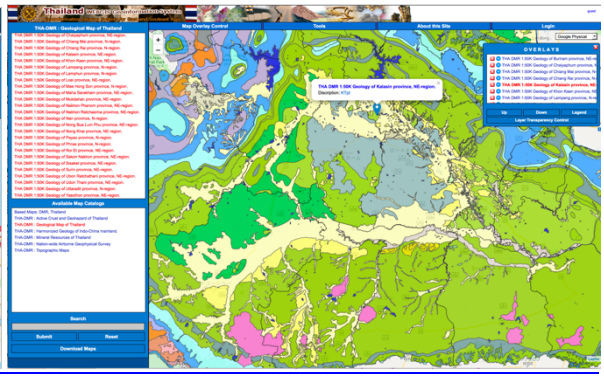

Fig. 19. The portal of DMR, Thailand, https://ccop-gsi.org/gsi/thailand/

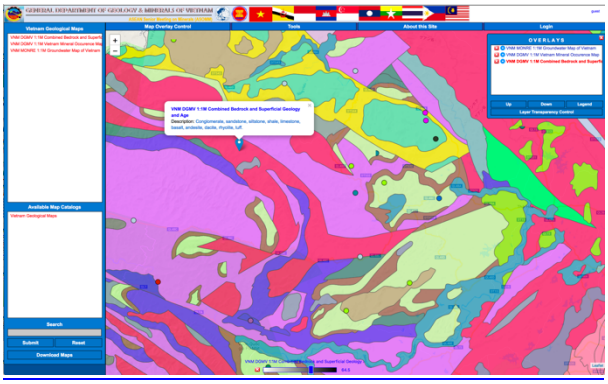

Fig. 20. The portal of GDGMV, Vietnam, https://ccop-gsi.org/gsi/vietnam/

5. Conclusions

The GSi Project aims to construct comprehensive Asian geoscience database and infrastructure in collaboration with the CCOP member countries to promote (1) geoinformation sharing, (2) delivery of geoscience knowledge to society, (3) international standardization, and (4) capacity building. The 3rd CCOP GSi International

Workshop was held in Langkawi, Malaysia in September 2018. The website of the GSi system was officially opened to the public on September 18, 2018. More than 570 data and 15 portal sites are available from 11 countries.

参 考: 産総研プレスリリース (2018年9月18日)

東・東南アジア地域の各種の地質情報を共有する総合システムを公開

ーCCOP 地質情報総合共有プロジェクトー

https://www.aist.go.jp/aist_j/press_release/pr2018/pr20180918/pr20180918.html