

An Indonesia Geothermal Business Tool – Geo Handbook and Geo Portal

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Keywords: geothermal resource information, dissemination of geothermal data and knowledge.

ABSTRACT

Indonesia is actively promoting international financing and development of the geothermal resources of Indonesia; however, geothermal information and resource data are scattered through multiple government agencies, universities, institutions, non-governmental organizations and private corporations. This fragmentation of geothermal information has created a barrier for potential investors to fully understand, learn about and keep current with the geothermal opportunities in Indonesia.

Funded by the German international development bank KfW, the State Ministry of National Development Planning (“Bappenas”) engaged Partnership International, Inc. (PI) in 2012 to develop geothermal tools to support the development of the sector. The two major deliverables from this project are the **Geo Portal** and ***The Geothermal Handbook for Indonesia*** that compiles sectorial geothermal information and resource data and its accompanying interactive online **Geo Handbook** version located at: <http://geothermal.bappenas.go.id/>.

1. INTRODUCTION:

A. Indonesia Geothermal Handbook & Online Geo Handbook

The Geothermal Handbook for Indonesia and the online “**Geo Handbook**” are overviews of the collective processes that bring the heat of the earth – the geothermal energy resources of Indonesia – to the people of Indonesia-at-large. In particular, this *Handbook* is intended to assist key stakeholders, such as private sector developers investing in Indonesia, the central and regional government policy makers and those national and international stakeholders who aim to promote

geothermal developments in Indonesia. The *Handbook* covers the legal, policy, regulatory, and economic framework of the geothermal sector in the country and how the national and local governments aim to foster a quantum increase of electrical generation from geothermal resources to meet the energy demands of Indonesia’s rapidly growing economy and burgeoning population.

B. Geo Portal

The Geo Portal is an online database, resource, and information center covering the geothermal sector in Indonesia. Presently, the Geo Portal is located on the Bappenas servers at: <http://geothermal.bappenas.go.id>. The Geo Portal’s **“Data Bank”** includes an interactive map of MEMR geothermal field data leading to site-specific homepages of geothermal sites and working areas (also known as “WKP’s”). The Geo Portal’s **“Knowledge Bank”** includes the site’s core content of Geothermal News, Library, Calendar, Experts Forum, Stakeholder Directory, and Frequently Asked Questions (FAQs). The Geo Portal includes an online version of the *Geo Handbook* with interactive collaborative tools that can enable site users to post comments and correspond with other stakeholders and industry experts. Knowledge Bank content is dynamically translated in 60+ languages by the Geo Portal based upon user preferences. Whole site search tools allow users to quickly find technical and resource information.

Partnership International’s Senior ICT Advisor, Finance & Renewable Energy Mr. Ponsness will present the Geo Portal at the Convention, while our Senior Advisor of Indonesia Geothermal Development Mr. Sikumbang will provide a walk-through navigation of the Geo Portal functionality at the Exhibit Hall. They will demonstrate the handbook’s interactive features and resource data (including an interactive map and database), and how these pages lead to other pertinent site

content such as the Library, Experts Forum, Calendar, and links to Stakeholders. They will navigate through the practical functionality of the Geo Portal's **Data Bank** and **Knowledge Bank** leading to relevant information on geothermal development in Indonesia, and the **Expert Forum**, where industry experts can interact with users and blog on the most up-to-date happenings in their knowledge area. The Geo Portal is designed to primarily facilitate developers and investors access to information, but also provides geothermal stakeholders and researchers quick access to current data and geothermal updates.

The Geo Portal is hosted and supported by Bappenas to insure that information remains securely managed according to established

government practices and policies. Regular database updates from source MEMR data systems insure that information is kept fresh and current. The Portal utilizes industry-leading, open source platform and system components/technologies that are already in use and supported by several government agencies. This open-source platform also has an active and broad worldwide community that provides free technical support and product extensions to support additional capability (site-specific commercial applications and extensions and services are also available for the government to potentially sell higher-level resources inform).

Registration is free and gives access to more detailed features and information on the geothermal potential developments in Indonesia

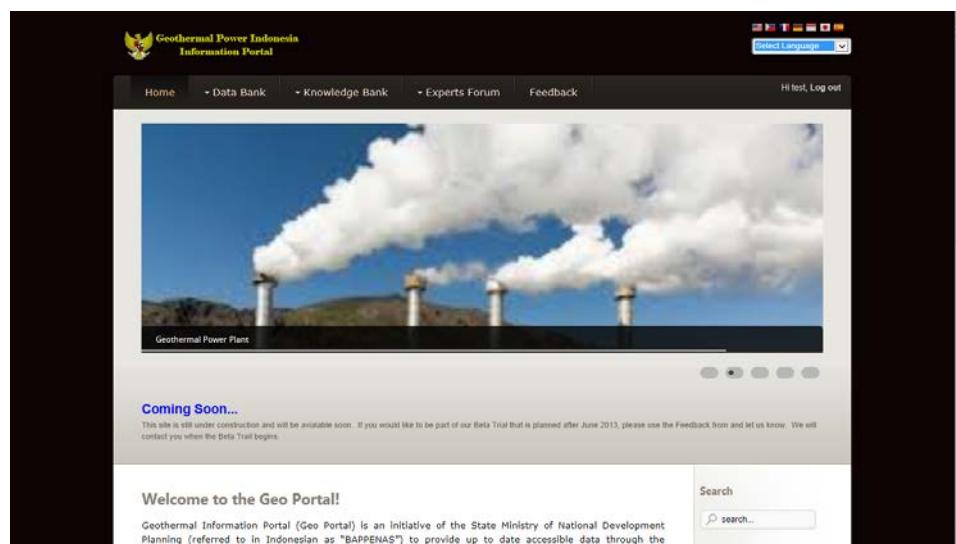


Figure 1: Geo Portal's Homepage in English

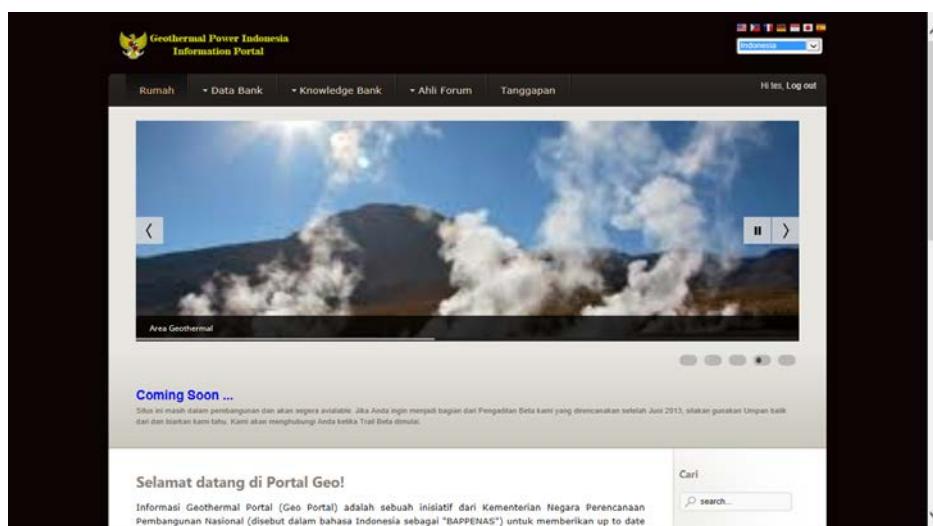


Figure 2: Geo Portal's Homepage in Indonesian

2. DATA BANK:

The core of the portal is the Data Bank section of geothermal resource data; this includes geothermal site details, working areas and power plants. Regular data updates from source data systems maintained by MEMR and other Government agencies insure that Geo Portal data is kept current. Potential investors and developers can find here detailed technical information on resource statistics, potency, location and other

related details on a searchable Google map of geothermal resources.

The map is linked to a database encompassing geothermal site-specific background information, supported by data from the MEMR agencies, users and run report or other relevant documents key to the development of these geothermal sites.



Figure 3: A map of geothermal sites from the Geo Portal's Data Bank.

Geothermal Area: G. LAWU (142)

Revision date: 2011-01-12

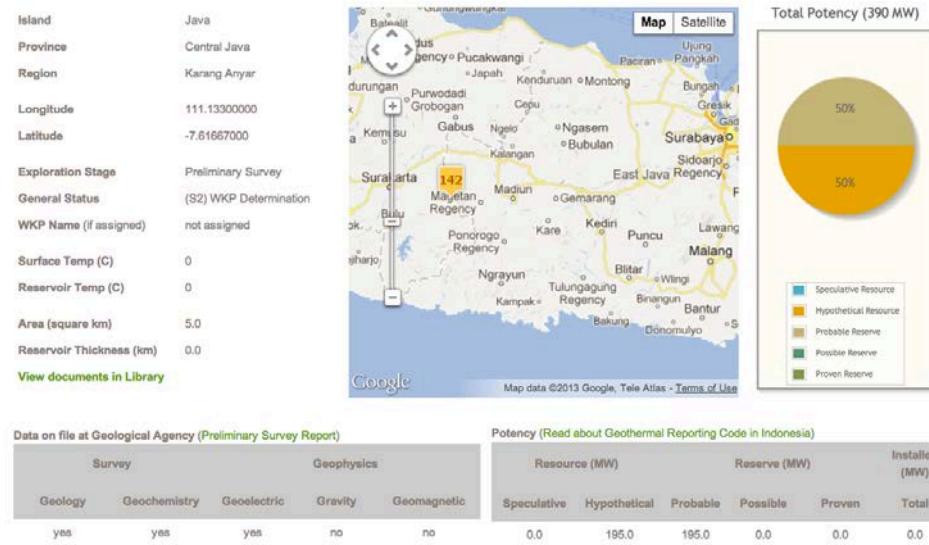


Figure 4: Each site has a Homepage, which contains detailed information about the geothermal site.

3. KNOWLEDGE BANK:

The **Knowledge Bank** sub-sections gives users' access to relevant up-to-date news, events and in-depth resource information on the geothermal sector. The "Geo News" sector provides press-clips of recent news as well as google news feeds. The "Geo Library" provides studies, presentations, government policies and decrees, regional and local government requirements, forestry and environmental requirements, and much more. Users can provide comments ("Add a comment"), ratings ("Like") and search these resources.

The screenshot shows the 'Knowledge Bank' section of the website. At the top, there are navigation links for Home, Data Bank, Knowledge Bank, Experts Forum, Feedback, and Admin. A search bar is located in the top right corner. Below the navigation, there are two news items. The first news item is titled 'Indonesia announces new geothermal prices' and discusses new power prices. The second news item is titled 'GlobalData's New Report, "Geothermal Power in Indonesia, Market Outlook 2025"' and mentions a visit by a German Minister. There is also a link to 'Ministry for Economic Cooperation and Development : Dirk Niebel visits geothermal energy project in Indonesia'.

Figure 5: Recent news in the sector are compiled and made easily accessible through the Knowledge Bank.

The screenshot shows the 'Knowledge Base' menu of the Geothermal Power Indonesia Information Portal. The menu is organized into several categories: Handbook, FAQ, News, Public Library, Presentations, Laws and Regulations, Reports and Studies, API News, Seminars, Search, and Preliminary Survey Reports. The 'News' and 'Public Library' sections are currently expanded. The background of the page features a photograph of a geothermal power plant with steam rising from its towers. The top navigation bar includes links for Home, Data Bank, Expert Forum, Feedback, Admin, and a 'Hello superuser Unsubscribe' link. A 'Select Language' dropdown is also present.

The screenshot shows the 'Public Library' category menu. It includes sub-categories for Presentations, Laws, Regulations, Geothermal Areas, Reports and Studies, API News, Seminars, and Geothermal Working Areas (WKPs). The 'Geothermal Areas' section is expanded, showing sub-categories for Sumatera, Java, Bali and Nusa Tenggara, Kalimantan, Sulawesi, Maluku, and Papua. The 'Geothermal Working Areas (WKPs)' section is also expanded, showing a 'General' sub-category.

Figure 6 (up) & 7 (left): The Library is organized by main categories and sub-categories, with Special areas for each geothermal area, WKP, and power plant

The screenshot shows the search interface for the Public Library. It includes a search bar labeled 'Search Downloads', a note about search terms, and search filters for 'Search for', 'Search in Title', 'Search in Description', and 'Number of search results' (set to 30). There are also checkboxes for 'Search in Title' and 'Search in Description'.

Figure 8: The Library is searchable by Document title, description, and keyword.

Still in development, the “Geo Directory” shall provide a comprehensive list of geothermal stakeholders, their background and contact information, with links to their websites. Additionally, there will be a “Calendar” of upcoming events related to the geothermal industry. And the forthcoming Frequently Asked Questions, or “FAQ” section, shall provide quick and easy information on Indonesia’s Geothermal Sector, with links to more detailed sections within the website.

Figure 9: The Director provides background and contract and web hyperlinks to Indonesia’s Geothermal Stakeholders.

Figure 10 & 11: The Calendar provides Indonesia religious as well as industry events; upon clicking on the event users can find out more details about the event.

Figure 12: The FAQ section provides quick answers to geothermal relevant information; users can both search the FAQ and ask as new question.

4. Geo Handbook (Knowledge Bank):

Based on the Bappenas's ***Geothermal Handbook for Indonesia***, the online *Geo Handbook* will be available on the *Geo Portal* where it will be continually updated as the Indonesian geothermal regime continues to evolve and new guidance is issued by the Government of Indonesia. The *Geo Handbook* will address significant aspects of the geothermal process and help further facilitate decision-makers understanding of the sector.

This online version of the *Geo Handbook* will provide hyperlinks to footnote references and other section of the handbook and more in-depth resource information within the website. Users can also provide their feedback to the Chapters and sub-Section by completing the "Add Comment" box at the bottom of each Chapter's sub-Section (see figures 9 and 10, below).

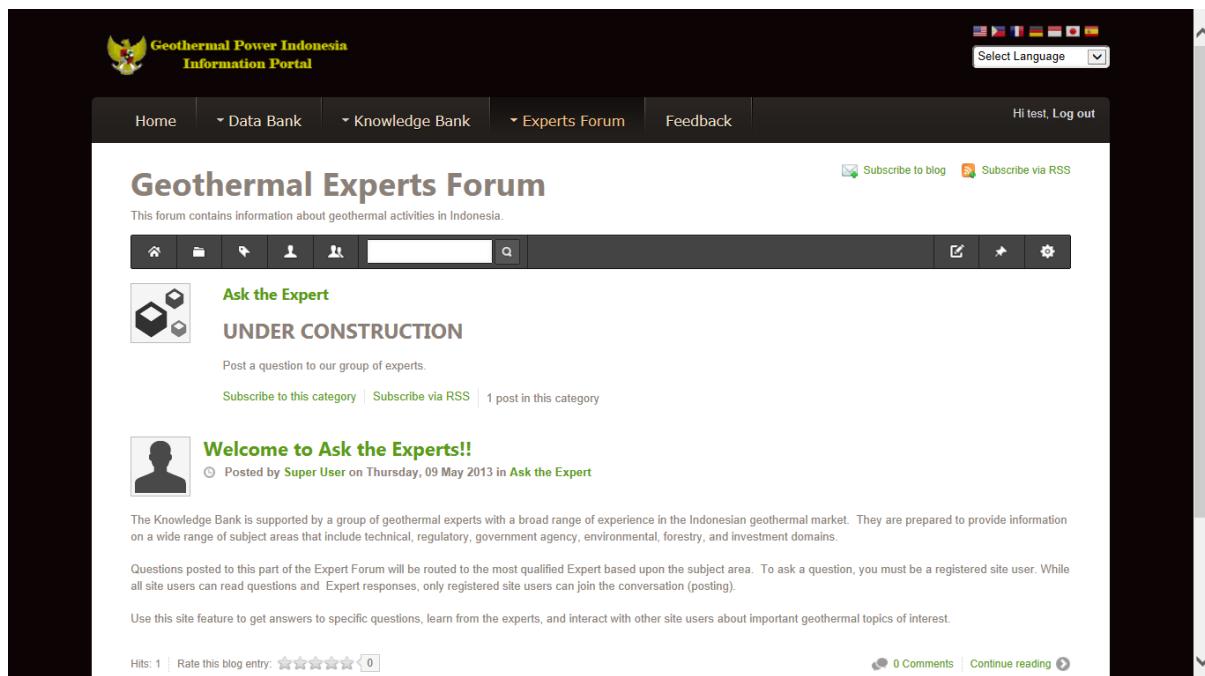
Figure 13: *Geo Handbook Foreword with pull-down listing of each Chapter.*

Figure 14: *Geo Handbook footnotes with links to more details; Users can also provide feedback Geo Handbook.*

5. **EXPERTS FORUM:**

In the “**Expert Forum**” section (still in development) of the Geo Portal provides a Forum for knowledge sharing through near real-time collaboration. Both Experts and users can communicate and collaborate with one another, gaining an understanding of issues related to geothermal developments in Indonesia. Each expert has their own secure blog area, where they can post them most recent activities in the knowledge area.

The Expert Forum will provide a growing repository of information posted in blog format by the key players in the development of Geothermal Energy in Indonesia. The forum is a platform for these key players to provide viewpoints, commentary, announcements and updates on relevant topics covering their areas of expertise. In a dynamic and information-rich environment, this forum allows users an interactive exchange through posting questions or further commentary.



The screenshot shows the 'Geothermal Experts Forum' page of the Geothermal Power Indonesia Information Portal. The top navigation bar includes links for Home, Data Bank, Knowledge Bank, Experts Forum (which is the active tab), and Feedback. A 'Select Language' dropdown is also present. The main content area features a 'Ask the Expert' section with a sub-section titled 'UNDER CONSTRUCTION'. It includes a placeholder for posting a question and links for 'Subscribe to this category' and 'Subscribe via RSS'. Below this, a 'Welcome to Ask the Experts!!' message is displayed, along with a note that the Knowledge Bank is supported by a group of experts. The page footer shows 'Hits: 1' and a rating section with 0 stars.

Figure 11: The Expert Blogs contain blog posts on key, current topics of interest from Bappenas, Geological Agency, New Renewable Energy, Ministry of Finance, & others.

6. CONCLUSIONS: GEO PORTAL

As an Internet-based geothermal resource and information center, the Geo Portal was developed to make Indonesian geothermal data readily available, thus helping stimulate geothermal development. Users can easily find geothermal information on target areas using the website's map feature, browse through the Geothermal Handbook, search for quick-link facts in FAQs and find pertinent documents through the website's Library.

Currently, the Geothermal Handbook, Library, FAQs, and map are in beta-development, being improved and content added. The full launch of the Geo Portal will be October 2013. Sign-on today to become part of this dynamic new community by registering at: <http://geothermal.bappenas.go.id>

ACKNOWLEDGEMENT:

The Geothermal Handbook for Indonesia and the complementary Geo Portal is a publication of the State Ministry of National Development Planning, Bappenas; funded by the German international development bank KfW; and compiled by the consulting team of Partnership International, Inc. (A. John Armstrong, Paul Brophy, Pungky Hendrawijaya, Tracy Mathieu, Jeff Ponsness and Ifnaldi Sikumbang).

We thank MEMR agencies for providing the Data Bank content from the Ministry of Energy and Mineral Resources (MEMR), and its Geological Agency (GA) and the newly created Directorate General of New and Renewable Energy and Energy Conservation (DG-NRE-EC).