



HISTORY OF GEOLOGICAL SURVEY

Probably the oldest Division of the Mineral Resources Authority, is the Geological Survey Division. Its history is much older than the Authority itself, with its established in the 1950s, soon after the Second World War by the Australian Administration.

The Geological Survey Division is the geoscientific arm of the Mineral Resources Authority. It is mandated to carry out systematic mapping of the country in order to understand the geological resources contained on land and under water which could be developed to help support the country's economy.

Indeed, the significance of the importance of the Geological Survey could not be better emphasized, than through the discovery and development of the Panguna copper mine on Bougainville Island in the early 1960s. Panguna's progress from discovery to development was through the joint collaboration between Government geologists of the Geological Survey, headed by Chief Geologist, Jack Thompson, and Conzinc Rio Tinto of Australia (CRA) geologist Ken Philips, was critical in supporting the newly independent state of Papua New Guinea from 1975 onwards.

The establishment of the Geological Survey of Papua New Guinea (GSPNG) soon saw the deployment of government geologists into parts of the country to carry out geological mapping and mineral exploration programs commencing in the 1950s. Most of these early geologists were seconded from the Bureau of Mineral Resources of Australia (BMR), and were heavily involved in the early geological mapping of the country at 1:250 000 scale. These early mapping programs helped discover the Yandera porphyry copper molybdenum prospect in the 1950s and the

Ramu laterites in 1962. This is now being mined as Ramu Nickel Cobalt mine by MCC after it brought to production in 2007. In 1966, BMR geologists were again responsible for the discovery of Frieda River porphyry copper gold prospect after an anomalous float was discovered in the streams. Further exploration upstream led to the discovery of the Nena high-sulphidation copper-gold system in 1979. Large airborne helicopter surveys, accompanied by regional geological mapping by the Geological Survey in mid-1985/1986 saw the discovery of the Tolukuma gold system, which has since undergone some mining developments.

Over the years, due to the increase in commodity demands and exploration interests in Papua New Guinea, the Government began implementing organizational reforms to better serve the growing industry. These reforms also meant that the Geological Survey had to be placed under constantly changing institutions. Between 1973 and 1978, the Geological Survey, was placed under the Department of Lands, Surveys and Mines. From 1978 onwards, the Geological Survey was placed under the Department of Minerals and Energy, which later became the Department of Mining and Petroleum with the advance in oil and gas explorations in the 1980s. Further changes in the 1990s saw the Geological Survey remained part of the Department of Mining, while the Petroleum Branch (PRAG) was separated to form the Department of Petroleum & Energy. Further reforms in 2005 saw the establishment of the Mineral Resources Authority and the Geological Survey became one of the four main Divisions of the Authority when it became operational in 2007.

Much of the understanding of Papua New Guinea's regional geology and tectonic framework may be attributed to research work by the Geological Survey of Papua New Guinea (GSPNG). During the earlier years the GSPNG also included two scientific observatories in the Port Moresby Geophysical Observatory (**PMGO**) and the Rabaul Volcanological Observatory (**RVO**). Data acquired by these two institutions were instrumental in understanding the deeper characteristics of the country's geological framework, and the hazards that come with it. In the upper crust, a lot of research (initially by Prof Hugh Davies, as a Research Geologist in the 1970s) into differentiating the geological terranes that form the modern day Papua New Guinea, gave birth to the concepts behind the New Guinea Mobile Belt, the Island Arc, the Papua Fold and Thrust Belt, and the Papuan Ultramafic Belt. These understandings, coupled with data collected by large seismic networks established

as part of the GSPNG mandate, led to the definition of the general Papua New Guinea tectonic framework. This has now been further defined beyond plate boundaries to micro-plates, with the advance of modern seismicity data acquisition.

With the development of most of the mineral resources discovered in the 1950s and 1960s, the Geological Survey Division, more refined to serve the mining industry, has now once again been challenged to step up in its efforts to uncover the country's next mineral prospects to support the country into the next decades. The diversification program introduced by the Division as part of this resurgence, is aimed at expanding on the mineral base of the country beyond gold and copper, while it ramps up exploration into deeper porphyry systems.

Apart from the principle geological and mineral exploration studies, providing normal humanity or community services to government and communities in geotechnical engineering, hydrogeology, geothermal, and geo-hazard, still remains a key part of the Geological Survey Division.

In the current setup, the Geological Survey Division has three main focus areas. These are Geoscience for Mining, Geoscience for Energy and Geoscience for Humanity. The Division also conducts Research Programs that cross-cuts all three focus areas, and are aimed at connecting other applications of geology.

The current establishment is also responsible for the overall dissemination of geological information and other publications through the library, and the value-adding and marketing of spatial geoscientific data, through the Marketing Branch.