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The Role and Development of Government Geological Surveys in making a Difference for Earth Resources Exploration, Discovery and Confident Evidence-based Decisions

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Government geoscience agencies across the world have a diverse range of roles and objectives, largely dependent upon the needs and values of their jurisdiction. A significant number of these have a focus on using geoscience data and information to help support and stimulate the sustainability and operation of resource industries. This presentation looks at the development and impacts of government geoscience agency programs for the resources industry and then considers some of the emerging trends and future opportunities for government geoscience.

Many government geoscience agencies were initiated as trusted custodians of the geoscience data and knowledge of a jurisdiction. These were typically driven by systematic geological mapping and associated data acquisition such as geochronology, resource geology, geophysics, and geochemistry. For regions with some prospectivity for mineral or energy resources, the geoscience programs had a strong economic geology focus, including studies of mines and known mineralisation as well as data and information that stimulated exploration towards mineral discovery. This was heralded as the provision of “pre-competitive” geoscience data and information, driven by the philosophy that Government investment in geoscience data would help, if not drive, sustenance of or growth in private investment and industry and, therefore, provide return on the government investment. An important array of economic and benefit analysis studies have been conducted to help support the philosophy that pre-competitive geoscience investment provides a strong return from the initial government investment. This is particularly strong in the situations where pre-competitive geoscience can be directly (and even indirectly) attributable to the discovery of new mines. In some jurisdictions the pre-competitive programs have been extended to also include “collaborative” exploration programs where industry-government partnerships have been applied to regional data acquisition such as geophysical and geochemical surveys and drilling.

Government geoscience programs have been constantly looking for opportunities to redefine themselves, in many cases hoping to provide a competitive attractiveness for investment from private industry, but also to further accelerate or increase investment confidence in a particular jurisdiction. Some examples of new approaches have included a greater emphasis on open access data and greater alignment with FAIR data principles, as well as the use of crowd-sourcing geoscience data competitions. Another important development has been the recognition of the value of geoscience data across the resources value chain from exploration and mining to resource use and destiny, as well as the embrace of a broader definition of geoscience and its broader context within environmental, economic, and cultural issues. An example here is providing government guidance for issues of social license such as land access and community outreach.