

Titanium–zircon minerals of the Swan Coastal Plain — geoscience information influencing the State planning process

by

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Access to land for exploration and mining purposes is generally not subject to State planning processes. However, some sectors of the community would prefer to have mining (which under the Mining Act 1978 (WA) definition includes exploration, prospecting, and fossicking as well as productive mining) subject to normal land-use planning considerations and to be approved through planning processes. This occurs interstate, and experiences there clearly demonstrate that this system has not always supported mineral investment and development.

Planning processes can still have impacts on resource access in Western Australia. However, if the resource industry works with planners, the planning processes can aid resource access.

To assist in protecting access to the widespread titanium–zircon mineral deposits (heavy mineral sands) between Perth and Augusta, where freehold ownership of land prevails, the Geological Survey of Western Australia in the 1990s produced maps identifying ‘planning areas’ that were likely to be mined at some future time. These maps depicted the locations of all the known titanium–zircon mineral deposits. This work was supported by all the companies because they recognized that land-use planning processes needs spatial information showing the locations of future likely mining areas so that long-term use of these areas could be postponed until after mining and rehabilitation were completed. Following completion of the mapping, the information was then provided to State and local government organizations involved in land-use planning.

The mapping is currently being extended to cover all the deposits from the previous limit, just south of Perth, northwards to Geraldton.

Without new discoveries, mineral resources are depleted with time, and the present mapping project is intended to maximize the duration of the industry in this State. Current resources and technology imply that the titanium–zircon deposits could support mining for another 30 years without major new discoveries. However, if deposits become sterilized through other developments, the duration of the mining will be shorter. Conversely, as technology advances, uneconomic mineralization may become economic in the future. There is also the issue that former mined and rehabilitated materials may be retreated. For these reasons the mapping requires ongoing revision.

With the cooperation of the titanium–zircon mining companies, it is intended that the revised mapping will inform planning agencies about known deposits in order to protect the deposits from conflicting land uses until mining is complete. There have been many examples where the rehabilitation was customized for a new land use different from the use before mining.

Production of these maps requires consultation with, and support of, State and local planners and the titanium–zircon companies. Access to explore and mine in a district will be highly dependent on the attitude of the community and the ‘social climate’ that prevails. Community attitudes supportive of mining can be improved by companies demonstrating good ‘corporate citizenship’, especially through effective consultation and by clearly demonstrating good environmental management of all operations.