

What the Land Use Geoscience group does for you

by

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The Land Use Geoscience group within the Geological Survey of Western Australia (GSWA) provides geological advice to government on land use planning, with a strong emphasis on maintaining access for resource exploration and development. Although many people realise the importance of the resource industry to the Western Australian economy, the very success of that industry since 2003 has created its own challenges with respect to land use conflict and public perception of the industry. The rapidly expanding population has led to pressures on land availability for urban development and the industry itself has generated an increased demand for land for industrial purposes and infrastructure, such as railways and ports. At the same time, increasing awareness of the importance of the natural environment and environmental protection has led to more conservation initiatives, such as proposals for formal conservation reserves and requirements for environmental offsets associated with land and resource development.

Sustainability was defined in the 2003 State Sustainability Strategy as ‘meeting the needs of current and future generations through integration of environmental protection, social advancement and economic prosperity’. The Land Use Geoscience group contributes to the future of the resources industry in Western Australia by working with government to minimize impacts arising from land use changes on access for exploration and development of the State’s mineral, basic raw material, petroleum and geothermal energy resources.

The Land Use Geoscience group helps to maintain access for the resources industry in three main ways:

- responding to specific proposals for land tenure changes from other government agencies (referrals)
- interacting with other government agencies to shape land use and policy
- providing resource potential mapping to government and the public.

Changes to land tenure can have serious consequences for land access for resource development. A core part of the group’s activities is responding to about 1 000 referrals for such changes each year. Most changes of land tenure involving Crown land are referred to the Department of Mines and Petroleum (DMP) for ‘clearance’ under Section

16(3) of the *Mining Act 1978*. About 87% of the State is Crown or reserved land, so these changes are the ones most likely to affect mining tenement holders. Under this part of the Mining Act, a change in tenure from Crown land to private land cannot occur without the approval of the Minister for Mines. Furthermore, governments have for many years required the agreement or support of DMP before making other changes to Crown land such as changes to reserve type and the creation of conservation reserves. This is necessary because the Mining Act is very prescriptive about the requirements for carrying out exploration and mining on different types of land tenure. Examples of land changes that can have serious consequences for a mining tenement holder include:

- a change from Crown land to private land. This may mean that the consent of the landowner will in future be required before exploration access is permitted to the upper 30 m of the land
- the creation of class A nature reserves or national parks. This would mean that the approval of both the Minister for Mines and the Minister for Environment are then needed before exploration can take place. The grant of a mining lease within a class A nature reserve or national park would require the approval of both houses of Parliament.

Proposals for land use changes on private land come to the Land Use Geoscience group under a Memorandum of Understanding (MoU) with the Western Australian Planning Commission (WAPC). These cover private land subdivisions and rezoning proposals outside of the main urban areas, mainly in the southwest of the State. Some of these proposals encroach upon areas that have traditionally supplied basic raw materials needed by the construction industry, and higher value deposits such as titanium–zircon and bauxite. Comments from DMP enable the WAPC to avoid future land use conflict by refusing some proposals or by placing a notice on land titles so that future landowners are aware of current or future mining activities.

In all cases, the Land Use Geoscience group assesses the impact that a proposal may have on access for an existing mining or petroleum tenement and, if deemed significant, refers the proposal to the tenement holder for comment. Irrespective of existing mining or petroleum tenure, the group also assesses the resources or prospectivity of the

proposal area and the impact that the proposal will have on future access for exploration and mining. The group then makes recommendations accordingly, always with the aim of either avoiding or minimizing the impact on present or future access to mineral, petroleum and geothermal energy resources.

The Land Use Geoscience group interacts with other government agencies to help shape land use decisions and policy when they are in the formative stages. This is normally within the context of an existing government objective, such as conservation. In these cases, the group aims to achieve an overall balanced outcome that ensures resource access and economic considerations are taken into account. A good example of this is the resolution of new nature conservation and mining arrangements for the Mount Manning area, north of Southern Cross, which were jointly announced by the Ministers for Environment and Mines in September 2010. An evidence-based approach involving prospectivity mapping was used to negotiate new land tenure, ranging from a reserve for mining through to a reserve for conservation and mining over much of the prospective banded iron-formation, and a class A nature reserve over a less mineralized part of banded iron-formation. It is intended to apply this evidence-based, exclusive and multiple land use model to the remaining 53 pastoral leases that have been wholly or partly purchased by the Department of Environment and Conservation.

A current example of involvement across government is the Land Use Geoscience group's participation in the Strategic Assessment of the Perth and Peel regions. This project will help shape the future development of Perth to a city of 3.5 million people by taking into account matters of National and State environmental significance. Importantly, for the first time for such an assessment in Australia, DMP, with the Department of Planning, has ensured that the quarry sites required for this development are also taken into account in the assessment. This has implications not only for those companies involved in basic raw material extraction, but also for the entire community and government because it will help to reduce future private and public infrastructure construction costs. Another inevitable aspect of this process will be the identification of suitable land for environmental offset purposes. The Land Use Geoscience group plays an important role in ensuring that access to other resources and unintended impacts upon exploration and mining are also considered in the land offset selection process.

Other areas where the Land Use Geoscience group is currently involved with other parts of government include the conservation proposals associated with the Kimberley Science and Conservation Strategy, Indigenous land use agreements (ILUAs), and 'rangelands reform'.

By providing resource potential maps tailored for land use planners and the public, the Land Use Geoscience group helps to avoid land use conflicts before they occur. This mapping is targeted for those resources most at risk of sterilization in areas of current or future land development. A good example of this is titanium–zircon mineralization mapping, which now covers the entire Swan Coastal Plain from Yallingup in the south to Geraldton in the north. Recently, the group released a series of maps showing

regionally significant basic raw materials, again mainly on the Swan Coastal Plain from Yallingup to Lancelin. This mapping has been used within the Strategic Assessment for Perth and Peel and will also form the basis for the new State Planning Policy on basic raw materials. The new policy is anticipated to help protect strategic basic raw material sites from encroachment by urban development.

Mapping of basic raw materials is currently underway around the State's northern regional growth centres in the Pilbara and West Kimberley under a MoU with the Department of Planning. Planners are particularly concerned that there may not be sufficient available fill material close to Karratha and Port Hedland to economically raise the level of development above flood levels. This mapping, which will be published this year, will help identify opportunities for basic raw material extraction close to these population centres.

The group also routinely prepares maps showing appropriate buffers to protect resources from sensitive land uses such as residential development, for State and local governments. Emerging issues that are of concern for resource access include:

- an increasing number of large wind and solar farms
- large plantations for carbon farming and carbon credits
- increasing pressures for more conservation areas, such as within the Great Western Woodland and for more private conservation areas
- joint management conservation areas resulting from Indigenous land use agreements
- the need for land to be set aside as environmental offsets under both State and Commonwealth legislation to facilitate land and resource development
- opposition to unconventional gas exploration and extraction
- pressure from community groups and business interests for 'no mining' areas
- possible inclusion of more areas into national and world heritage listing.

Other than resource access, the Land Use Geoscience group also maintains the State Register of Geoheritage Sites and manages access to eight geoheritage reserves, which cover sites with exceptional geoscientific and geoheritage value. The locations and significance of geoheritage sites are being incorporated into advice provided to other government agencies and are now taken into account within DMP in the environmental approval process. The group also has a role in advising government on other aspects of land use planning such as geohazards and coastal vulnerability studies.

In summary, the Land Use Geoscience group has an important role in informing government on resource access matters, thus ensuring that wherever possible the interests of the resources industry are considered and a proper balance between environmental, social and economic factors is achieved in government decision making.