

FIJI ISLANDS

INVESTMENT OPPORTUNITIES IN BAUXITE EXPLORATION AND MINING

1.0 Introduction

Bauxite is a mineral used in the manufacturing of aluminum. It is formed in weathered volcanic rocks and found in richly forested, humid, tropical climate.

Bauxite deposits usually are in the form of gibbsite nodules in lateritic clay which are found at a number of localities in Fiji. Important deposits can be found in western Vanua Levu, and other parts of Fiji, including Wainunu in Bua, Lautoka-Ba area and on Tuvuca in the Lau group of islands.

2.0 Current Exploration

An Australian based Chinese company is currently conducting exploratory bauxite mining work in the North-West of Vanua Levu. Six exploration licenses named Special Prospecting License (SPL) (SPL 1423 – 1424, 1426 – SPL 1430) are currently held by Aurum Exploration (Fiji) Limited which were granted in 2001 and these exploration sites are located in North West Vanua Levu. The site comprised of 117,437 ha which accounts for the total area covered by bauxite exploration in Vanua Levu.

Aurum began active exploration since 2001 with areas of interest in Naibulu, Nasarawaqa, Lekutu, Nawailevu, Navakasobu, Tabia, Koroinasolo, Saivou and Seaqaqa in north-west of Vanua Levu. The company continues to conduct bauxite exploration and resource evaluation at Savulevu in Wainunu, in the South West of Vanua Levu.

Few interested companies have applied to the Mineral Resource Department for Bauxite exploration license in Ba-Lautoka area but applications are still being processed and none has been granted to date¹.

Companies however will continue the exploration work in order to determine the economic viability of the areas which they had acquired the license for.

3.0 Mineral Resources Evaluation

The following mineral deposits have been identified by the Mineral Resources Department (MRD) to be present in Fiji. A map showing the location of the mineral occurrence is attached as Appendix 1.

Mineral Resources	Occurrence Area
Bauxite <i>Bauxite is a mineral used in the manufacturing of aluminum</i>	Lautoka/Ba, Wainunu and NW Vanua Levu
Porphyry type (Cu –Au) <i>Porphyry deposits are mineral deposits formed by igneous activity. In Fiji, such deposits</i>	Namosi Copper Mine (disseminated)

¹ Updated August 2009

Mineral Resources	Occurrence Area
<i>contain copper with gold enrichment.</i>	
<p>Epithermal type (Au-Ag)</p> <p><i>A term applied to deposits formed at shallow depths from ascending solutions of moderate temperatures.</i></p>	Vatukoula, Tuvatu, Vuda, Navilawa, Rakiraki, Dakuniba, Mouta, Korotari, Koroinasolo, Cirianiu;
<p>Manganese deposit (Mn)</p> <p><i>Manganese adds strength and toughness to iron. An important use is in dry cell batteries. Other uses are as an oxidant in the purification of water, in acid leaching of certain ores (such as uranium), as a colorant in bricks, ceramics and paints, in fertiliser, animal feed and welding rods, and in the manufacture of ferrite and potassium permanganate.</i></p>	Vunimoli, Nasaucoke, Tabuqoto;
<p>Mineral Sand</p> <ul style="list-style-type: none"> - <i>Mineral sands contain suites of minerals rich in titanium, zirconium and rare earths, the industrial minerals diamond, sapphire, garnet, and occasionally precious metals or gemstones.</i> - <i>About 90% of the world's titanium mineral production is used in the manufacture of white titanium dioxide pigment which is used extensively in the paint industry.</i> - <i>Because it is non-toxic it is used in cosmetics and pharmaceuticals.</i> - <i>About 6% is used to manufacture titanium metal, a light, strong, corrosion-resistant metal used in aircraft, spacecraft and medical prostheses.</i> 	Ba Delta and Sigatoka Sand Dunes (Magnetite, Ilmenite, Hematite);
<p>High Sulphidation (Au)</p> <p><i>High sulphidation deposits come about due to fluids, which are mainly gases channeled straight from a hot magma. The fluids interact with groundwater and the result is strong acids. These acids then decompose and melt the nearby rock and all that is left then is silica, it usually has sort of a spongy characteristic to it and is also known as vuggy silica.</i></p>	Mt Kasi (Au/Cu), alteration (qtz, kaolinite, diatrite), structural controlled, Temperature (165° – 220°)

4.0 Bauxite Resource

4.1 Potential - North West Vanua Levu

The estimated potential total ore resource ranges between 400 million tonnes to 1,000 plus million tonnes. In situ bulk density equals 2.20 tonnes per cubic meter which is based on historical exploration.

4.2 Potential – South West Vanua Levu

Based on an earlier estimate by B. Campana and Alcam in 1972, the total measured geological resources is 23 million tonnes of *in situ*² material with an average

² *In situ* means 'in its original position'

recovery rate of 35% (On 35 mesh sieve) could yield about 8 million tonnes of washed ore. An estimate based on this means the total measured geological resources (in situ) is 17 million tonnes. However, only 3.6 to 6.5 million tonnes would be recoverable after washing. Note though that these estimates were based on existing technology then during the 1972 study. Modern technology leads to higher recovery rates thus the stated figure above is conservative.

5.0 Mining

The bauxite mining project in Nawailevu, Bua is expected to begin with the issuance of a mining lease. This would depend on the completion of the transfer of the land lease from the current lease holder to the Native Land Trust Board before the final issue to Xinfra Aurum Exploration (Fiji) Limited. It is estimated that over a few hundred thousand tonnes of aluminum oxide could be mined in Nawailevu.

The existing Pine Scheme with standing pine trees in the area which is currently under the jurisdiction of Fiji Pine Commission has contributed to the delayed approval of the Mining Lease to date. All pending land issues have to be resolved first which will then pave the way for assessment of the mining lease application for approval.

6.0 Usage

The elements found in bauxite namely silica and alumina are used for manufacturing aluminum. Bauxite is used in cement, chemicals, face makeup, soda cans, dishwashers, siding for houses, and other aluminum products. It is recyclable allowing re-use.

7.0 Market

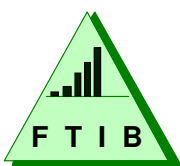
The commodity demand/prices has stimulated exploration globally including Fiji (US \$906oz for Gold³). For bauxite, China is the main market identified by MRD. This would be one of the major investments that could trigger greater developments in Bua and could also make use of the new integrated port in Wairiki Bua.

8.0 Legislation Used

Exploration and mining activities are governed by the Mining Act and associated Acts such as Quarries Act and Explosives Act, which are administered by the Mineral Resources Department.

9.0 Useful Contact

- (1) Director Mineral Resources
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³ Price at August 2009. Gold prices can be quoted from www.kitco.com

Appendix 1

Fiji Map Showing Exploration Activities (as at August 2009)

