

Queensland EXPLORATION SCORECARD

TRACKING QUEENSLAND'S PROGRESS TOWARDS
BECOMING AN EXPLORATION LEADER BY 2020,
WITH BRISBANE AT ITS HEART



AN INITIATIVE OF THE QUEENSLAND
EXPLORATION COUNCIL

2013

FOREWORD

WELCOME TO OUR THIRD AND MOST COMPREHENSIVE QEC EXPLORATION SCORECARD.

The Queensland Exploration Council (QEC) Scorecard Working Group has made a number of improvements to this 2013 edition while maintaining the structure of the document to allow simple year-on-year comparisons of performance.

Reflecting the continued surge in oil and gas activity, we have included more information on the state's unconventional gas prospectivity and where petroleum tenure is being sought and granted. Further, we have included a new section on the operating sentiment and regulatory burden of the Queensland drilling sector. This is explicit recognition of the interdependencies between the producers, explorers and drillers and the need for effective, least-cost regulation to attract the capital to discover the mines of tomorrow.

It has been a very difficult year for the Queensland exploration sector with market capitalisations continuing to fall and capital very hard to source. This is not just a Queensland trend, but a problem being felt right across Australia, and indeed globally. As such, our minerals exploration in 2012-13 was 31 percent down to \$732 million, but positively, our petroleum exploration was up 40 percent to \$655 million. This was on account of continued expenditure on coal seam gas and significant additional spend on shale gas exploration, especially in the Cooper Basin. This underscores the importance of growing a diversified resources sector.

One of the most significant findings for us this year comes from our sentiment survey of explorers. Sentiment indicates that in comparison with other Australian jurisdictions, respondents feel that Queensland rates more negatively on key factors particularly government/departmental assistance, exploration permit processes, environmental regulations, conduct/compensation agreements and areas of policy uncertainty. These findings are despite a raft of proposed, in-train and recently completed government initiatives to reduce red tape and encourage economic development. These are issues that the QRC will raise with government as a matter of priority. Encouragingly, the government has committed to work with the QRC and industry to deliver necessary reforms to support the exploration sector.

The outlook for the exploration sector remains uncertain. Despite the strength of the global fundamentals likely to drive resources demand well into the future, investors remain wary given continued uncertainty in the global economy, softening prices, and high costs which continue to plague domestic operations.

In commending this report to you, we gratefully acknowledge the contributions of the QEC working group as well as those from industry and government who provided valuable data and information referenced throughout the document, especially the busy exploration companies who contributed to our survey.

Yours sincerely



Michael Roche
Chief Executive
Queensland Resources Council

October 2013



Geoff Dickie
Chair
Queensland Exploration Council

MEMBERS OF THE QEC SCORECARD WORKING GROUP 2013

Euan Morton (Chair)	Synergies Economic Consulting Pty Ltd	Michelle Hansson	Queensland Resources Council
Brett O'Donovan	Planet Metals	Stephen Kelemen	Santos
Chris Brown	RBS Morgans	Steve De Kruijff	Glencore
David Rynne	Queensland Resources Council	Various representatives from the Department of Natural Resources and Mines	
John Briggs	Ashurst Australia		

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PERFORMANCE SUMMARY

THE QUEENSLAND EXPLORATION SECTOR 2013

LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE	2011	2012	2013
Resources prospectivity and endowment (Section 2) Queensland enjoys high minerals and energy prospectivity with significant endowments of coal and unconventional gas.			
Resource prices (Section 3) An uncertain global macroeconomic outlook has seen prices for most base and precious metals weaken over the past 12 months. Significant oversupply has seen thermal and metallurgical coal prices decrease significantly. Domestic gas prices continue to increase.			
State government geoscientific funding and activities (Section 4.1) - The Geological Survey of Queensland's (GSQ) budget allocation in 2012-13 was \$11.6 million. This compares with an average allocation of \$21 million per annum over the past eight years (undiscounted). The budget allocation over the next three years is expected to average \$19 million per annum as a new phase of exploration programs commence. - The area of the state covered by gravity and airborne magnetic survey coverage is currently 81.1 and 95 percent respectively, up from 8.9 and 42.8 percent respectively in 2005. - Downloads (Mb) from the Interactive Resource and Tenure Maps (IRTM) system decreased slightly as a result of data being migrated to other systems. Downloads from the Queensland Digital Exploration reports (QDEX) system increased 19 percent. - The production of a 900-page book by GSQ on the geology of Queensland with associated maps is a significant and important contribution to the state of knowledge.			
Regulatory, legislative and policy stability (Section 4.2) - Exemptions for explorers from environmental authorities (in certain cases) and a stamp duty concession for farm-in transfers were positive reforms of direct benefit to explorers. - Explorers indirectly benefited from relaxation of controls on oil shale and the lifting of the uranium ban. - New federal controls on impacts of coal seam gas and large coal mining developments on water resources was the major legislative change to adversely impact producers, and explorers indirectly.			
Operating and investment sentiment of exploration companies (Section 4.3) - In comparison with other Australian jurisdictions Queensland in 2012-13 rated more negatively on government/departmental assistance, exploration permit processes, environmental regulations, conduct/compensation agreements and policy uncertainty. - On regulatory and government matters, and in comparison to the 2011-12 survey, the 2012-13 results show reduced levels of concern around land availability, policy uncertainty, native title and environmental regulations and conduct and compensation agreements. However, sentiment is more negative on factors relating to cultural heritage, governmental and departmental assistance and exploration permit processes.			
Access to land (Section 5.1) - Granting EPCs (Exploration Permit for Coal) and EPMs (Exploration Permit for Mineral) took on average 22 and 21 months respectively in 2012-13. This compares to 23 and 21 months respectively in 2011-12. - While there was only slight improvement in the time taken to grant EPCs, the department has been able to significantly increase the throughput of renewals and variations of condition requested by tenure holders. - Government completed the process for granting preferred tenderer status for area PLR2012-1-2 within the 60 day time-frame for accepting tenders, as specified in the published Call for Tenders documentation.			

LEGEND

Good

No significant impediment

Cause for concern

Significant problems



LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE

	2011	2012	2013
Access to human and intellectual capital (Section 5.2) - Compared with previous years, Queensland and Australian universities in 2012-13 achieved a greater retention of geosciences students in the later years of study. - Internet job vacancies for geologists and geophysicists in Queensland in 2012-13 decreased sharply with a subsequent drop in net employment. - Publicly-funded drilling enrolments and completions increased strongly in 2012 (especially for oil and gas qualifications) across Australia, and especially in Queensland.			
Livability of Queensland (city and regional hubs) (Section 5.2.2) Of Australian cities and regions most commonly chosen by geosciences professionals to reside, Brisbane is rated the most livable.			
Access to equity capital (Section 5.3) - Companies exploring in Queensland announced \$63 million in capital raisings for minerals exploration in 2012-13. This is a decrease of 76 percent or \$202 million compared with 2011-12. Nationally, the amount of raisings was down 60 percent in 2012-13 from \$853 million to \$342 million. - Raisings for minerals exploration projects in Queensland as a percentage of total Australian minerals exploration raisings fell significantly from the 31 percent recorded in 2011-12 to 18 percent in 2012-13.			

LAG INDICATORS – EXPLORATION SUCCESS

Exploration and development permits and areas granted (Section 6) - The number of exploration permits and the area under grant (in hectares) increased slightly and remain at high levels for coal, minerals, and petroleum resources. - The introduction of a competitive tender process for land to explore coal resources in Queensland explains the reduction in the number of applications for coal exploration permit.			
Minerals exploration (Section 7) - Queensland in 2012-13 recorded a 31 percent decrease in minerals exploration over the past 12 months (\$1060 million to \$732 million). This is compared to a national decrease of 24 percent. - Queensland increased the percentage of total minerals exploration that is greenfields from 30 to 34 percent between 2011-12 and 2012-13. This is compared to the national average of 33 percent. - Queensland maintained exploration expenditure as a percentage of sales (revenue) at a near constant 2.3 percent in 2012-13. This is compared to the national average of 2.7 percent. - In 2012-13 Queensland accounted for 24 percent of Australia's sales revenues of coal, base metals, gold and iron ore and 28 percent of Australia's exploration expenditures of these commodities.			
Petroleum exploration (section 7) Queensland in 2012-13 recorded a 40 percent increase in petroleum exploration (\$468 million to \$655 million). This increase reflects continued expenditure on coal seam gas and significant additional spend on shale gas exploration. This is compared to a national increase of 57 percent.			
Levels of reserves (Section 8) Reserve to production ratios for bauxite (66 years), coal (64 years) and coal seam gas remain in very healthy ranges, but have stayed low for base and precious metals (mid to high teens).			
Minerals production and comparison with global demand (Section 9) Over the past 12 months Queensland achieved increased production of bauxite (up 12 percent), alumina (up 18 percent) and coal (up 4 percent). Production of lead, silver and zinc fell by six, 10 and 10 percent respectively. On balance the Queensland resources sector closed the gap between actual production and growth that would be expected if production increased at the same rate as global demand (approximately 3 percent).			
Market capitalisation movements (Section 10) Market capitalisations of the Queensland junior exploration sector have fallen 30 percent over the past 12 months and 81 percent over the past two years.			

1.0 BACKGROUND

1.1 THE QUEENSLAND EXPLORATION COUNCIL (QEC)

Our vision is to see Queensland acknowledged as a minerals and energy exploration leader by 2020 with Brisbane at its 'heart'. This vision is maximised by fostering investment in Queensland exploration using expertise and services sourced from Queensland.

The QEC was formed by the Queensland Resources Council (QRC) in December 2010 to drive the 2020 Exploration Vision. QEC brings together senior representatives from established and emerging resource companies, government, the finance and broking community and academic leaders.

Under the chairmanship of geologist and former Queensland Deputy Coordinator-General Dr Geoff Dickie, the QEC is promoting Queensland in the global contest for new resource sector investment.

Key initiatives of the QEC include:

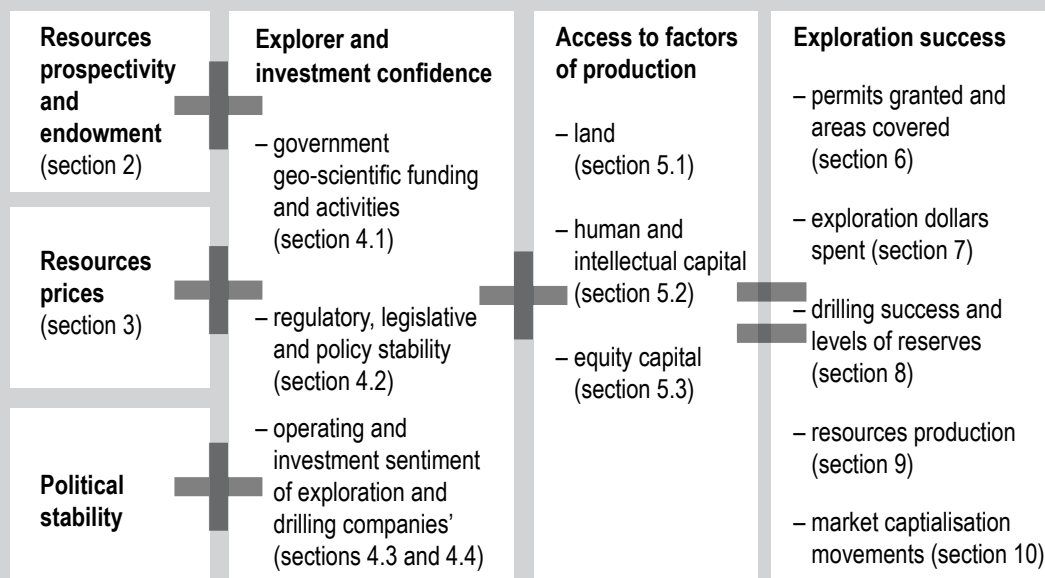
- monthly investor forums to profile junior resources companies to potential investors
- bi-monthly luncheon series for executives of junior resources companies
- annual Queensland Exploration Breakfasts
- monthly publication of the investor newsletter Resources Rising
- quarterly publication of the QEC newsletter Queensland Explorer
- annual publication of the Queensland Exploration Scorecard
- participation in Mining Resources Convention conference series
- local and international promotion of Queensland as an attractive investment destination for explorers.

For more information, visit www.queenslandexploration.com.au.

CHART 1: SCORECARD STRUCTURE

LEAD INDICATORS – FACTORS THAT DRIVE EXPLORATION ACTIVITY AND PERFORMANCE

LAG INDICATORS – MEASURING ACTUAL SUCCESS



Source: QRC

1.2

THE QUEENSLAND EXPLORATION SCORECARD

The *QEC Exploration Scorecard* is a valuable tool to track the progress of the 2020 Exploration Vision. This is the third edition following publication of the inaugural scorecard in 2011.

Government and industry data as well as survey information from companies actively exploring in Queensland are used to inform the results. To easily evaluate progress of the sector, the *Exploration Scorecard 2013* retains the layout of previous editions and continues its analysis of introduced indicators.

The scorecard is developed on the assumption that increasing exploration activity is broadly driven by:

- commodity prices
- explorer and investor confidence
- political stability
- access to the essential factors of production (capital, land, skills).

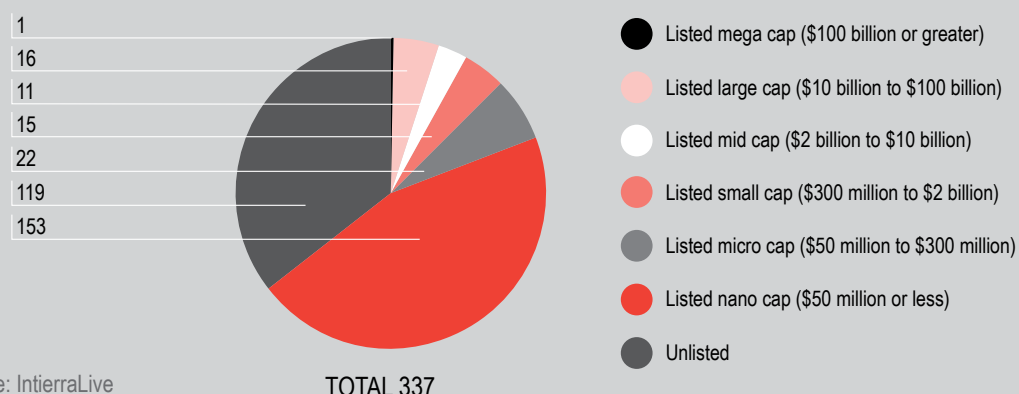
As commodity prices are driven by the market, the Scorecard concentrates on those lead indicators that can be influenced—namely, explorer and investor confidence and access to the essential factors of production. Outcomes or lag indicators that measure actual exploration success are also included (Chart 1).

1.3

THE EXPLORATION SECTOR IN QUEENSLAND

The QRC estimates there were approximately 337 companies conducting exploration activities in Queensland as at 30 June 2013. These companies are diverse in their size (market capitalisation), business models, and exploration targets.

CHART 2: QRC ESTIMATES OF THE NUMBER OF COMPANIES ACTIVELY EXPLORING IN QUEENSLAND AS AT 30 JUNE 2013



Source: InterraLive

LEAD INDICATORS – DRIVERS OF ACTIVITY AND PERFORMANCE

2.0

RESOURCES PROSPECTIVITY AND ENDOWMENT

Prospectivity is a major driver of exploration activity. Queensland's high-level prospectivity for base metals, gold, uranium and other resources is evident and recognised globally. Queensland's considerable endowment of coal and unconventional gas is also confirmed in the following charts.

KEY FINDINGS

- **Queensland base metal prospectivity (Chart 3)**

The world renowned Mount Isa Minerals Province plays host to the Mount Isa style copper-silver-lead-zinc ore bodies in addition to other large sediment hosted silver-lead-zinc deposits including Century, Cannington and Dugald River. The Ernest Henry iron-oxide-copper-gold deposit near Cloncurry has been a major producer of copper and also has rich reserves of magnetite. Base metal deposits have been identified south of Cooktown, in the Townsville hinterland and down the east coast from Mackay to west of Brisbane. There remain many lightly explored prospective areas for base metals in Queensland, and further exploration has the potential to identify new deposits.

- **Queensland gold prospectivity (Chart 4)**

Historically, gold exploration is centred on highly-prospective areas across Queensland such as Charters Towers-Ravenswood, Coen-Chillagoe-Palmer-Hodgkinson, Clermont-Drummond-Cracow, Croydon-Georgetown, Gympie and Warwick. Along the coastal strip from Townsville to the south east corner of the state a number of intrusion related gold deposits have been identified. In the Mount Isa Minerals Province copper-gold associated deposits and skarn hosted deposits have been discovered in the Selwyn-Mount Dore area.

- **Queensland uranium prospectivity (Chart 5)**

Queensland plays host to highly prospective uranium deposits. The Mount Isa Minerals Province has produced uranium oxide from the Mary Kathleen deposit. Other significant uranium deposits include Valhalla and Westmoreland in the North West and Ben Lomond, 50 kilometres from Townsville.

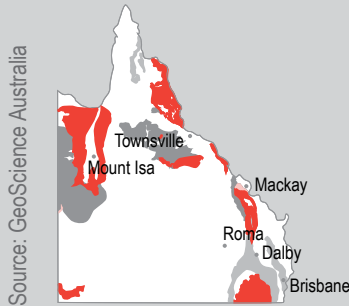
- **Queensland coal endowment (Chart 8)**

Queensland has about 12,565 million tonnes of proven and probable coal reserves, an increase from 9361 million tonnes in 2011-12. However, measured and indicated resources increased significantly to 44,170 million tonnes in 2012-13 from 36,737 million tonnes from the previous 12-month period. The increase is a lag and associated with the high amount of coal exploration in previous years.

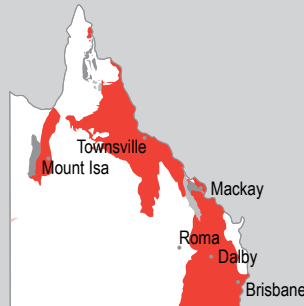
- **Queensland's unconventional gas prospectivity and endowment (Charts 7 and 8)**

Queensland has very high unconventional gas prospectivity. A considerable amount of gas is believed to exist in a number of basins across the state. Exploration activity for shale and tight gas has begun in the Cooper, Galilee and Bowen basins, and the Isa 'Superbasin'. This prospectivity is beginning to be converted to endowment. The extensive development in the coal-seam gas industry continues in Queensland with significant exploration and appraisal in the Clarence-Moreton, Galilee, Bowen and Surat Basins with major development and construction activities in the Bowen and Surat Basins underpinning the CSG-LNG export business. Coal-seam gas 2P reserves (proved and probable) increased to 36,460 PJ at 31 December 2012 from the 35,060 PJ recorded at 31 December 2011.

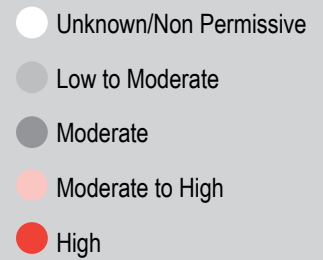
**CHART 3: QUEENSLAND
BASE METAL PROSPECTIVITY**



**CHART 4: QUEENSLAND
GOLD PROSPECTIVITY**



**CHART 5: QUEENSLAND
URANIUM PROSPECTIVITY**



**CHART 6: QUEENSLAND COAL ENDOWMENT (TONNES OF RESERVES AND RESOURCES
AS AT 30 JUNE 2013) ('000)**

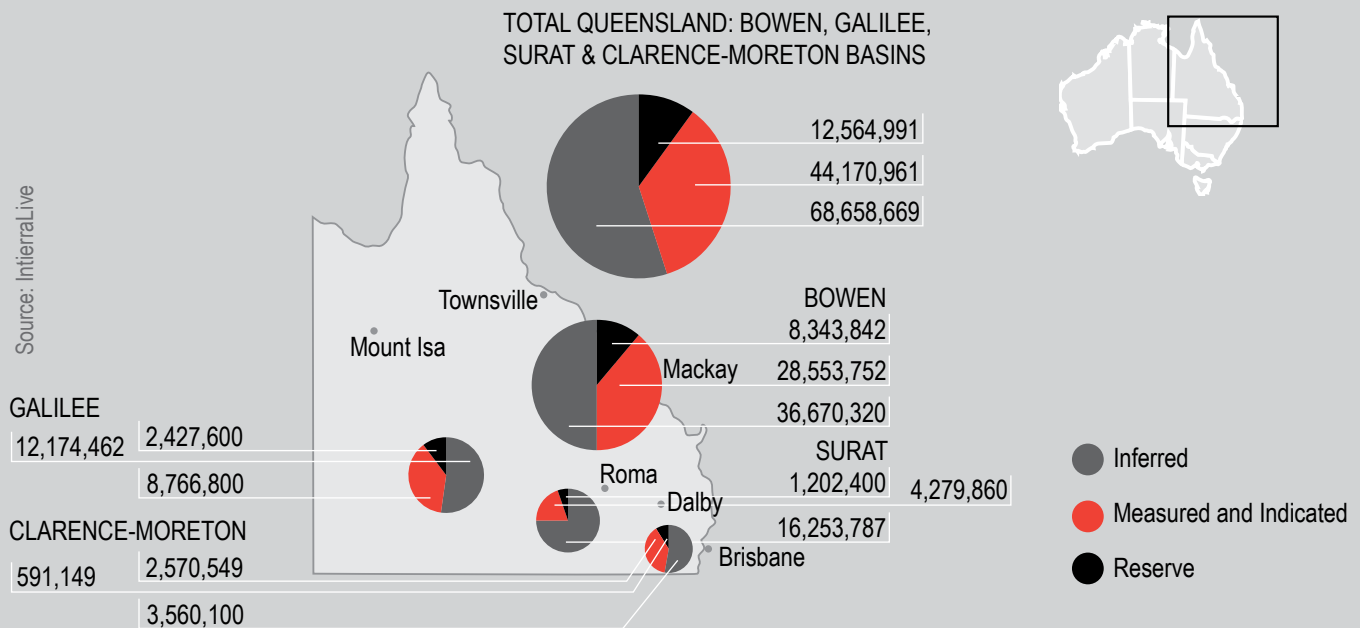


CHART 7: QUEENSLAND COAL-SEAM GAS 2P RESERVES (PROVED AND PROBABLE)

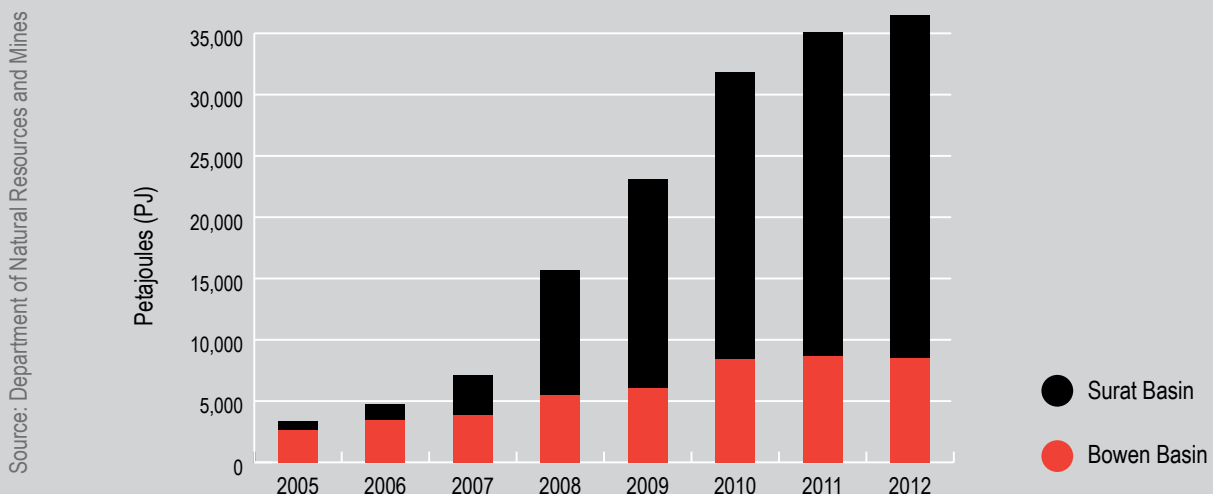
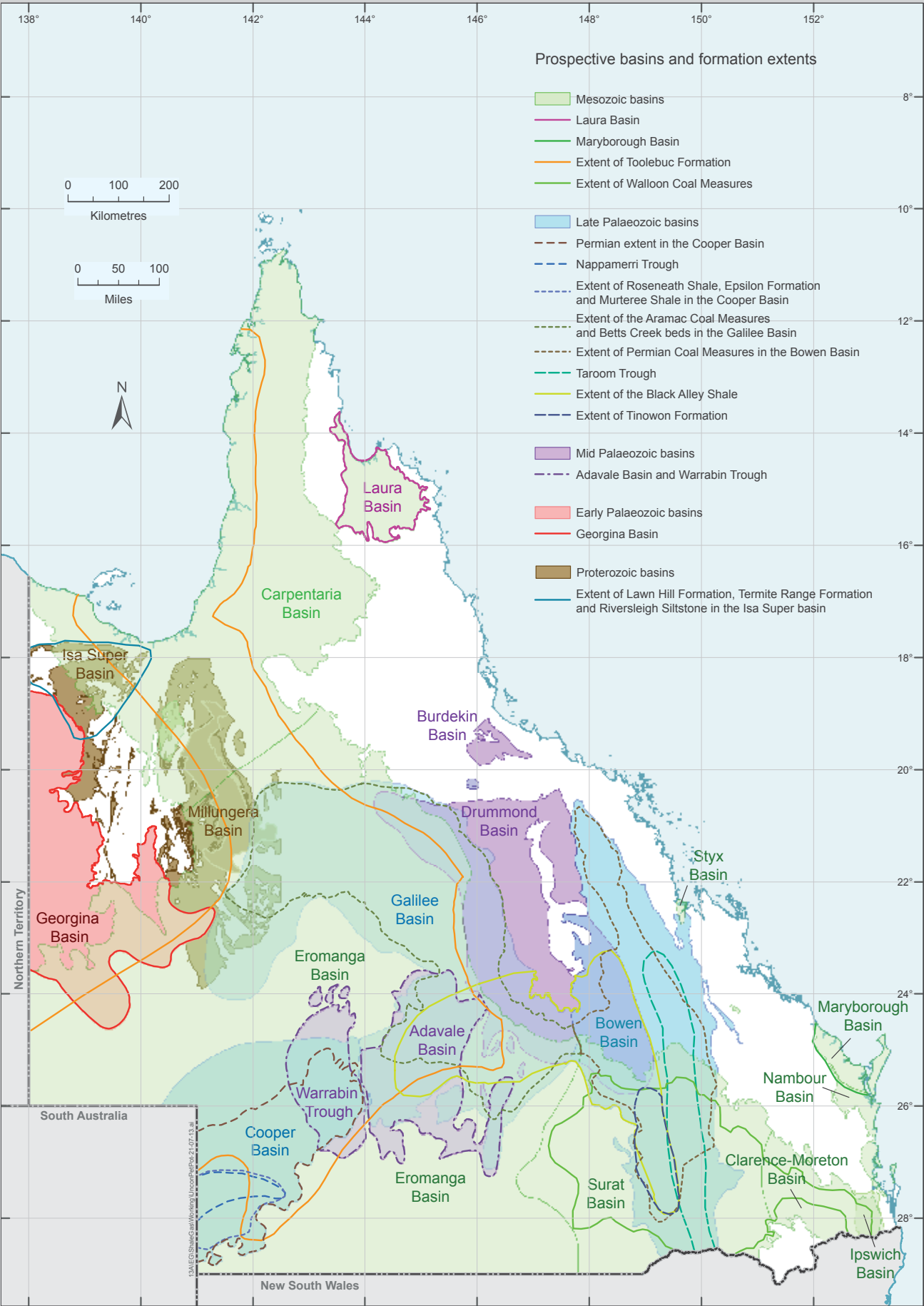


CHART 8: QUEENSLAND UNCONVENTIONAL GAS PROSPECTIVITY



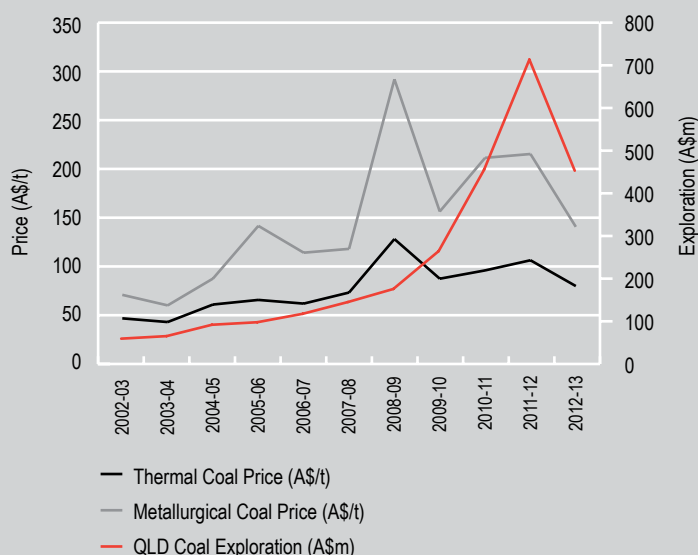
3.0 RESOURCE PRICES

Resource prices are a significant driver of exploration in Queensland. Charts 9-12 show the relationship between average global benchmark prices for coal, gold, copper and LNG compared with Queensland exploration expenditure for each commodity.

KEY FINDINGS

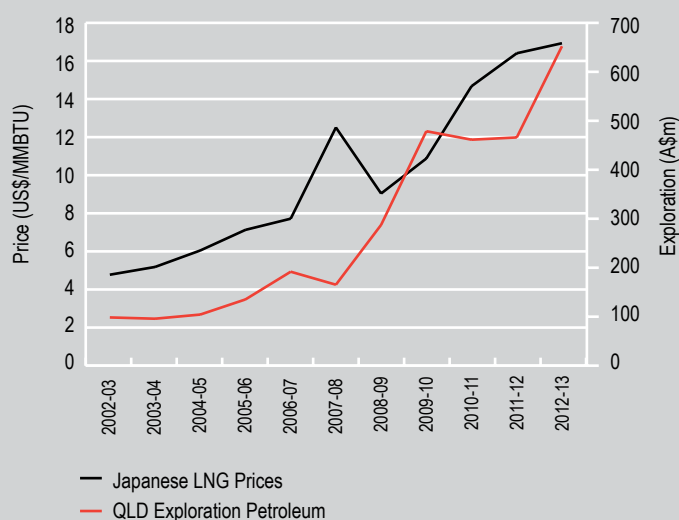
- Coal exploration in Queensland was lower in 2012-13 during a time of significant oversupply and price falls in global coal markets. The state government also transitioned from the traditional permitting system to granting tenure on a competitive bidding basis (Chart 9).
- Queensland petroleum exploration expenditures rose sharply following several years of flooding and flat expenditures (Chart 10). This reflects an increase in tight gas and shale-gas exploration in addition to ongoing CSG exploration. The attractiveness of export LNG prices and the construction of LNG facilities at Gladstone are key drivers.
- Following a period of relatively flat expenditures, gold exploration increased significantly in Queensland in 2012-13 during a period of historically very high, but softening gold prices (Chart 11).
- Copper exploration in Queensland was significantly lower in 2012-13 during a time of softening, but historically high copper prices (Chart 12).

CHART 9: GLOBAL AVERAGE BENCHMARK COAL PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2012-13



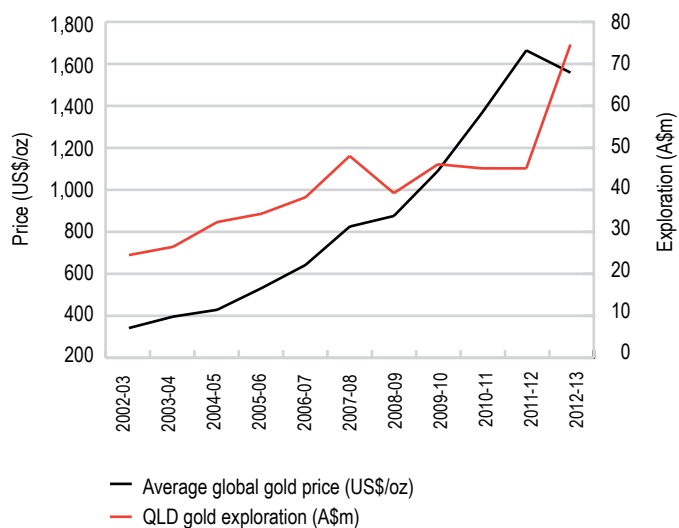
Source: BREE, Resources and Energy Quarterly
ABS 8412.0

CHART 10: GLOBAL AVERAGE BENCHMARK LNG PRICES AND QUEENSLAND PETROLEUM EXPLORATION SPEND, 2002-03 TO 2012-13



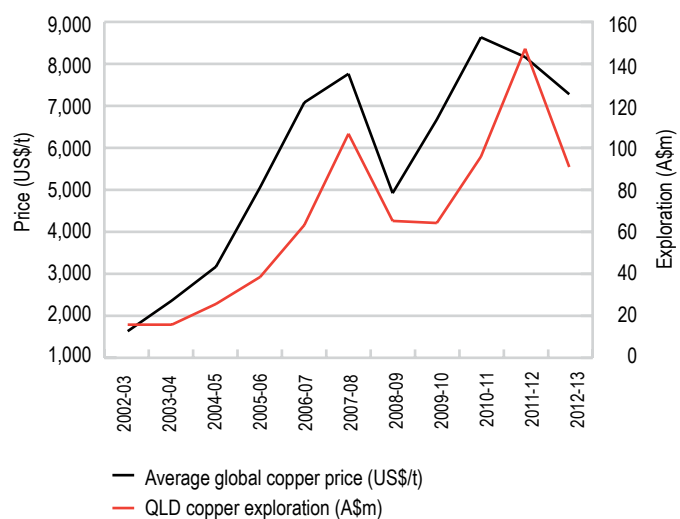
Source: BP Statistical Review of World Energy
ABS 8412.0

CHART 11: GLOBAL AVERAGE BENCHMARK GOLD PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2012-13



Source: BREE, Resources and Energy Quarterly
ABS 8412.0

CHART 12: GLOBAL AVERAGE BENCHMARK COPPER PRICES AND QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2012-13



Source: BREE, Resources and Energy Quarterly
ABS 8412.0

4.0 EXPLORER AND INVESTOR CONFIDENCE

A key driver of exploration activity is explorer and investor confidence, influenced by perceptions of business risk and the likelihood of success.

Risk and success perceptions are in turn influenced by factors such as geoscientific funding and associated activities, legislative, regulatory and policy stability and operating and investment sentiment.

This section outlines a number of measures assessing each aspect.

4.1 STATE GOVERNMENT GEOSCIENTIFIC FUNDING AND ACTIVITIES

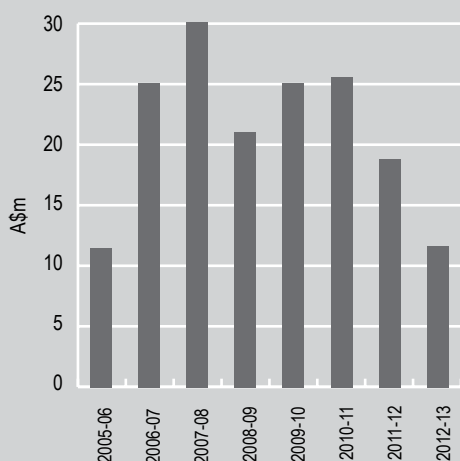
State government geoscientific funding is shown in Chart 13. Chart 14 shows the breakdown of that funding across the various programs.

Not shown in the following charts is the state government Geological Survey of Queensland's (GSQ) scheduled entry into a new phase of program delivery with \$30 million allocated over the next three years under the Future Resources Program (commencing 2013-14). This money will be used to fund seven initiatives in support of Queensland's resources and exploration industries.

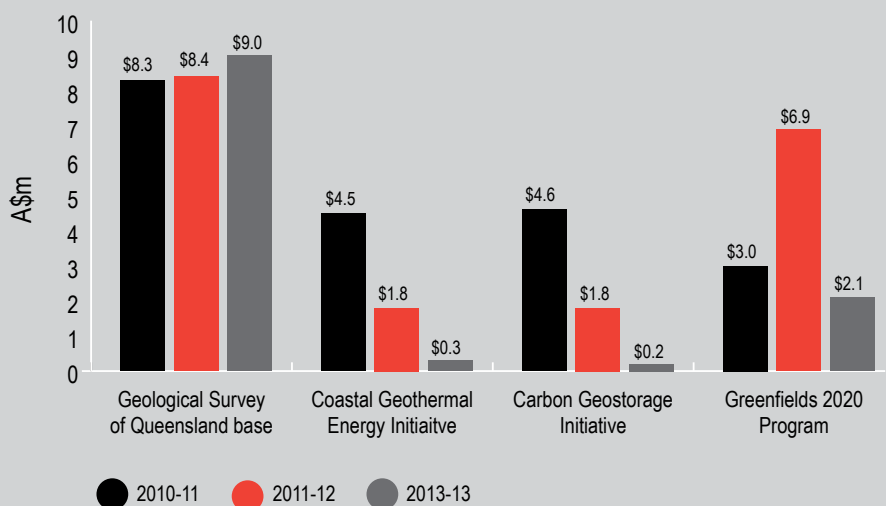
Charts 15 to 18 show the increases in gravity and airborne survey coverage across the state since 2005.

A summary of the major GSQ achievements in 2012-13 is provided below.

**CHART 13: GEOLOGICAL SURVEY OF
QUEENSLAND BUDGET ALLOCATIONS
(A\$M), 2005-06 TO 2012-13**



**CHART 14: GEOLOGICAL SURVEY OF QUEENSLAND BUDGET
ALLOCATION (BASE FUNDING AND LIMITED LIFE PROJECTS)
(A\$M), 2010-11 TO 2012-13**



The maps below show the significant increases in gravity and airborne magnetic surveys pre-2005 and post-2012 under the Smart Exploration, Smart Mining and Greenfields 2020 programs (charts 15-18).

CHART 15: GRAVITY SURVEYS PRE-SMART EXPLORATION AND SMART MINING 2005

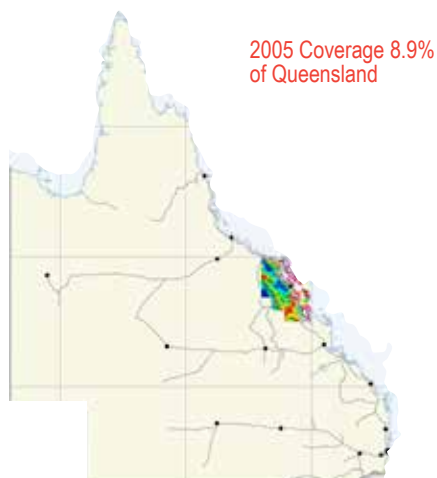


CHART 16: GRAVITY SURVEYS POST-SMART EXPLORATION AND SMART MINING 2013

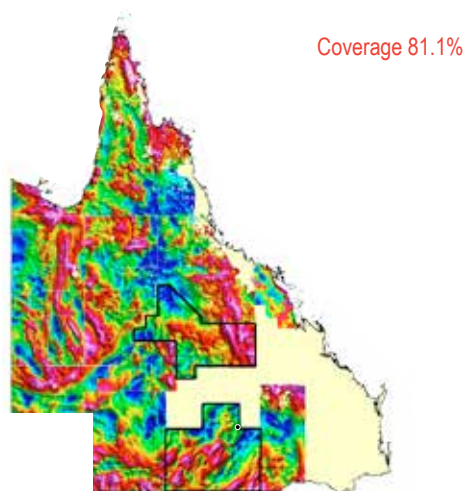


CHART 17: AIRBORNE MAGNETIC SURVEYS PRE-SMART EXPLORATION AND SMART MINING 2005

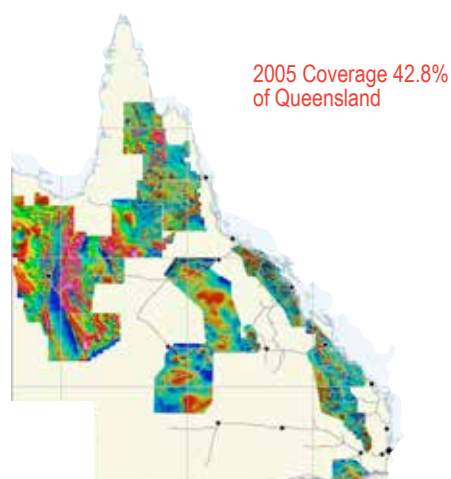
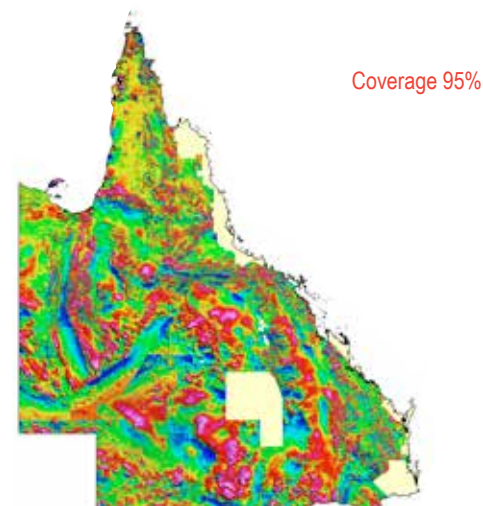


CHART 18: AIRBORNE MAGNETIC SURVEYS POST-SMART EXPLORATION AND SMART MINING 2013



Source: Department of Natural Resources and Mines

MAJOR GSQ ACHIEVEMENTS IN 2012-13

- Production of a new geological map and 900 page book on the geology of Queensland. The map was released in conjunction with the 34th International Geological Congress held in Brisbane in August 2012. The book was released in March 2013. Both the map and book showcase Queensland and its mineral and petroleum potential to the world.
- The purchase and implementation of a new computer system to manage and provide online search and delivery capability for GSQ's large geological spatial data sets to replace the current manual system. These data sets have a conservative replacement value in the hundreds of millions of dollars and include some essentially irreplaceable items that need to be preserved and made publically available.
- Completion of regional assessments of the geothermal potential of areas near existing power transmission lines in Queensland undertaken under the Coastal Geothermal Energy Initiative. These assessments include the first direct observations of the previously unexplored Millungera Basin. The final report is due in December 2013.
- GSQ also continued to support and host major industry forums such as the Brisbane Mining 2012 Resources Convention, the 34th International Geological Congress and GSQ's Digging Deeper Seminar, along with significant investment forums in conjunction with Trade and Investment Queensland. These forums raise awareness of the geological prospectivity of Queensland and help attract significant investment to the state. Funding (\$30 million) has been secured for seven initiatives over the next three years: Industry Priorities (\$7.5 million); Mount Isa Geophysics (\$9 million); Geochemical Data Extraction (\$3 million); Collaborative Drilling Grants (\$3 million); Core Library Extension (\$5 million); Cape York Mineral Resource Assessment (\$1 million); Seismic Section Scanning (\$1.5 million).

KEY FINDINGS

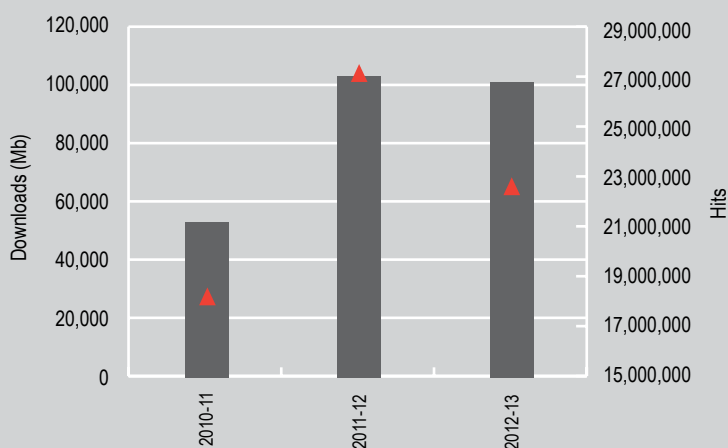
- The Geological Survey of Queensland's (GSQ) budget allocation in 2012-13 was \$11.6 million. This compares to an average allocation of \$21 million per annum over the past eight years.
- The major decrease in the 2012-13 allocation compared to 2011-12 (\$18.8 million) was due to a winding down and timing issues associated with the Coastal Geothermal Energy Initiative, the Carbon Geostorage Initiative and the Greenfields 2020 Program.
- The budget allocation over the next three years is expected to average \$19 million per annum as a new phase of exploration programs commence (the Future Resources Program commencing 2013-14).
- The area of the state covered by gravity and airborne magnetic survey coverage is currently 81.1 and 95 percent respectively, up from 8.9 and 42.8 percent respectively in 2005.

4.1.1

ACCESS TO GEOSCIENCES DATA

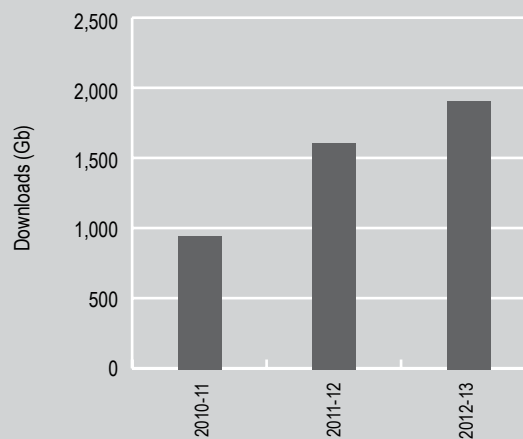
The Interactive Resource and Tenure Maps system (IRTM) is an online spatial data viewer for maps and spatially referenced images. It has a download facility for many layers and also an interactive web map service that can be linked to an online GIS tool for live data feeds. IRTM also has spatial links to the Queensland Exploration reporting system (QDEX), which is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. The link allows spatial searches in IRTM for historical tenure exploration reports in QDEX and some other spatial layers also link to QDEX documents.

CHART 19: INTERACTIVE RESOURCE AND TENURE MAP (IRTM) DOWNLOADS AND HITS, 2010-11 TO 2012-13



Source: Department of Natural Resources and Mines

CHART 20: QUEENSLAND DIGITAL EXPLORATION REPORTS (QDEX) DOWNLOADS, 2010-11 TO 2012-13



KEY FINDINGS

- Downloads (Mb) from the Interactive Resource and Tenure Maps (IRTM) system decreased slightly as a result of data being migrated to other systems (Chart 19).
- Downloads from the Queensland Digital Exploration reports (QDEX) system increased 19 percent to 1907 Gb (Chart 20).

4.2

REGULATORY, LEGISLATIVE AND POLICY STABILITY

In a globalised and increasingly competitive operating environment, governments need to provide a workable regulatory framework for exploration activity.

Table 1 provides a snapshot of regulatory changes from 2011 (representing the baseline) to 2012 and to 2013 as they relate to exploration activities in Queensland.

TABLE 1 : CHANGE IN REGULATORY CONTROLS ON QUEENSLAND EXPLORATION ACTIVITY

Types of controls	Changes between 2011 and 2012	Changes between 2012 and 2013
Foundation requirements - generally accepted processes that all holders of exploration permits must meet on application and continuously through the life of the tenure		
• Cultural heritage (aboriginal and non-aboriginal)	●	●
• Application for environmental authority (this requirement removed in 2013 in some circumstances)	●	●
• Application for exploration rights (coal now subject to tender process)	●	●
• Application for exploration rights (oil and gas rights subject to tender process)	●	●
• Landowner compensation	●	●
• Native title considerations	●	●
• Remediation obligations	●	●
• Renewal of exploration rights	●	●
Site-specific controls - regulations which are not applicable to all exploration permit holders, but which can prevent tenure (like a gateway process) or attach condition controls		
• Declared Wild Rivers areas	●	●
• Application of strategic cropping land controls	●	●
Gateway controls - barriers to tenure from simplistic stop/go regulatory processes		
• Land regulated as 'Restricted Area'	●	●
• Land otherwise off limits for environmental reasons (eg national park)	●	●
• Land subject to other third party interests increased (eg other exploration rights such as coal v gas)	●	●
Conditioning controls - policies that impose attach additional conditions to tenures		
• Applications and approvals to disturb native vegetation	●	●
• Applications and approvals to work in waterways	●	●
• Transfer duty became payable in 2012 – farm-in agreements were however exempted in 2013	●	●
Specific matters relating to production (but indirectly relevant to exploration)		
• Some relaxation of controls on oil shale		●
• Lifting of uranium ban		●
• Introduction of new federal controls on impacts of coal seam gas and large coal mining developments on water resources		●

KEY

- Favourable reduction in regulatory control occurred in that year
- No change in regulatory control occurred in that year
- Unfavourable increase in regulatory control occurred in that year

QUEENSLAND GOVERNMENT INITIATIVES AIMED AT REDUCING REGULATORY BURDEN

Several Queensland Government initiatives are under way aimed at reducing the regulatory burden on exploration in the state. However, they are at different stages of design and implementation.

The first of these was the passing into law in March 2013 of the 'Greentape' and resources streamlining statutory amendments aimed at streamlining both environmental and mining and petroleum regulatory approvals processes. Notably among the changes for explorers was the relaxation in some circumstances of the requirement to seek and obtain an environmental authority prior to commencing exploration activities.

The second initiative is the 'Modernising Queensland Resources Act' program, which the Queensland Department of Natural Resources and Mines has labelled a 'flagship reform initiative for the resources sector'. Its aim is to progressively modernise, simplify and harmonise five pieces of current resources tenure legislation:

- *Mineral Resources Act 1989*
- *Petroleum and Gas (Production and Safety) Act 2004*
- *Petroleum Act 1923*
- *Greenhouse Gas Storage Act 2009*
- *Geothermal Energy Act 2010*

Details about the program can be found at: <http://mines.industry.qld.gov.au/mining/modernising-qld-resource-acts-program.htm>

The program is intended to be completed by 2016-17 and designed to be delivered in three stages over four years - progressively building a 'Common Resources Act' for Queensland with supporting regulations (and possibly one set of regulations devoted to exploration for all forms of tenure). The intent is to progressively repeal current legislation such as the *Mineral Resources Act 1989* until it is fully repealed.

The stated aim of the program is to 'drive commonality and not focus upon changing rights under the current legislative regimes' and, by doing that, reduce the compliance and administrative burden of the current regime. The reforms are consistent with Queensland Government's policy objective of cutting green and red tape by 20 percent.

Another initiative likely to change the face of exploration of coal and CSG in Queensland is the recent process to develop a new coal and CSG overlapping tenure regime. Led by industry, this initiative had the full support and assistance of government. The new regime, to be implemented in mid-2014 will remove the veto right of overlapping tenure parties to stymie co development. The new regime provides real encouragement for both industries to coexist and develop sustainably.

OTHER REVIEWS OF REGULATORY MATTERS

In response to growing demand from industry for regulatory reform there has been a significant amount of work completed recently of the mining industry generally and exploration in particular.

Some of that work has clearly been well-resourced and done in a very detailed way. Initiatives include:

- **Queensland Office of Best Practice Regulation (Queensland Competition Authority)** - February 2013 Final Report on Measuring and Reducing the Burden of Regulation: This report recommended the top 10 areas for reform to be fast-tracked and one of those was mining development. The government responded to the report in July 2013 supporting the recommendations, including the recommendation to prioritise 'mining development requirements that raise costs and delay investment'. <http://www.qca.org.au/files/OBPR-GOV-FinalReport-MRBR-0313.pdf>
- **Productivity Commission:** May 2013 draft report on Non-Financial Barriers to Mineral and Energy Resource Exploration: Submissions were invited on this draft report by July 2013. It represents a significant amount of work and makes recommendations in relation to exploration licensing and approvals, land access, heritage protection, environmental management and geoscience. http://www.pc.gov.au/_data/assets/pdf_file/0016/123622/resource-exploration-draft.pdf
- **Minerals Council of Australia:** May 2013 Update of National Audit of Regulations Influencing Mining Exploration and Project Approval Processes: This comprehensive national audit undertaken by URS for the MCA includes (at section 4.5 on page 64) a comprehensive analysis of Queensland approvals processes, updating similar work done in 2006. It lists nine findings on how regulatory controls could be better designed and implemented. http://www.minerals.org.au/file_upload/files/reports/2012_Update_of_2006_National_Mining_Regulation_Audit_Final_Report.pdf

DRILLING SECTOR

The drilling sector has been confronted by an increasing compliance burden over the past 12 months. Legislative compliance is placing increasing cost pressures in a depressed market, and while work continues on harmonising resources legislation to reduce legislative pressures for explorers themselves this needs to flow on to harmonise common compliance issues across all aspects of legislation that impact at a contractor level to improve efficiency and cost outcomes.

Legislation applicable to the drilling sector, depending on tenure, includes:

- *Petroleum and Gas (Production and Safety) Act 2004*
- *Workplace Health and Safety Act 2011*
- *Water Act 2004*
- *Coal Mining Safety and Health Act 1999*
- *Mining and Quarrying Safety and Health Act 1999*

Workplace, Health & Safety (WHS) compliance is an increasing pressure point for contractors. At the operator level, this legislation sets different compliance requirements and takes different approaches to risk management. Much could be done to harmonise the safety and risk management components of the resources legislation with the current WHS legislation to simplify compliance and reduce administration burden.

Additional compliance burden lies with permitting for rig mobilisation with the Department of Transport and Main Roads (DTMR). Permit delays and increasing costs have impacted contractor efficiency. Work is being done to transition to the National Heavy Vehicle Register to improve permitting processes. However, more work is needed to streamline permitting processes with both DTMR and regional councils to cope with the increasing number of permits to be issued over the coming years associated with CSG projects in Queensland.

4.3 OPERATING AND INVESTMENT SENTIMENT OF EXPLORATION COMPANIES

The QRC asked 300 companies with exploration interests in Queensland for their views on a range of factors believed to influence operational and investment confidence.

Operating sentiment indicates the degree various factors were perceived to positively or negatively impacted companies' commercial objectives. Investment sentiment indicates the degree to which the various macro factors are perceived to positively or negatively influence a company's decision to headquarter their exploration activities in Queensland.

The online survey received 56 responses which represents a response rate of 19 percent. Respondents varied in terms of market capitalisation (Table 2), exploration interests (Table 3) and where headquartered (Table 4). Not all participants answered every question.

TABLE 2: SURVEY RESPONDENT DETAILS, BY MARKET CAPITALISATION, 2012-13

2012-13		
Your company's market capitalisation	Response percent	Response count
Large cap (\$10 billion or greater)	10.7%	6
Mid cap (\$2 billion to \$10 billion)	10.7%	6
Small cap (\$300 million to \$2 billion)	7.1%	4
Micro cap (\$50 million to \$300 million)	10.7%	6
Nano cap (\$50 million or less)	60.7%	34
TOTAL		56

TABLE 3: SURVEY RESPONDENT DETAILS, BY MAIN EXPLORATION TARGET, 2012-13

2012-13		
Your company's main exploration target	Response percent	Response count
Coal (all types)	29.6%	11
Oil	5.3%	3
Gas	7.1%	4
Base and/or precious metals	46.4%	26
Bauxite	1.8%	1
Phosphate	-	-
Other	19.6%	11
TOTAL		56

TABLE 4: SURVEY RESPONDENT DETAILS, JURISDICTION WHERE EXPLORATION ACTIVITIES HEADQUARTERED, 2012-13

2012-13		
Where exploration activities headquartered	Response percent	Response count
New South Wales	11.1%	5
Victoria	8.9%	4
Tasmania	-	-
South Australia	22.2%	10
Western Australia	15.6%	7
Northern Territory	-	-
Queensland	37.8%	17
International	4.4%	2
TOTAL		45

The survey results are shown using overall factor index scores. For each factor influencing operating and investment sentiment, companies were asked to respond *very positively*, *positively*, *not at all*, *negatively* or *very negatively*. Weightings were assigned to each response based on the strength of its sentiment to calculate an overall index score for each factor. See the example provided in Table 5.

TABLE 5: CALCULATION OF WEIGHTED SURVEY RESULTS (EXAMPLE)

Resources prospectivity	Weights	Responses	Percentage of responses	Weighted responses
Very positively	1	5	9%	9%
Positively	0.5	18	34%	17%
Not at all	0	26	49%	0%
Negatively	-0.5	3	6%	-3%
Very negatively	-1	1	2%	-2%
		53	100%	22%

Note: For interpretation, the higher the positive score, the higher the positive sentiment and vice versa.

4.3.1 OPERATING SENTIMENT

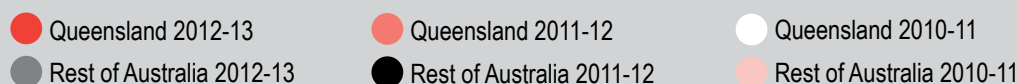
Companies were asked to indicate to what degree 13 individual factors positively or negatively impacted their commercial objectives for their Queensland operations in 2012-13. The factors chosen were considered important in the day-to-day operations of a resources exploration company.

Companies were also asked to nominate which Australian jurisdiction they are most active in apart from Queensland. For that jurisdiction, they were asked to indicate to what degree the same factors positively or negatively impacted their commercial objectives in that jurisdiction in 2012-13. These results were aggregated to present a 'Rest of Australia' comparison. For Queensland-specific factors responses totalled 44, and for other jurisdictions, 28.

The survey results of the 13 factors (charts 21A to 21M) that influence operating sentiment are presented in four clusters which generally align with the broad factors thought to drive exploration activity and performance:

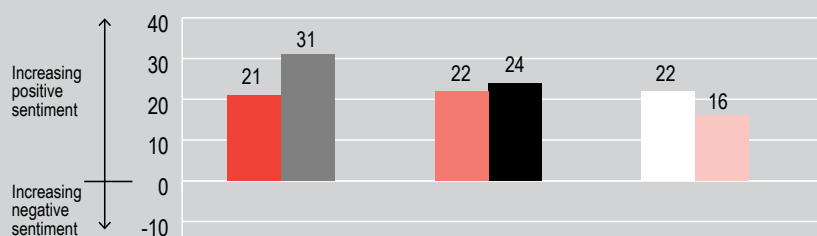
- resource prospectivity
- pre-competitive data and state government assistance
- regulatory, legislative and policy stability
- access to the factors of production.

KEY



SENTIMENT TOWARDS RESOURCE PROSPECTIVITY

CHART 21A: RESOURCE PROSPECTIVITY



- Of the 13 factors, Queensland's resource prospectivity and endowment is considered the most positive factor. A score of 21 is consistent with previous year's findings. Of note is that respondents over the three years have considered the prospectivity of other jurisdictions an increasingly positive factor to their operations.

SENTIMENT TOWARDS PRE-COMPETITIVE DATA AND STATE GOVERNMENT ASSISTANCE

CHART 21B: PRE-COMPETITIVE GEOSCIENTIFIC DATA

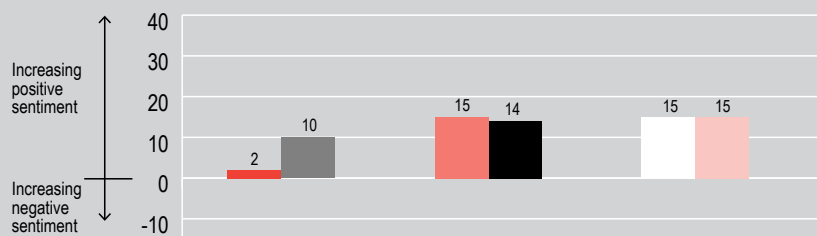


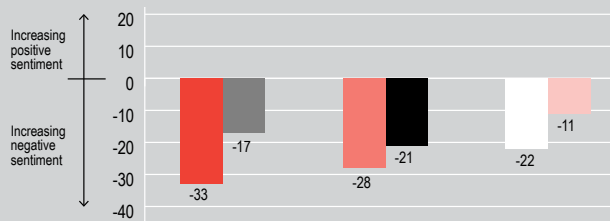
CHART 21C: GOVERNMENT AND DEPARTMENTAL ASSISTANCE



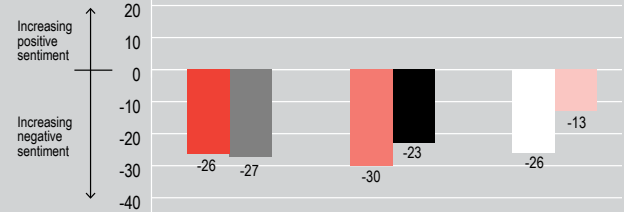
- Pre-competitive geoscientific data is perceived to positively impact on exploration companies' commercial objectives, although not as strongly as in previous years.
- There has been a continuing deterioration of sentiment towards governmental and departmental assistance in Queensland. Of significance is that respondents feel that assistance in other jurisdictions is increasingly a positive.

SENTIMENT TOWARDS REGULATORY, LEGISLATIVE AND POLICY STABILITY

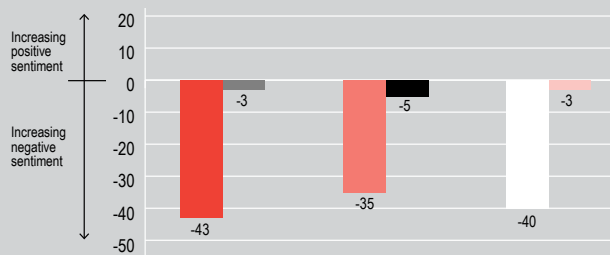
**CHART 21D:
CULTURAL HERITAGE REGULATIONS**



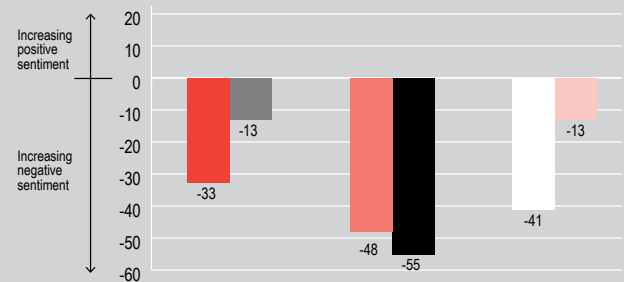
**CHART 21E:
NATIVE TITLE REGULATIONS**



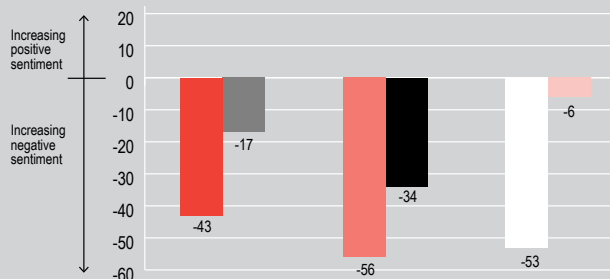
**CHART 21F:
EXPLORATION PERMIT PROCESSES**



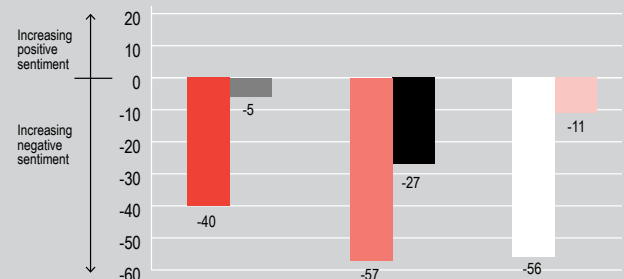
**CHART 21G:
ENVIRONMENTAL REGULATIONS**



**CHART 21H:
CONDUCT AND COMPENSATION AGREEMENTS**



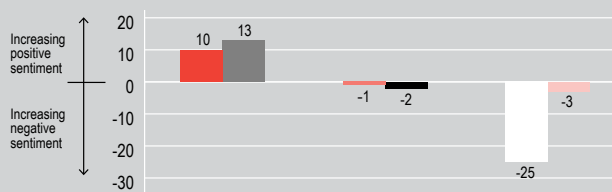
**CHART 21I:
POLICY UNCERTAINTY**



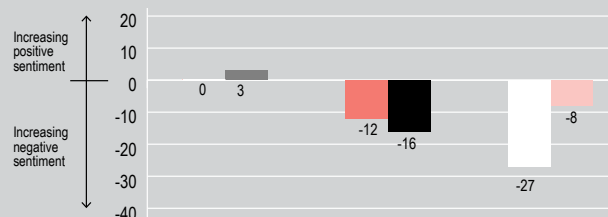
- Sentiment towards all factors relating to regulatory and policy matters remain negative with some deteriorating further in 2012-13, except for Native Title processes with a slight improvement.
- All these factors were less favourable in Queensland than for the Rest of Australia with the exception of Native Title processes.

SENTIMENT TOWARDS FACTORS OF PRODUCTION

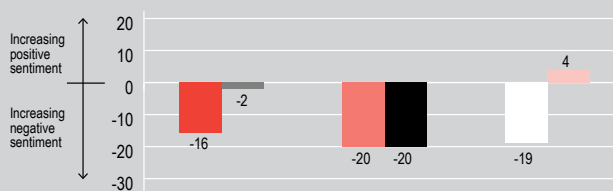
**CHART 21J:
EQUIPMENT AVAILABILITY**



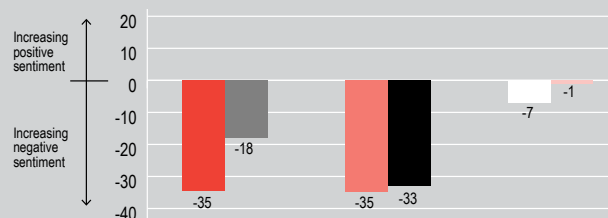
**CHART 21K:
LABOUR AND SKILLS AVAILABILITY**



**CHART 21L:
LAND AVAILABLE FOR EXPLORATION**



**CHART 21M:
ACCESS TO INVESTMENT CAPITAL**



- Reflecting the lack of activity in the sector at present, there was a notable improvement in sentiment towards equipment and labour and skills availability in Queensland. Sentiment towards land availability has improved slightly, but remains negative while access to investment capital remains strongly negative.

KEY FINDINGS

- In comparison with other Australian jurisdictions Queensland in 2012-13 rated more negatively on government/departmental assistance, exploration permit processes, environmental regulations, conduct/compensation agreements and policy uncertainty.
- On regulatory and government matters, and in comparison to the 2011-12 survey, the 2012-13 results show reduced levels of concern around land availability, policy uncertainty, native title and environmental regulations and conduct and compensation agreements. However, sentiment is more negative on factors relating to cultural heritage, governmental and departmental assistance and exploration permit processes.

4.3.2 INVESTMENT SENTIMENT

Applying the same methodology, companies were asked to indicate to what degree individual factors positively or negatively impact upon their company's decision to continue to headquarter their exploration activities in Queensland and if not in Queensland currently, what would influence their company to move and headquarter in Queensland. The number of responses to Chart 22 was 29 and 27 to Chart 23.

CHART 22: RESULTS OF SURVEY, FACTORS THAT WOULD INFLUENCE A COMPANY TO MOVE AND HEADQUARTER IN QUEENSLAND, 2010-11 TO 2012-13

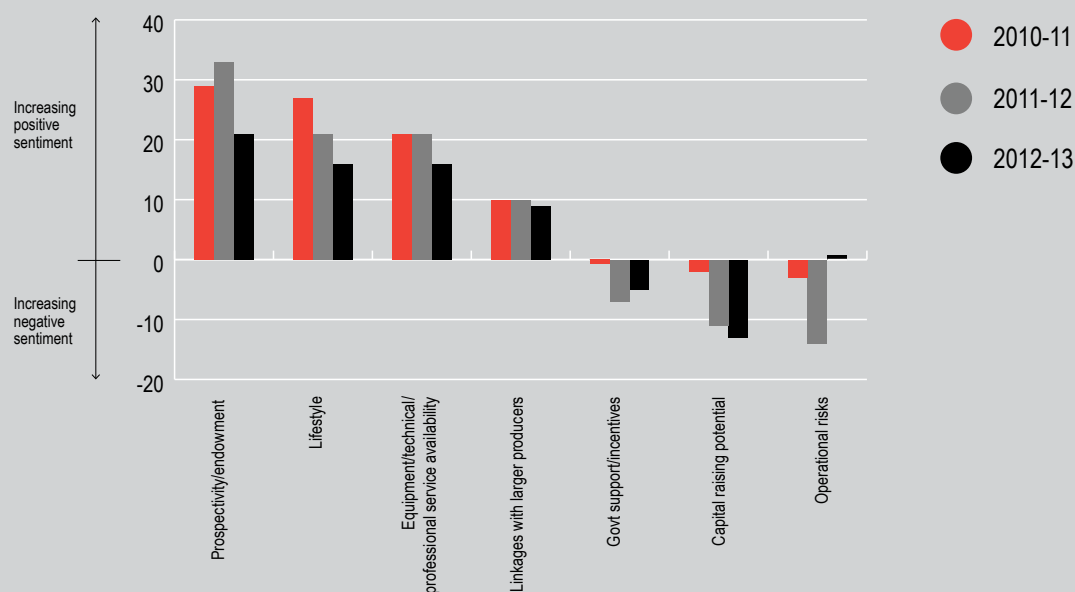
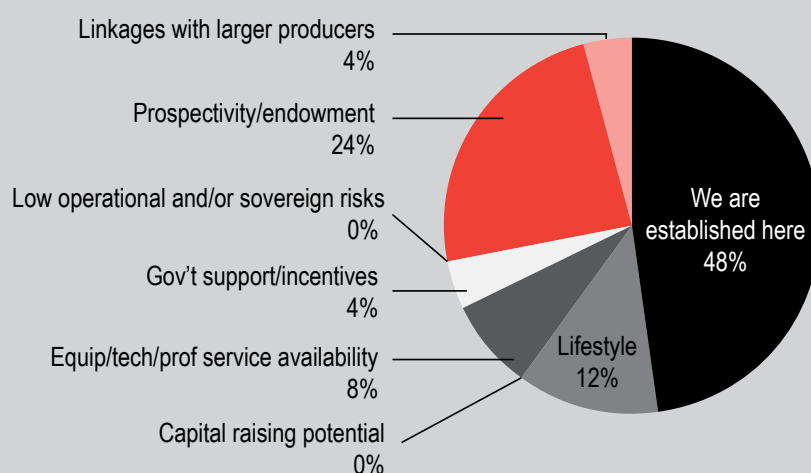


CHART 23: RESULTS OF SURVEY, FACTORS THAT WOULD INFLUENCE A COMPANY TO STAY HEADQUARTERED IN QUEENSLAND, 2012-13



KEY FINDINGS

- Prospectivity/endowment followed by lifestyle consistently rate as the number one and two reasons why a company may be influenced to move and headquarter their exploration operations in Queensland. Of note is that the positive factors have become less so over the past two years.
- Established presence, followed by prospectivity/endowment and lifestyle are the top three reasons why a company headquartered in Queensland would opt to maintain their exploration operations in Queensland.

4.4

OPERATING SENTIMENT AND REGULATORY BURDEN OF DRILLING COMPANIES

The Australian Drilling Industry Association asked 90 companies with drilling interests in Queensland for their views on a range of factors believed to influence operational and investment confidence.

The online survey received 21 responses which represents a response rate of 23 percent.

TABLE 6: SURVEY RESPONDENT DETAILS, NUMBER OF RIGS OWNED IN TOTAL, 2012-13

Number of rigs	Response count
Above ground	167
Below ground	4
TOTAL	171

4.4.1

CALCULATION OF REGULATORY BURDEN AND PERCEPTIONS OF IMPACT

Companies were asked to calculate the percentage split of operational costs between administrative/regulatory compliance and actual drilling operations (Chart 24) and the extent regulation and compliance requirements impacted on their ability to operate in Queensland in 2012-13 (Chart 25).

CHART 24: SURVEY RESPONDENT DETAILS, PERCENTAGE SPLIT OF OPERATIONAL COSTS

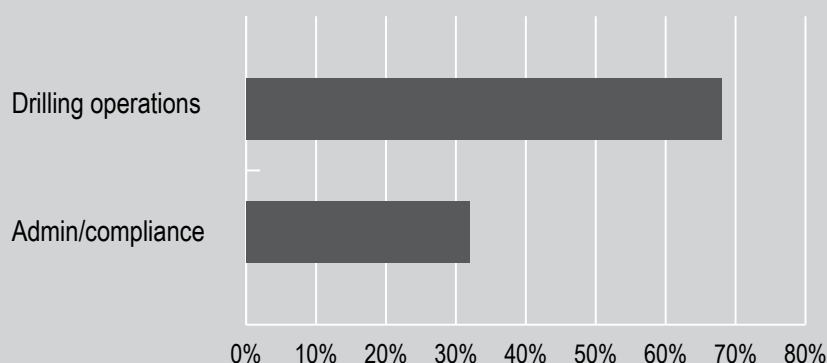
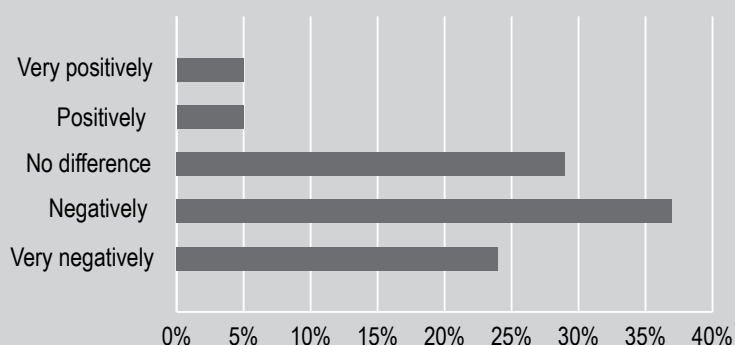


CHART 25: SURVEY RESPONDENT DETAILS, EXTENT REGULATION AND COMPLIANCE REQUIREMENTS IMPACTED ON ABILITY TO OPERATE



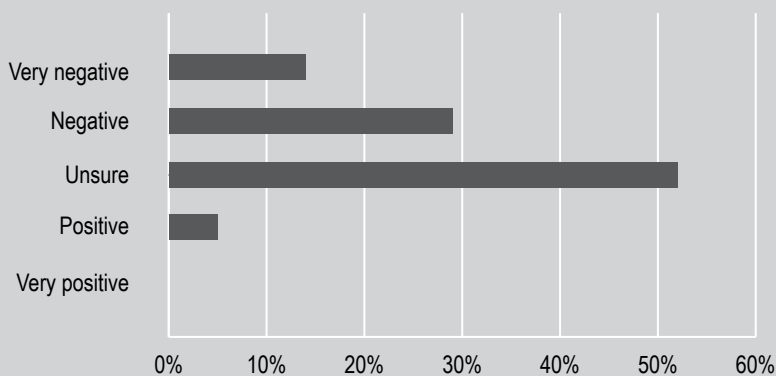
4.4.2 THE OPERATING OUTLOOK

Using the number of rigs currently employed in Queensland as a baseline, companies were also asked for key information on the operating outlook, namely the number of rigs expected to be employed in Queensland at three, six, nine and 12-month intervals, as well as expected metres drilled over these same periods (Table 7). Companies were also asked how confident they are of improved business conditions in Queensland over the next 12 months (Chart 26).

TABLE 7: SURVEY RESPONDENT DETAILS, NUMBER OF RIGS CURRENTLY EMPLOYED IN QLD AND EXPECTED (WITH METRES DRILLED, NON CUMULATIVE QUARTER BY QUARTER), 2012-13

Rigs currently employed in QLD		Rigs expected to have employed in QLD				Metres expected to be drilled in QLD			
		Till end Sept 2013	Till end Dec 2013	Till Mar 2014	Till June 2014	Till end Sept 2013	Till end Dec 2013	Till Mar 2014	Till June 2014
Coal	38	61	50	59	63	496,950	137,910	304,710	666,010
Oil & Gas	6								
Mineral	48								
Geotech	13								
Water	4								
Drill & Blast	12								
TOTAL	121	61	50	59	63	496,950	137,910	304,710	666,010

CHART 26: SURVEY RESPONDENT DETAILS, CONFIDENCE IN IMPROVED BUSINESS CONDITIONS IN QUEENSLAND OVER THE NEXT 12 MONTHS



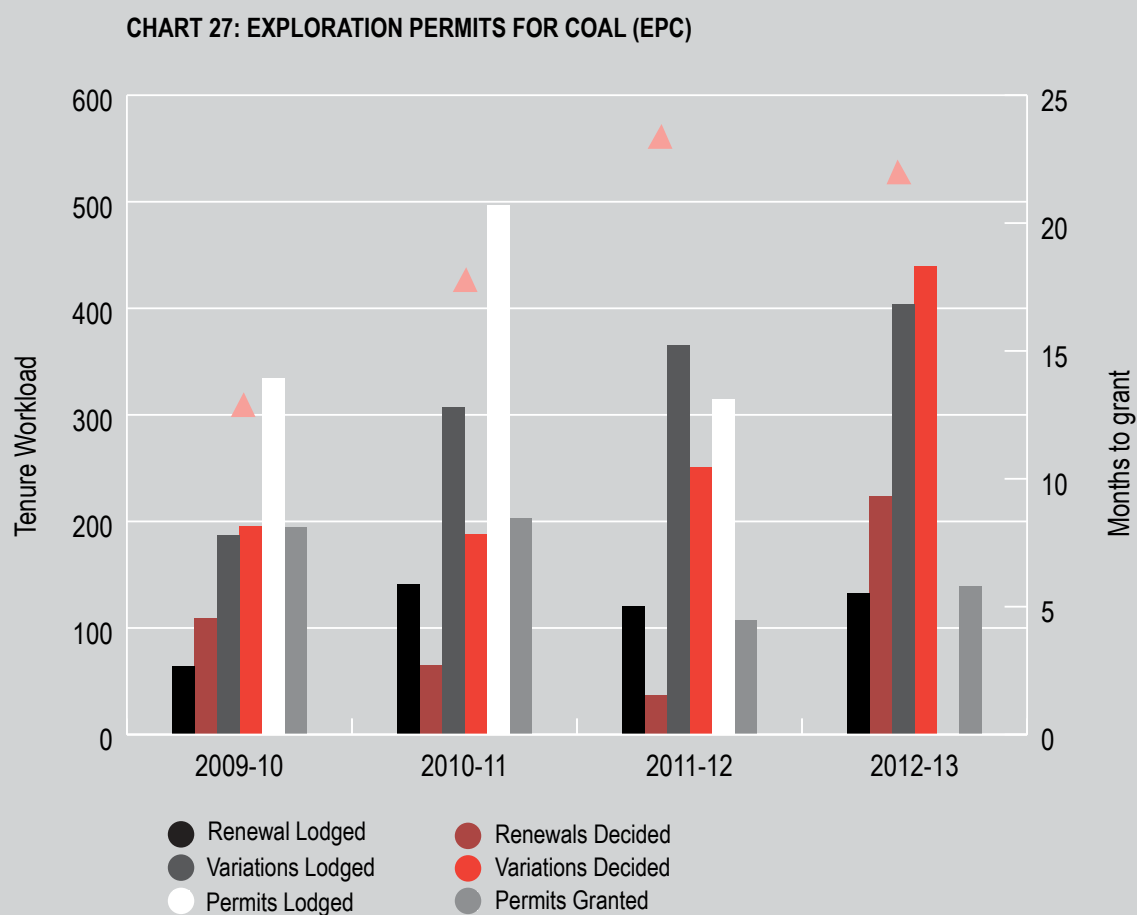
KEY FINDINGS

- Respondents estimate that in 2012-13 they spent approximately 68 percent of their operational costs on drilling and about 32 percent on administration and compliance.
- The majority of respondents (61 percent) perceive that regulation and compliance requirements either negatively or very negatively impacted their ability to operate.
- As at July 2013, of the 171 rigs operated by respondents, 121 were employed in coal, oil and gas, mineral, geotech, water and drill and blast activities in Queensland. Of concern is that only half of these rigs are expected to be employed over the next 12 months (63 by June 2014).
- Respondents expect to drill approximately 666,000 metres in the April-June quarter in 2014.

5.0 ACCESS TO THE FACTORS OF PRODUCTION

5.1 ACCESS TO LAND

A significant factor influencing exploration success is how quickly exploration companies can access land. The average time taken to grant coal and mineral exploration permits and other important information is provided in charts 27 and 28.



Source: Department of Natural Resources and Mines

CHART 28: EXPLORATION PERMITS FOR MINERALS (EPM)



Source: Department of Natural Resources and Mines

KEY FINDINGS

- Granting EPCs (Exploration Permit for Coal) and EPMs (Exploration Permit for Mineral) took on average 22 and 21 months respectively in 2012-13. This compares with 23 and 21 months respectively in 2011-12.
- While there was only slight improvement in the time taken to grant EPCs, the department has been able to increase the throughput of renewals and variations, providing operational certainty for exploration permit holders. While it is still early days, recent additions in the online lodgement environment are demonstrating improved processing times, with registrable dealings lodged online typically being processed within five business days. It is expected that online lodgement would improve future productivity and enable tenure officers to dedicate more time to high value tenure administration such as assessing new applications for exploration permits.
- In relation to petroleum land releases for 2012, there is no applicable data for work program based tenders as the release by the Queensland Government during this calendar year was for competitive cash tendering.
- The first round of competitive cash tendering for an initial two petroleum gas prospecting areas (PLR2012-1-1 and PLR2012-1-2) was released in a call for tenders on 19 October 2012, and closed 14 February 2013. The Queensland Government undertook a confidential tender evaluation process, and completed the process for granting preferred tenderer status for the area PLR2012-1-2 within the 60 day time-frame for accepting tenders, as specified in the published Call for Tenders documentation. The preferred tenderer met its obligations as preferred tenderer and an authority to prospect was granted on 3 May 2013.
- Six areas were released in 2013 for both competitive cash tendering and work program-based tenders. These tenders close 10 October 2013 and 22 November respectively.

5.2

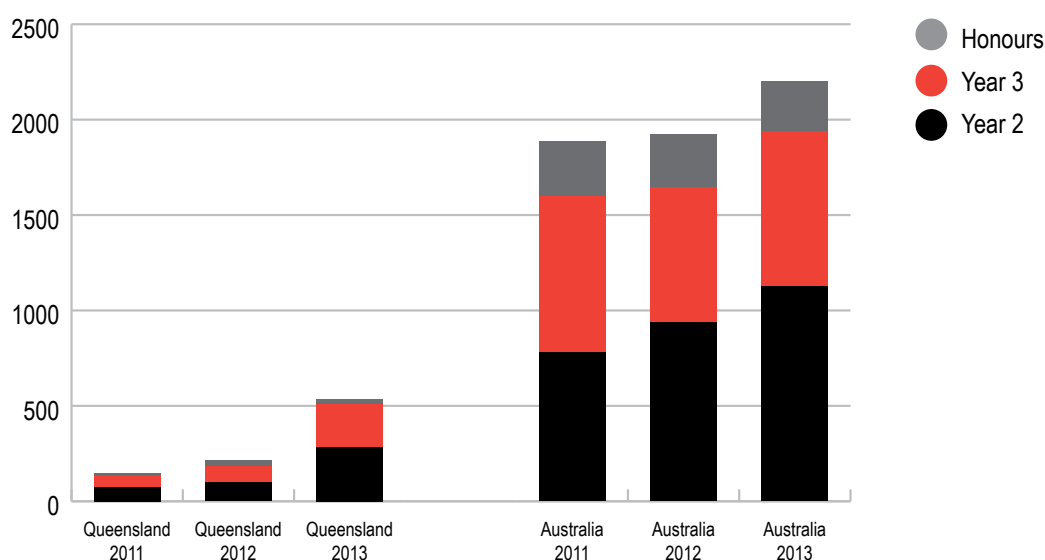
ACCESS TO HUMAN AND INTELLECTUAL CAPITAL

Access to a skilled labour force is a significant enabler for growth in the sector. The following charts compare the potential pool of geoscience graduates with current demand to identify general labour market conditions. Queensland's drilling qualification enrolments are also included.

5.2.1

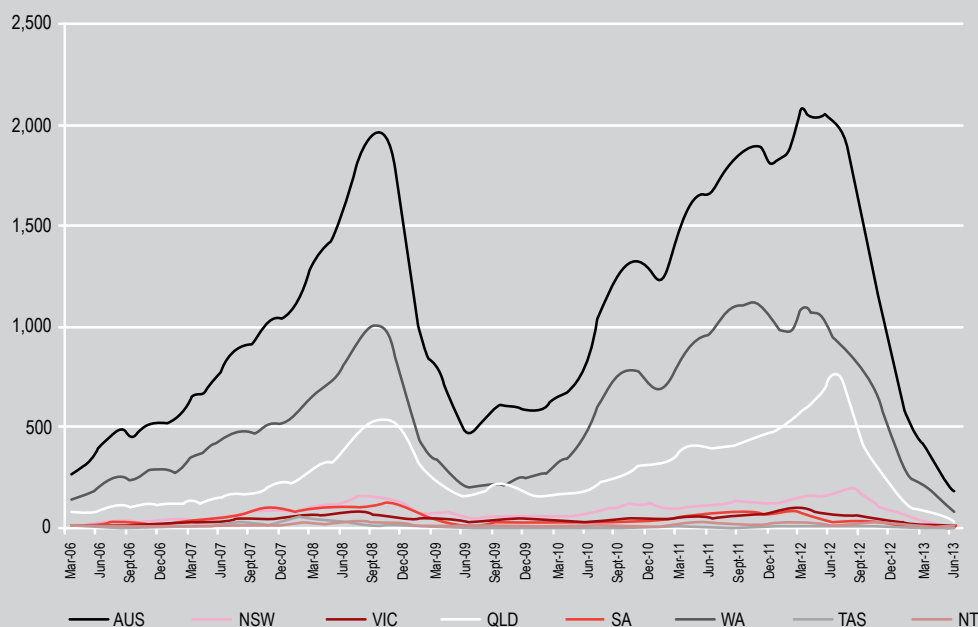
SUPPLY AND DEMAND OF WORKERS

CHART 29: GEOSCIENCE FULL-TIME EQUIVALENT STUDENT LOAD, QUEENSLAND AND ALL AUSTRALIAN UNIVERSITIES, 2011 TO 2013



Source: Australian Geoscience Council (AGC)

CHART 30: INTERNET VACANCIES FOR GEOLOGISTS AND GEOPHYSICISTS, BY JURISDICTION, MARCH 2006 TO JUNE 2013



Source: Australian Department of Education, Employment and Workplace Relations

CHART 31: PUBLICLY FUNDED DRILLING QUALIFICATION ENROLMENTS, ALL JURISDICTIONS, BY YEARS 2010 TO 2012

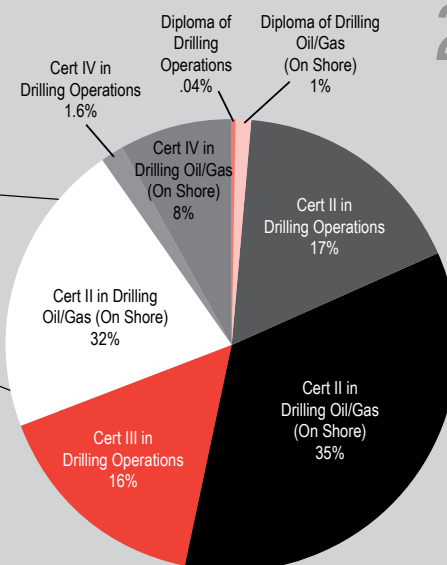
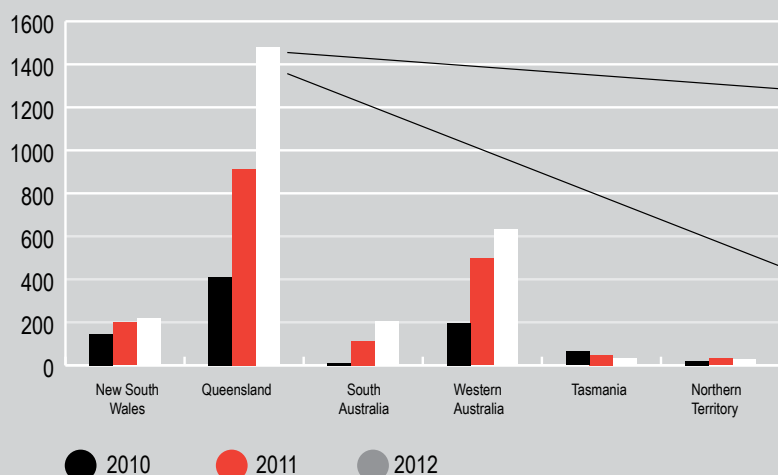
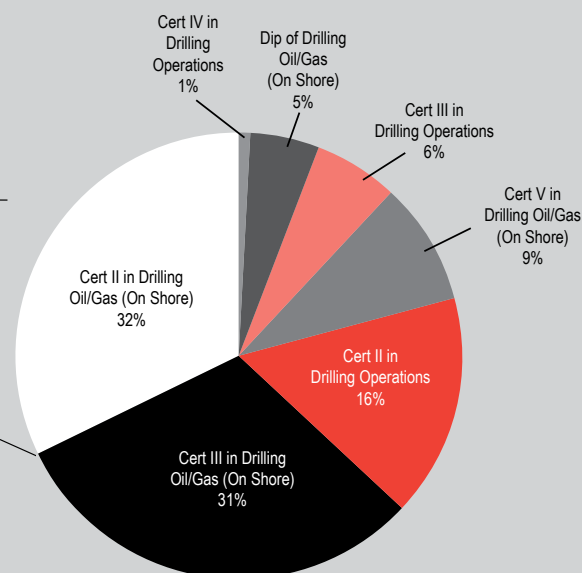


CHART 32: PUBLICLY FUNDED ALL DRILLING QUALIFICATIONS, ALL JURISDICTIONS, COMPLETED BY YEARS 2010 TO 2012



KEY FINDINGS

- Australia-wide geoscience enrolments have increased in the second year of study with a levelling off in the third and fourth years. Overall there is a greater retention of students progressing into later years of study with the increase most significant in the second year (Chart 29).
- In Queensland 2012-13 there was a substantial increase in second year students (184 in 2012 to 321 in 2013) following on to third-year increases (132 in 2012 to 206 in 2013). This is most likely due to the uncapping of university places in 2012 and as students move from broader science streams into the more specialised geosciences stream (Chart 29).
- There remains an upward trend for an increase in graduates available to enter the minerals industry in a few years time if these students follow a minerals geosciences pathway (Chart 29).
- Internet vacancies for geologists and geoscientists indicate a dramatic decline from early 2012 across all jurisdictions but more so for Western Australia and Queensland in line with weaker commodity prices, profitability and investment sentiment, and greater scrutiny of cash-flows (Chart 30).
- Enrolments in publicly-funded drilling qualifications increased across most jurisdictions with the most notable increase occurring in Queensland. Significantly, 65 percent of these enrolments were for certificate and diploma level qualifications in oil and gas (Chart 31).
- Completions in publicly-funded drilling qualifications increased across most jurisdictions with the most notable increase occurring in Queensland. Again, significantly, 77 percent of these enrolments were for certificate and diploma level qualifications in oil and gas (Chart 32).

5.2.2 LIVABILITY OF QUEENSLAND

One of the key factors in attracting and retaining skilled employees is the livability of host communities and the larger city hubs that typically service resource regions. To assess the comparable livability of cities and regions where geoscience professionals currently reside (ie Brisbane, Cairns, Perth, Kalgoorlie-Boulder and Townsville), Synergies Economic Consulting applied a Livability Index using the latest available public data.

KEY FINDINGS

The main observations of the 2013 livability score for the five cities are:

- Relatively, Brisbane (88.7), Perth (81.3), and Cairns (81.1) are perceived as the three most livable communities among cities and regions most commonly chosen by geoscience professionals to reside (Chart 33).
- Relatively, Brisbane rates very highly on the economy, health and wellness and leadership dimensions; Cairns rates very highly on the environmental sustainability dimension and highly on the health and wellness dimension; Perth rates very highly on education and learning dimension; Kalgoorlie/Boulder rates relatively high on environmental sustainability and economy dimensions (Chart 34).

CHART 33: LIVABILITY INDEX, OVERALL SCORES

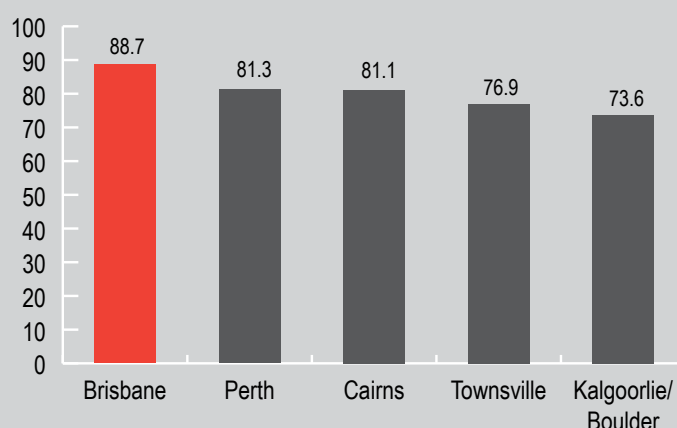
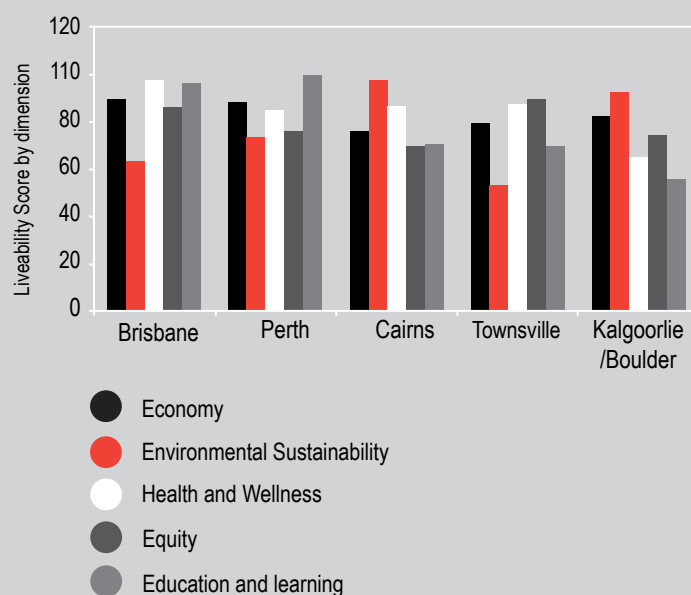


CHART 34: LIVABILITY SCORE BY DIMENSION



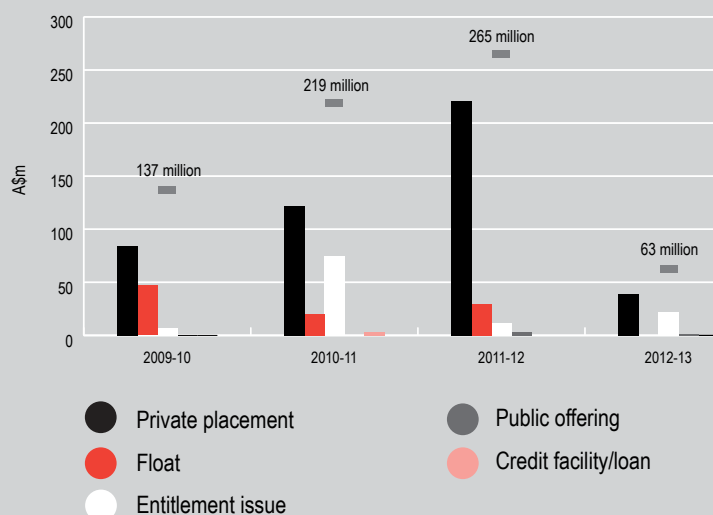
5.3 ACCESS TO EQUITY CAPITAL

As many exploration companies have no regular source of revenue, access to equity capital to fund exploration activities is essential. The following charts show the combined domestic and global equity capital raisings of companies conducting exploration activity for minerals in Queensland by type of raisings and as a percentage of Australian raisings.

KEY FINDINGS

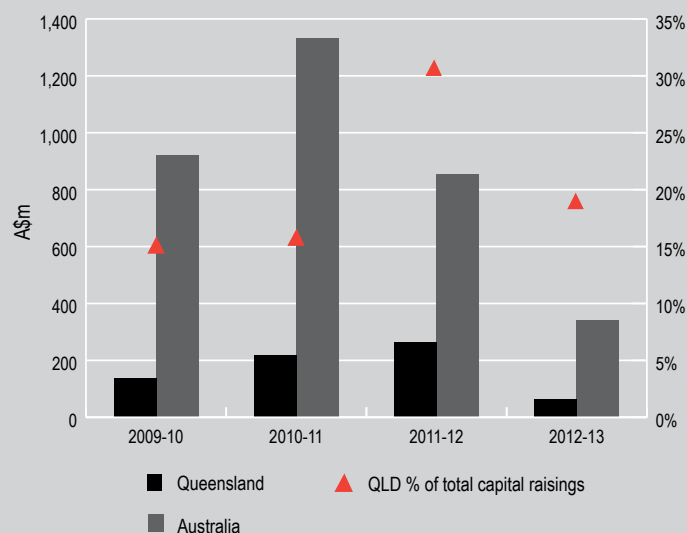
- in 2012-13 companies exploring in Queensland announced \$63 million in capital raisings for minerals exploration. This is a decrease of 76 percent or \$202 million compared with 2011-12 (Chart 35).
- most of this capital appears to be 'sustaining capital' being contributions from existing investors keen to preserve their investments until the market improves to deliver a stronger price and liquidity.
- the main capital raisings in 2012-13 were:
 - private placement (63 percent of total raisings)
 - entitlement issue (35 percent of total raisings)
 - public offering (2 percent of total raisings).
- Raisings for Queensland projects decreased significantly as a percentage of Australian raisings from 31 percent in 2011-12 to 18 percent in 2012-13 (Chart 36).

CHART 35: EQUITY CAPITAL RAISINGS OF COMPANIES ACTIVELY EXPLORING FOR MINERALS IN QUEENSLAND, BY TYPE, ALL DOMESTIC AND INTERNATIONAL SOURCES OF CAPITAL, 2009-10 TO 2012-13



Source: IntierraLive

CHART 36: COMPARISON OF EQUITY CAPITAL RAISINGS OF COMPANIES ACTIVELY EXPLORING FOR MINERALS IN QUEENSLAND AND AUSTRALIA, ALL DOMESTIC AND INTERNATIONAL SOURCES OF CAPITAL, 2009-10 TO 2012-13



Source: IntierraLive

6.0 LAG INDICATORS – EXPLORATION SUCCESS

NUMBER OF LODGED AND CURRENT EXPLORATION PERMITS AND AREAS GRANTED

An important measure is whether the number of lodgements and current permits to explore and develop resources is increasing and the amount of land granted for those activities.

CHART 37: EXPLORATION PERMIT MINERAL COVERAGE, JULY 2005

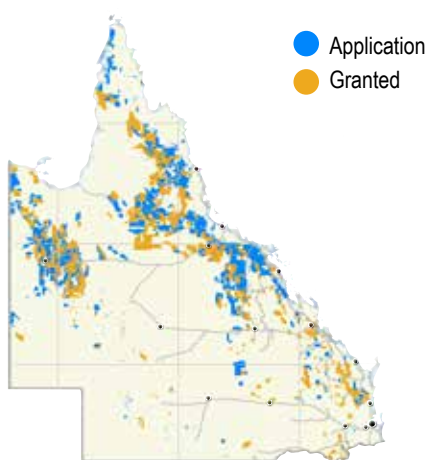


CHART 38: EXPLORATION PERMIT MINERAL COVERAGE, JULY 2013

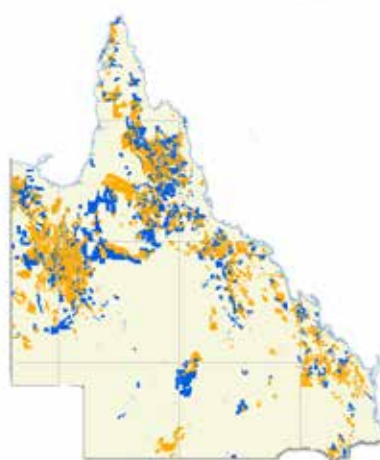


CHART 39: EXPLORATION PERMIT COAL COVERAGE, JULY 2005

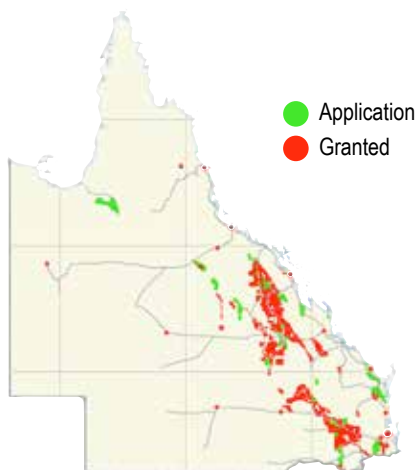
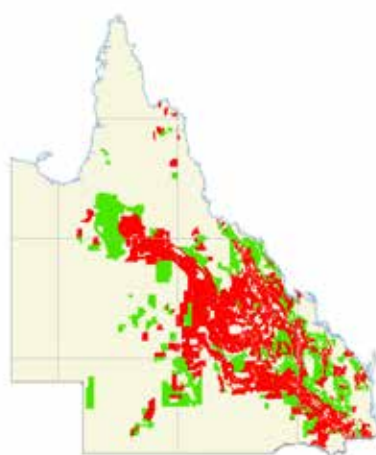
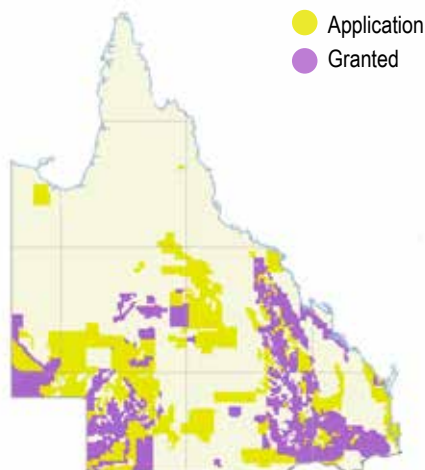
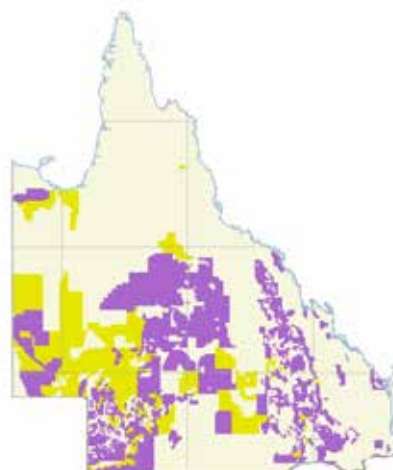


CHART 40: EXPLORATION PERMIT COAL COVERAGE, JULY 2013



**CHART 41: AUTHORITY TO PROSPECT
(PETROLEUM) COVERAGE, JULY 2005****CHART 42: AUTHORITY TO PROSPECT
(PETROLEUM), JULY 2013****TABLE 8: EXPLORATION PERMITS: NUMBER OF APPLICATIONS, LODGED APPLICATIONS, GRANTED AND IN FORCE, AND GRANTED DURING THE YEAR, 1 JULY 2011 TO 1 JULY 2013**

	Total Applications	Applications Lodged	Granted and in force	Granted during Year	Grant (Ha)
1/07/2011					
EPC	703	497	781	203	25,336,636
EPM	1,200	526	1,676	396	20,662,717
ATP	150	37	155	18	41,636,413
EPG	13	3	47	5	2,741,055
1/07/2012					
EPC	846	315	871	107	28,791,326
EPM	1,177	502	1,819	372	22,681,851
ATP	203	73	147	2	38,264,346
EPG	5	-	47	-	2,741,055
1/07/2013					
EPC	479	-	961	139	29,120,264
EPM	960	270	1,883	336	22,356,507
ATP	146	2	156	23	39,156,964
EPG	9	4	43	-	2,517,219

KEY FINDINGS

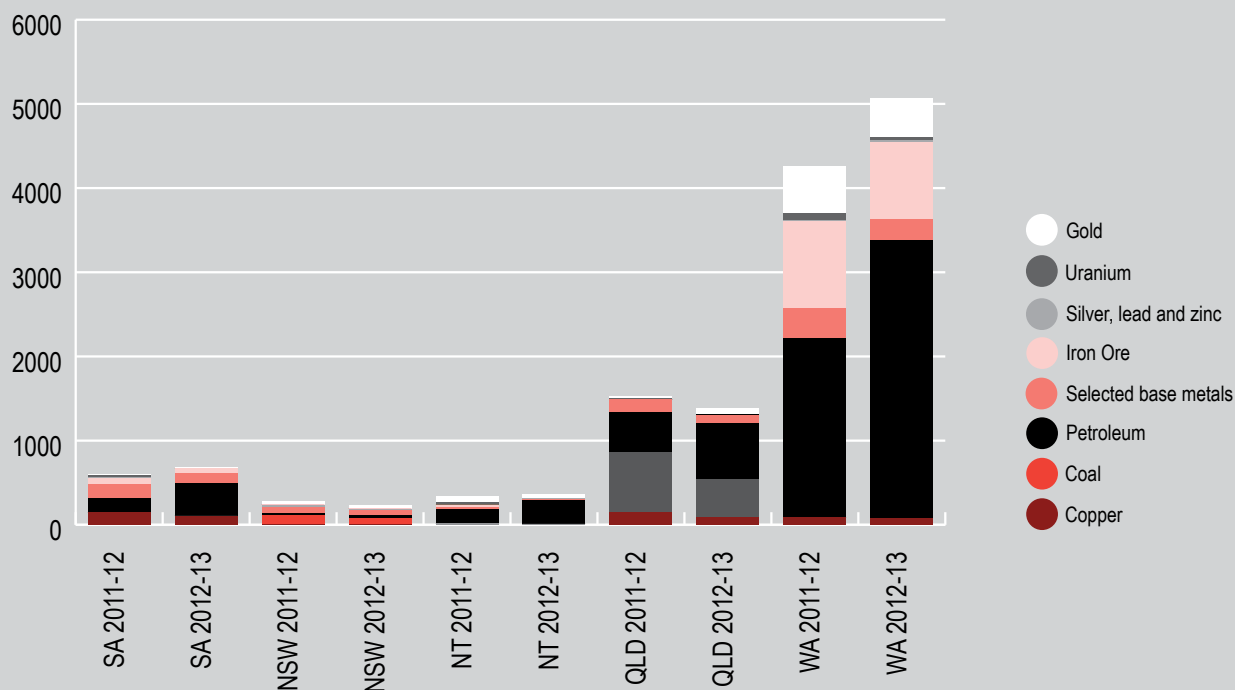
- The number of exploration permits and the area under grant (in hectares) increased slightly and remain at high levels for coal, minerals, and petroleum resources.
- The introduction of a competitive tender process for land to explore coal resources in Queensland explains the reduction in the number of applications for coal exploration permits.

7.0 MINERALS AND PETROLEUM EXPLORATION

The following charts display a variety of measures to assess Queensland's exploration activities against other Australian jurisdictions in brownfield and greenfield exploration.

7.1 BROWNFIELD AND GREENFIELD MINERALS AND PETROLEUM EXPLORATION EXPENDITURE: VARIOUS COMPARISONS

CHART 43: MINERALS AND PETROLEUM EXPLORATION, BY COMMODITY AND JURISDICTION, 2011-12 AND 2012-13



Source: ABS 8412.0

CHART 44: NEW DEPOSITS (GREENFIELDS) AS PERCENTAGE OF TOTAL MINERALS EXPLORATION EXPENDITURE, BY JURISDICTION, 2011-12 AND 2012-13

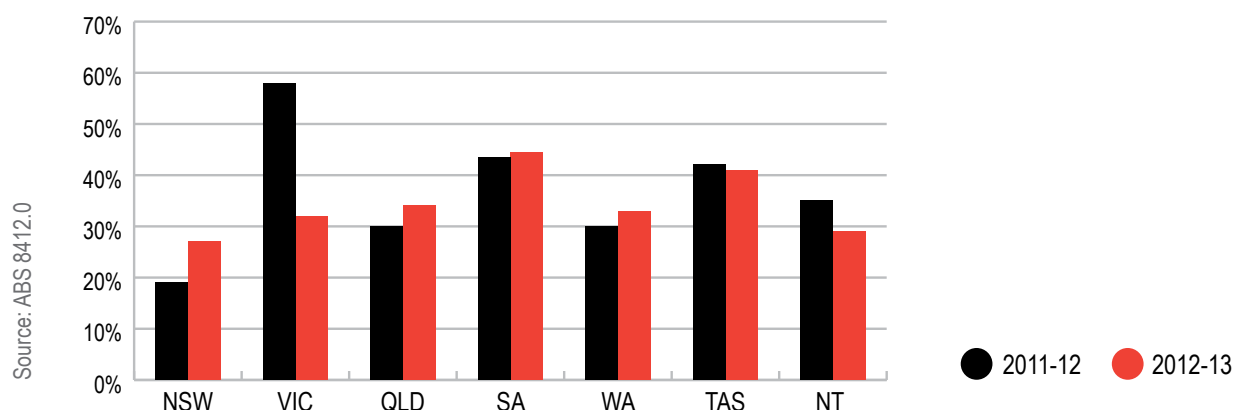
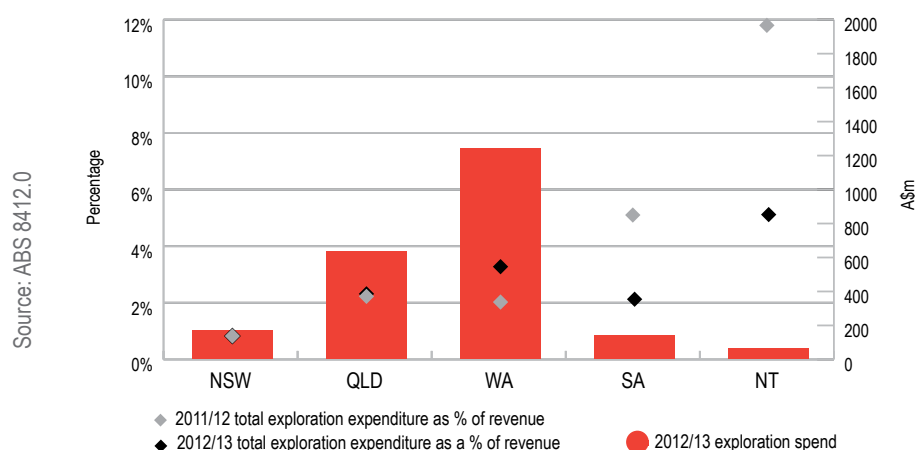


CHART 45: MINERALS EXPLORATION SPEND AS A PERCENT OF REVENUE, BY JURISDICTION, 2011-12 (COAL, SELECTED BASE AND PRECIOUS METALS AND IRON ORE ONLY)



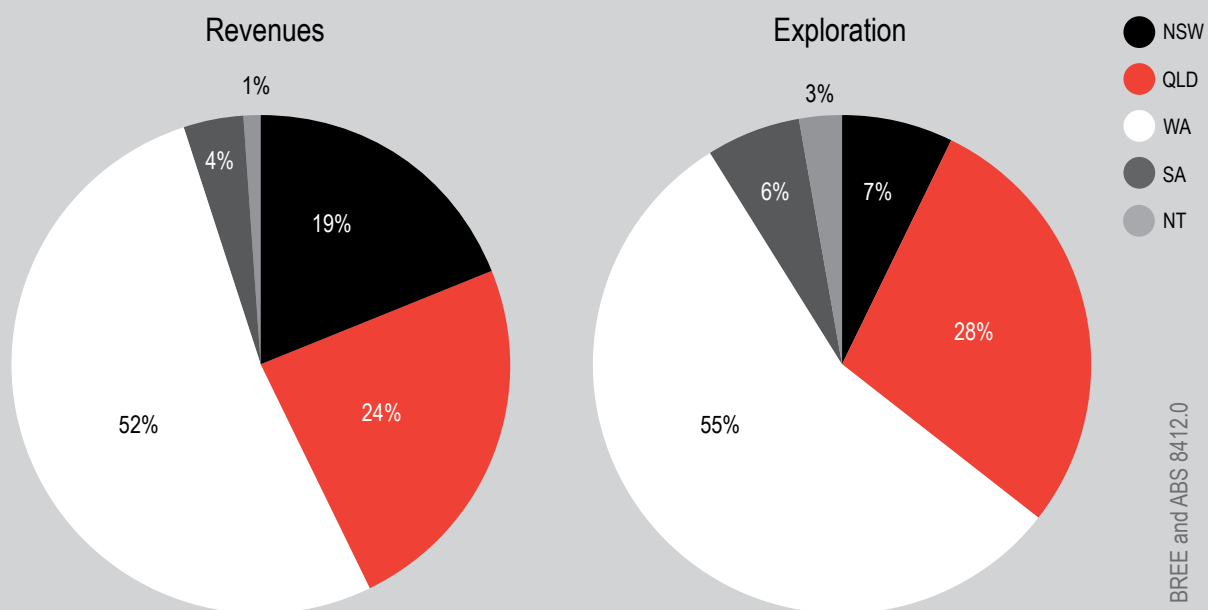
KEY FINDINGS

- Queensland in 2012-13 recorded a 31 percent decrease in minerals exploration (\$1060 million to \$732 million). This compares with a national average decrease of 24 percent and a 17 percent decrease in Western Australia (Chart 43).
- Queensland in 2012-13 recorded a 40 percent increase in petroleum exploration (\$468 million to \$655 million). This compares with a national average increase of 57 percent and a 56 percent increase in Western Australia. The increase in petroleum exploration in Queensland was on account of continued expenditure on coal-seam gas and significant additional spend on shale gas exploration, especially in the Cooper Basin (Chart 43).
- In 2012-13, for every minerals and petroleum exploration dollar spent in Queensland (\$1387 million), \$3.65 is spent in Western Australia (\$5,068 million) (Chart 43).
- Queensland's greenfields performance as a percentage of total minerals exploration expenditure improved in 2012-13 to 34 percent compared with 30 percent in 2011-12. South Australia remains a stand-out performer with 44 percent of its total exploration being greenfields in nature (Chart 44).
- In 2012-13, Queensland spent 2.3 percent of its minerals revenues (sales) on exploration, an increase from 2.2 percent in 2011-12. As in the previous 12 month period, the Northern Territory spent the most with five percent of its revenues reinvested in exploration (Chart 45).

7.2 MINERALS EXPLORATION AND MINERALS REVENUES AS A PERCENTAGE OF NATIONAL TOTALS: STATE COMPARISONS

Charts 46 (a) and (b) provide a comparison by state of minerals exploration expenditures and revenues as a share of Australian totals.

CHARTS 46 (A) & (B): PERCENTAGE OF COAL, SELECTED BASE METALS, GOLD AND IRON ORE SALES REVENUES AND EXPLORATION SPEND ACROSS JURISDICTIONS, 2012-13



Coal, selected base metals (copper, nickel, silver, lead and zinc), gold and iron ore only

KEY FINDINGS

- In 2012-13, Queensland represented 24 percent of Australia's total sales of copper, nickel, silver, lead, zinc, gold and iron ore. By comparison, and during the same period, Queensland represented 28 percent of Australia's total exploration of these commodities (Charts 46 (a) and (b)).

8.0 PRODUCTION, LEVELS OF RESERVES, YEARS OF RESERVES AND DRILLING SUCCESS BY RESOURCE

Key measures of a successful exploration sector are consistent high quality discoveries (greenfields in particular), increasing levels of resources and reserves (reserves in particular – grade and tonnage), and ‘healthy’ reserve/production ratios (years of available reserves at current production rates).

TABLE 9: QUEENSLAND YEARS OF RESERVES, BY COMMODITY, 2012-13

Commodity	QLD Production	QLD Proved & Probable Reserves	QLD Years of Reserves (Proved & Probable/Yearly Production)
Bauxite ('000t)	23,257	1,533,000	66
Copper (t)	232,303	3,163,841	14
Gold (oz)	494,484	7,145,240	14
Lead (t)	389,581	7,390,051	19
Silver (oz)	40,604,864	576,895,475	14
Zinc (t)	966,764	17,343,323	18
Coal (Mt)	179	11,471	64
Including:			
Coking*	90	4,702	52
Thermal*	44	6,556	150
Coal-seam Gas (PJ) (year ending 2012)	235	36,460	155

* The figures for coking and thermal are the numbers which Intierra can separate. Some figures are reported as ‘Coal’, or ‘Coking + Thermal’ and cannot be separated hence why $179 > (90 + 44)$.

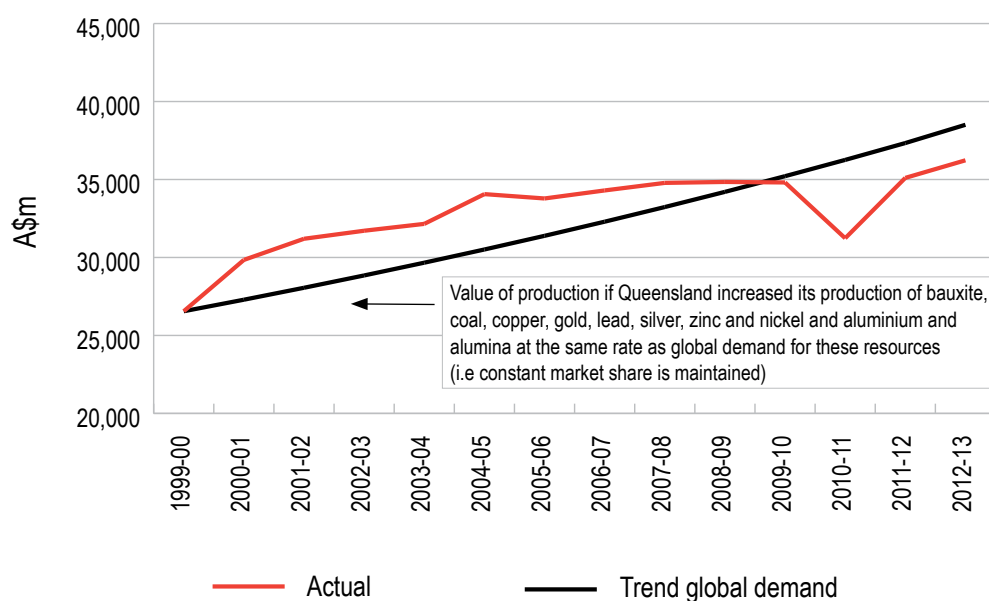
KEY FINDINGS

- Reserve/production levels for Queensland bauxite is currently 66 years.
- Reserve/production levels for copper, gold, lead, silver, and zinc remain steady and at low levels.
- Based on known resources and current depletion rates Queensland’s coal reserves will last another 64 years (approximately 52 years of coking and 150 years of thermal).
- Queensland reserves in coal-seam gas continued to increase to 36,460 PJ in 2012 providing a current reserve/production level for Queensland of 155 years. This figure is likely to decrease when LNG operations under construction commence production.

9.0 MINERALS PRODUCTION AND COMPARISONS WITH GLOBAL DEMAND

Chart 47 shows the actual production of resources in Queensland in comparison with trend growth in global demand.

CHART 47: QUEENSLAND RESOURCES PRODUCTION (SELECTED COMMODITIES), ACTUAL AND COMPARISON WITH TREND GLOBAL DEMAND, 1999-00 TO 2012-13 (CONSTANT 2009-10 PRICES)



Source: BREE Resources and Energy Economics, Resources and Energy Quarterly Rio Tinto Operations Review

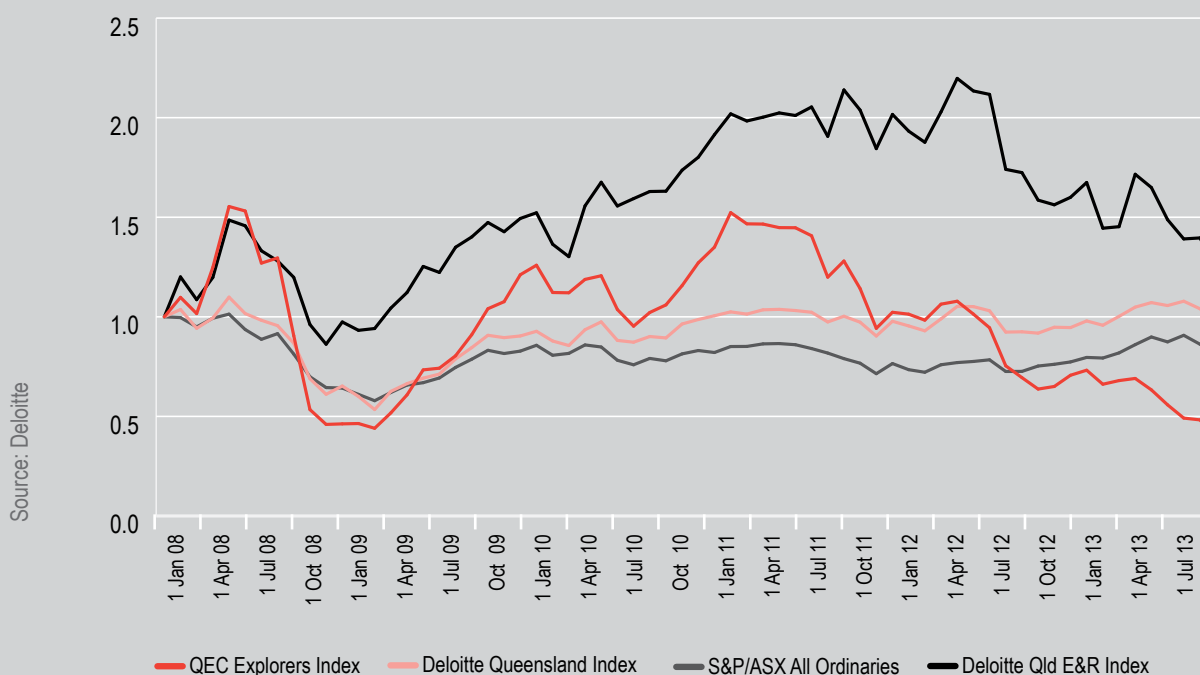
KEY FINDINGS

- The collective value of production of Queensland's resources for bauxite, coal, copper, gold, lead, silver, zinc and nickel and aluminium and alumina exceeded global demand for these commodities in the years between 1999-00 and 2008-09.
- The central Queensland floods in early 2008, heavy statewide flooding in 2010-11, and to a lesser extent the Global Financial Crisis (GFC) in early 2009 curtailed production below the trend line of growth in global demand.
- Over the past 12 months production has picked up and the gap between the actual production and the global demand trend has narrowed. However Queensland's loss of market share after the 2008 and 2010-11 flooding events has not yet been recovered.

10.0 MARKET CAPITALISATION MOVEMENTS

The market's estimates of future profitability, as measured by market capitalisation movements, are a useful measure of anticipated strength in a sector. The performance of Queensland-listed exploration companies on the Australian Securities Exchange (ASX) is compared with various other indices in Chart 48.

CHART 48: QEC EXPLORERS INDEX VERSUS OTHER INDICES



KEY FINDINGS

- The QEC Explorers' Index (Queensland based ASX-listed exploration companies) shows a 30 percent decline over the 12 months to 30 June 2013. This compares with an 11 percent increase for the S&P/ASX All Ordinaries, a six percent increase in the Deloitte Queensland Index (Queensland based ASX listed companies) and a large 48 percent decrease in the Deloitte QLD E&R Index (QLD based ASX listed energy and resources companies).
- Despite the strong global demand fundamentals for most resources, resources stocks have been heavily discounted on the back of softening prices caused by weak global macroeconomic conditions and in some markets, considerable oversupply as recent investments come on line.

GLOSSARY

The proposed **Carbon Geostorage Initiative** is to provide geoscientific data for the assessment of geological storage sites for the safe long-term storage of greenhouse gases.

The **Coastal Geothermal Energy Initiative** is a joint project between the Geological Survey of Queensland and the Office of Clean Energy to investigate potential sources of hot rocks for geothermal energy close to existing transmission lines.

An **entitlement issue** is where shareholders are given the right to subscribe for the new fully-paid share.

Existing deposits as defined by the ABS is exploration that is delineating or proving up an existing deposit, including extensions and infill, which has been classified as an Inferred Mineral Resource or higher.

Exploration expenditure covers all expenditure (capitalised and non-capitalised) during the exploratory or evaluation stages in Australia, Australian waters, and the Joint Petroleum Development Area (JPDA). Costs include cost of exploration, determination of reserves/ resources, engineering and economic feasibility studies, procurement of finance, gaining access to reserves, construction of pilot plants and all technical and administrative overheads directly associated with these functions.

Exploration licence/permit is designed to cover the exploration phase of a project and confers exclusive rights to the exploration for and recovery of samples from the area designated. These rights are granted by relevant Commonwealth, state or territory governments.

A **full-time equivalent (FTE)** measure attempts to standardise a student's actual course load against the normal course load. Calculating the full-time/part-time status requires information on the time periods for actual and normal course loads.

The **Greenfields 2020 program** is an \$18 million program over four years to focus exploration in greenfield and under-explored areas of the state. It is also designed to revitalise interest in what are perceived to be 'mature' provinces, through the application of new ideas, models and technologies. There are seven initiatives in the program with the New Minerals Frontiers Initiative concentrating efforts in the Northern Economic Region, Southern Thomson, and Galilee areas. A number of new geoscientific information products have been released over the past few years including new airborne magnetic, radiometric and gravity survey. The Greenfields 2020 program also included \$3 million for the continuation of the popular and successful Collaborative Drilling Initiative.

The **Geological Survey of Queensland** (GSQ), as part of the Department of Natural Resources and Mines, provides geoscience and resource information to improve the understanding of the geology and minerals and energy resource potential of Queensland, and promotes the geoscientific data and exploration potential to attract investment.

An **Indicated Mineral Resource** is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability.

An **Initial Public Offering (IPO)** or float is the initial raising of capital by public subscription to an offering of securities.

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 Edition (the '**JORC Code**' or 'the Code') sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The JORC was established in 1971 and published several reports containing recommendations on the classification and Public Reporting of Ore Reserves prior to the release of the first edition of the JORC Code in 1989.

The **Interactive Resource and Tenure Maps** system (IRTM) is an online spatial data viewer for maps and spatially referenced images. It has a download facility for many layers and also an interactive web map service that can be linked to an online GIS tool for live data feeds. IRTM also has spatial links to the **Queensland Digital Exploration Reports** system (QDEX Reports) which is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. The link allows spatial searches in IRTM for historical tenure exploration reports in QDEX and some other spatial layers also link to QDEX documents.

Lag indicators are the indicators that measure actual exploration success.

Lead indicators are the factors that drive exploration activity and performance.

Livability Index uses 16 indicators of livability grouped in six dimensions:

- economy (median individual income; unemployment rate; SEIFA; availability and frequency of direct flights to key cities, Index of retail prices)
- environmental sustainability (air quality; water usage per person per year)
- health and wellness (GP services per capita; percentage of overweight persons; alcohol consumption at levels considered to be a high risk to health)
- equity (residential rental house vacancy rates; proportion of rented house; percentage of female councillors)
- education and learning (proportion of people whose highest year of school attended is year 12 or equivalent)
- leadership (percentage of population volunteering in organisations).

Each of the indicators is benchmarked against the top-performing city, which is assigned a base score of 100. The other cities' scores are derived from ratios that compare their respective performance to the performance achieved by the top-performing city.

A simple average is worked out for each of the six dimensions, after which the average score for each dimension is further aggregated into an equal weighting system.

Market capitalisation represents the public consensus on the value of a company's equity. An entirely public corporation, including all of its assets, may be freely bought and sold through purchases and sales of stock, which will determine the price of the company's shares. Its market capitalisation is the share price multiplied by the number of shares in issue, providing a total value for the company's shares and thus for the company as a whole.

A **Measured Mineral Resource** is that part of a mineral resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity.

A **Mineral Resource** is a concentration or occurrence of material of intrinsic economic interest in or on the earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral resources are sub-divided, in order of increasing geological confidence, into inferred, indicated and measured categories.

National Parks category includes national and state-run parks and nature conservation areas. No mining activity is permitted on an area declared a national park.

Nature Refuges as defined by the Department of Environment and Heritage Protection, is area of land voluntarily agreed between a landholder and the government to dedicate and protect for conservation purposes while allowing compatible and sustainable land uses to continue. There are different classifications of nature refuges, some that allow mining activity and some that prohibit altogether (similar to the Strategic Cropping Land triggers, however for environmental benefit).

New deposits as defined by the ABS is—exploration on previously unknown mineralisations or known mineralisations yet to be classified as an Inferred Mineral Resource or higher. They include:

- exploration resulting in finding mineralisation that was previously unknown
- exploration on previously known mineralisation that has not been subjected to modern exploration
- exploration within an existing mining tenement for the purpose of finding new sources of mineralisation that have not already been classified as at least an Inferred Mineral Resource.

An **Ore Reserve** is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of, and modification by, realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves.

Potential commercial areas are effectively a variation on a production lease but the usual requirement to commence production within two years is waived. It might be a field with high-quality reserves, but which requires pipeline and other services to make the recovery of the gas economical.

Pre-competitive geoscience data acquisition in Australia refers to the collection, collation and integration of basic geoscientific data by government agencies, essentially Geoscience Australia and the states' geological surveys. These strategic regional geoscientific research programs are generally aimed at upgrading historic data sets and filling data gaps by acquiring, efficiently and economically, modern geoscientific data at geologic province scale 2. Generally, the government agencies assigned priority to upgrading datasets over areas considered to be prospective but under-explored.

A **private placement** is the sale of securities to a relatively small number of select investors as a way of raising capital. Investors involved in private placements are usually large banks, mutual funds, insurance companies and pension funds.

A **Probable Ore Reserve** is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

Probable Reserves (oil and gas including CSG) are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves, but more certain to be recovered than Possible Reserves. It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50 percent probability that the actual quantities recovered will equal or exceed the 2P estimate. (*Petroleum Resources Management System, 2007*)

Prospectivity refers the likelihood that specific types of mineral deposits are present in a geological province and may be discovered with ongoing exploration.

A **Proved Ore Reserve** is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

Proved Reserves (oil and gas including CSG) are those quantities of petroleum, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable, from a given date forward, from known reservoirs and under defined economic conditions, operating methods, and government regulations. If deterministic methods are used, the term reasonable certainty is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90 percent probability that the quantities actually recovered will equal or exceed the estimate. (*Petroleum Resources Management System, 2007*)

The **Queensland Digital Exploration Reports** system (QDEX Reports) is an online document management system for lodgement, search and retrieval of statutory exploration and other reports as well as many departmental mining-related publication collections. There is a link between QDEX and the **Interactive Resource and Tenure Maps** system (IRTM) which allows spatial searches in IRTM for historical tenure exploration reports in QDEX and some other spatial layers.

Recreational areas have features such as trails, ranging from urban cycle and walking paths to river trails and rugged bush tracks. These trails cover 300,000 hectares or less than half a percent of the state. These areas are generally not mining/exploration prohibitive.

Retention licence is an intermediate form of tenure between the exploration licence and mining licence allowing the holder of the exploration licence to retain title to the area for a limited time. It is designed to ensure the retention of rights pending the transition of a project from the exploration phase to the commercial mining phase.

State forests are forest reserves set by the Governor-in-Council. Mining/exploration tenure can be granted over a state forest area, however conditions are prescribed by the *Forestry Act 1959* to apply to the tenure holder under the resources legislation (for example the *Mineral Resources Act 1989*).

Selected base metals are made up of the following minerals: copper, silver, lead-zinc, nickel and cobalt.

Smart Mining - Future Prosperity was a package of initiatives designed to double the 2004-05 mineral and petroleum exploration expenditure of \$270 million by 2008-09. This target was easily achieved with expenditure of \$751.4 million in 2008-09, and annual exploration expenditure has continued to rise.

ACRONYMS

ABS	Australian Bureau of Statistics
ASX	Australian Stock Exchange
DNRM	Department of Natural Resources and Mines
EPC	Coal Exploration Permits
EPM	Mining Exploration Permits
FTE	Full-time equivalent
GSQ	Geological Survey of Queensland
IRTM	The Queensland Government's Interactive Resource and Tenure Maps
JORC	The Joint Ore Reserves Committee
QEC	Queensland Exploration Council
QRC	Queensland Resources Council
QDEX	Queensland Digital Exploration Reports database.

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An initiative of



Queensland Resources Council
Level 13 133 Mary Street Brisbane QLD 4000
Phone: +617 3295 9560 Fax: +617 3295 9570

qrc.org.au
queenslandexploration.com.au

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