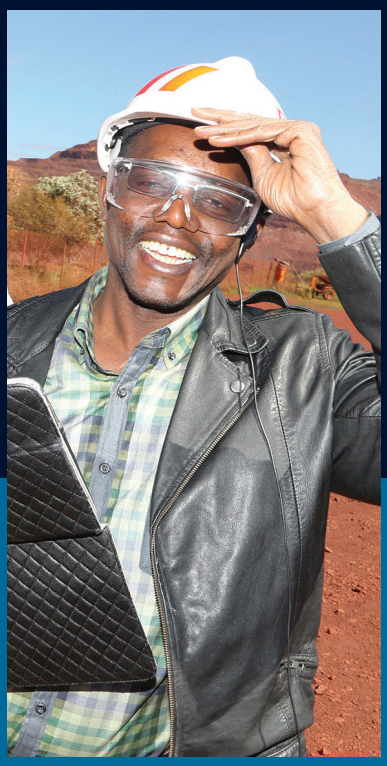

Sharing the benefits: enhancing Australia's global leadership in the mining value chain

The case for economic diplomacy investment in resources governance

Ian Satchwell and Jim Redden

July 2016

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Production of this paper was jointly funded by Airlie Asia Pty Ltd and the former International Mining for Development Centre, which was a joint venture of The University of Western Australia and The University of Queensland, funded by an Australian Aid initiative of the Australian Government.

ISBN: 978-1-74052-347-9

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Precis

The analysis and recommendations in this report provide a business case for closer government monitoring of, and engagement with, the mining sector both in Australia and abroad, supported by more intensive analysis of outbound investment and trade data.

The report advocates for enhanced investment in specific forms of economic diplomacy and capacity building in support of improved developing country governance of mining: one that not only assists countries to transform their resource endowments into economic and social benefits locally, but also one that creates a more conducive business environment for Australian companies to minimise risk, operate efficiently and derive sustainable returns.

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Abbreviations

AAMEG	Australia-Africa Minerals & Energy Group
ABS	Australian Bureau of Statistics
APEC	Asia Pacific Economic Cooperation
ASX	Australian Securities Exchange
CRC	Cooperative Research Centre
DAC	OECD Development Assistance Committee
DFAT	Department of Foreign Affairs and Trade
EU	European Union
FDI	Foreign direct investment
FTA	Free trade agreement
GIZ	German Institute for International Cooperation
GVC	Global value chain
ICMM	International Council on Mining and Metals
IM4DC	International Mining for Development Centre
IPO	Initial public offering
LNG	Liquefied natural gas
MAC	Mining Association of Canada
MCA	Minerals Council of Australia
MCI	Mining Contribution Index
METS	Mining equipment, technology and services
MGI	McKinsey Global Institute
NGO	Non government organisation
OECD	Organisation for Economic Cooperation and Development
R&D	Research and development
RBA	Reserve Bank of Australia
RCEP	Regional Comprehensive Economic Partnership
SSA	Sub-Saharan African
TPP	Trans Pacific Partnership

Executive Summary

Using a broad definition of the mining industry to include minerals and coal, and oil and gas, as well as mining equipment, technology and services, this paper discusses recent trends in the activities of the industry both at home and around the world. It examines current monitoring by the Australian Government of industry investment and trade globally, and alignment of the government's economic diplomacy activities with mining industry interests.

The paper examines the position of Australia as a global leader in mining governance, and the opportunities that this provides to support capacity building in resource-rich developing countries, which not only improves the outcomes of mining for these nations and their communities, but also enhances the reputation of, and investment climate for Australia's mining sector.

A key issue for this paper has been to explore the global growth of the sector in the past decade, including the dynamics and trends that are occurring given the significant cyclical downturn in the global resources sector at present. The paper explores strategies that the Australian Government and State Governments together with industry can undertake in order to not only maintain but also enhance the reputation and investment climate for Australia's mining sector wherever it operates.

What unfolds from the outset is the significant globalisation of the Australian mining industry, which is often not well understood. The authors find that Australian mining is a formidable global enterprise operating in all of the world's resources regions, and is a world-leading and competitive sector across the value chain, from exploration, to financing and development, to mining and processing, and to mining equipment, technology and services (METS).

Australia has a robust, internationally competitive mining sector and remains a cornerstone of the Australian economy. As stated by the Minister for Resources, Energy and Northern Australia, Hon Josh Frydenberg:

> The resources sector now represents more than 10 per cent of GDP and employs over 300,000 Australians. As a sector it has the largest proportion of indigenous employees in the nation, pays the highest wages and employs large numbers of skilled workers such as engineers, geologists and surveyors and young apprentices.[1]

Mining value add contributes significantly to the economic welfare of both and Indigenous communities, in addition to the economic welfare of nation as a whole.

The globalisation of Australian mining

While mining investment in Australia – and volume and value of output – have been growing very strongly during much of the past decade, Australian-listed exploration and mining companies have also expanded their investment in other countries to the point where Australian companies are now by number the second-most numerous global investors[2] in minerals and coal, and the most numerous in Africa. Australian companies are in aggregate the largest exploration investors, by dollars invested, in Africa, South East Asia and Scandinavia, and second largest in North Asia and Latin America.

In 2013, mining investment offshore was AU$143 billion, 29 per cent (the largest share) of Australia's stock of foreign direct investment abroad. The next largest sectors for outbound FDI were finance and insurance (28 per cent) and manufacturing (13 per cent).

1 Josh Frydenberg (2016), extract from speech given to the National Press Club, Hon Josh Frydenberg MP, Minister for Resources, Energy and Northern Australia, 16 February, 2016

2 In the context of this report, the term 'investor' means a company investing in exploration, mining or processing of minerals or coal, or in production and supply of mining equipment, technology and services within a nation

Australian knowledge, skills and technology have been critical to discovery and development of minerals and energy resources globally. Knowledge-rich METS firms and education and training institutions have found ready demand in global markets, with 66 per cent of METS companies now exporting to mining regions around the world. Of those exporting, 52 per cent are investors in other countries as well as in Australia.

The world-leading knowledge and technologies that Australian companies have deployed have resulted in discovery or delineation of minerals and coal resources with an in-ground value of US$2653 billion over the five years between 2009 and 2013. Of this, minerals and coal with an in-ground value of US$556 billion were discovered or delineated in Australia, while US$2097 billion of resources were discovered in other regions.

While the commodity price downturn has reduced market capitalisation and expenditure by Australian mining companies very substantially, most companies remain trading and continue to hold their exploration and mining tenements in countries around the world.

In a survey conducted in 2015[3], the majority of METS firms reported negative impacts on their business due to the current mining downturn. Despite this, the METS sector is quite resilient, as firms are involved in several phases of the mining lifecycle, work across a number of commodities, have diversified into other industries, and service markets around the world. The oft-cited fact that 60 per cent of the world's mining related software is produced in Australia is also testament to the technical sophistication of the industry.

In the process of expanding globally, Australian mining and METS companies have developed global reputations for deploying leading practice knowledge, technology and management to all aspects of their operations and interactions with external stakeholders such as communities and governments.

Rapid changes in patterns of global growth, trade and investment

Patterns of economic growth, investment and trade are changing rapidly and dramatically. Asia is now the largest hub of economic activity and driving demand for minerals and energy. Recently signed FTAs with China, South Korea and Japan herald significant new market opportunities for Australian companies as do the negotiation of mega-regional trade agreements. Africa and Latin America contain some of the fastest growing economies and are key destinations for a surprising amount of Australian mining related investment. Meantime two mega-shifts in trade patterns, the growth of global value chains and 'servicification' of the global economy, are presenting new challenges as well as opportunities for Australia's mining industry.

Global competition remains fierce with the threat of protectionist resource security policies from some countries, contrived over-supply of mining products and emerging competitors operating in most minerals and energy sectors in many of the world's regions. It is argued that it will be in Australia's interests to counterbalance resource security strategies of some large customer nations through continued promotion of free and fairer trade, support for quality mining governance and more business conducive regulation in developing countries, and through that, support for Australian investment and trade interests.

The evidence and analysis presented in chapter 3 demonstrates the ongoing importance of integration and partnerships with our nearest trading neighbours and in particular the future importance of trade and investment in Indonesia, China and India. Of note though is that a number

3 Austmine (2015) *New Realities, Bigger Horizons: Australian Mining Equipment, Technology and Services (METS) National Survey*, Austmine August 2015

of companies also identified these countries as 'difficult markets' and so the role of government diplomacy and facilitation remains paramount.

More revealing is the rapid growth in importance of nations in Africa and Latin America as investment destinations for Australian mining investment and trade. This trend would suggest the vital importance of ongoing economic diplomacy and capacity building support from Australia to key countries in these continents in support of Australia's long-term mining industry interests.

Sub Saharan Africa remains the region with the highest concentration of Australian mining projects, with 36 per cent of the total number outside Australia. This compares with the Asia-Pacific (22 per cent), Latin America (17 per cent) and the US/Canada (14 per cent). Sub Saharan Africa also accounts for 48 per cent of all Australian mining projects in developing countries.

Given Australia's major economic interests in Africa as the continent's largest mining investor though publicly-listed companies, and the government's focus on 'economic diplomacy', the downgrading of Australian diplomacy in Africa appears inconsistent with both economic evidence and Australia's long term national interest. The Government's short term budgetary cuts in aid could well undermine the industry's longer term economic and strategic interests in Africa. There is also a case for targeted governance capacity-building in selected Latin American countries as well as ramping up activities in Asia and the Pacific.

Better data, better decisions

Just as Australian companies are now changing their business models to embrace regional and global trends, so too should policy-makers change or refine government narratives and policy settings to embrace and celebrate the success of Australian investment wherever markets take it so as to better support investor companies. The benefits of trade and investment liberalisation flow as much from driving reform at home and facilitating outward investment as from enabling exports and inward investment.

It is therefore unequivocally in Australia's interests to understand and facilitate both inward and *outward* trade and investment in all tradeable sectors, including mining and METS. This is Austrade's remit and it is also within the charter of the Department of Foreign Affairs and Trade. Both do actively promote mining and METS, but are inhibited by limited, inadequate data and consequently, a poorer understanding of the sector.

Government collection and analysis of data on trade and investment by Australian companies has not kept pace with the major shifts and changing patterns of mining investment and trade. While Australia has collected good quality data about goods trade for many years, and data on services trade is improving, data on international investment has been high level, aggregated and inadequate to understanding of Australia's global interests. In the mining field, METS data has been enhanced in recent years by industry surveys, but poor data about Australia's outbound mining investment profile is hampering informed discussion and policy-making.

The key reason that Canada closely monitors Canadian mining investment in other nations is to inform the approaches and priorities for the Canadian Government in supporting Canadian companies both at home and abroad.

The lesson for Australia is that needs a narrative underpinned by data on how its major sectors are now investing and trading globally, in order to inform and reform policies, trade negotiations and economic diplomacy activities, including aid and aid for trade priorities. Resources Minister Josh Frydenberg recently highlighted the domestic policy imperative:

> We need the right domestic policy settings if we are going to seize the investment needed to meet the next wave of demand which is coming out of our region. We (Australia) must continue with our reform program and build on our reputation as a reliable, efficient supplier of high-quality mining product. There is no room, however, for complacency. We are operating in a fiercely competitive global market.[4]

Given the global footprint of Australian mining and METS companies, it is desirable that the Minister adds a reference in such statements (as his Canadian counterpart does) to Australia's global mining interests.

Economic diplomacy provides the platform

Better data and better policy in turn informs Australia's economic diplomacy strategies. The Foreign Minister, Julie Bishop, and former Trade Minister, Andrew Robb, have clearly stated that economic diplomacy is now at the heart of Australia's international engagement, drawing together foreign policy, trade and development activities and diplomatic resources to deliver greater prosperity for Australia, the region, and globally.

It is unequivocally in Australia's interests for resource-rich developing countries to improve their mining governance, deliver sustainable benefits to their populations, raise their investment attractiveness and improve the 'ease of doing business' for Australian companies operating in their countries.

In the face of growing mining investment in developing countries by other nations, Australia's investment in capacity-building in mining governance can greatly assist developing countries to apply high standards of governance that will underpin better outcomes from mining. At the same time, Australia will enhance its overall mining reputation, to the benefit of Australian mining and METS companies.

Australia, through economic diplomacy and its aid for trade program, can support resource-rich developing countries to:

- Build institutions for, and governance of the resources sector
- Develop infrastructure to support resources development and economic growth
- Ensure robust fiscal policy and competitiveness measures
- Facilitate local content to stimulate local businesses and jobs
- Spend the financial returns from resources wisely
- Transform resource wealth into broad, inclusive socioeconomic development
- Gain community support for Australian companies and responsible resource development.

Aid for Trade is development assistance that helps developing countries improve their capacity to trade and attract investment by reducing supply side barriers, which in turn drives economic growth and provides opportunities to build livelihood and increase income.

When applied to resource rich developing countries, this translates as Australian support for the implementation of trade and investment liberalisation measures which will reduce barriers of entry and increase the ease of doing business for Australian mining companies either operating or intending to operate in these countries. There are significant implications here for the effective use of aid for trade as Australia negotiates preferential trade agreements with countries such as India and Indonesia.

The Australian Government is therefore encouraged to increase its aid commitment and utilise some proportion of its aid for trade funds in support of trade and investment related mining industry

4 Josh Frydenberg (2016), extract from speech given to the National Press Club, Hon Josh Frydenberg MP, Minister for Resources, Energy and Northern Australia, 16 February, 2016

interests. This is consistent with the Government's commitment to the Sustainable Development Goals and in promoting Australia as a reputable country with transparent and accountable global companies.

Mining-related aid for trade can address topics such as investment policies for resources and infrastructure, fundamentals of minerals economics and markets, sound administration of legislation, domestic policy and regulation to support and leverage mining investment, negotiation strategies for resource development agreements, and design of minerals revenue systems, including avoidance of transfer mis-pricing. Recent reviews of Australia's investments to date in capacity-building in mining governance have shown that they deliver high impact and value for money, as demonstrated in chapter 7.

This report argues that Australia not only has a strong business case for investment in building mining governance capacity in developing nations, but also an ethical case. Australia is one of the few developed countries that have leading practice knowledge and technology around conducting mining sustainably in social and environmental dimensions, and in translating mining into inclusive growth. It therefore is vital to share this capability in mining governance with nations that are less well equipped to manage and benefit from mining. This is consistent with the interest of a globalised Australian mining sector and our mutual inter-dependency.

The Australian Government and the mining industry are therefore invited to consider a range of recommendations that follow with respect to industry collaboration, data collection, informed policy development, economic diplomacy, mining governance and aid for trade.

The overall analysis and recommendations in this report provide a business case for closer government monitoring of, and engagement with the mining sector both in Australia and abroad, supported by more intensive analysis of outbound investment and trade data. The report advocates for continued investment in specific forms of economic diplomacy and capacity building in support of improved developing country governance: one that not only assists countries to transform their resource endowments into economic benefits, but also one that creates a more conducive business environment for Australian companies to minimise risk, operate efficiently and maximise sustainable returns.

Recommendations

A. Industry monitoring, policy and data collection

Industry monitoring and policy development

There has been little recent analysis of Australia's outbound investment profile. Existing ABS analysis is top-down, showing value of outbound FDI by market or industry of investment, but does not provide details by both market and industry. The Australian Government and the mining industry need to work together to ensure mining investment patterns, data collection systems, research on mining governance and related capacity building issues and ideas for new and innovative mining industry opportunities, are fostered into the future. In light of both the recent mining investment wave and now depressed commodity prices, which underlie the current downturn in mining industry investment, it is prudent to monitor more closely impacts on, and responses by all players in the mining value chain, including METS firms, to capture knowledge and inform appropriate policy formulation for the future.

Stock exchange information, which is tracked by several information broker companies, offers the best source of data on publicly-listed companies, while these same brokers also track, where possible, major private and state-owned company activity. Surveys of companies, such as the Austmine survey of METS firms, also offer rich information.

1. ***It is recommended that the Australian Government and the mining industry examine how they might better collaborate to capture relevant information on contemporary global trends in mining trade and investment markets, and Australia's place in them. This would include closer analysis of the implications for Australian mining interests of the spread of global value chains and the 'servicification' of the global economy with attendant implications for informed policy development in Australia and effective economic diplomacy strategies.***

2. ***Consistent with recommendation 1.1, the Australian Government, in cooperation with the mining and METS sectors, needs to enhance its data collection and statistical analysis, including adoption of new models to capture clearly defined global investment data in mining and related sectors (for example financial services), with a particular focus on outward investment principally for Australia but also for other investor nations.***

B. Supporting the Australian mining industry

Preferential Free Trade Agreements

Utilising improved data and information as suggested in recommendations 1.1 and 1.2 will help Australia to counter the mercantilist policies of certain governments in relation to resource security and mining investment, and strongly assist the promotion of broader mining industry interests in key bilateral and regional trade agreements such as the TPP and RCEP. Of particular importance are the upcoming bilateral trade negotiations with Indonesia and India as potentially lucrative markets for Australia.

3. ***While Australia's trade negotiators do a commendable job of consulting with the mining industry with respect to trade and investment agreements, it is recommended that more be done to assist and inform trade negotiators and policy makers with a holistic and comprehensive understanding of the mining sector, utilising up to date industry data as recommended and enhancing inter-departmental cooperation and collaboration with the mining industry.***

Economic diplomacy in support of the mining industry

The Australian Government says that economic diplomacy is now at the heart of Australia's international engagement, drawing together foreign, trade and development activities and diplomatic resources to deliver greater prosperity for Australia, the region, and globally.

Australia's mining-related economic diplomacy is acknowledged by Australia's diplomats as one of the most potent tools for deepening geo-economic and geo-political relationships. Comprehensively applied, mining economic diplomacy is demonstrated to result in benefits for target nations, for their people, for Australian mining and METS companies and for the Australian economy. Yet, mining-related economic diplomacy is under-utilised and applied inconsistently across resource-rich nations where Australia has significant interests.

4. ***It is recommended that there be a more comprehensive, evidence-based approach to economic diplomacy. Canada's approach and experience provide valuable guidance for Australia for both taking opportunities and avoiding pitfalls.***

The following recommendations as well as those in sections C and D further elaborate on how Australia might broaden its economic diplomacy efforts and approach.

Education and cultural services in support of the mining sector

Australian institutions have been engaged for more than 100 years in research, teaching, technology and skills transfer around minerals and energy. Testament to the capability of these institutions is their international footprint – education of international postgraduate students in mining-related disciplines, research and capacity-building support for the mining sector globally, collaborations with other institutions overseas and partnering with foreign governments to establish centres of excellence.

Developing countries often seek out Australian governments and education institutions for guidance on mining policy, legislation and administration. International students seek out Australia's universities for mining education. Australian universities and research institutions partner with institutions in resource-rich developing nations on various forms of policy and applied research work.

5. ***It is recommended that Australia's mining industry and the Australian Government work more closely together with universities and researchers to expand Australia's role in the delivery of mining related educational services prioritising short courses, collaborative research and capacity-building with foreign institutions, and scholarships for Masters and PhD courses in mining, engineering, geology, international trade and miming governance related fields.***

6. ***It is recommended that Australian governments, universities and other educational institutions pursue stronger cultural diplomacy in support of economic diplomacy: building cultural understanding, learning languages in schools, promoting student exchanges, bilateral cooperative agreements, cultural exchanges in the arts and entertainment industries and the pursuit of deeper links with universities in resource rich developing countries.***

C. A global mining system underpinned by good governance

Support for mining governance in resource rich developing countries

Nations that host well-governed mining sectors tend to:
- Attract investment of higher quality and value
- Achieve better financial returns
- Achieve better economic, social and environmental outcomes.

This is because their risk profile is significantly reduced for investors – sovereign risk, regulatory risk, financial risk and social license risk – and because good governance enables more inclusive development outcomes. Well governed mining regimes benefit Australian mining investors and operations through the creation of a user-friendly, transparent and efficient environment in which well-governed business can operate. Further, Australian Federal and State Governments are ranked very highly in mining governance against objective performance based criteria (see section 5.2) and as such Australia has much to offer by way of capacity-building.

The benefits of the Colombo Plan of the past are well documented with new innovations and versions of this approach being promoted by the Foreign Minister through the aid program. Australia has much to offer in terms of its mining governance expertise, specific technical skills in all aspect of the mining supply chain and in sustainability practices. These all go a long way to promoting Australia's economic and diplomatic interests globally. Mining governance has been the subject of direct aid from Australia, Canada, Germany, Norway and the UK, and through the World Bank, but relative to the documented impact of mining governance capacity-building, there has been little substantial, integrated and long-term activity to date.

Therefore with respect to mining governance, it is recommended that the Australian Government could consider or further reinforce the following initiatives:

7. ***General governance commitment: General support to resource-rich developing country governments in mining governance policy – endorse a specific budget allocation and capacity-building approach to this sector and request country/regional desks to report against activities dedicated to this priority.***

8. ***Regulatory and fiscal reform: The Australian Government could consider strengthening specific support to resource rich developing countries on legislative reform and regulative policy which provides more conducive conditions for foreign investors while ensuring the benefits of FDI are fairly captured by host governments and economies. This would include support for improving the capacity of developing countries to improve their capacity to administer policy, including policies concerning royalties, tax collection policies and fiscal reform.***

9. ***Sustainability: Enhanced support for sound policy and regulation would go some way to ensuring leading practice and consistency in terms of the requirements on foreign companies regarding community consent, social responsibility and sustainability, while also facilitating developing country governments to be consistent and transparent. Australia has much to offer in this area given its extensive experience in mining governance and reinforces the sustainability of regional energy and resources security.***

D. Mining related Aid for Trade initiatives

The Government says that Australia's aid program is an important tool through which Australia supports its economic diplomacy objectives. It says that aid (and in particular aid for trade) is used as a catalyst to promote economic growth and poverty reduction.

Aid for trade is development assistance that helps developing countries improve their capacity to trade and attract investment by reducing supply side barriers, which in turn drives economic growth and provides opportunities to build livelihoods and increase income. It helps developing countries to build the infrastructure and supply-side capacity they need to connect to regional and global markets and improve their trade (including investment) performance.

When applied to resource rich developing countries, this can mean Australian support for the implementation of trade and investment liberalisation measures will reduce barriers of entry and increase the ease of doing business for Australian mining companies either operating or intending to operate in these countries. There are significant implications here for the effective use of aid for trade as Australia negotiates preferential trade agreements with countries such as India and Indonesia. The Australian Government is therefore encouraged to utilise some proportion of its aid for trade commitment to support for trade and investment related to mining industry interests.

As discussed in chapter 7, Canada's development assistance supports developing countries to enhance their capacity to manage their extractive sectors, focusing on building resource governance capacity, growing businesses to improve local economic development, and enabling communities to maximize the benefits of the sector. It also supports implementation of leading international standards and guidelines, for both firms and countries, emphasizing transparency. While the approach is distinct from Canada's CSR Strategy, the two are well aligned. In Europe, the United Kingdom, Germany and Norway all have active aid for trade programs focussed on improving mining governance.

Mining related aid for trade can address topics such as investment policies for resources and infrastructure, fundamentals of minerals economics and markets, sound administration of legislation, domestic policy and regulation to support and leverage mining investment, negotiation strategies for resource development agreements, effective community engagement, and design of minerals revenue systems, including avoidance of transfer mis-pricing. Recent reviews of Australia's investments to date in capacity-building in mining governance have shown that they deliver high impact and value for money.

The following recommendations are therefore put forward for consideration:

10. ***Overall Aid and Aid for Trade: Australia should consider an increase in the overall level of effective, well targeted aid and 'aid for trade' in support of economic diplomacy and mining governance in those regions where Australia has strong mining interest but also in support of economic growth imperatives and the reduction of poverty in developing countries. This is consistent with the Government's commitment to the Sustainable Development Goals and in promoting Australia as a reputable and ethical country.***

11. ***Ease of business and trade reform: Specific technical assistance should be increased to address the poor ratings of many resource rich developing and least developed countries resource rich in terms of the 'ease of doing business' as defined by the World Bank. Aid for Trade in support of improved trade facilitation, reduced duplication of procedures, more efficient bureaucracy, unnecessary licensing arrangements and dubious facilitation payments/hidden costs, would be of great benefit to Australian mining and METS companies working in developing countries. Technical support to address non tariff barriers in support***

of greater regional and multilateral harmonisation in trade and investment rules has the mutual benefit of reinforcing a synergy of cooperation in pursuit of regional energy security.

12. ***<u>Mining infrastructure</u>: Australia should consider an increase in support for mining and trade related infrastructure in resource rich developing countries including both soft and hard infrastructure, and infrastructure governance, including the use of innovative financing approaches.***

13. ***<u>Capacity building</u>: Specific training and capacity building programs for developing country officials in mining governance, trade and investment rules and how to undertake legislative reform in these areas should be reinforced through, for example, the Australia Awards programs and targeted short courses. Training for SMEs in resource rich developing countries on how to take advantage of FDI in mining, including METS and other areas of the mining supply chain, would enhance employment opportunities in these countries and contribute to sustainability. It will also enhance recognition of Australia as a reputable country to do business with.***

14. ***<u>Africa and Latin America</u>: Given Australia's major economic interests in Africa and as that continent's largest exploration and mining investor though publicly-listed companies, it is recommended that Australia's economic diplomacy in the region be strengthened and supported by an increase in well targeted aid and 'aid for trade' with a focus on capacity building and good governance in key sectors relevant to Australia's national interest including mining. There is also a case for targeted capacity-building in selected resource-rich developing countries in Latin America, where Australia has fast-growing mining interests.***

1. Australia's global mining sector

1.1 World-leading, but under-recognised

For many decades, Australia has been one of the world's major producers and exporters of minerals and energy products. Australia, through its ASX-listed companies, is now also one of the major investors in exploration and mining around the globe. In 2013, mining shared the mantle of Australia's highest value sector for offshore investment with financial services and had the highest proportion of enterprises investing overseas.

Large Australian-listed mining companies have operated both in Australia and other resource-rich nations for many years. During the past decade, they have been joined by junior and mid-tier Australian explorers and miners, which have helped to open up new, largely untapped resources regions.

There is evidence that Australia's long experience with exploration and mining at home, and cluster effects, notably in Perth but also in Melbourne, Brisbane and Sydney, has led to development of cross-disciplinary expertise and capabilities that give advantages to Australian companies in offshore investment, particularly 'frontier' destinations.

Australia has also built world-class capability in mining equipment, technology and services, (METS), which both enables mining in Australia to compete globally and has grown to be a major new export sector in its own right, as well as an investor in many countries.

As part of this METS growth, Australia has developed a very strong institutional capability in mining-related education, training, research and technology transfer. Australian companies, universities and governments have developed world-leading expertise in all facets of mining and its interactions with the economy, environment and community[5,6,7].

Australian governments are acknowledged as applying leading practice in mining governance and Australia is viewed as a nation that has performed well across the mining value chain.

Australia, like others, has found that skills, technology and governance are the most critical determinants of how well a jurisdiction is able to leverage its natural resources into broad and inclusive economic growth and social progress[8].

Australia also has been a pioneer in the incorporation of sustainability principles into management and governance of mining.

For reasons such as these, Australian mining companies have become sought after by a number of resource-rich developing nations keen to take advantage of Australia's successful track record in exploration, mine development and sustainable operations. For example, the participation by more than 12 African mining ministers in the annual Africa Down Under Conference held in Perth is, by their admission, driven by desires to attract Australian investment.

5 For example, Greg Moriarty (2012), speech by the Australian Ambassador to Indonesia Mr Greg Moriarty at OZMINE2012 Opening, 17 April 2012: "I believe that Australian companies are world leaders in this area [corporate social responsibility, governance, accountability and education and training] and world's best practice

6 See results of Fraser Institute Survey 2015 and McKinsey Global Institute study in chapter 5

7 MCA (2012), Enduring Value –The Australian Minerals Industry Framework for Sustainable Development, Minerals Council of Australia. 2012

8 SDSN (2013), *Harnessing natural resources for sustainable development: challenges and solutions*, Sustainable Development Solutions Network, September 2013

Large Australian-listed mining companies have operated in Australia and other resource-rich nations for many years. During the past decade, they have been joined by junior and mid-tier Australian explorers and miners, which have also opened up new, largely untapped resources regions.

This has led to rapid globalisation of the Australian exploration and mining sector, transforming it in under a decade from being predominantly domestic in focus to being one of the leading investor nations (though its ASX-listed companies) in all of the world's resource-rich regions. Australian mining is now a formidable global enterprise, and is a world-leading and competitive sector across the entire mining value chain, from exploration, to financing and development, to mining and processing, and to METS.

As Austrade notes[9], however, there is little data and recent analysis of Australia's outbound foreign direct investment (FDI) profile across all sectors. This is hampering understanding of, and policy focus on the rapidly expanding global interests of Australian companies operating in all sectors, including the mining sector.

Notwithstanding Australia's formidable position and reputation in exploration and mining, there is strident competition globally and coupled with the current downturn in commodity prices in this sector, it is timely to review how the Australian Government can best engage and support Australia's long-term business interests. Resources Minister Josh Frydenberg recently highlighted the domestic challenge:

> We need the right domestic policy settings if we are going to seize the investment needed to meet the next wave of demand which is coming out of our region. We (Australia) must continue with our reform program and build on our reputation as a reliable, efficient supplier of high-quality mining product. There is no room, however, for complacency. We are operating in a fiercely competitive global market."[10]

The Minister could also have mentioned the imperatives generated by Australia's global mining footprint, where Australian companies, their shareholders and their employees – and the Australian economy – now also have a major stake in the sound governance of mining around the world.

1.2 Contrast with Canada's two-part resource sector strategy

Australia's poor understanding of its global mining investment interests compares unfavourably with Canada's strong knowledge about its companies' activities around the world. Norway and Sweden, too, monitor and respond to the pattern of investment by their resources and METS companies (Norway focuses on oil and gas production; Sweden on METS markets).

The poor outward FDI data collected by Australia compared with the rich data about inward investment understandably tends to skew discussion about mining to the domestic part of the sector only, albeit with mention of the export role of mineral products and METS goods and services[11].

As a result, policy-makers in Australia tend to be more focussed on the domestic part of the industry, to the neglect of the equally important and expanding global footprint of Australian mining investment and operations.

9 Christina Goodman (2015), *Overseas Investment of Australian Companies: Trade and Investment Note*, Austrade, April 2015

10 Josh Frydenberg (2016), extract from speech given to the National Press Club, Hon Josh Frydenberg MP, Minister for Resources, Energy and Northern Australia, 16 February, 2016

11 For example, Hon Josh Frydenberg (2015), *Mining and the Australian economy: the Australian Government's priorities for the mining sector*, speech to IMARC Conference 12 November 2015, just prior to meetings with mining ministers from several of Australia's overseas mining investment partner nations

This puts the Australian-based explorers and miners at a disadvantage relative to their Canadian competitors, about which the Canadian government maintains comprehensive data. The Canadian Government uses this to underpin a whole of government strategy to support its companies wherever they operate, and to achieve lasting development outcomes for mining in a wide range of resource-rich developing economies. The current Canadian Mining Minister clearly states the dual focus of his portfolio:

> By working together, we can continue to build a strong and vibrant mining sector which reflects our commitment to growing the Canadian economy and protecting the environment, while also supporting Canada's brand of sustainable mineral resource development abroad.[12]

Global Affairs Canada (formerly DFATD) says on its website:

> Canada's history demonstrates that the extractive sector can help build a country. Our extractive companies in the mining, oil and natural gas industries make a major contribution to Canadian prosperity, and are making substantial contributions to economic development in other countries in which they operate. Canadian extractive sector activity abroad can result in a win-win outcome both for the Canadian economy and that of host countries.[13]

Global Affairs Canada then goes on to outline the approach of Canada to promoting strong corporate social responsibility practices and enabling governance environments. It notes the complementarity with Canada's development assistance program:

> Many of the Government's current capacity-building efforts in the area of natural resource management are guided by Canada's existing approach on extractives and sustainable development. Under the approach, Canada's development assistance supports developing countries to enhance their capacity to manage their extractive sectors, focusing on building resource governance capacity, growing businesses to improve local economic development, and enabling communities to maximize the benefits of the sector. It also supports implementation of leading international standards and guidelines, for both firms and countries, emphasizing transparency. While the approach is distinct from the CSR Strategy, the two are well aligned.

This approach is supported by the Mining Association of Canada (MAC), which actively advocates for its member companies wherever they operate. MAC says:

> Healthy dialogue continues over the need to ensure that mining projects in the developing world respect human rights, the environment, and public health and safety. As one of the world's most successful mining countries, Canada has an important role to play in this area.

MAC and its members identify and address evolving issues occurring internationally. This includes transparency of payments to reduce corruption, the protection of human rights and building capacity where weak governance exists. As an industry, we also support community development to help spur local business development, build environmental expertise and reduce poverty in the areas where we operate.[14]

In November 2014, the Canadian government launched its Extractive Sector Strategy, building on Canada's plan for Responsible Resource Development. The rationale was stated as:

> The Canadian Extractive Sector Strategy recognizes that Canadian companies that are strong and successful abroad create jobs and opportunities throughout Canada. Moreover, Canada's technical expertise in the extractive sector strengthens the capacity of our developing country partners to manage their resources and realize the economic and social benefits of responsible resource development.[15]

12 Jim Carr (2015) Minister's Message – Mining Day on the Hill, Hon Jim Carr, PC, MP , Minister for Natural Resources, November 2015

13 Global Affairs Canada (2014), *Canada's Enhanced Corporate Social Responsibility Strategy to Strengthen Canada's Extractive Sector Abroad*, http://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/other-autre/csr-strat-rse.aspx?lang=eng, accessed December 2015

14 MAC (2013), Webpage *International CSR*, Mining Association of Canada, January 2016

15 NRCan (2014), Media Release *Harper Government Announces Latest Actions to Support Canadian Extractive Sector Abroad*, Natural Resources Canada, 18 November 2014

The Extractive Sector Strategy includes:

- leveraging trade and investment agreements to provide the certainty and the predictability necessary for Canadian businesses to invest and operate abroad
- transforming business opportunities into business successes through "economic diplomacy" and on-the-ground support
- advocating for improved governance and regulatory frameworks abroad and sharing best practices
- increasing training in missions abroad to support the extractive sector, complemented by embedded resources in Canada in extractive sector associations
- expanding stakeholder linkages to ensure the Government is responsive to the needs of the extractive sector, including developing annual market access plans for priority markets.

Noting that mining contributes 9 per cent of Canada's outward FDI, MAC supports international trade and investment agreements involving Canada:

> Given the global nature of our sector, the Canadian mining industry is highly supportive of the formation of new investment agreements.[16]

By contrast to Canada's two-track resource sector strategy, the websites of the Australian Government's Department of Foreign Affairs and Trade, and Industry, Innovation and Science (DIIS) pay scant attention to the global reach of resources sector investment. The Australian Trade Commission (Austrade) does examine Australian investment and trade by several sectors and global destinations in its *Australia's International Business Survey* [17], but in relation to mining in other countries, this has an exclusive focus on METS.

Austrade does look briefly at mining in its examination of investment relativities and patterns in its trade and investment note *Overseas investment of Australian companies*[18] (see chapter 4 for discussion of this). DIIS does maintain the webpages for the excellent *Leading Practice Sustainable Development Program for the Mining Industry*[19], which provides handbooks on leading practices in several languages. DIIS also commissioned the *Australian Extractive Industries Transparency Initiative Pilot Multi Stakeholder Group Report to Government*[20].

Overall, the discussion in Australian Government publications focuses principally on trade in goods and services, plus inward investment, with little on outward FDI, let alone mining FDI.

DFAT does discuss extractives sector development assistance in some detail within its webpages on aid investment priorities[21]. The rationale is clearly stated as:

> Australia aims to support developing countries to maximize sustainable benefits from their natural resources, while helping them overcome the challenges. Through engagement in the extractives sector we can assist resource-rich developing countries to strengthen relationships with the private sector, improve governance and revenue management and build technical skills. Continued support in this area is also important for businesses wanting to trade with, and invest in, stable and predictable overseas environments.

In most key DFAT strategy documents, however, extractives or mining are not discussed. In the *Strategy for Australia's Aid for Trade Investments*[22], mining is mentioned only once and then simply in

16 MAC (2013b), Media statement *Mining industry applauds the Canadian government for new trade agreements in Africa*, Mining Association of Canada, December 2013
17 Austrade (2015b), *Australia's International Business Survey 2015*, July 2015
18 Austrade (2015), op. cit.
19 DIIS (2006, 2012), Leading Practice Sustainable Development Program for the Mining Industry, Department of Industry, Innovation and Science, first released 2006, supplemented 2012
20 DIIS (2015), Australian Extractive Industries Transparency Initiative Pilot Multi Stakeholder Group Report to Government, Department of Industry, Innovation and Science, May 2015
21 DFAT (2015), Webpage *Infrastructure, trade facilitation and international competitiveness*, Department of Foreign Affairs and Trade, October 2015
22 DFAT (2015b), *Strategy for Australia's Aid for Trade Investments: Supporting developing countries to trade and prosper*, Department of

the context of being a customer sector for services, despite mining being a clearly identified sector in the accompanying OECD definition of Aid for Trade. In the *Strategy for Australia's aid investments in private sector development*[23], mining is mentioned only in a reference to this being a sector that is subject to aid investment.

Some Australian commentators have expressed concern about outbound FDI in comparison with inbound and domestic FDI, apparently not understanding the fundamental shifts in global trade and investment, in which Australia is intimately and irrevocably involved and to which Australian business and government must respond. A stronger government focus on and promotion of Australia's national interest in outbound FDI would be both timely and valuable in responding to such concerns. The case for a greater effort in understanding and promoting outbound FDI is outlined in chapter 4.

1.3 What is the mining industry?

Australia's mining industry covers a broad range of mining-related activities. The Australian Bureau of Statistics defines "mining" as follows[24]:

> Mining broadly relates to the extraction of minerals occurring naturally as solids, such as coal and ores, liquids such as crude petroleum, or gases such as natural gas. Included are activities carried out at or near mine sites as an integral part of mining operations, such as dressing or beneficiation of ores or other minerals. Natural gas absorption and purifying plants are also included.
>
> However, the first stage processing of minerals and mineral extracts, while closely related to the mining industry, is included as part of the manufacturing industry.

Therefore, mining in Australia is generally taken to include minerals, coal, oil and gas. In policy terms in Australia and elsewhere, the sector is usually split into minerals and coal, and then oil and gas.

The ANZSIC definition of mining includes services to mining, which is broken down into exploration and other mining services.

This paper takes a broad definition of mining, one that includes minerals and coal, oil and gas as well as mining equipment, technology, exploration and services. The discussion is however limited by the availability of good, up to date data that is generally more available for the domestic minerals and coal mining sectors and for some areas of METS. The paper also refers to some aspects of minerals processing, even though ABS regards metal production (and in the bauxite-alumina sector alumina production) as manufacturing. These are included where appropriate, as practically such processing is often integrated with mining operations. Where data is available, the paper refers to the oil and gas sector and to services to it.

Foreign Affairs and Trade, July 2015

23 DFAT (2015c), *Strategy for Australia's aid investments in private sector development*, Department of Foreign Affairs and Trade, October 2015

24 ABS (2012), 1301.0 - *Year Book Australia, 2012*, Australian Bureau of Statistics. See ABS 1292.0 - Australian and New Zealand Standard Industrial Classification (ANZSIC) for more detailed definition

1.4 Mining's economic contribution

The direct contribution of the mining sector to the Australian economy has been well documented. Data cited recently by Resources Minister Josh Frydenberg[25] typifies the traditional commentary:

- From 2003 to 2014, over $400 billion of resources projects were initiated in Australia.
- Mining contributes about 8 per cent to Australia's GDP and around 60 per cent of exports.
- In the last financial year, export earnings from resource and energy commodities totalled $174 billion.
- Australia is the world's largest exporter of iron ore, accounting for 53 per cent of world trade in 2014.
- Australia is also the second largest exporter of coal, the leading energy export.
- Australia is a major exporter of aluminium, copper, gold, uranium and zinc.
- Mining directly employs more than 200,000 people in Australia, with many more people benefiting indirectly, and is particularly important to the economic and social wellbeing of our regional and Indigenous communities.
- It also supports regional economic activity, including supporting local small businesses through sourcing supplies locally.

These data are accurate and impressive, but fall short of defining the sector's full contribution:

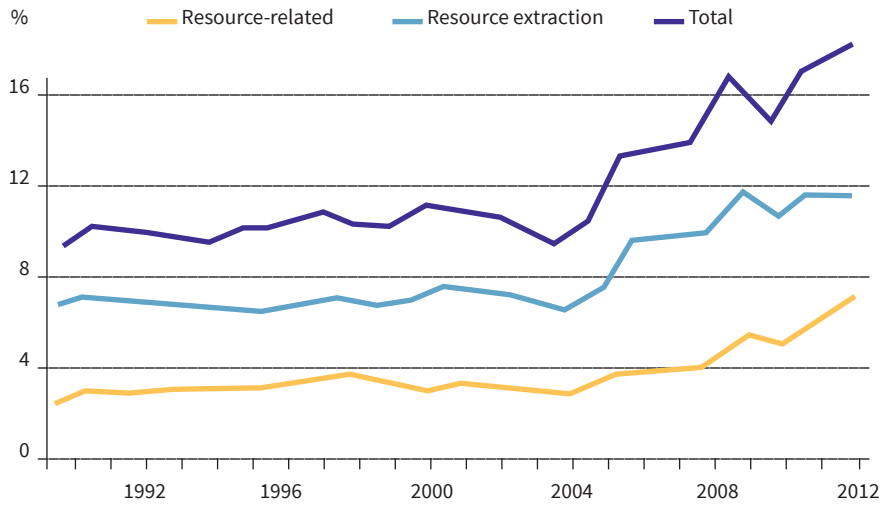
- Mining is undervalued by standard statistical measures. The traditional definition of mining does not take into account the direct inputs, which amplify its economic contribution very substantially and also better connect mining to the rest of the economy.
- The Australian mining sector is now much more than exploration, mining and minerals processing. Taken as a whole – mining together with METS, *in Australia and offshore* – is one of Australia's largest, most globally-facing and geographically diverse industries. It is also highly knowledge and technology intensive[26], though levels of innovation lag those in other sectors[27].
- Australia is also recognised as a source of leading practices across the entire mining value chain (see section 5.2) and in mining governance. Many nations regard Australia as a role model and a preferred investment partner as a consequence. This reputation brings benefits not only to the mining sector, but also to allied sectors, such as infrastructure, financial services, business, accounting and legal services.

In the context of the Minister's observation in a newspaper opinion piece[28] in January 2016 that some of Australian blue-chip resources stocks are core holdings for millions of Australians in their retirement accounts, the interests of many Australians are closely tied to the global performance of our mining companies. As the Minerals Council of Australia has highlighted[29], the Australian minerals sector alone has invested more than AU$160 billion in overseas operations.

The deficiencies of traditional measures of the domestic resources sector were recognised by the Reserve Bank of Australia when it coined the term "resource economy" to better represent the true scale of the domestic sector of the industry. Results of Reserve Bank analysis are shown in Figure 1 and Figure 2. They show that if direct goods and services inputs are added to mining activity, contribution to Gross Value Added rises by more than 50 per cent to 18 per cent, while contribution to employment lifts by 200 per cent to 10 per cent.

25 Josh Frydenberg (2015), *Mining and the Australian economy: the Australian Government's priorities for the mining sector*, the Hon Josh Frydenberg MP, speech to the 2015 International Mining and Resources Conference, Melbourne, 12 November 2015
26 For discussion of the role of knowledge in the future of mining, see CSIRO (2014), *The Future of Mining in Chile*, CSIRO Futures, June 2014
27 EY (2015), Mining uncovered: Business update for Oceania's mining leaders, EY Global Mining & Metals Center, September 2015
28 Josh Fydenberg (2016), *Tapping resources of resilience to see country through trough*, the Hon Josh Frydenberg MP, The Weekend Australian, 16-17 January 2016
29 Brendan Pearson (2015), *Opening Statement to the Parliamentary Inquiry into the Business Utilisation of Free Trade Agreements*, Brendan Pearson, Chief Executive, Minerals Council of Australia, 21 July 2015

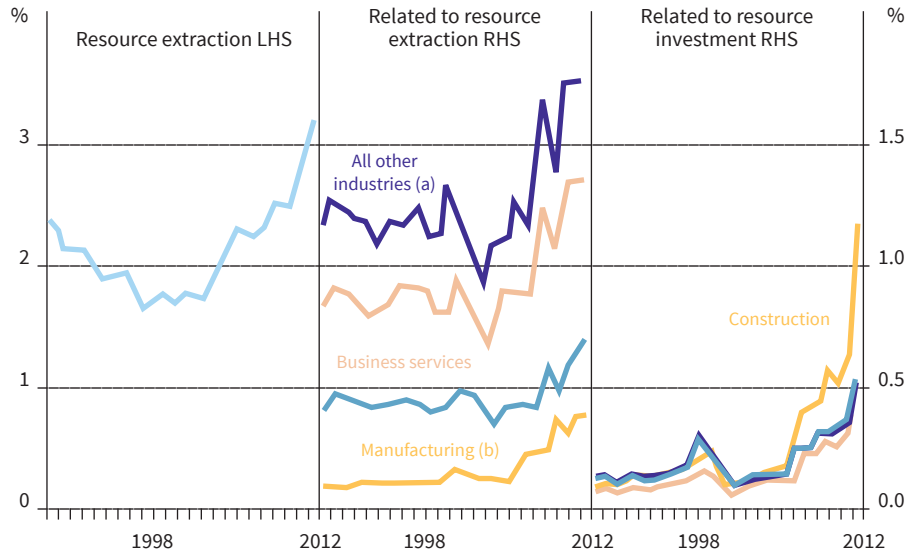
Figure 1: Resource economy share of nominal Gross Value Added, financial year



Note: By 2012, the resource economy generated 18% of GVA: 11.5% directly from extraction and processing; and 6.5% from other sectors providing inputs

Source: *Industry Dimensions of the Resource Boom: An Input-Output Analysis*, Rayner and Bishop, Reserve Bank of Australia, February 2013

Figure 2: Resource economy share of employment by industry: Share of total financial year

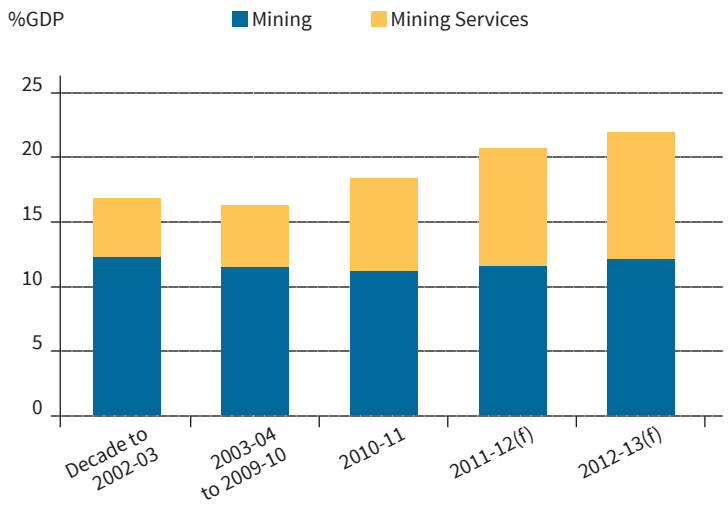


Note: By 2012, the resource economy generated 10% of employment: 3.25% directly from extraction and processing; and 6.75% from other sectors providing inputs

Source: *Industry Dimensions of the Resource Boom: An Input-Output Analysis*, Rayner and Bishop, Reserve Bank of Australia, February 2013

Research commissioned by the Minerals Council of Australia in 2012[30] highlighted the growth of the METS sector and its role in boosting the total impact of mining on the Australian economy. Figure 3 shows that the contribution of the rate of growth of the METS sector to the economy was estimated to have outstripped that of mining in the period 2010 to 2013. Commonwealth Treasury concluded that over the three years, the mining sector would grow annually at 5 per cent and mining-related sectors at over 20 per cent on the back of the investment boom. By contrast, the non-mining sectors comprise 75 per cent of the economy, but are growing annually at only 1 per cent. It should be noted that this was during the investment phase of rapid mining industry growth and the increased production that has resulted will have put mining once again in the leading position.

Figure 3: Growth of mining and METS contribution to Australian economy



Source: Ed Shann (2012), Maximising growth in a mining boom: A public policy analysis, Dr Ed Shann for the Minerals Council of Australia, 2012, citing Treasury Budget forecasts.

In 2013 and again in 2015, the association for METS providers published survey-based data that detailed and amplified the earlier measures of the role of METS in mining's broader economic contribution. Highlights of these data are provided in sections 1.6 and 3.6.

These additional measures help to build understanding of the mining sector across its value chain. As discussed earlier, however, the paucity of data on the global reach of the sector and benefits that flow back to Australia inhibits informed discussion, policy formulation and support for one of Australia's most important industries.

The income and market capitalisation of many mining companies have fallen very substantially in the past 18 months as commodity prices have fallen from historic highs, and new investment is now much lower than during the prices wave. As well, the sales of METS companies have declined as a result of reduced expenditure by mining companies. This is a severe example of the cyclical nature of the mining sector and its impact on investment.

Many METS companies that operate in several jurisdictions have found that geographic and commodity diversity has helped to sustain revenues.

30 Ed Shann (2012), *Maximising growth in a mining boom: A public policy analysis*, citing Treasury Budget forecasts, Dr Ed Shann for the Minerals Council of Australia, 2012

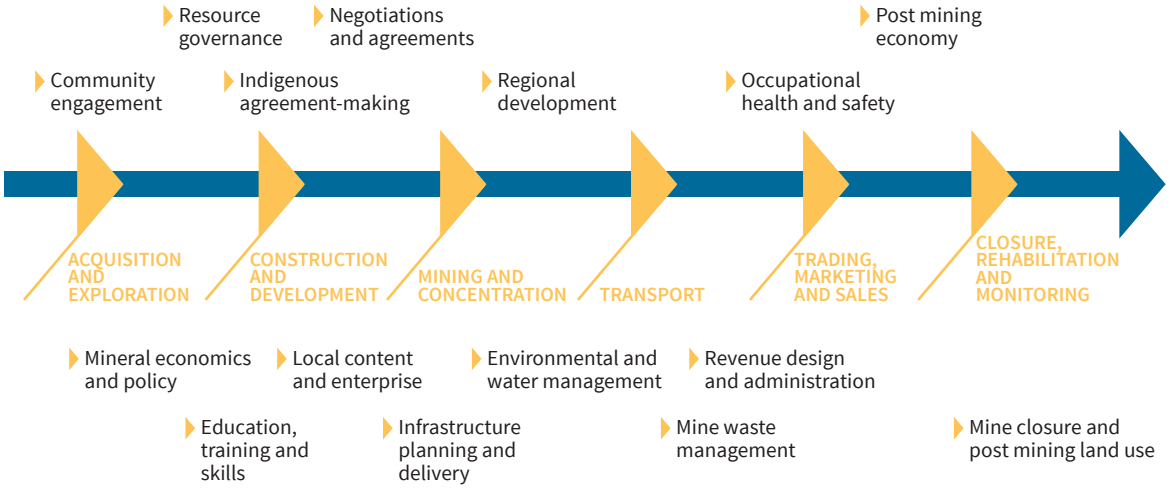
The current situation underlines the need for government to understand better the Australian mining sector, wherever it operates, and to implement policies and strategies that support the sector through commodity and investment cycles.

1.5 The mining lifecycle and mining multipliers

The process of exploring for minerals and energy products, developing them, operating them, closing them at the end of economic life and rehabilitating sites can be referred to as the 'mining lifecycle'. This is illustrated in Figure 4.

Mining has many intersections with the operating environment through the lifecycle, all of which have implications for governance and sustainability. The main categories of interactions are shown in Figure 4.

Figure 4: Illustration of mining lifecycle and key interactions and inputs



Source: Presentation by International Mining for Development Centre, June 2015.

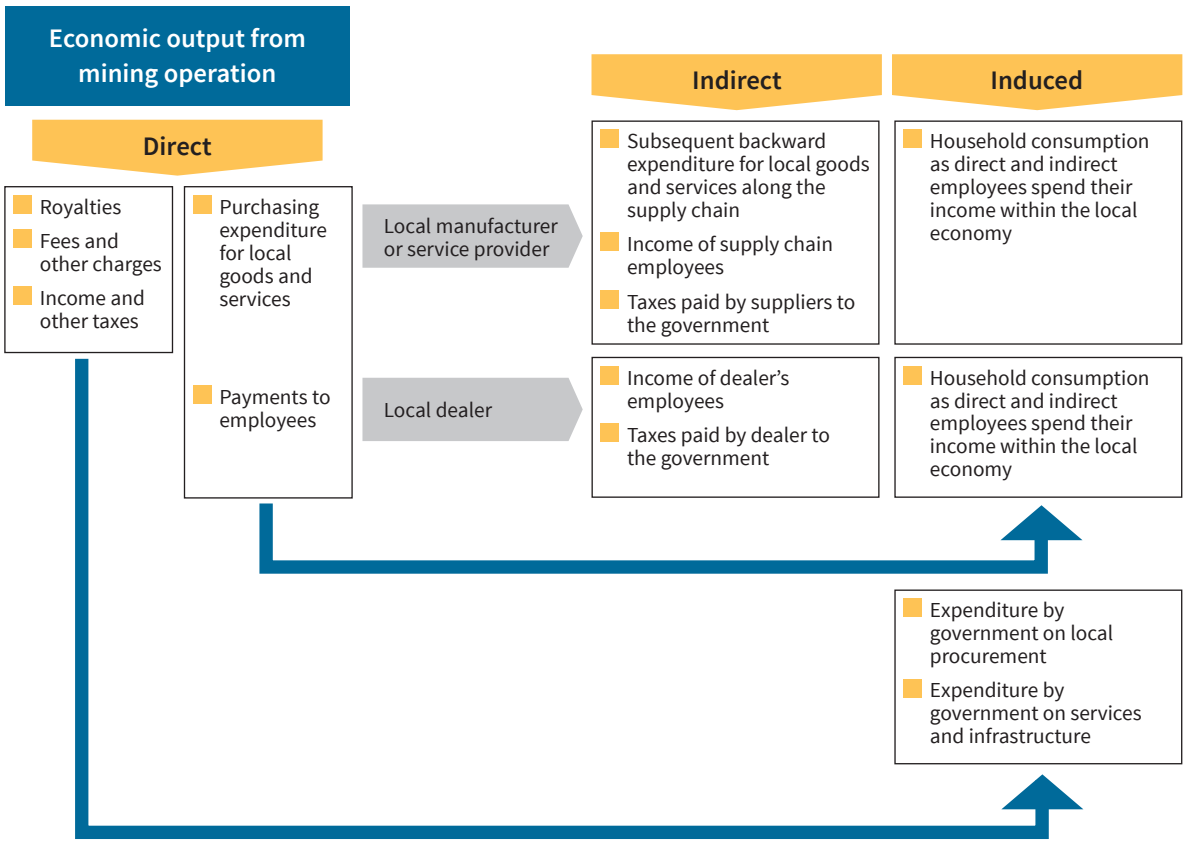
It is widely accepted by economists that mining has significant multiplier effects. Figure 5 identifies many of the categories of interaction that give rise to these effects. Economic modellers agree that one dollar of direct economic activity in the mining sector can generate three dollars or more of indirect and induced economic activity elsewhere[31]. One direct job in mining is supplemented by three to four indirect jobs elsewhere in countries such as Australia, and up to eight or even more jobs in developing countries.

Further, sound policy and governance can support larger multipliers through of greater local economic engagement in the form of additional and higher value employment, and building of robust local suppliers that move progressively up the technology chain. Australia is an exemplar of the value of local skills and suppliers to leveraging minerals and energy development. A Reserve Bank Research Discussion Paper estimated that in Australia in 2008-09, the value of domestic intermediate inputs required for every $1 of industry output is 41 cents[32]. In other words, for every $1 of minerals and energy output, 41 cents is spent in Australia. Only 13 cents worth of inputs are imported.

The value of local METS suppliers is discussed in section 1.6.

31 ICMM (2014), *The role of mining in national economies (2nd edition)*, International Council on Mining and Metals, October 2014
32 Rayner and Bishop (2013), *Industry Dimensions of the Resource Boom: An Input-Output Analysis*, Vanessa Rayner and James Bishop, Reserve Bank of Australia, February 2013

Figure 5: Illustration of operation of mining and its indirect and induced multiplier effects



Source: Adapted by the authors from Saipem Externalities Local Content Evaluation (SELCE) Model 2011.

1.6 Value adding is more than downstream processing

All mining jurisdictions, including Australia, aspire to 'add value' to mineral and energy products though processing before sale, in particular for export. Until recently, the term 'value adding' was used to apply solely to processing of minerals and energy products. More recently, jurisdictions have come to realise that there is a second pathway to adding value: development of a strong mining equipment, technology and services (METS) sector.

1.6.1 Processing of mineral and energy products

While local processing of raw materials before export is a desirable objective for nations, viability of globally-competitive processing is difficult to achieve, as Australia has demonstrated during the past 15 years. Australia has been successful in developing and operating world-scale processing, notably in bauxite refining, aluminium smelting, copper smelting and refining, manganese alloy smelting and ammonia-urea production. In addition, Australia is one of the world's largest LNG producers.

While Australia also has a local steel industry at relatively small scale, investment to take steps towards commercially viable, world-scale processing of the iron ore bounty of the Pilbara region has been unsuccessful, principally due to high costs relative to competitor processors. Australia's high costs are placing pressure on existing processors.

In any case, the benefits for nations from downstream processing may not be as large as expected due to inability of a local economy to engage with the opportunities provided by a complex, large-scale processing operation. In both Australia and developing countries, processing plants in regions with low technical and economic capacity have tended to be enclaves, with low levels of external economies. In regions that do have capacity, the benefits of local processing can be much greater, through employment, business development and local incomes enabled by both local expenditure and technical and skills spillovers[33].

Australia has much experience of policies and governance to enable development and operation of processing plants for minerals and energy products. It is in a good position to share this experience with other nations.

1.6.2 Mining equipment, technology and services

Australia has developed another, very successful pathway to 'value adding' though its mining equipment, technology and services (METS) sector. Australia's METS sector developed initially though demand mainly from the domestic mining sector, assisted by transfers of knowledge and technologies from mining to METS firms – spillover effects in action.

During the past decade, Australian METS firms have expanded their markets beyond Australia into all mining regions of the world, utilising their technologies and knowledge developed in Australia. In 2012, METS firms generated total revenues of $90 billion and METS exports of $15 billion[34].

METS add value to Australia's mining industry in three ways:
- METS firms have enabled high levels of capture of economic activity generated by mining for regions, states and the nation
- METS provide much of the inputs to mining, bringing knowledge and technology that enable mining operations to be world-competitive
- METS firms take Australian and international knowledge and technology to the world's mining industry within their exports of goods and services and their offshore investments.

Market diversification has been key to the success of Australian-based METS firms. They have been able to build market scale, and in the face of recent market downturns in Australia, many have been dependent on offshore markets to maintain viability. The 2015 Austmine survey[35] found that 66 per cent of METS firms are exporting (compared with 55 per cent in 2012), with 52 per cent having overseas offices or operations.

The role of METS within the overall mining sector is discussed further in section 3.6.

To summarise, Australia has a robust, internationally competitive mining sector, which includes not only the direct mining and export of minerals, coal, oil and gas, but also, associated processing and METS sectors, which contribute significantly Australia's economic growth. As a result of demand for Australia's minerals and energy products, and industry's capabilities across the mining lifecycle, mining in Australia has expanded hugely. Reserve Bank Governor, Glen Stevens[36] has pointed out that as a result of massive investment[37], Australia now ships around 2 million tonnes of iron ore a

33 Spillovers, or external economies are impacts from an activity which affect parties not directly involved in the activity. For example, a minerals company may bring with it new or higher levels of technology than are currently available in the host economy. As a consequence of this activity, local firms not connected or indirectly connected to the company's activities may develop additional capability as a result of technology and knowledge transfer effects

34 Austmine (2013), *Australia's New Driver for Growth: Mining Equipment, Technology and Services*, July 2013

35 Austmine (2015) *New Realities, Bigger Horizons: Australian Mining Equipment, Technology and Services (METS) National Survey*, Austmine August 2015

36 Glen Stevens (2015), *After the Boom*, Address to Australia-Israel Chamber of Commerce (WA) Corporate Breakfast, Glen Stevens, Governor, Reserve Bank of Australia, 2 December 2015

37 Glen Stevens noted that by 2011, capital spending by the resources sector had already roughly trebled since 2005. It would rise a further 50 per cent in to 2012 to reach its peak – the highest relative level in more than a century

day, compared with 1 million tonnes just four years ago, which was already double the rate of 2004. Coal exports are now around 1 million tonnes per day, compared to under a million tonnes four years ago. Australia's total LNG production capacity will reach over 80 million tonnes per year in a few years, compared compares with around 10 million tonnes a decade ago.

Mining now directly employs more than 200,000 people[38], with an additional 386,000 employed in the METS sector in 2012[39]. The geographically diverse Australian mining operations and value add contribute very substantially to the economic welfare of regional and Indigenous communities.

As we now experience a difficult downturn in the industry due to the vagaries of global geo-politics and intentional oversupply in some quarters, how can government and industry increase collaboration and mutual support to ensure Australia emerges from the crisis as a stronger, more globally competitive industry?

1.7 Australia's and its mining sector's role in global value chains

As will be discussed further in chapter 2, there are three major changes occurring in patterns of global trade: the rise of Asia as the dominant hub of economic and trade activity; growth of services as proportions of total trade and embedded within goods trade[40]; and the rapid development of global value chains (GVCs).

The OECD[41] notes that GVCs have become a dominant feature of world trade. The income from trade flows within GVCs doubled between 1995 and 2009. The processes of producing goods from product development, procurement of raw materials, to production and marketing of finished products, are increasingly carried out wherever the necessary skills and materials are available at competitive cost and quality. Services also are increasingly delivered through multi-node value chains. Services are key components of value chains in goods as they link activities across countries, help companies to increase the value of their products and form an increasing proportion of product value.

The imperatives and benefits of policies that enable economies to participate in GVCs are set out succinctly by the OECD[42]:

> In a world characterised by components crossing borders multiple times, removing tariffs peaks and escalation in agriculture and manufacturing, as well as addressing non-tariff barriers affecting both goods and services, would reduce business costs and boost growth. Efficient services sectors improve growth prospects not just within the service parts of our economies, but are essential to productivity growth in manufacturing as well. Importantly, appropriately-tailored complementary policies that accompany increased trade and investment openness help ensure that this growth potential is realized and is widely inclusive. This is partly done at the domestic level, but partly also at the international level through the development assistance to help connect the least connected economies.

Several of Australia's goods and services industries are already closely involved in GVCs, as recognised by Trade Minister, Andrew Robb in his remarks at the launch of the OECD Global Value Chains report in July 2014.

The mining sector is increasingly involved in, and dependent on global value chains. As discussed in chapter 3, Australian mining and METS has an expanding global footprint. Mining companies

38 MCA (2015), The Minerals Industry Workforce, webpage of Minerals Council of Australia, December 2015, citing Australian Workforce and Productivity Agency (AWPA), National Workforce Development Strategy – Mining, Australian Government, 2013
39 Austmine (2013) op.cit.
40 ITS Global (2010), *Services International Linkages*, ITS Global, published by DFAT (2010)
41 OECD (2015), *Global Value Chains*, http://www.oecd.org/sti/ind/global-value-chains.htm accessed November 2015
42 OECD (2013), *Implications of global value chains for trade, investment, development and jobs*, OECD, WTO and UNCTAD 6 August 2013, prepared for the G-20 Leaders Summit

participate in GVCs though their procurement practices and they provide raw material inputs, plus intermediate products to GVCs. Many METS companies deliver their goods and services through GVCs across several countries.

The OECD observes[43] that the expansion of the operations of multinational enterprises such as mining companies, through foreign direct investment (FDI), has been a major driver of growth of global value chains (GVCs). This is illustrated by the close correlation between FDI stocks in countries and their GVCs participation index. The presence of foreign affiliates is an important factor influencing both imported contents in exports and participation in international production networks.

Mining and METS can therefore facilitate greater participation in GVCs by host countries. The Australian Government can support these companies through its economic diplomacy initiatives, which is discussed in more detail in chapters 6 and 7.

1.8 Applying knowledge, skills, technology and innovation

Australia's minerals and energy endowments have underpinned the nation's comparative advantage and supported its prosperity for more than 100 years. Notwithstanding the current focus on 'new tech' as the cradle of innovation, the fact is that mining has spawned a world-leading innovation complex in Australia. Mining is a sector where Australia has developed exceptional skills in developing and applying innovative technologies and management approaches, where it has grown specialist financial institutions that assess start-up projects for financing, and where it has developed a knowledge- and technology-rich METS sector that has enabled Australian mining to turn its comparative advantage into competitive advantage.

Innovation and the application of technical and management skills have been essential to the mining sector in Australia both surviving and thriving despite cost, commercial and technical challenges. Australia's leadership in mining and METS, underpinned by the application of knowledge, skills, technology and innovation, now has enabled mining to expand into many other regions.

There is evidence of development of clusters of capability in Australia, which enhance the competitiveness of Australian mining companies and contribute to their ability to invest with success around the world. Factors of success for Australian firms in global mining investment is examined in current research led by UWA's Professor Ray da Silva Rosa[44], which concludes that Western Australia has developed a mining and capital-raising cluster (a "Silicon Valley for mining"), which brings together complementary disciplines in a concentration of executives and technical capability. The author postulates that the network of directors and executives and their collective expertise across the mining value chain is integral to Western Australia's resources ecosystem:

They have both the scientific knowledge and the market knowledge – in areas ranging from geology, global demand, assessment of management talent, legal and regulatory affairs – to raise capital effectively on a global scale.

There are likely to be other such mining clusters in Australia, notably in Melbourne and Brisbane, albeit smaller in number of companies. In addition, there are mining-related research and education clusters in several cities.

43 OECD (2014), *Global value chains: challenges, opportunities, and implications for policy*, OECD, WTO and World Bank Group, July 2014, prepared for the G20 Trade Ministers Meeting

44 Raymond da Silva Rosa (2014), *Competitive advantage in capital raising: the case of Western Australia's junior mining sector*, draft unpublished research paper, Raymond da Silva Rosa, Patrick Davies & Sharon Purchase, August 2014

METS companies, by the nature of their business, are built on knowledge, skills, technology and innovation. The 2015 Austmine survey found that of 432 companies surveyed:

- 63 per cent reported that innovation was core to their business strategy
- 37 per cent reported that launching a new product or service for was a critical strategy for combating the mining downturn, and 37 per cent also saw this as an important opportunity for future growth
- 81 per cent of companies launched new products or services continuously or every few years
- 78 per cent reported expenditure on R&D in financial year 2014.

The survey also found that collaboration is a key to the METS sector's success, with 39 per of companies reported that they collaborate with other organizations on R&D. 62 per cent of these collaborate with other suppliers, 45 per cent with mining companies, and 42 per cent with universities. Other collaboration partners include government entities, co-operative research centres (CRCs), and public and private research organisations.

Collaborating internationally on R&D and other aspects of their business was reported by 45 per cent of companies. With 66 per cent of METS companies exporting, collaboration is clearly core to the business model of many METS companies.

It is clear also that METS companies are critical to the success of their mining customers. The dominant drivers of innovation were reported as:

- "External, customer-focused product, process or service innovation is core to business strategy" (61 per cent)
- "Our customers ask us to solve their problems" (60 per cent)
- "Staying ahead of the competition" (62 per cent)
- "Internal operational improvements to increase productivity, reduce costs, increase safety, etc." (51 per cent).

The oft-cited fact that 60 per cent of the world's mining related software is produced in Australia is also testament to the technical sophistication of the industry.

As part of its METS growth, Australia has developed very strong institutional capability in education, training, research and technology transfer.

The Australian mining industry has proven to be robust, strategic and flexible but challenging times are ahead, which will no doubt draw on the expertise and innovation of the sector. The following chapter looks at some of the key trends, challenges and ultimately, opportunities ahead.

2. The changing face of the global mining sector: trade and investment trends

2.1 Rapid changes to global growth, trade and investment

Patterns of economic growth, investment and trade have changed rapidly and dramatically in recent years. In particular:

- Asia is now the largest hub of economic activity, the focus of global growth and principal driver of demand for minerals and energy, notwithstanding the effects of recent downturns in growth in China.
- Free Trade Agreements with Japan, Korea and China as well as anticipated FTAs in the future with India and Indonesia provide new opportunities and challenges for the mining industry
- Some of the fastest growing economies in the world now are also in Africa, albeit off low GDP bases. Ethiopia, Gambia, Liberia, Malawi, Mozambique, Rwanda, Uganda, Tanzania and Zambia have all witnessed average growth rates over 5% (based on the decade from 2003–2013)
- Africa and Latin America, plus Australia, have attracted unprecedented level of foreign investment, much of which is to supply the raw materials to fuel demand.
- The strategies of China to secure minerals and energy supply sources have been followed by responses from Japan and Korea. As discussed in the next section, these resource security strategies can include mercantilist approaches that may not deliver to the host nation the long-term sustainable development outcomes that are desired. In response to the north Asian resource security approaches, European countries have responded with resource security and stewardship strategies of their own.
- By 2020, India will overtake China, Japan and the EU to become the largest coal importer in the world as it seeks to almost treble coal fired power generation between now and 2040.
- Global value chains are overtaking many of the traditional patterns of manufacture, service delivery and export. As well, 'servicification' of economies and trade is occurring as growing economies demand more services, as services trade grows as a proportion of total trade, as manufactured goods integrate more services, and as measurement of trade in services becomes a more precise science.
- The Trans Pacific Partnership (TPP) and upcoming Regional Comprehensive Economic Partnership (RCEP) both represent significant new regional trade agreements and may herald a new ear of mega-regional trade and investment opportunities for the Australian mining industry.

Australian companies across mining and METS sectors have generally responded to many of the global trade and investment opportunities that these changes bring. The closer monitoring and collection of data as discussed further in chapter 4 will assist the industry and government to identify risk and opportunity more strategically as the above developments unfold.

In some developing economies, however, inadequate governance has militated against Australian trade and investment, to the cost of both companies and destination economies. Chapter 5 discusses how improvements to the governance of minerals and energy in developing countries can enhance trade and investment so as to deliver benefits both to nations and their communities as well as to Australian companies that are active there, while also attracting new Australian business.

2.2 Rise of Asian demand and resource security strategies

Global demand for mineral and energy products has risen consistently during most of the past two decades. During the decade from 2005, China has led demand growth. This demand and initially slow supply responses led to soaring commodity prices. In response, Jeffrey Wilson[45] observes, China, followed by the Japanese and Korean governments, launched international resource security strategies. These strategies, Wilson argues, have mercantilist characteristics.

More recently, European nations, through the European Union and independently, have launched their own resource security strategies. The EU's Horizon 2020 strategy has raw materials as one of its key focus areas (see Box 1). The third component of the European strategy targets "establishing proactive international cooperation with third countries".

Wilson examines the strategies of Korea and Japan in response to rising prices and the resource security strategies of China.

Wilson analyses the three primary interventionist components of these strategies – financial assistance policies for foreign investment, resource diplomacy initiatives and resource-related free trade agreements – and argues that a combination of restricted supply relative to demand and a process of competitive policy emulation led to the adoption of mercantilist strategies in these economies.

The main goal of mercantilism is to increase a nation's wealth by imposing government regulation concerning all of the nation's commercial interests. Wilson says that mercantilist resource security strategies form a state-directed approach to addressing the risks associated with an economy's reliance on resource imports. They occur when a consumer state deploys policies to secure access to resources on a more privileged basis than reliance on international markets alone would provide. They aim to ensure control over supply, by building supply networks in which national firms own foreign resource projects at the site of production.

Wilson identifies elements typically included in a mercantilist resource security strategy:

- Governmental preference for resource imports from sources owned or controlled by national firms – referred to as 'equity resources'
- Economic policies that provide financial and regulatory assistance to national firms to acquire foreign resource projects
- Foreign policies that aim to enhance bilateral links with key supplier states to improve the environment for such investments – known as 'resource diplomacy'.

Research published by the Peterson Institute[46] found that since 2000, China's outward foreign direct investment (OFDI) has grown at an average annual rate of 50 per cent and has been targeted towards extractive industries. For example, 73.5 per cent of Chinese OFDI in Latin America was into the mineral and energy sector. The Peterson Institute report cites examples of other research reports that demonstrate that Chinese OFDI targets countries with strong natural resource endowments and weak rule of law. While explicitly avoiding implications of 'nefarious intent', the Peterson Institute authors do say that Chinese companies may be less constrained in operating in low-capacity countries that companies from developed countries, which are constrained by laws and norms that seek to prevent, for example, corrupt practices.

45 Jeffrey D. Wilson (2014) *Northeast Asian Resource Security Strategies and International Resource Politics in Asia*, Asian Studies Review, 38:1, 15-35

46 Hendrix and Noland (2014), Confronting the Curse: The Economics and Geopolitics of Natural Resource Governance, Cullen S. Hendrix and Marcus Noland, Peterson Institute for International Economics, May 2014

Wilson argues that mercantilist resource security strategies may detract from resource cooperation in Asia, and may also lead to approaches to supplier countries that fall short of delivering sustainable benefits from the development of natural resources.

Mercantilist strategies also carry implications for broader patterns of international trade and politics, undermining efforts to achieve greater multilateral free trade. While commodity prices may be depressed, nations practising mercantilist resource security strategies are likely to find that resource-rich host countries are very receptive to approaches that could deliver faster returns than usual market operations.

The EU also has developed some characteristics of a mercantilist strategy with respect to securing raw materials, as is further outlined in Box 1. The international cooperation components of the Raw Materials Initiative and Horizon 2020, however, have sought to achieve win-win outcomes from minerals development in supplier countries to Europe. The EU wishes to develop quality-assured supply chains so as to both deliver sustainable benefits to supplier nations and communities and assure that supply chains are secure and sustainable[47].

In January 2016, the OECD Latin American Economic Outlook[48] notes that while the demand influence of China may have waned somewhat in the 'new normal', China will be very influential on the economies of Latin America. The OECD says that building a China-Latin America development partnership would be beneficial. Benefits will be greater and risks reduced though better governance capacity in Latin America: to build better regulations, stronger government capacities to develop bankable projects, environmental sustainability and a stronger commitment to transparency.

The Peterson Institute report found that in addition to a clear link between Chinese OFDI and seeking of supplies of natural resources, there was a lesser link with Chinese development assistance.

It says that while the symptoms of resources curse in poor countries that are dependent on natural resources are not easily ameliorated, developed countries should promote good governance initiatives at local and international levels and seek to have customer countries such as China participate in these efforts:

> The most useful contribution the global community could make – via multilateral development banks, bilateral aid programs, or private initiatives – would be to provide technical and financial assistance to support institution building and accumulation of human capital. Improved governance may not be a sufficient condition for addressing the resources curse, but it is surely a necessary one.

It is certainly in Australia's interests as a leading nation in mining governance to counterbalance the impact of resources security strategies on the resources curse through continued promotion of free and fairer trade reinforcing the principles of non-discrimination and transparency, support for building institutional and human capacity and quality governance. Such outcomes should lead to a more conducive business environment and better economic outcomes in developing countries. Through such efforts, Australian investment and trade interest are supported in addition to the interests of partner nations.

These are the key reasons that Canada invests heavily in building governance capability in resource-rich developing countries.

47 EU (2008, 2014), Policy and strategy for raw materials – Raw Materials Initiative, European Innovation Partnership on Raw Materials, and Horizon 2020, European Union

48 OECD (2015), *Latin American Economic Outlook 2016: Towards a New Partnership with China*, OECD Paris, December 2015

Box 1: EU Horizon 2020 and raw materials[49]

The EU Raw Materials initiative under Horizon 2020 has the objective of "ensuring the sustainable supply of non-energy and non-agricultural raw materials". The European Union is facing two main challenges, which are crucial for a strong EU industrial base as an essential building block of the EU's growth and competitiveness:

- a high dependence of its imports, and
- the security of supply of raw materials.

Sectors depending on access to raw materials, such as construction, chemicals, automotive, aerospace, machinery, equipment, renewable energy devices, have a combined added value in excess of EUR 1,000 billion and provide employment for some 30 million people.

EU addressed these challenges in the EU Raw Materials policy and strategy called "Raw materials initiative". Based on this initiative, the new European Innovation Partnership (EIP) on Raw Materials, gathers many different players, from Member States authorities, industry, research organisations and initiatives, and civil society to develop the Strategic Implementation Plan (SIP). The plan is composed of a comprehensive set of Research and Innovation actions under the three pillars: technology, non-technology and international cooperation.

Concrete targets of the SIP include the launch of up to 10 pilot actions to promote technologies for the production of primary and secondary raw materials, finding substitutes for at least three applications of critical and scarce raw materials, building up the EU raw materials knowledge base, creating better framework conditions for raw materials in the EU, and establishing proactive international cooperation with third countries.

'Raw materials' in Horizon 2020

In order to tap the full potential of primary and secondary raw materials and to boost the innovation capacity of the EU raw materials sector a number of challenges along the entire raw materials value chain will be addressed in the Raw materials part of the Societal Challenge 5: 'Climate action, environment, resource efficiency and raw materials'.

It predominantly focuses on non-energy and non-agricultural raw materials used in industry (metallic minerals, industrial minerals, construction materials, wood and natural rubber).

2.3 Moving on from mercantilism: why Australian investment overseas is good for Australia

Discussion about Australia's trade and investment tends to focus on exports (and until recently, mostly of goods and little of services) and on inward investment. There is little discussion about imports other than as competition to Australia's manufacturers, or about outward investment generally. Most likely, this is because Australia does not have sufficient data to enable it to understand the patterns of outward investment in any detail. Worse, some politicians and commentators have taken a distinctly 'glass half empty' view to outward investment and to

49 European Commission (2013) Horizon 2020: The EU Framework Programme for Research and Innovation Raw Materials

Australia's efforts to promote it. They see exports and inward investment as delivering the principal trade benefits to Australia[50].

Yet, Australia's long-standing and world-leading trade policy is based on a sophisticated understanding within successive governments of the multiple benefits to Australia of liberalised trade and investment, both inwards and outwards. Notwithstanding some public and political misconceptions, Australian policy-makers are motivated by the fact that the benefits of trade liberalisation flow as much from driving reform at home and facilitating outward investment as from enabling exports and inward investment.

Further, the authors note a seemingly minor, but actually significant inconsistency between the headline description of economic diplomacy on the DFAT website and the more detailed descriptions in background material. The headline says:

Australia's economic diplomacy agenda is based on four key pillars:
- promoting trade
- encouraging growth
- attracting investment
- supporting Australian business.

The descriptions of each of the pillars provide a more accurate reflection of the holistic approach of: promoting two way trade; promoting growth both in Australia and in other developed and developing nations; attracting investment to Australia and supporting developing nations to also attract investment; and supporting Australian businesses in Australia and overseas, while also promoting sustainable growth in the private sector in developing countries.

DFAT and Austrade have as a key function support for Australian investment abroad. The DFAT website says:

> The Australian government is working to support Australian investors and their investments in other economies. This includes international efforts to promote a more predictable and transparent environment for investment and regulatory arrangements that are more conducive to the cross-border flow of investment.[51]

Yet, as discussed in chapter 4, the government does not appear to know, with any degree of precision, what the industry sectoral patterns of investment are in each major investment destination abroad.

DFAT is understood to have subscribed to the IntierraLive (now SNL Metals & Mining) database that should have enabled it to produce detailed information on mining company activity globally. DFAT in Canberra and at key posts has also produced some spreadsheets that summarise investment by Australian-listed mining companies in key nations or regions.

In Austrade's April 2015 Trade and Investment Note *Overseas Investment of Australian Companies*[52], the author provides sound arguments as to why overseas investment is good for Australian companies and its economy. A summary is provided in Box 2.

50 The 2015 Australian Government advertising campaign about the benefits of free trade agreements, which termed them 'free trade export agreements', echoes this misconception

51 DFAT (2015), *Where does Australia invest?*, http://dfat.gov.au/trade/topics/investment/Pages/where-does-australia-invest.aspx Department of Foreign Affairs and Trade

52 Christina Goodman (2015), op. cit.

Box 2: Summary of Austrade's reasons why outbound investment is good for Australia[53]

- Companies can potentially be more competitive internationally and domestically when they internationalise their operations. It may help companies to develop economies of scale or achieve logistics cost reductions through being closer to a new customer base. While some lower-paid jobs may shift offshore, it can also lead to more highly skilled and highly paid jobs in Australia, which may have a higher skilled workforce to draw on – for example for research and development (R&D), finance and management roles. Even when shifting operations offshore does not coincide with company expansion, it can help to protect existing jobs though making the company's overall operations more competitive.

- Outbound investment can improve access to new markets and enhance ability to service customers. Being close to potential customers in foreign markets may mean setting up subsidiaries or entering into joint-ventures with local partners in these markets. These additional operations, which target a new customer base and new revenue may, once profitable, remit profits back to the Australian parent or Australian shareholders, contributing to Australian tax revenue. They may also increase the sales of the Australian operations to the subsidiary, potentially increasing jobs in Australia.

- Joint ventures, mergers and acquisitions, investment in foreign R&D facilities, and the hiring of local foreign staff may provide access to new information, new contacts, and new areas of expertise, that help to bring technology and innovation to the parent company, including in its domestic operations.

- Where Australian companies have both cash and know-how, investing in existing or new foreign companies may allow them to take advantage of growth opportunities not available domestically and diversify their investment across a wider geography, allowing for a better return on capital. Even if there is a comparable domestic opportunity, it does not displace domestic investment that would otherwise have occurred. Profits remitted back to the parent contribute to Australia's tax revenue.

Each of the benefits identified by Austrade are applicable to mining and METS investment. Additionally, it is clear that Australia's mining sector must expand globally in order to continue to grow:

- Rapid and fundamental changes to the patterns and structure of global investment and trade means that Australian companies, in order to grow and flourish, must change or refine their business models to embrace regional and global diversification of their investment and trade activities.
- Australia is a mature destination for exploration and discovery of mineral deposits and their development. Opportunities are limited relative to the number and capability of Australian junior, mid-tier and senior mining companies. They need to expand offshore to build their businesses.
- The expertise of the Australian mining sector can be applied to all parts of the mining value chain in other nations that have limited capability, deliver returns to host nations and benefits to Australia in terms of jobs, sales and remitted profits.
- Outward investment in mining and METS in turn can attract inward investment. Australia's global footprint helps to build Australia's 'brand' as an advanced resources nation with sophisticated

53 Adapted from Christina Goodman (2015), op. cit.

capability in technologies, R&D, investment, governance and sustainability. This attracts companies to invest in Australia.
- Australian investment in exploration and mining in other countries has a very strong pull-though effect for suppliers of METS, enabling them to establish footholds in new markets and then build their customer base of all mining companies operating in these markets.
- Offshore investment by Australian companies generally follows advances in mining governance regimes in destination countries that recognise that they need to reform in order to attract responsible and sustainable investment. This creates competitive tension within Australian jurisdictions, helping to drive ongoing reforms to ensure that they remain in the top tier of global mining investment destinations.

It is therefore unequivocally in Australia's interests to understand and facilitate both inward *and* outward trade and investment in all tradeable sectors, including mining and METS. This is Austrade's remit and it is also within the charter of the Department of Foreign Affairs and Trade. Both do actively promote mining and METS, but are inhibited by limited by inadequate data and consequent poor understanding of the sector's activities abroad.

Australia's Department of Industry, Innovation and Science, like Natural Resources Canada, must also take a role in advancing *all* of Australia's mining interests, both at home and abroad. The Department does have some internationally-focussed activity but in the light of Australia's investment and trade interests and its global mining footprint, the predominantly domestic focus needs to be expanded to respond to these.

Ministers and industry leaders too, must celebrate Australia's global success and promote two-way trade and investment relating to mining.

Of course, in order for Australia's government agencies to acquit their roles fully, the Australian Government must ensure that comprehensive data is collected, analysed and disseminated, in cooperation with the private sector.

2.4 Poverty reduction underpinned by economic growth and development

The 2030 Agenda for Sustainable Development[54], agreed by the United Nations in September 2015, set out 17 Sustainable Development Goals (SDGs), each with hard targets.

For many resource-rich nations, several of the SDGs and targets can be addressed and achieved though development based on mining. These goals include (SDG numbers shown):
- **8. Decent work & economic growth:** promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- **9. Industry, innovation & infrastructure**: build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- **10. Reduced inequalities:** reduce inequality within and among countries
- **12. Responsible consumption & production:** ensure sustainable consumption and production patterns

Mining within sustainability frameworks offers much towards achieving each of the targets under the goals listed, plus **Sustainable Development Goal 1 – No poverty:** end poverty in all its forms everywhere.

54 United Nations (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*, United Nations, September 2015

Of course, mining needs to be governed and conducted so as to contribute to addressing all of these goals. Most major mining companies implement comprehensive sustainable development strategies wherever they operate. Many developing countries have under-developed governance approaches, however, and need to develop these to build an environment where greater mutual benefits of mining can be realised.

Australia and Canada are the global hubs of knowledge, technology and governance for mining and processing of minerals and coal. Both also have expertise in oil and gas. A high impact way that they can contribute to successful pursuit of the Global Goals for Sustainable Development is to work with resource-rich developing countries to build capability to achieve strong, inclusive and sustainable growth from mining. Indeed, it is argued that as the global leaders in responsible mining, they have an obligation to support developing countries to develop their resources in ways consistent with the Global Goals. These issues are further elaborated in chapters 6 and 7.

3. Australia's expanding global mining sector

3.1 Data sources and limitations

Data in this chapter has been derived from a variety of sources over various time periods. This has been necessary in order to build a detailed picture of the scale, footprint and other characteristics of Australian mining around the world. The data has limitations but the authors believe that it provides an authoritative case for their contention of Australia's position as one of the leading investor nations.

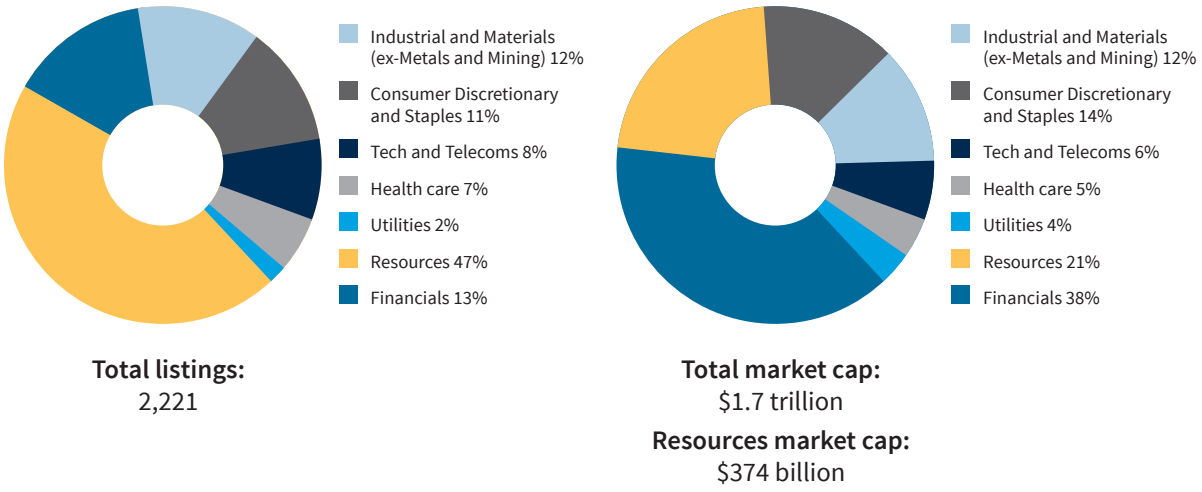
3.2 Australian mining has expanded both at home and abroad

The past decade has seen unprecedented expansion of Australia's mining sector, both in Australia and around the world. Australian mining, energy and METS companies now operate in all of the world's resource-rich regions. Australia is second only to Canada in terms of number of publicly-listed companies operating in exploration and mining for minerals and coal globally and is also number two in global exploration expenditure.

Since 2008, minerals and energy companies have committed historically high levels of investment in mining and associated infrastructure. This investment wave, while now subsiding as mining moves to a phase of much-increased production, was estimated as the largest in real terms since the 1800's gold rushes[55,56].

At the same time, activity by ASX-listed resources companies in other nations has been rising to unprecedented levels. Mining and METS companies have been deploying capabilities that have been developed in Australia to enable them to be very successful globally.

Figure 6: Number of listed companies and market capitalisation by sector, ASX Nov. 2015



Total listings:
2,221

Total market cap:
$1.7 trillion

Resources market cap:
$374 billion

Source: ASX (2015), *Presentation to Queensland Exploration Council*, Australian Stock Exchange, November 2015.

55 Wayne Swan (2010), Treasurer, Speech to New York Stock Exchange, The Hon Wayne Swan MP, October 2010
56 Glen Stevens (2011), Address to The Anika Foundation, Glen Stevens, Governor, Reserve Bank, July 2011

The resources sector is the largest industry sector on the Australian Securities Exchange by number of companies and second largest by market capitalisation (Figure 6). Some 800 ASX listed companies are involved in mineral exploration, development and production in more than 100 countries. Another 250 energy companies are also listed on the ASX. Through the ASX, investors have supported 250 new resources (minerals & metals and energy) floats since 2010 (Table 1).

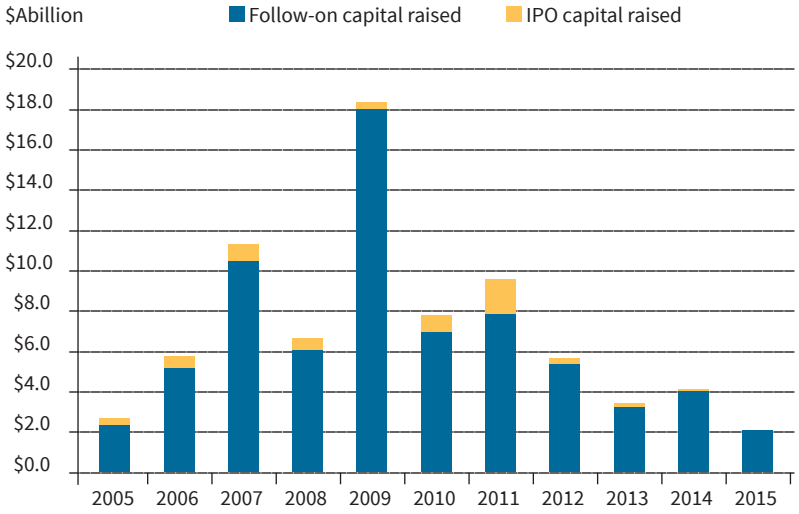
Table 1: ASX new resources listings, 2010 – 2015

	2010	2011	2012	2013	2014	2015	Totals
Metals & mining	67	74	35	14	8	0	198
Energy	9	15	9	14	4	1	52
Resources (total)	**76**	**89**	**44**	**28**	**12**	**1**	**250**

Source: ASX (2015).

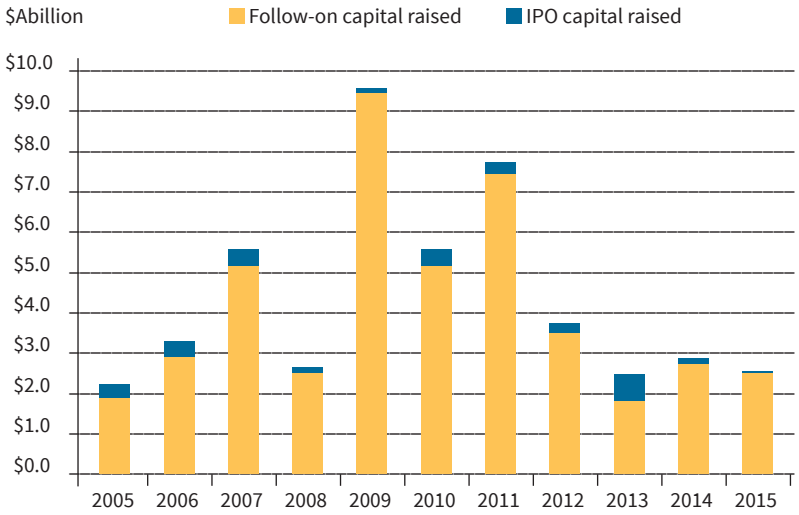
As Figure 7 and Figure 8 show, follow-on capital raisings add far more to the level of total capital raised by the resources sector.

Figure 7: Capital raised by metals and mining companies on ASX, by year 2005 – 2015



Source: ASX (2015).

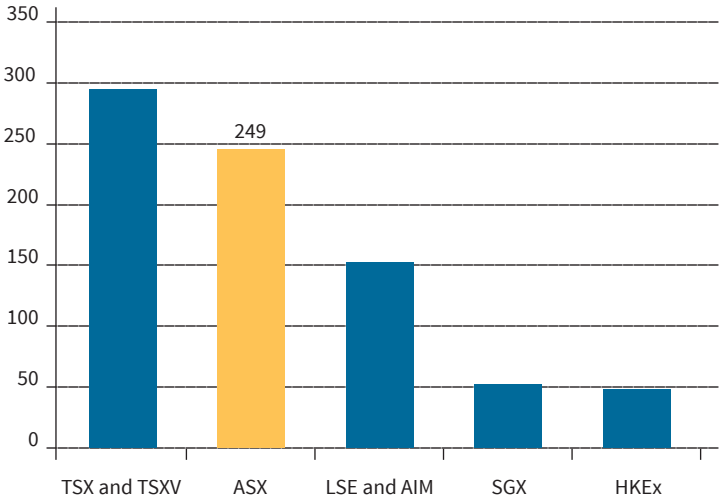
Figure 8: Capital raised by energy companies on ASX, by year 2005 – 2015



Source: ASX (2015).

Energy companies as well as minerals companies feature on the ASX, which has the largest number of listings in the Asia-Pacific region (Figure 9).

Figure 9: Number of energy sector listings on major exchanges

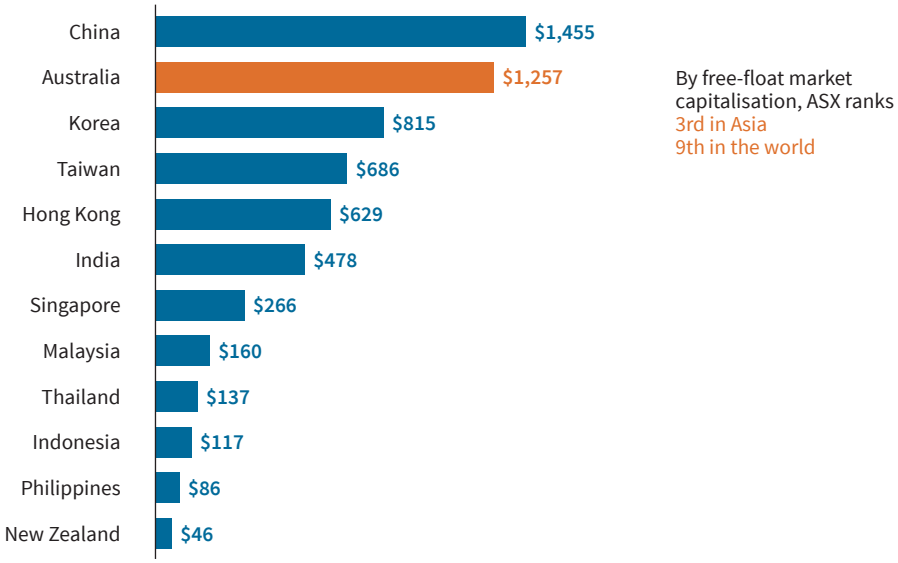


Legend: TSX = Toronto Stock Exchange; TSX-V = TSX Venture Exchange; ASX = Australian Securities Exchange; LSE = London Stock Exchange; AIM (formerly Alternative Investment Market) – sub-market of LSE; SGX = Singapore Exchange; HKEx = Hong Kong Exchanges

Source: ASX (2015).

The ASX has a leading position amongst exchanges in the region and globally. Resources are a key to this success. The strong presence of resources listings help to build scale, liquidity and credibility. In turn, this assists other sectors to raise capital on the ASX, consolidating their situation and the position of the ASX in the region and the world (Figure 10).

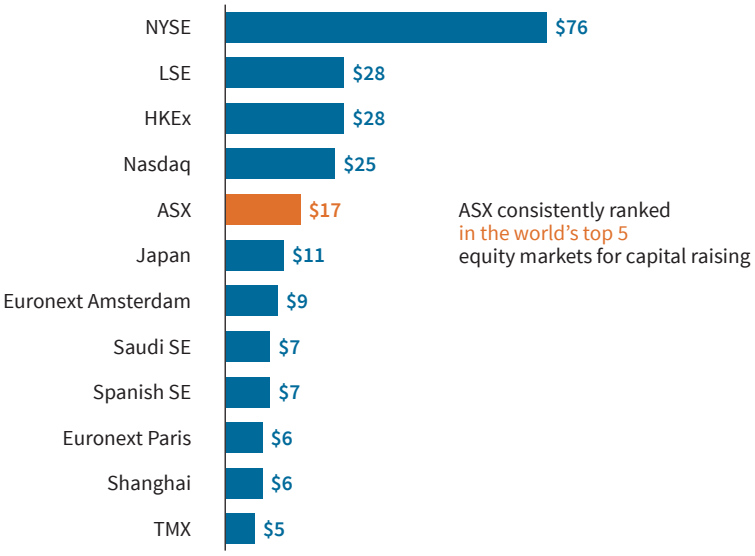
Figure 10: Size of stock markets in Asia-Pacific region (ex-Japan, US$ b)



Note: Japan market capitalisation April 2015 US$4,023
Source: ASX (2015) from S&P World by Numbers report, April 2015.

While IPO capital raisings for resources fell to just 12 companies in 2014, the experience of ASX during the mining investment wave of the prior eight years and the reputation it built, helped keep it in the top five exchanges for capital raising for other sectors (Figure 11).

Figure 11: IPO capital raised by exchange 2014 ($US b)



Source: ASX (2015) from Dealogic data, January 2015.

Notwithstanding of the current slump in minerals and energy prices, it is clear that the mining industry will remain fundamental to the Australian economy and to Australia's global investment profile. With support, mining has the potential to not only recover but to further expand operations into Asia, Africa and other regions of the world in the years to come.

3.3 Australia's growth to a global mining power is under-recognised

The rapid transition by the mining industry to a large global presence has generally been under-recognised by policy-makers. This is largely due to lack of timely data about the nature of outbound FDI by exploration and mining companies, and as Austrade points out, about details of FDI in general. The rise of global trade in diverse Australian METS and associated investment by METS companies was also under-appreciated until recent years when the growth of this diverse sector began to be recognised and survey-based data was produced about its impressive global footprint and technical capability.

Commentary from some policy-makers and influencers in recent years has painted a somewhat negative picture of outwards foreign direct investment by Australian companies as being driven mostly by lack of competitiveness of the investment climate in Australia, and of offshoring jobs and therefore undesirable[57]. The reality is that most outwards FDI by miners and METS firms is driven overwhelmingly by opportunity and capability, not because they are being driven offshore by an unfriendly investment environment. Moreover, the experience and capability of Australian firms – derived largely in Australia – makes them both preferred and very successful investors globally

57 For example address by Chairman of the Prime Minister's Business Advisory Council, Dr Maurice Newman AC to CEDA 2013 annual dinner, and comments by Ken Henry at the launch of launch of the Asialink Asia Capable Workforce Strategy citing pejorative reactions to offshoring, 6 September 2012

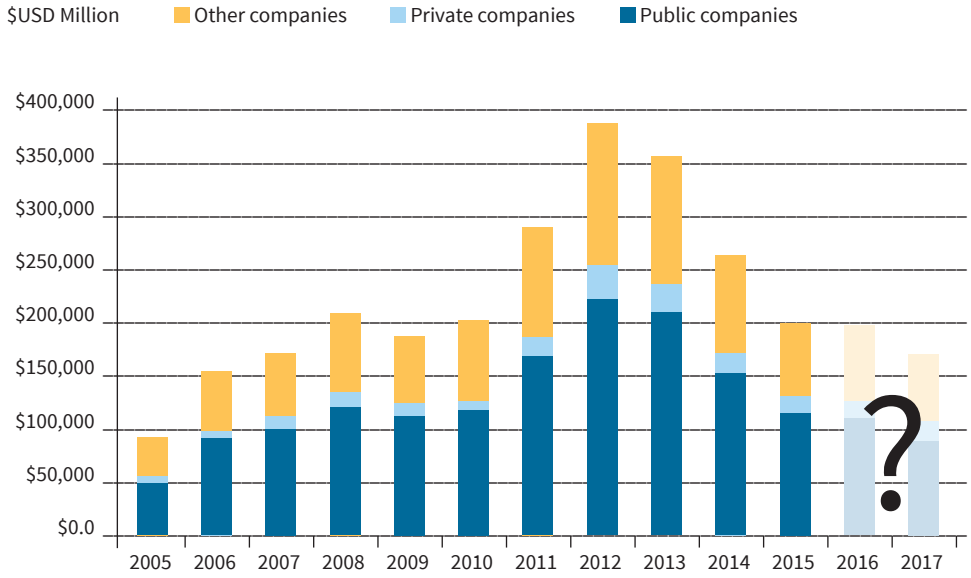
Of course, the Australian investment climate needs constant attention by governments to ensure ongoing competitiveness of all factors. These have been identified by the Minerals Council of Australia[58] as including: environmental approvals, workplace relations, business taxation, water access, exploration facilitation and infrastructure.

Just as Australian companies are changing their business models to embrace regional and global expansion, so too should policy-makers change government narratives and policy settings to embrace, celebrate and support the success Australian investment globally.

3.4 Sector trends in face of downturn in prices

The downturn in prices of minerals, coal and oil have led to a reduction of investment from historically high levels, as is to be expected. Data on minerals investment provides some indication (Figure 12).

Figure 12: Global minerals and coal industry capital expenditure, all companies 2005–2015

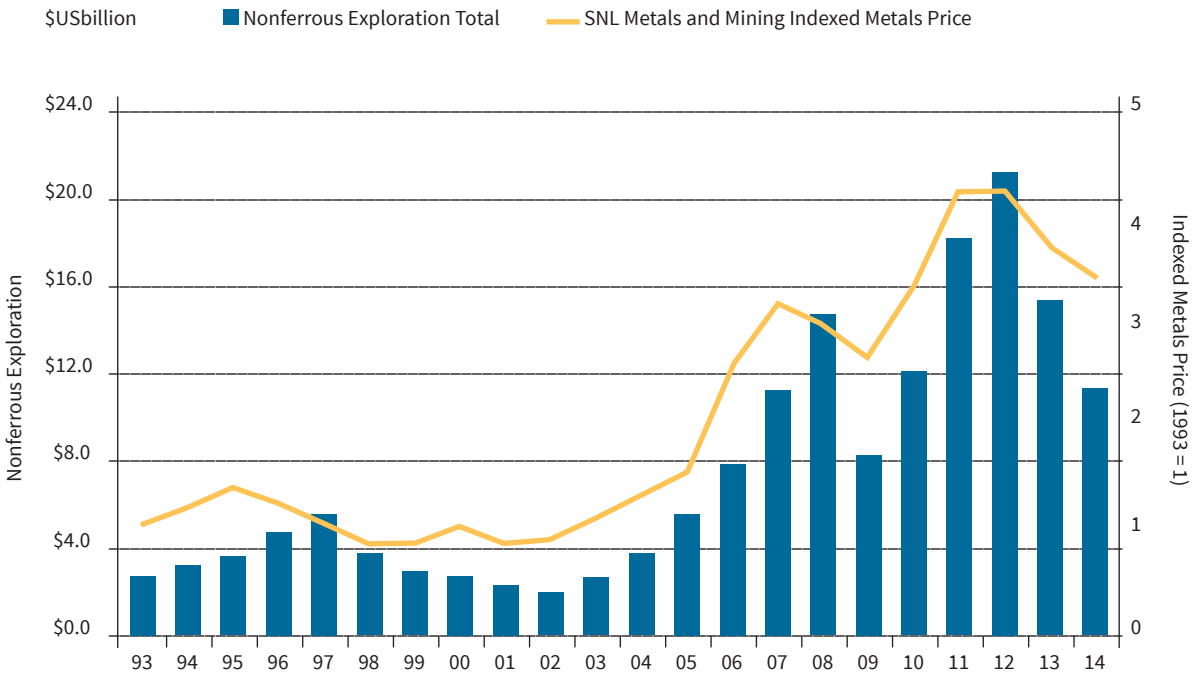


Source: SNL Metals and Mining (2015), The Outlook for Mining Industry Capex, BAUMA Africa Conference, Mark Fellows, SNL Metals and Mining, 17 September 2015.

Exploration expenditure is following a similar trend, as shown in Figure 13.

58 MCA (2014), *Minerals industry priorities for regulatory reform*, Minerals Council of Australia, October 2014

Figure 13: Global nonferrous exploration, 1993–2014



Source: SNL Metals and Mining (2015).

3.5 Exploration and mining activity in global regions

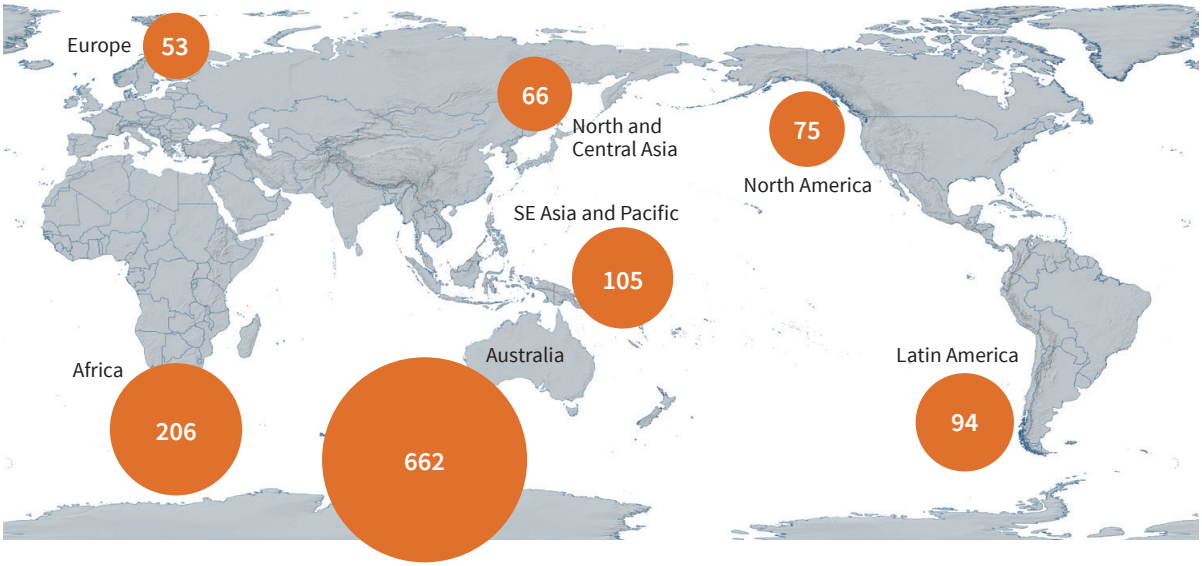
What is extraordinary is that while Australian mining has experienced the greatest wave of investment in real terms in more than 100 years[59], the level of investment by Australian miners in other countries has reached a peak never before experienced. The current slump in minerals and energy prices has led to curtailment of investment, closure of some resources operations, and shrinking of METS markets, but the footprint of Australia's global investment and trade activities largely remains intact. Once the resources cycle returns to a positive phase, Australian firms and the well-governed nations that host them are well-positioned to take advantage of increased prices and commercial opportunities.

Analysis by SNL Metals and Mining (commissioned by IM4DC), Austmine, Austrade and the ASX illustrates the global footprint of the Australian mining sector (not including oil and gas).

Figure 14 shows the number of ASX-listed companies with exploration and/or mining operations in each major mining region of the world as at end 2013. It is noteworthy that there are 599 Australian companies with operations outside Australia, compared with 662 with operations in Australia. Many companies have operations in several regions. Of note, Africa has the highest number of companies operating outside of Australia.

59 Glen Stevens (2015), *After the Boom*, Address to Australia-Israel Chamber of Commerce (WA) Corporate Breakfast, Glen Stevens, Governor, Reserve Bank of Australia, 2 December 2015

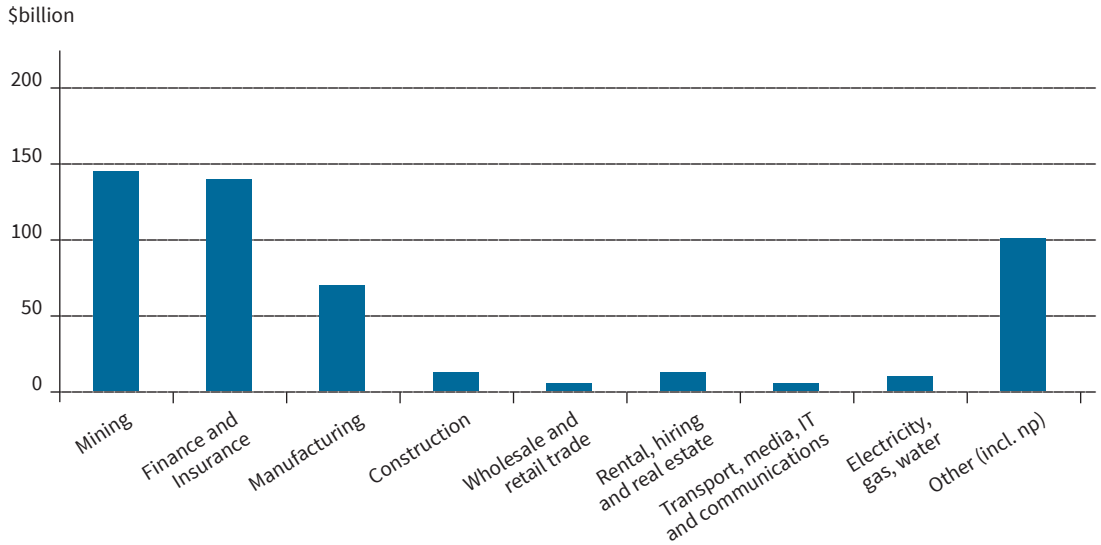
Figure 14: Number of ASX-listed mining companies operating in major global mining regions, 2013



Note: Companies exploring for, developing and mining minerals and coal deposits
Source: SNL Metals and Mining analysis for IM4DC.

Figure 15 highlights the dominant role played by mining in the mix of outwards foreign direct investment. Austrade notes that Australia's stock of outbound FDI was $495 billion in 2013[60]. By total value of investment, the largest industries were mining (29 per cent or $143 billion); finance and insurance (28 per cent); and manufacturing (13 per cent).

Figure 15: Australia's outbound foreign direct investment by industry, 2013



Note: 'Mining' in this chart includes minerals, coal, oil and gas. 'Other' includes non-published data (20 percent of total), in industries including professional, scientific and technical services
Source: Christina Goodman (2015), op. cit., citing ABS Cat 53520 – International Investment Position, Australia: Supplementary Statistics, 2013.

60 Christina Goodman (2015), *Overseas Investment of Australian Companies: Trade and Investment Note*, Austrade, April 2015, citing ABS Cat 53520 – International Investment Position, Australia: Supplementary Statistics, 2013

Mining's important role in outbound FDI is given further weight by analysis of company level data on FDI by Australia's top 2,000 public and private companies[61].

Table 2 shows that Australian mining companies topped the ranking of all sectors with 53 per cent holding direct investment in at least one foreign company, compared with a still-creditable average of 33 per cent of all companies.

Mining is also a major contributor to inbound FDI and economic growth. Austrade says[62]:

> Inbound foreign direct investment into Australia over past decades, for example in the mining and food manufacturing industries has been a key driver of growth for Australia's exports, as well as growth of the domestic economy.

Australia is second to Canada as the largest explorer for minerals and coal globally, albeit by a large margin. Together they dominate global exploration.

Table 2: Direct investments of top Australian companies by industry, 2015, top five highlighted

Industry	No. companies with o/s investment	No. companies analysed	Share with o/s investment (%)
Manufacturing	146	334	44
Wholesale Trade	64	298	21
Professional, Scientific and Technical Services	68	137	50
Financial and Insurance Services	49	211	23
Mining	58	109	53
Retail Trade	38	140	27
Construction	26	115	23
Information Media and Telecommunications	34	69	49
Rental, Hiring and Real Estate Services	26	64	41
Transport, Postal and Warehousing	34	91	37
Education and Training	27	52	52
Administrative and Support Services	17	35	49
Electricity, Gas, Water and Waste Services	24	73	33
Health Care and Social Assistance	13	70	19
Accommodation and Food Services	7	26	27
Arts and Recreation Services	7	39	18
Agriculture, Forestry and Fishing	8	20	40
Public Administration and Safety	2	97	2
Other Services	5	20	25
Grand Total	**653**	**2000**	**33**

Note: Mining in this table includes minerals, coal, oil and gas. Counts are of companies where an Australian company has a 10 per cent or greater stake. Industry classification is by parent company, as per ABS FDI data. Where data on a company's subsidiaries was not available, it was assumed that a company had none.
Source: IBISWorld company database February 2015, cited by Goodman (2015), op. cit.

61 Overseas Investment of Australian Companies: Trade and Investment Note, Austrade, April 2015 citing IBISWorld company database February 2015, counting companies where an Australian company has a 10 per cent or greater stake in a foreign company
62 Christina Goodman (2015), op. cit.

Table 3 is drawn from analysis by Natural Resources Canada of global exploration activity. It shows that in 2010, Australian companies in aggregate were second to Canadian companies, but that together, Canadian and Australian companies generated more than 58 per cent of exploration expenditure globally.

Australia's exploration position is confirmed by later analysis in Australia[63], which finds that capital raised for asset acquisition and exploration in the two years to June 2013 was:

- North American listed companies US$2,758,045,000
- Australian listed companies US$1,797,115,600
- European listed companies US$140,720,000.

Table 3: Value of exploration programs expected to be undertaken worldwide in 2010 for precious metals, base metals, and diamonds

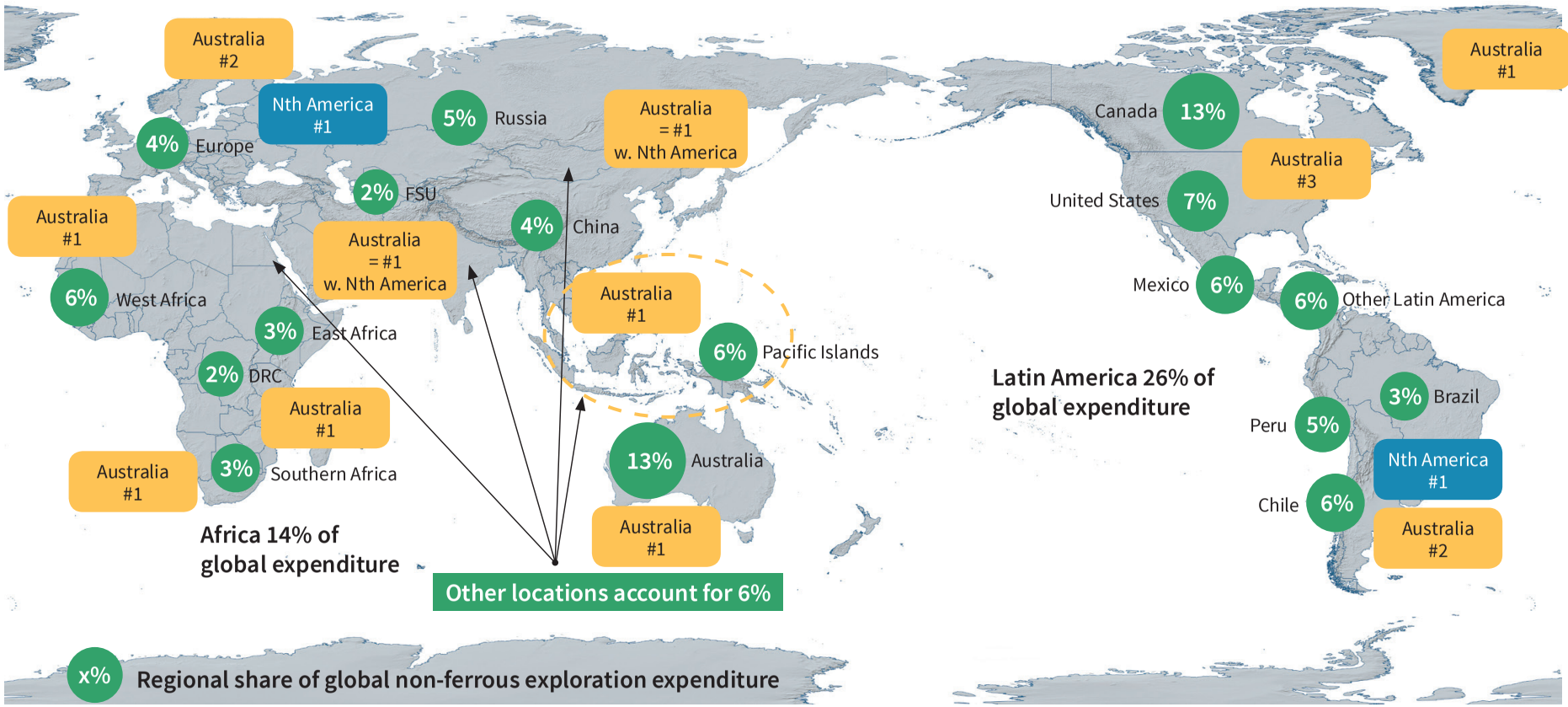
Type	Canada	Australia	Africa and the Middle East	Europe and the FSU	United States	Latin America	Other Asia-Pacific	Total	Proportion of Total
	(US$ millions)								(%)
Larger companies	3 606.4	1 466.7	585.7	1 231.4	658.1	970.7	721.0	9 240.0	86.53
Smaller companies	798.9	370.0	27.8	91.3	61.3	28.1	61.5	1 438.9	13.47
Total	**4 405.3**	**1 836.7**	**613.5**	**1 322.7**	**719.4**	**998.8**	**782.5**	**10 678.9**	**100.00**

Note: "Larger companies" are defined here as those with budgets for mineral exploration in 2010 of US$3 million or more.
Source: *Canadian Global Exploration Activity*, Natural Resources Canada 2012, based on Metals Economics Group's *Corporate Exploration Strategies: A Worldwide Analysis*.

Figure 16 shows the distribution of global exploration expenditure in 2013 and indicates the ranking of ASX-listed companies in exploration in each region. It reinforces the fact that Australia is an exploration leader in all regions of the world, along with North America (mostly Canada).

63 SNL Metals and Mining (2015), SNL Metals and Mining analysis for IM4DC

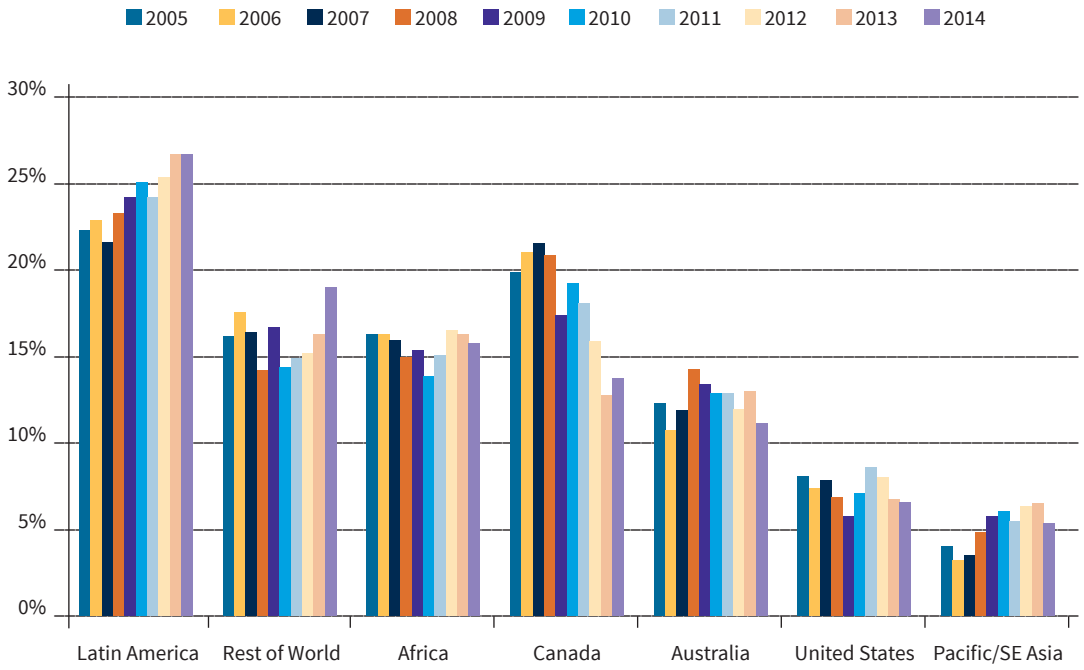
Figure 16: Regional share of global non-ferrous exploration expenditure and ranking of ASX-listed companies in exploration expenditure, 2013



Source: SNL Metals and Mining, World Exploration Trends 2014 and other SNL analysis for IM4DC.

Figure 17 shows the trends in exploration activity in major mineral and coal regions. It shows that Latin America is not only the region of largest exploration expenditure but that it has also has had the fastest rising expenditure.

Figure 17: Regional share of global non-ferrous exploration expenditure 2005–2014



Source: SNL Metals and Mining (2015).

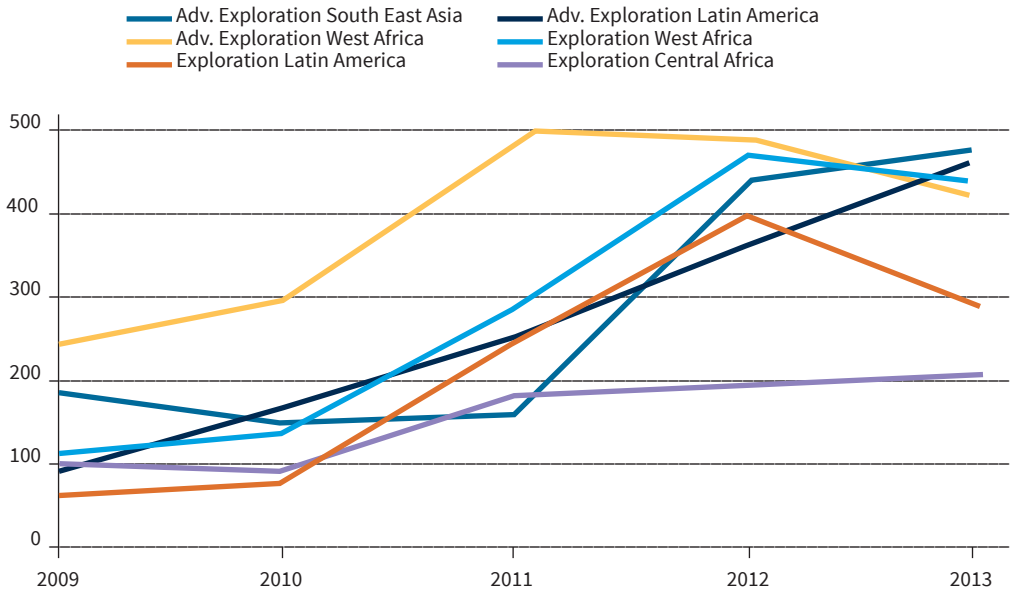
Figure 18 and Figure 19 show the trends in offshore exploration activity by Australian companies between 2009 and 2013. The charts graph an outbound activity index[64] for exploration versus advanced exploration activity by Australian listed companies for each of the mining regions shown. The charts have been broken down into two scales to avoid overpopulating one chart.

The charts show trends in the amount of exploration, split into exploration (target drilling and resource drilling), and advanced exploration (resource estimation and infill or extension drilling). Again, to avoid overpopulation and to avoid data distortion, grass roots exploration has been excluded from these two charts.

A solid line converging down towards a dotted line of the same destination colour indicates that destination is becoming more of a focus towards early stage exploration. A solid line diverging upwards away from a dotted line of the same destination colour indicates that advanced exploration is accelerating at a faster rate than early stage exploration.

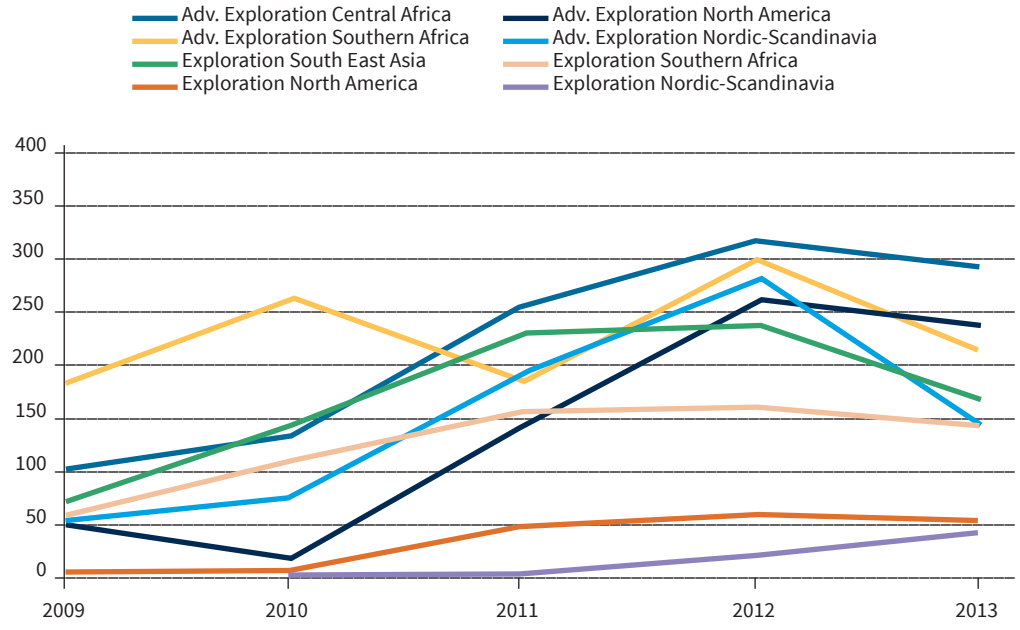
64 To calculate activity indices, an analysis of data from the IntierraLive / SNL Metals and Mining global exploration database was undertaken of exploration properties which had, during the past five years, different levels of exploration, covering grass roots activity through to the commencement of feasibility studies. Data associated with each property, covering commodity types, company data, and records of activity were extracted to allow calculation of an index to represent the amount of activity for each project, in each of the study years

Figure 18: Exploration by Australian (ASX) companies 2009-2013: outbound exploration investment, larger scale destinations



Source: SNL Metals and Mining analysis for IM4DC.

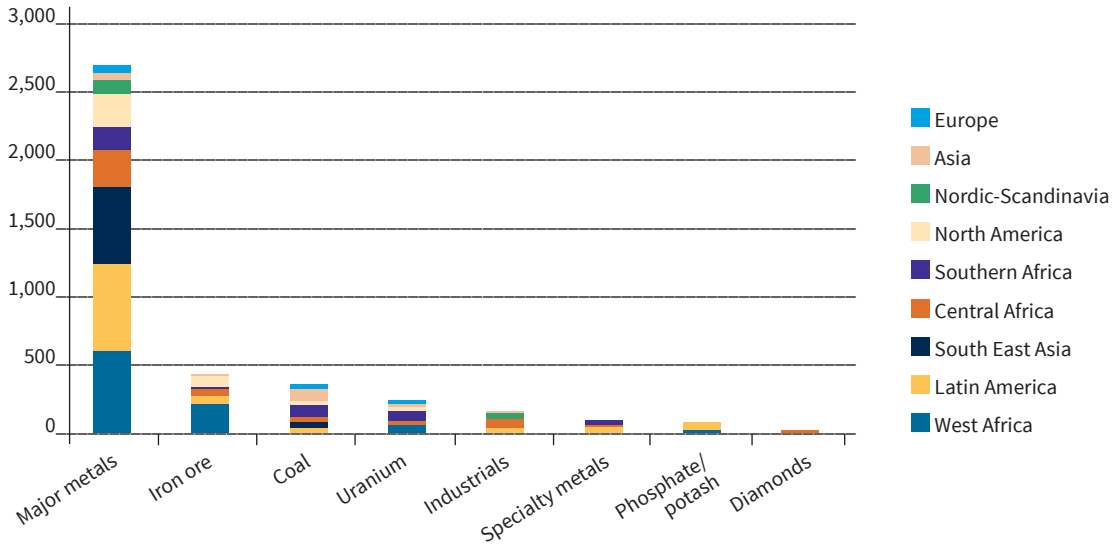
Figure 19: Exploration by Australian (ASX) companies 2009-2013: outbound exploration investment, smaller scale destinations



Source: SNL Metals and Mining analysis for IM4DC.

Figure 20 summarises where in 2013 Australian companies were exploring and for what commodities. The vertical scale is an activity index for ASX listed companies derived from the IntierraLive / SNL Metals and Mining global exploration database.

Figure 20: Exploration by Australian (ASX) companies: advanced exploration, 2013 index by commodity and investment destination



Source: SNL Metals and Mining analysis for IM4DC.

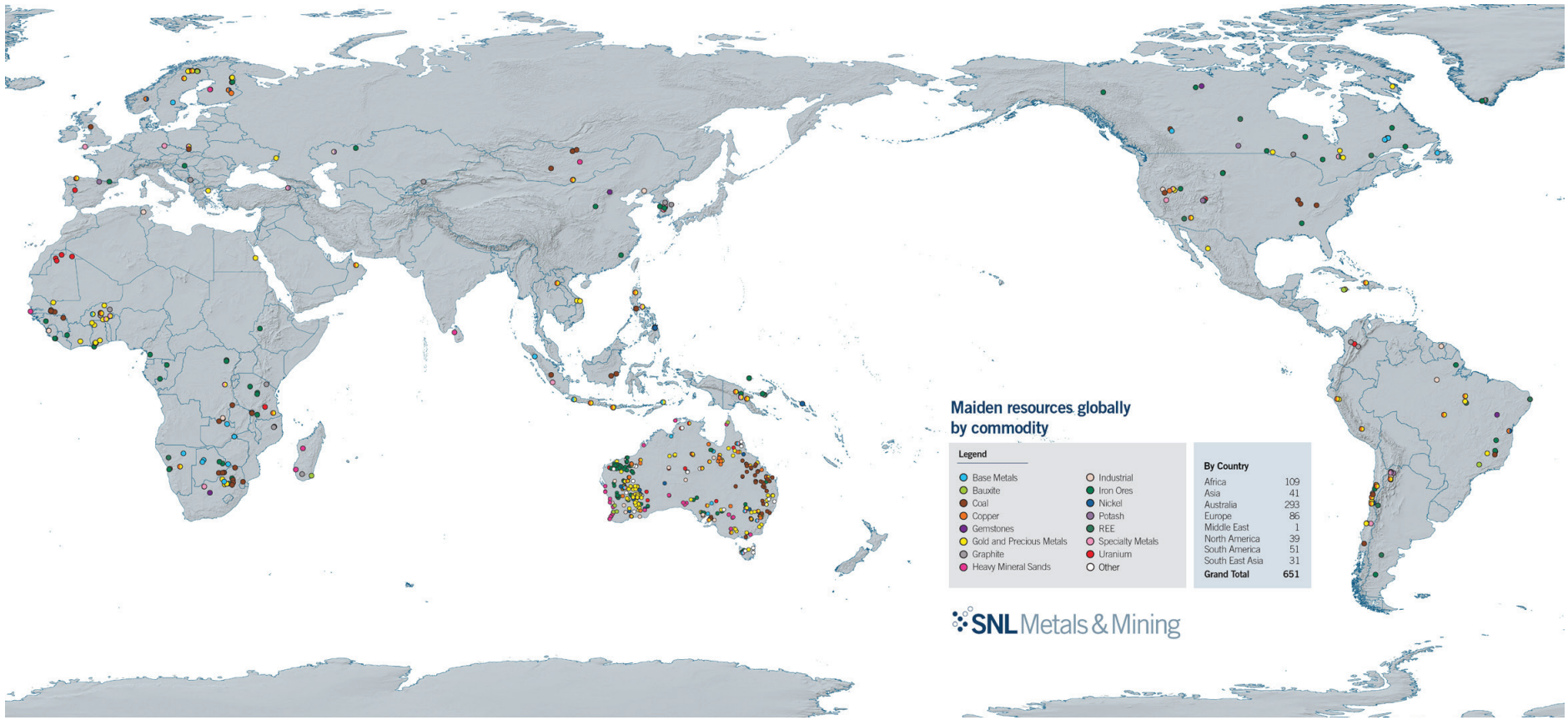
Exploration by Australian companies has been very successful, in large part due to the skills and technologies deployed. Figure 21 shows the location of the 651 mineral and coal resource deposits discovered and/or delineated by ASX-listed companies in the five years 2008 to 2013.

Aggregate in-ground value of these resources, at August 2014 prices, is $2,100 billion ($2.1 trillion). Even after discounting substantially for what may not be recoverable, and costs of mining and processing, these resources represent massive latent value for companies and nations.

Of course, deposits can only be monetised if they are commercially viable and the investment climate in their locations is conducive to their development. Australia has a high value role to play in supporting the development of such discovered resources. This is in the interests both of Australian companies and the nations that host them and the minerals and energy deposits these companies have discovered.

As the table within the map shows, while 293 deposits were discovered or delineated in Australia, 358 were discovered elsewhere in the world – 109 in Africa, 42 in North and Central Asia and the Middle East, 31 in South East Asia, 39 in North America, 51 in South America and 86 in Europe.

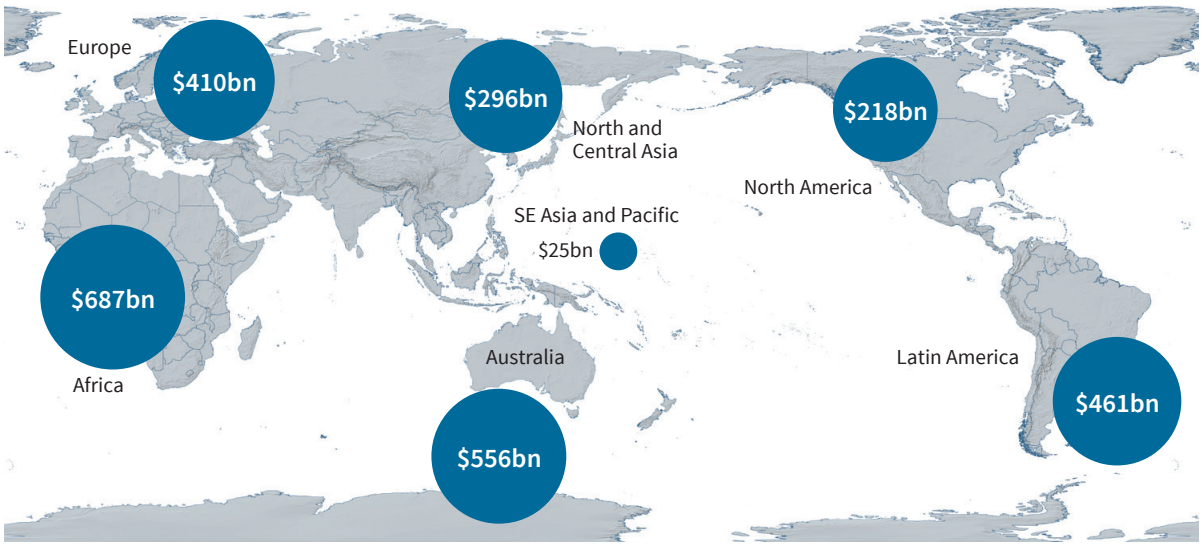
Figure 21: Mineral and coal resources discovered and/or defined by ASX-listed companies 2008-2013



Source: SNL Metals and Mining analysis for IM4DC from company resource announcements to ASX.

Figure 22 shows the in-ground value, based on August 2014 prices, of discovered and defined resources by ASX-listed companies, by region in the five years between 2008 and 2013. The value of new resources in the rest of the world is four times higher than those discovered or defined in Australia. The aggregate value of new resources discovered by ASX-listed companies in Africa is 24 per cent higher than value of discoveries in Australia.

Figure 22: Value (US$) as at August 2014 of 'maiden resources' announced by ASX-listed companies 2008-2013, by region



Source: SNL Metals and Mining analysis for IM4DC from company resource announcements to ASX.

The footprints of Australian exploration and mining by region provide further compelling evidence of the globalisation of the sector. The following sections discuss the activities by Australian companies in each major mineral region.

3.6 A new export sector rises: mining equipment, technology and services

The success of Australian explorers and miners globally has been a key to the success of Australia's mining equipment, technology and services (METS) sector and the growth of its exports and offshore investment. Figure 23 shows the principal markets for Australian METS suppliers in 2015.

Australian METS firms compete successfully with firms from around the world, while METS providers based in other countries (particularly equipment manufacturers) have invested in Australia and/or used Australia as a regional base.

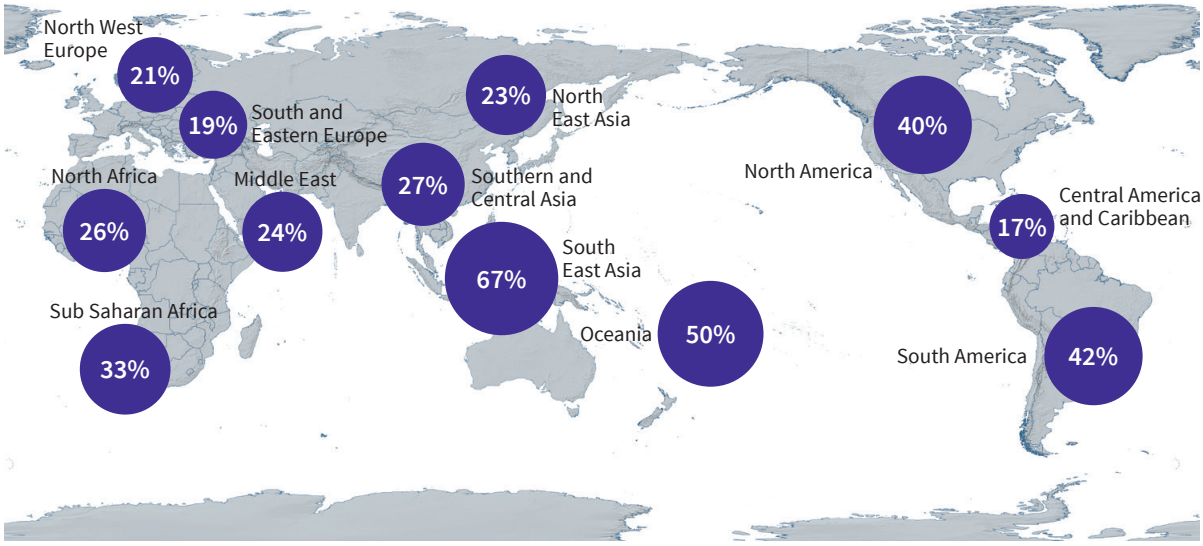
The majority of METS companies (66 per cent) export their goods and services. Of those that are not currently exporting, 16 per cent plan to export in the next 1-2 years. Oil and gas is an important METS market, with 64 per cent of METS firms working in both minerals and oil and gas sectors. In 2012, export value of METS products from companies responding to a survey totalled AU$15 billion, out of $27 billion total exports by METS companies (many are diversified) and $90 billion total revenue[65].

65 Austmine (2013), *Australia's New Driver for Growth: Mining Equipment, Technology and Services*, Austmine July 2013

Of those companies exporting, 52 per cent have offices and/or operations in other countries. This indicates a strong commitment to international growth and the necessity of adopting an integrated investment and trade model, recognising the need to be close to customers and business partners.

In a second survey conducted in 2015[66], the majority of METS firms reported negative impacts on their business due to the mining downturn. Impacts include decreases in revenue, falls in employee numbers and reduced profitability. Despite this, the METS sector is quite resilient, as firms are involved in several phases of the mining lifecycle, work across a number of commodities, have diversified into other industries, and service markets around the world.

Figure 23: Percentage of Australian-based METS companies identifying region as a key export market



Note: Number of responses = 930

Source: Austmine (2015) *New Realities, Bigger Horizons: Australian Mining Equipment, Technology and Services (METS) National Survey*, Austmine August 2015.

The results of the Austmine 2015 survey align broadly with the results of Australia's International Business Survey 2015 for the METS sector[67]. This survey identified the top 10 markets for Australian METS firms, shown in Table 4.

66 Austmine (2015) *New Realities, Bigger Horizons: Australian Mining Equipment, Technology and Services (METS) National Survey*, Austmine August 2015

67 Export Council of Australia (2015), *Australia's International Business Survey 2015 Industry Profile Report: Mining Equipment, Technology and Services*, Export Council of Australia/University of Sydney, July 2015

Table 4: Main overseas markets – Mining equipment, technology and services

Rank	Country	No. of responses	Share
1	United States	23	10%
2	Indonesia	21	9%
3	PNG	19	8%
4	China	16	7%
5	Canada	16	7%
6	South Africa	13	6%
7	Chile	12	5%
8	Malaysia	7	3%
9	New Zealand	6	3%
10	United Kingdom	5	2%

Note: the sample consists of companies that identify above countries as either top 1 or top 2 country from which they have earned international revenue in the past year. Number of responses = 233
Source: Export Council of Australia (2015).

The Austmine 2015 survey found that Indonesia is currently the number one METS export market, but there has been a shift in focus to the Americas. The United States, Canada and Chile are seen as important export and investment destinations, an indicator the world-competitiveness of Australian METS goods and services.

The Export Council survey found that 83 per cent of respondent companies were planning to do business in additional countries in the next two years. Indonesia was identified as the most important future market, followed by the United States and India.

Despite difficult trading conditions, close to 60 per cent of companies expected the performance of their international operations to be better in 2015 compared to 2014. Thirty-three per cent expected their international performance to be the same, while 9 per cent expected their performance to be worse.

METS companies are keen to work cooperatively and with governments to access markets. When asked "what would assist your company to commence exporting or expand your export business?", 54 per cent nominated introductions to contacts, 37 per cent said assistance in international marketing and promotions, and 23 per cent nominated expansion of Export Market Development Grants.

As mentioned earlier, the globalisation of the Australian mining and METS sector is often understated so a quick tour of activity across the regions is instructive.

3.7 Australian mining and METS activity in Africa

3.7.1 Exploration and mining

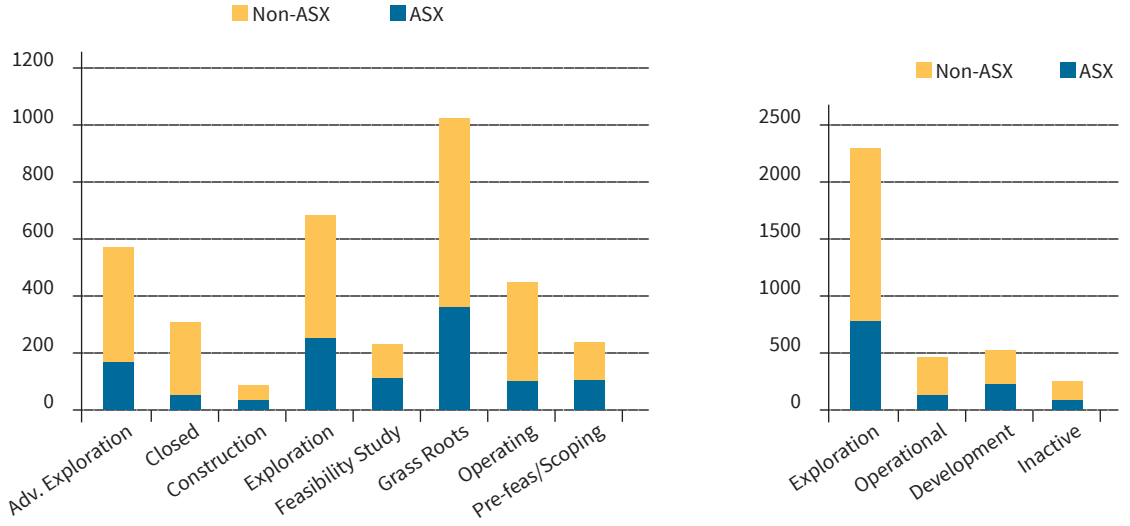
Australian exploration and mining activity in Africa has expanded from very low levels 10 years ago to where Australian companies collectively make up is the largest mining investor group in Africa (Figure 24 and 25). Analysis conducted in 2013 by SNL Metals and Mining for the International Mining for Development Centre found that there were 220 companies operating 1,100 exploration and mining projects across 38 African countries.

While the downturn has led to rationalisation of projects, Australian involvement has held reasonably steady relative to companies from other nations. Analysis undertaken in 2015 for the Australia-Africa Minerals & Energy Group (AAMEG)[68] found that:

- 769 mining projects in 35 countries across sub-Saharan Africa are either majority owned or partly owned by Australian companies – defined as companies that are either listed on the ASX or headquartered in Australia. Of these projects, 707 are majority owned by Australian companies.
- 216 Australian companies have equity in one or more of these projects; with 208 having majority or controlling interest in at least one project.
- Of the above projects 769 projects there are: 80 mines or processing facilities in Sub Saharan Africa in which Australian companies have equity; a further 12 in the pre-production stage; 168 advanced exploration projects undergoing feasibility or scoping studies; and another 501 less advanced exploration projects.

In January 2016, AAMEG reported that 190 ASX listed Australian companies were now operating or exploring 590 projects across 38 countries in Africa[69].

Figure 24: Number of ASX and non-ASX listed mining companies in Africa, 2013

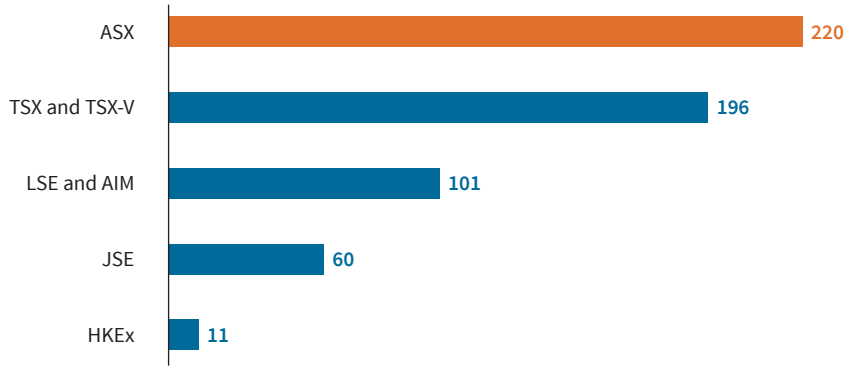


Source: SNL Metals and Mining and ASX

68 AAMEG (2015), Data on Australian mining interests in Africa prepared for Australia-Africa Minerals & Energy Group from a variety of sources. Unpublished

69 AAMEG (2016), Africa: making a big difference, article by Trish O'Reilly, Chief Executive Officer in MiningNews.net, January 2016

Figure 25: Number of listed exploration and mining companies in Africa, by stock exchange, 2013



Legend: ASX = Australian Securities Exchange; TSX = Toronto Stock Exchange; TSX-V = TSX Venture Exchange; LSE = London Stock Exchange; AIM (formerly Alternative Investment Market) – sub-market of LSE; JSE = Johannesburg Stock Exchange; HKEx = Hong Kong Exchanges
Source: SNL Metals and Mining and ASX.

Sub Saharan Africa remains the region with the highest concentration of Australian mining projects, with 36 per cent of the total number outside Australia. This compares with the Asia-Pacific (22 per cent), Latin America (17 per cent) and the US / Canada (14 per cent). Sub Saharan Africa also accounts for 48 per cent of all Australian mining projects in developing countries.

SNL 2015 data shows the following metrics for other major mining investor countries in Sub Saharan Africa:

- **Canada:** there are 640 projects in Africa in which Canadian companies have equity, of which 76 are operating mines. It should be noted there is some duplication as a few companies are listed on the both the ASX and Toronto or Vancouver exchanges, or are listed on one of the Canadian exchanges but have Australian headquarters.
- **United Kingdom:** the number of UK projects in Africa is not far behind Canada – 564 projects, of which 159 are producing mines – suggesting a much higher level of UK capital investment than by Australian companies. The latter figure includes a number owned by London-listed majors including BHP Billiton and Rio Tinto, which investments are duplicates in the Australian list.
- **China:** the SNL database records 71 Chinese projects (including 19 operating mines) in Africa, perhaps fewer than some might expect. This may be in part due to some Chinese projects simply not being given sufficient transparency, although SNL believes that most are captured.

The map in Figure 26 shows the location of the projects identified in 2013. Clusters of investment in West and West Central Africa, and Southern Africa are apparent, reflecting both prospectivity and relatively stable systems of governance.

The 2015 data shows that projects are located in 35 countries across all regions of sub-Saharan Africa. South Africa has by far the biggest concentration, with 138 projects followed by Tanzania (69), Burkina Faso (65), Zambia (51), Botswana (43), Namibia (42), Ghana (40) and Cote d'Ivoire (37). By sub-region, West and Central Africa hosts 42 per cent of projects involving Australian companies, Southern Africa hosts 47 per cent; and East Africa 11 per cent.

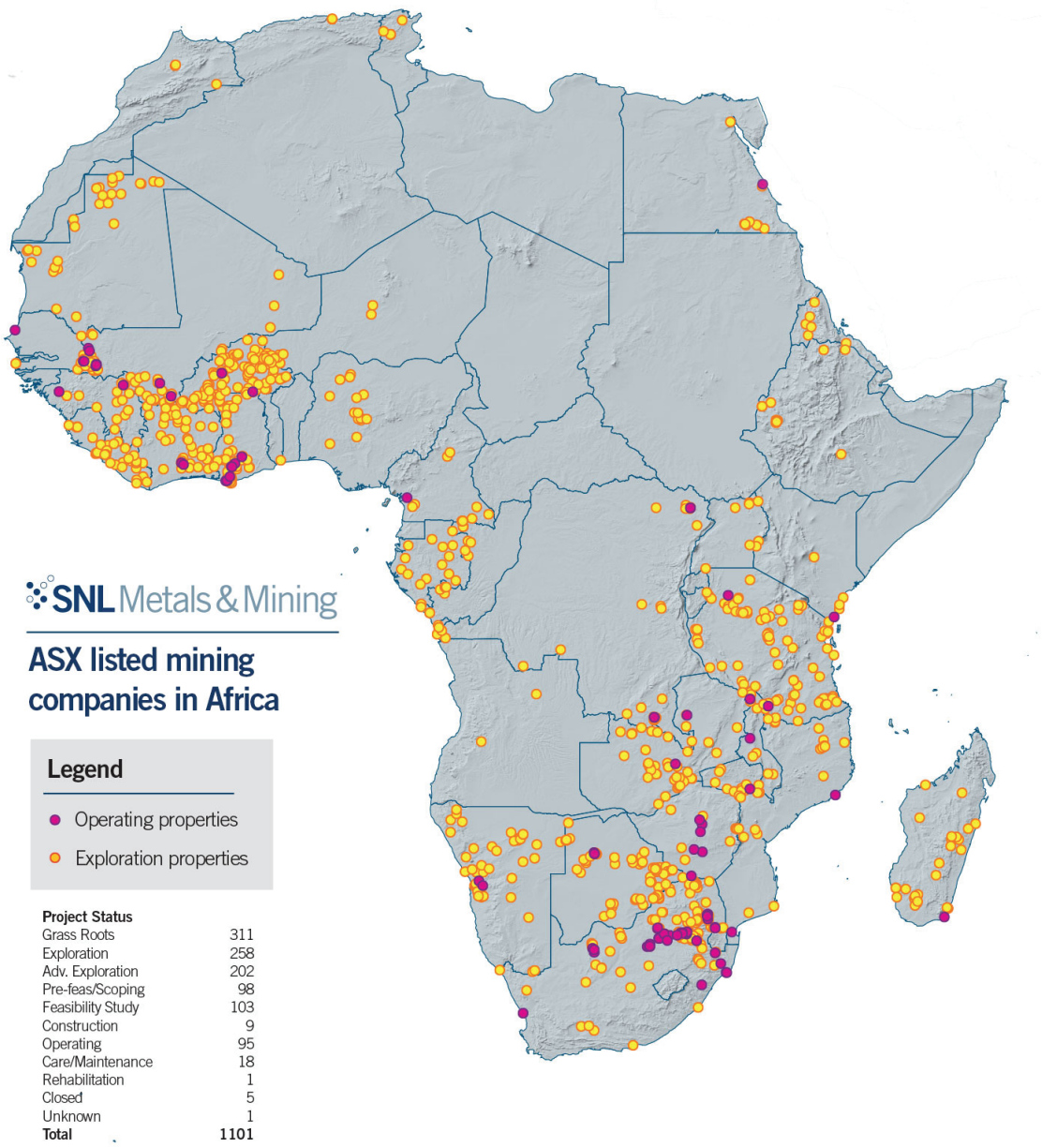
Estimating the value of Australian mining investment in Africa is tricky, given the lack of data on Australian FDI by industry and region. In 2008 the Lowy Institute estimated[70] a total of around AU$20 billion for all Australian resources investment in Africa, including oil and gas. In 2011, DFAT

70 Roger Donnelly and Benjamin Ford (2008), *Into Africa: How the resource boom is making Sub-Saharan Africa more important to Australia*, Lowy Institute for International Policy, August 2008

estimated that the value of mining investment in Africa by Australian companies was about $24 billion. In the light of the extent of Australian investment in Africa and the ABS estimate of total outbound mining FDI of AU$143 billion, these estimates appear conservative. ASX data indicates that AU$6.83 billion has been raised through follow-on raisings by ASX listed companies for projects in Africa over the 5 years to 2013.

The analysis by SNL Metals and Mining for IM4DC found that the in-ground value of discovery in Africa in the five years 2008-2013 was US$687 billion[71] or 26 per cent of the value of global discoveries by ASX companies in the period.

Figure 26: Location of Australian-operated exploration and mining operations in Africa, 2013

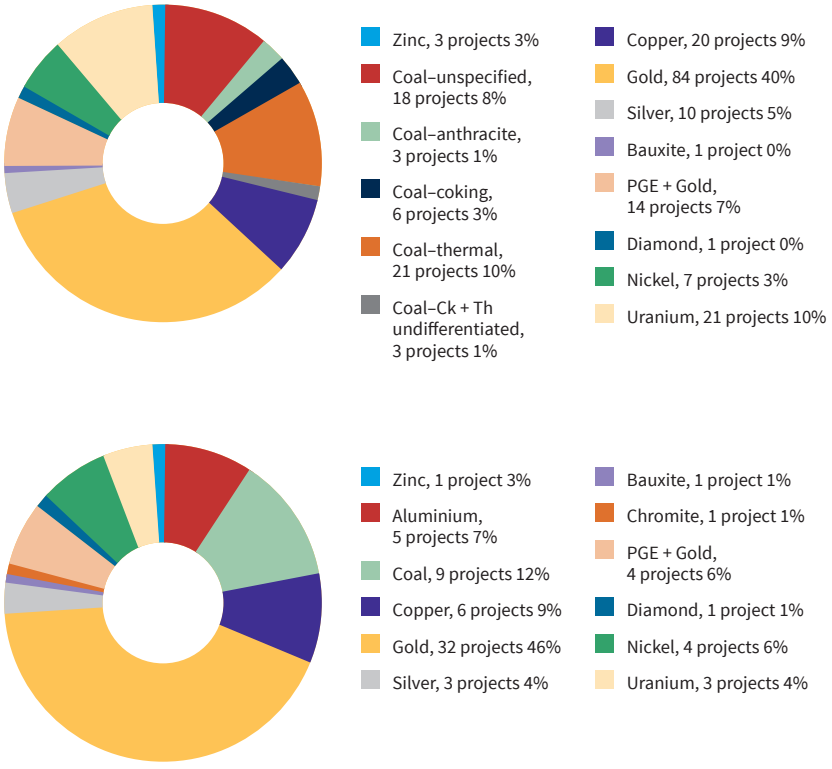


Source: SNL Metals and Mining analysis for IM4DC.

71 Valued at August 2014 prices

Figure 27 shows the range of commodities being sought through exploration or mining. Gold is dominant but numerous other commodities are of obvious interest, reflecting the expertise of Australian companies across commodities, developed from Australia's diversity in minerals and coal.

Figure 27: Australian-operated exploration projects (top) and mining operations (bottom) in Africa, by commodity, 2013



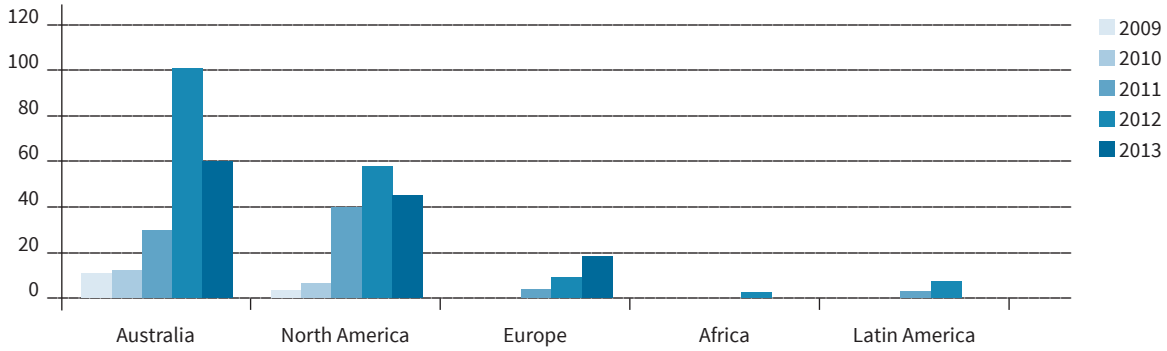
Source: SNL Metals and Mining analysis for IM4DC.

Further evidence of the knowledge- and technology-driven Australian dominance in exploration in Africa can be seen in Figure 28, Figure 29 and Figure 30. These charts have been derived from analysis of the exploration database of IntierraRMG / SNL Metals and Mining. The charts show inbound activity indices for each three stages of exploration activity by domicile of listed companies.

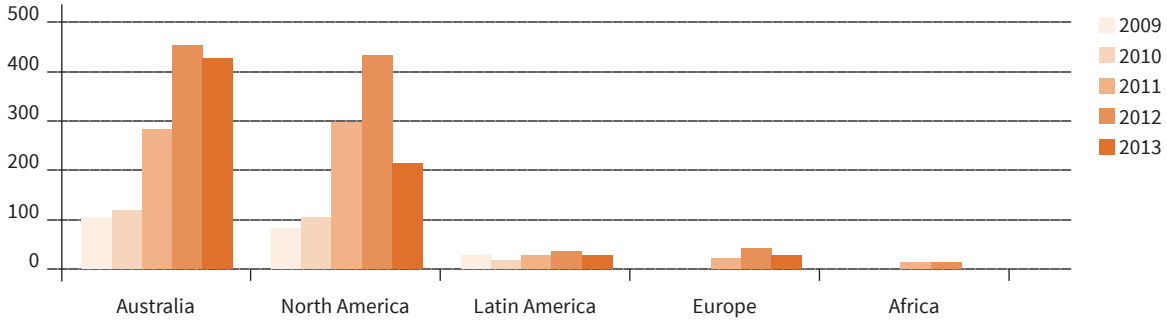
Figure 28: Investment in exploration in West Africa region, by region of investor, 2009-2013

Key map

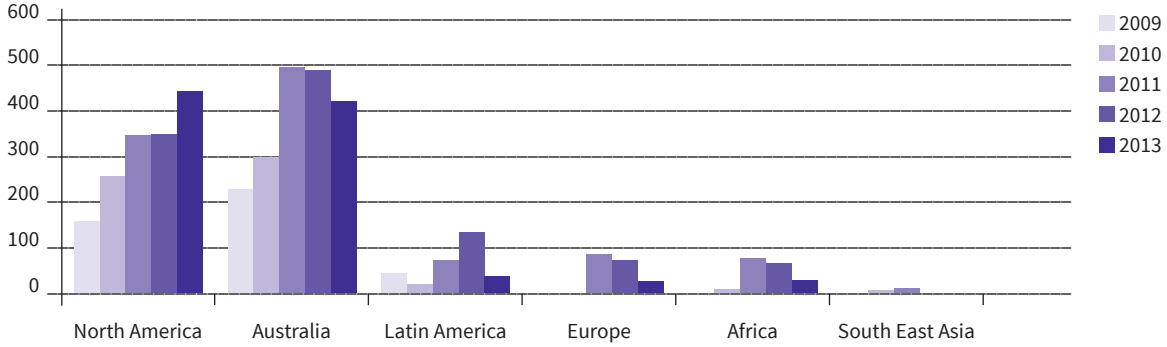
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)

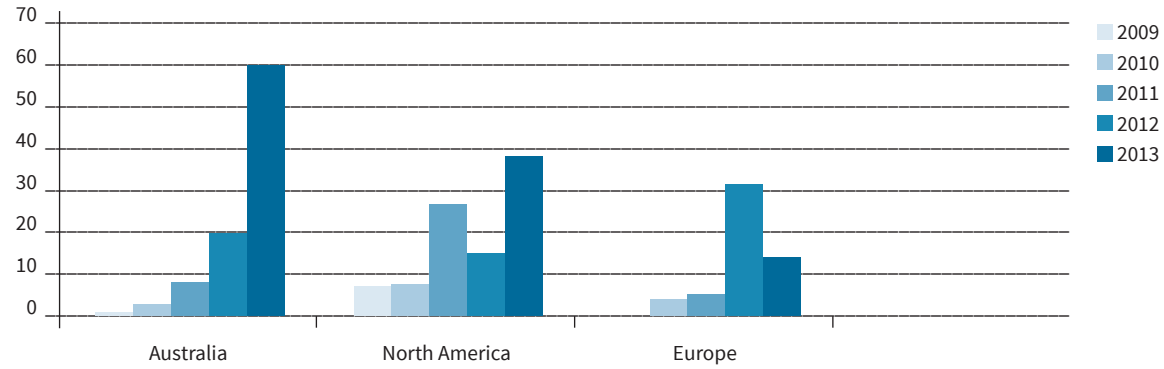


Source: SNL Metals and Mining analysis for IM4DC.

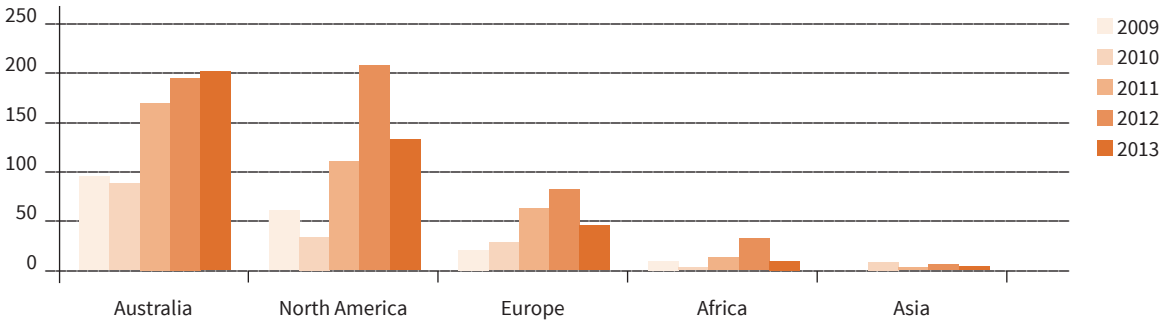
Figure 29: Investment in exploration in Central Africa region, by region of investor, 2009-2013

Key map

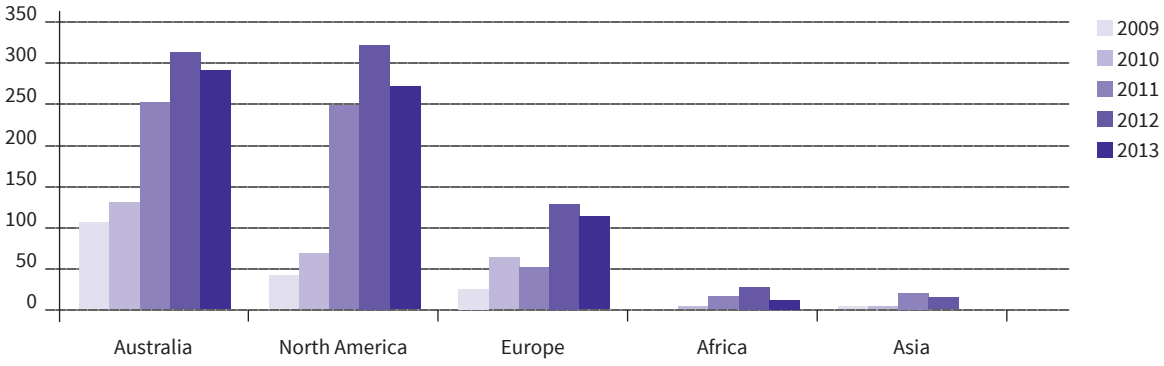
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)

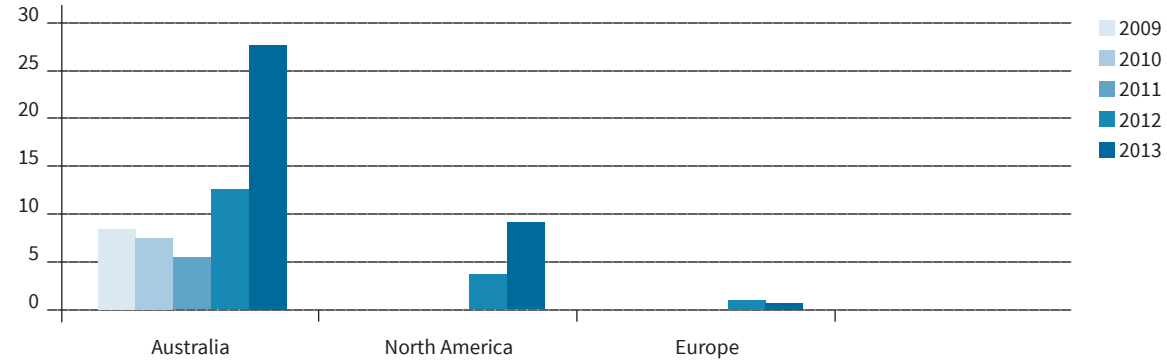


Source: SNL Metals and Mining analysis for IM4DC.

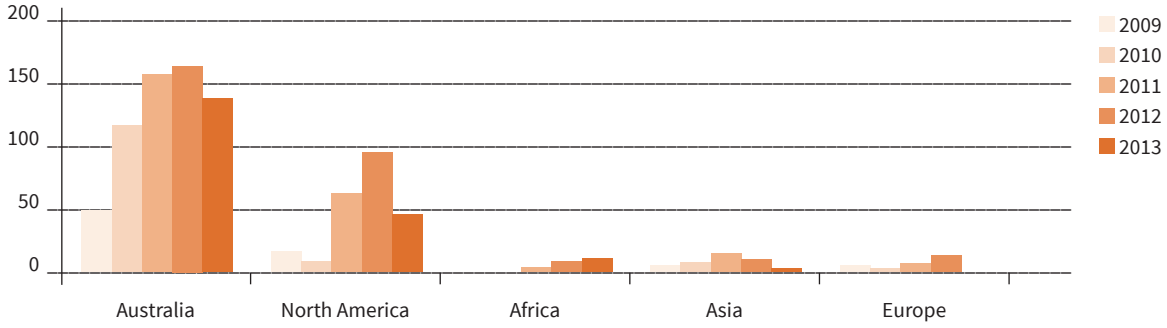
Figure 30: Investment in exploration in Southern Africa region, by region of investor, 2009-2013

Key map

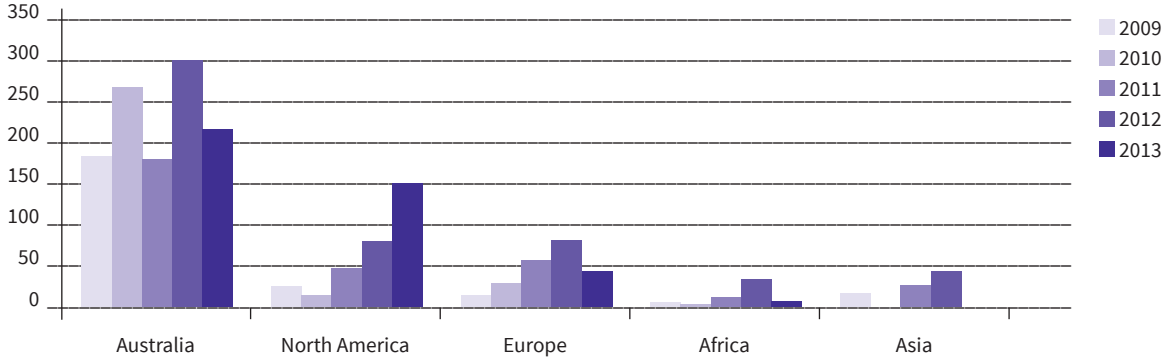
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)



Source: SNL Metals and Mining analysis for IM4DC.

3.7.2 Mining equipment, technology and services

In the Austmine 2015 survey, 33 per cent of METS companies identified Sub Saharan Africa as a key market, while 26 per cent regard North Africa as important. The Austmine 2013 survey found that 21 per cent of Australian METS companies have invested in Sub Saharan Africa through establishing operations there.

3.7.3 Australian governments' engagement with Africa

Australian diplomatic and trade engagement with African nations has been limited until the mid-2000s when the resources boom led to a surge of investment by Australian firms in Africa, followed by rapidly-growing exports from Australian METS firms[72]. In addition, the historic underperformance of African economies finally began to turn around. These trends led to a progressive upgrading of Australia's diplomatic and trade presence from around 2005. Post 2008, a more substantial aid program began to be implemented by the then government, focussing on the intersection of Africa's needs and Australia's comparative advantages: mining and agriculture, plus governance. Australia also engaged in ongoing humanitarian aid programs.

Following the change of government in 2013, diplomatic engagement began to wane in favour of an Indo-Pacific focus, with aid programs in particular being cut very substantially. This included three mining governance capacity-building programs administered under the Australia-Africa Partnerships Facility, Australia-Africa Awards and International Mining for Development Centres.

At the same time, however, the Government of Western Australia established a cooperation program with mining capacity-building at its core. The WA Government unsuccessfully sought financial support from the Australian Government in 2014. It would be good to see greater cooperation between state and federal governments on such capacity building initiatives, particularly as technical capacity on mining governance lies mostly within state governments.

The Abbott Government justified the pull back from Africa on regional economic diplomacy priorities, saying that Australian foreign policy refocussed "on the advancement of our core strategic and economic interests"[73], "our priorities, our focus, are unambiguously on our neighbourhood that we describe as the Indo-Pacific, the Indian Ocean Asia-Pacific"[74], and "geography will be our destiny"[75]. While references to the Indian Ocean region have been ambiguous with regard to inclusion of Africa, or at least the East Coast African nations, the significant withdrawal of Australian aid from the region leaves little doubt about substantial disengagement.

Given Australia's major economic interests in Africa as the continent's largest exploration and mining investor though publicly-listed companies and the government's new focus on 'economic diplomacy', the downgrading of Australian diplomacy in Africa appears inconsistent with both economic evidence and Australia's long term national interest. The Government's short term budgetary cuts in aid could well undermine the industry's longer term economic and strategic interests in Africa.

72 Mickler and Pijovic (2015), *Engaging an Elephant in the Room? Locating Africa in Australian Foreign Policy*, Australian Journal of Politics and History, David Mickler, UWA and Nikola Pijovic, ANU
73 The Coalition's Policy on Foreign Affairs
74 Bishop (2015), Address to In the Zone Conference, Perth, 4 May 2015
75 Ibid

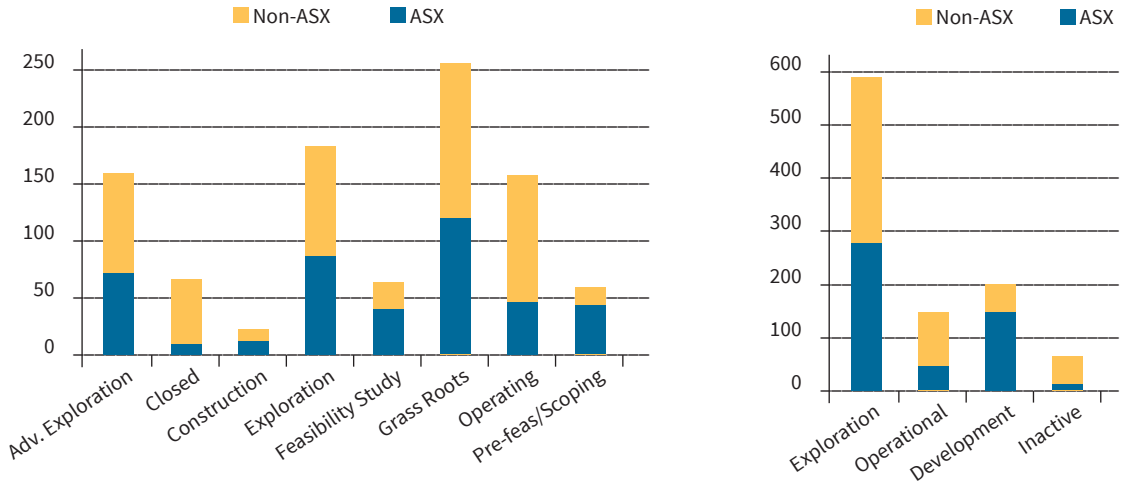
3.8 Australian mining and METS activity in South East Asia and the Pacific

Australian companies are dominant in exploration in South East Asia and the Pacific region, and to a lesser extent, in mining. South East Asia is also a key market for METS firms.

3.8.1 Exploration and mining

In 2013, nine countries in South East Asia and the Pacific hosted 47 Australian-operated mining and development projects and 357 exploration projects. Australia is a dominant investor in the region. Figure 31 indicates the proportion of ASX and non-ASX companies with operations in the region.

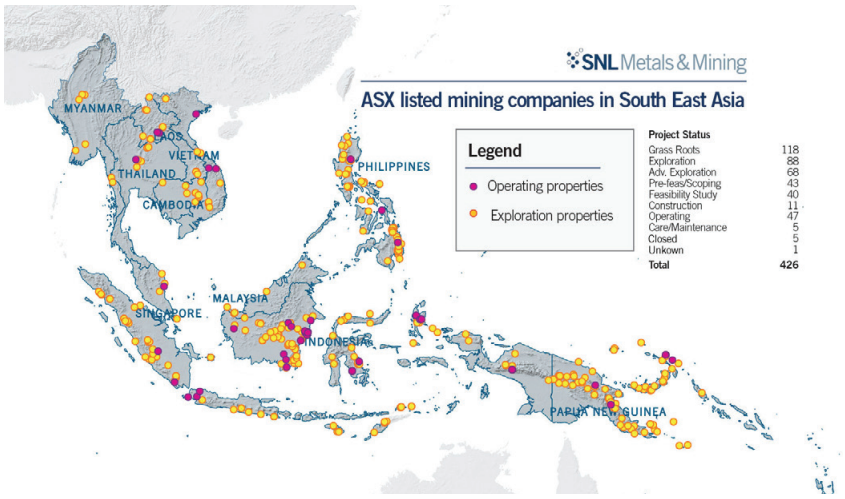
Figure 31: Operations of ASX and non-ASX listed mining companies in South East Asia and the Pacific, 2013



Source: SNL Metals and Mining analysis for IM4DC.

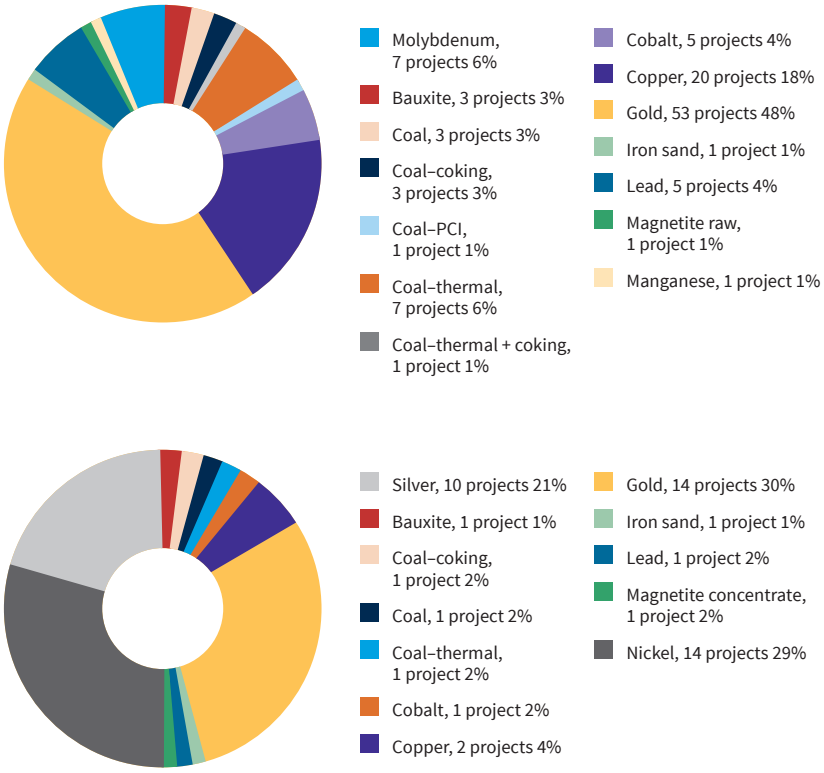
Figure 32 shows the locations of these projects. The nations and sub-regions with the heaviest concentrations of exploration and mining operations are Papua New Guinea and Indonesia – notably Kalimantan. Figure 33 indicates that activities are spread across a range of commodities, dominated by gold, nickel and sliver, with copper a keen interest for explorers.

Figure 32: Location of Australian-operated exploration and mining operations in South East Asia and the Pacific, 2013



Source: SNL Metals and Mining analysis for IM4DC.

Figure 33: Australian-operated exploration projects (top) and mining operations (bottom) in South East Asia and the Pacific, by commodity, 2013



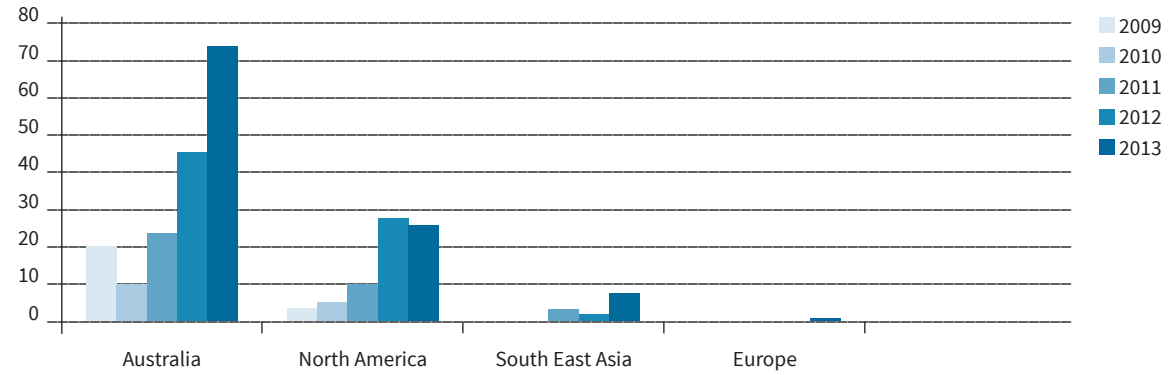
Source: SNL Metals and Mining analysis for IM4DC.

The relative strength of Australian exploration activity South East Asia and the Pacific is underlined by the charts in Figure 34. Given the intensity of exploration, it is somewhat surprising that the value of discovery by Australian explorers in the five years to 2013 has been relatively modest at US$25 billion, probably reflecting the challenging policy and social environments in many of the countries in the region.

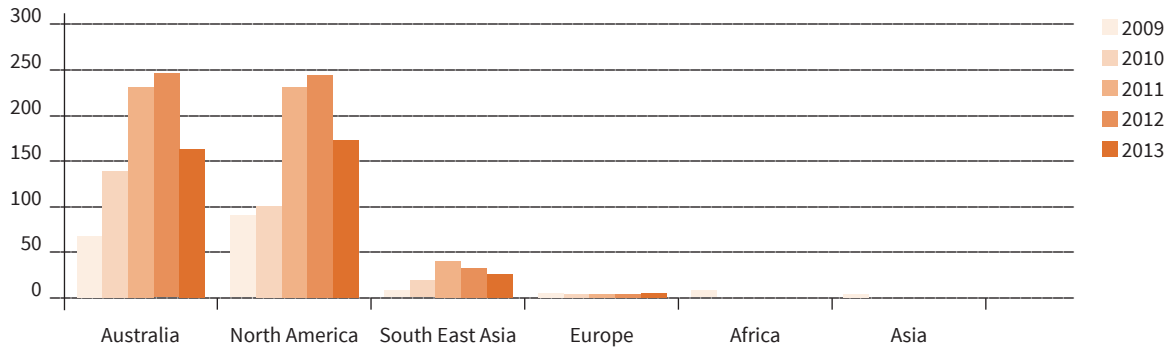
Figure 34: Investment in exploration in South East Asia and Pacific regions, by region of investor, 2009-2013

Key map

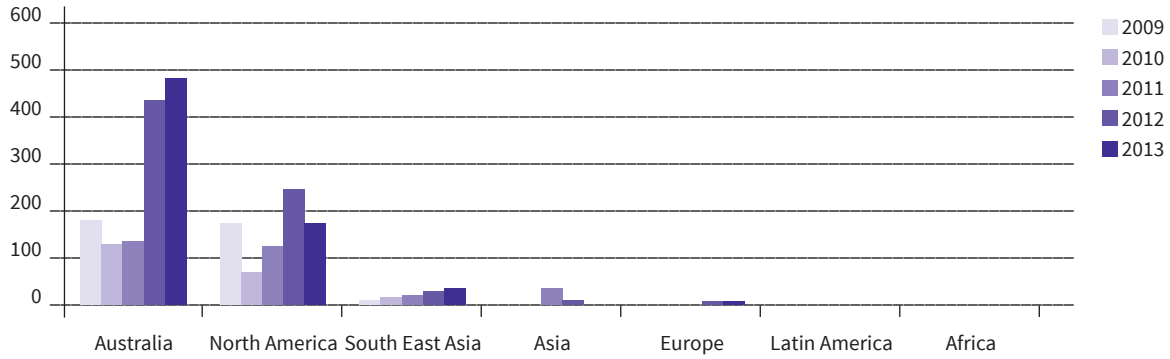
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)



Source: SNL Metals and Mining analysis for IM4DC.

3.8.2 Mining equipment, technology and services

Indonesia is regarded by METS companies as Australia's most important market for the METS sector. The Austmine 2013 and 2015 surveys identified Indonesia as the number one market for Australian METS firms. In the 2015 survey, 49 per cent of METS firms identified Indonesia as highly important to them. Australia's International Business Survey 2015, using a smaller sample, identified Indonesia as the number two market to the US, by a narrow margin.

South East Asia more generally is a major METS market, with the 2015 Austmine survey finding that 67 per cent of firms regarding this region as highly important. The next most important region was Oceania (including Australia) with 50 per cent.

3.8.3 Australian government engagement with South East Asia and the Pacific

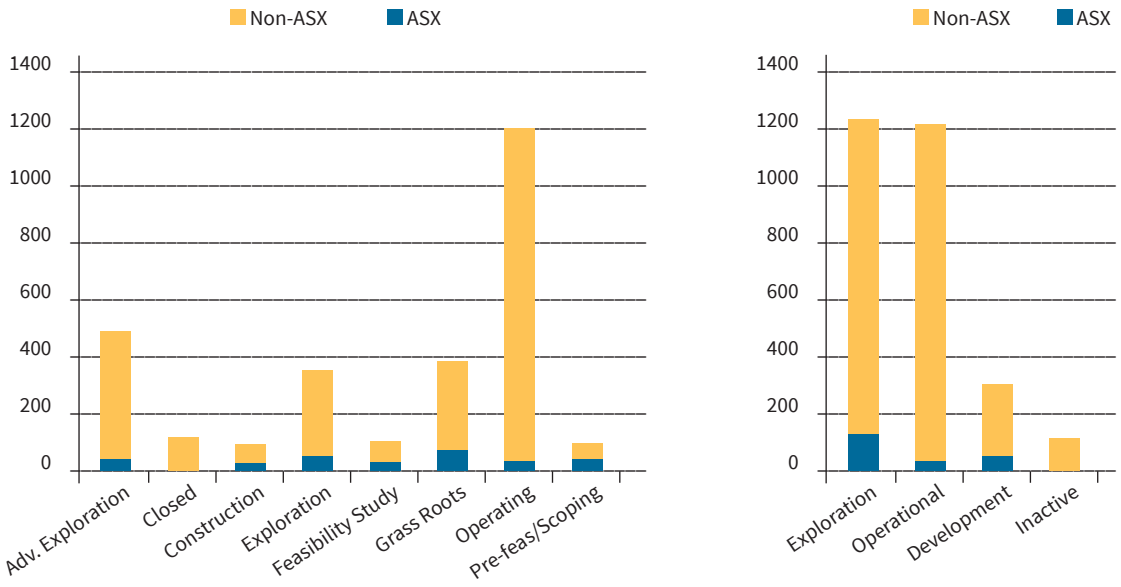
South East Asia has been a focus of Australian government engagement, with numerous diplomatic posts and substantial trade promotion activities. Indonesia and Papua New Guinea are the two largest recipients of Australian aid. Mining governance has been the subject of some direct aid and some indirect through the World Bank, but there has been little substantial integrated activity to date, save for activities of the International Mining for Development Centre focussed on Papua New Guinea, Indonesia and the Philippines, plus Mongolia in North Asia.

3.9 Australian mining and METS activity in North, Central and South Asia

3.9.1 Exploration and mining

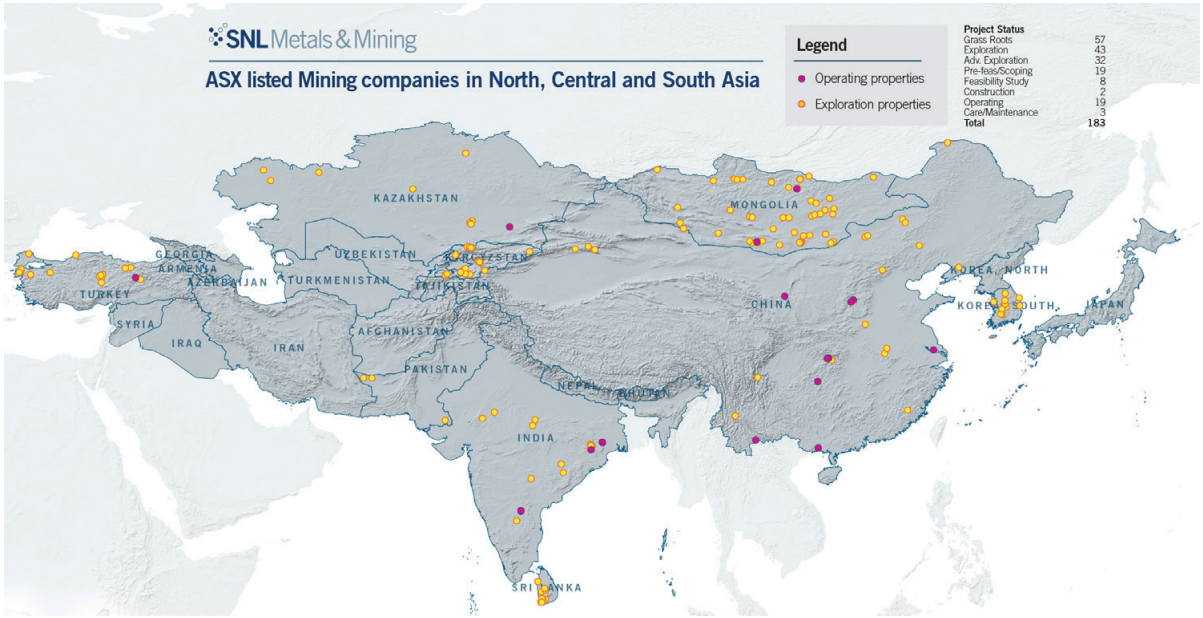
Australian exploration and mining activity has grown rapidly in North, Central and South Asia, with concentrations of activity in Mongolia, Kyrgyzstan and Turkey. China and India are also growing mining investment destinations.

Figure 35: Operations of ASX and non-ASX listed mining companies in North, Central and South Asia, 2013



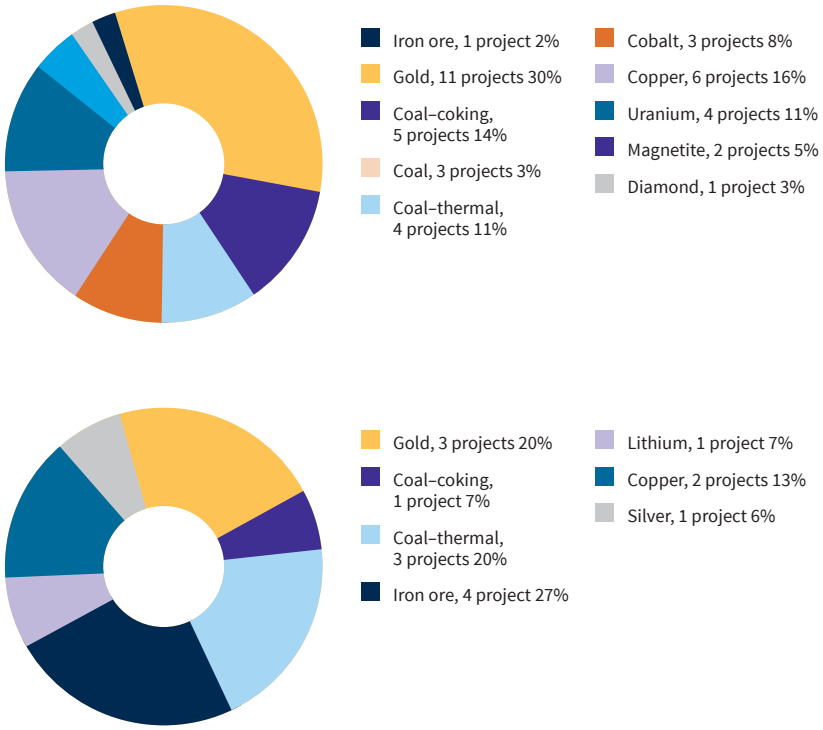
Source: SNL Metals and Mining analysis for IM4DC.

Figure 36: Location of Australian-operated exploration and mining operations in North, Central and South Asia, 2013



Source: SNL Metals and Mining analysis for IM4DC.

Figure 37: Australian-operated exploration projects (top) and mining operations (bottom) in North, Central and South Asia, by commodity, 2013



Source: SNL Metals and Mining analysis for IM4DC.

3.9.2 Australian government engagement with North, Central and South Asia

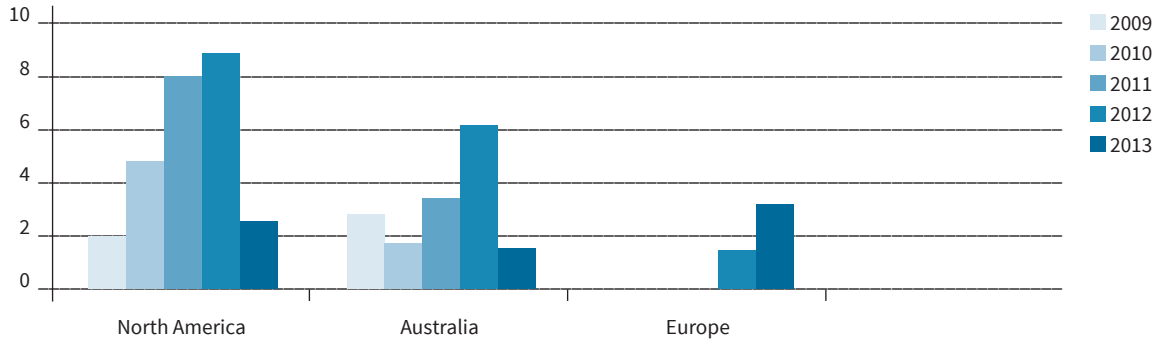
Australia has integrated diplomatic relations (including aid) with only one country in the North, Central and South Asian region: Mongolia. Australia recently upgraded its Mongolian mining governance aid activities, with the Australia-Mongolia Extractives Program building on previous activities of the International Mining for Development Centre and cooperative activities with the World Bank and Germany's GIZ.

Data on exploration activity was analysed for separately Central Asia, and for North and South Asia combined. Figure 38 shows data for inward investment in Central Asia (see key map). Figure 39 shows data for inward investment in North and South Asia.

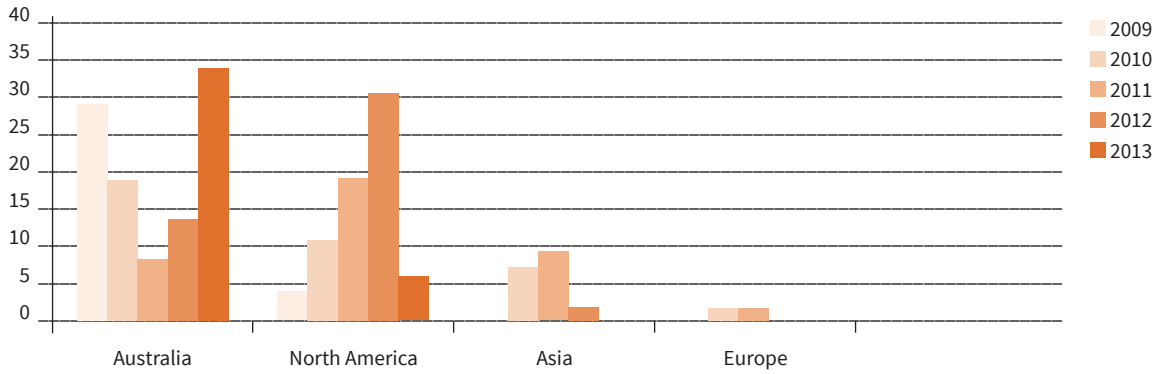
Figure 38: Investment in exploration in Central Asia, by region of investor, 2009-2013

Key map

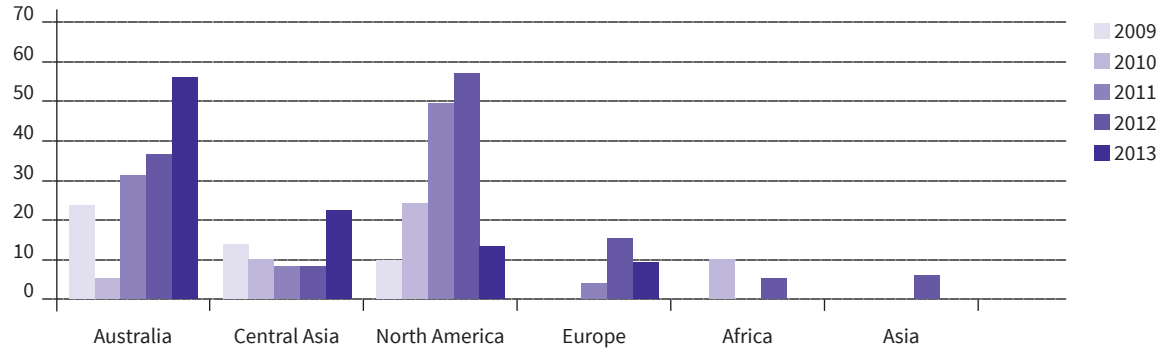
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)

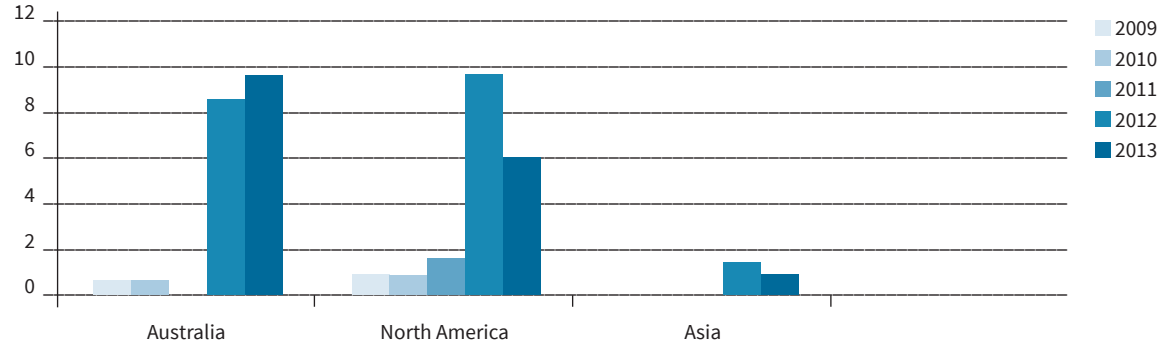


Source: SNL Metals and Mining analysis for IM4DC

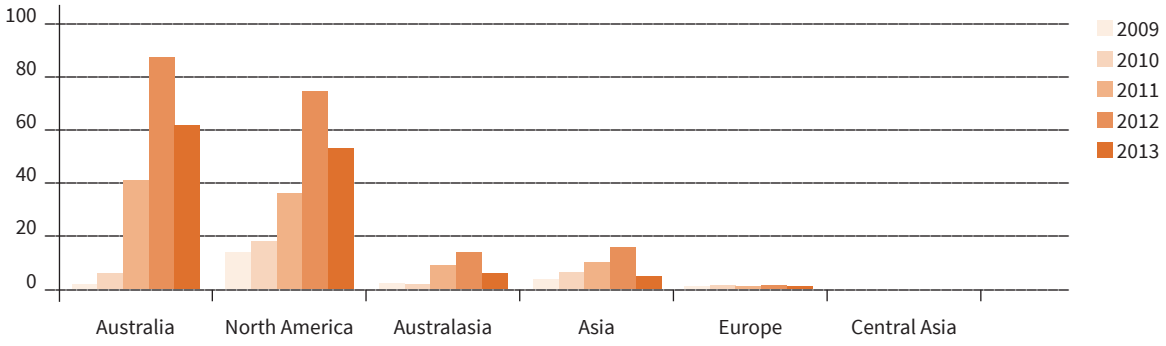
Figure 39: Investment in exploration in North and South Asia, by region of investor, 2009-2013

Key map

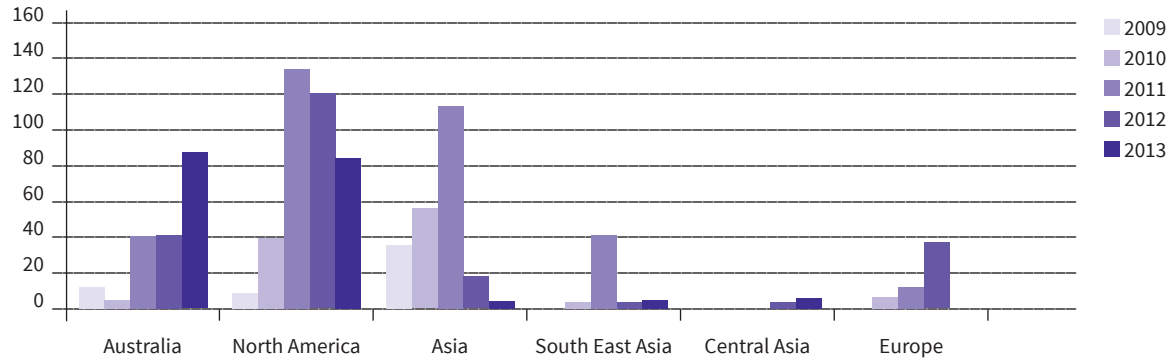
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)



Source: SNL Metals and Mining analysis for IM4DC.

3.9.3 Mining equipment, technology and services

North, Central and South Asia are growing markets for the Australian METS sector. In the Austmine 2015 survey, 23 per cent of companies identified North East Asia as a key market, and 27 per cent identified Southern and Central Asia. In Australia's International Business Survey 2015, respondents ranked China as within the top five global markets for METS, and as one of the most important new markets, alongside India. China and India, however, were also ranked as amongst the most difficult markets to operate in.

3.10 Australian mining and METS activity in Latin America

3.10.1 Exploration and mining

Latin America is probably the fastest growing destination for Australian mining investment and for METS investment and exports. In 2013 there were 96 ASX-listed mining companies with 465 projects across 16 countries. Total capital raised for Latin American projects by ASX listed companies over the five years to 2013 was AU$2.56 billion.

Key countries for Australian investment, as identified by Austrade[76] are:
- Chile: 115 Australian companies total, including 28 juniors
- Brazil: 110 companies, including 20 juniors
- Peru: 88 companies total, including 20 investors/juniors.

As Figure 40 and Figure 41 show, while Australia is a substantial investor in exploration and mining in Latin America, ASX companies in aggregate come a long second to Canadian companies, given their obvious proximity to that region. Nevertheless, the strong Australian presence in this non-traditional investment destination for Australia is testament to the ability of Australian explorers and miners to invest successfully in diverse destinations.

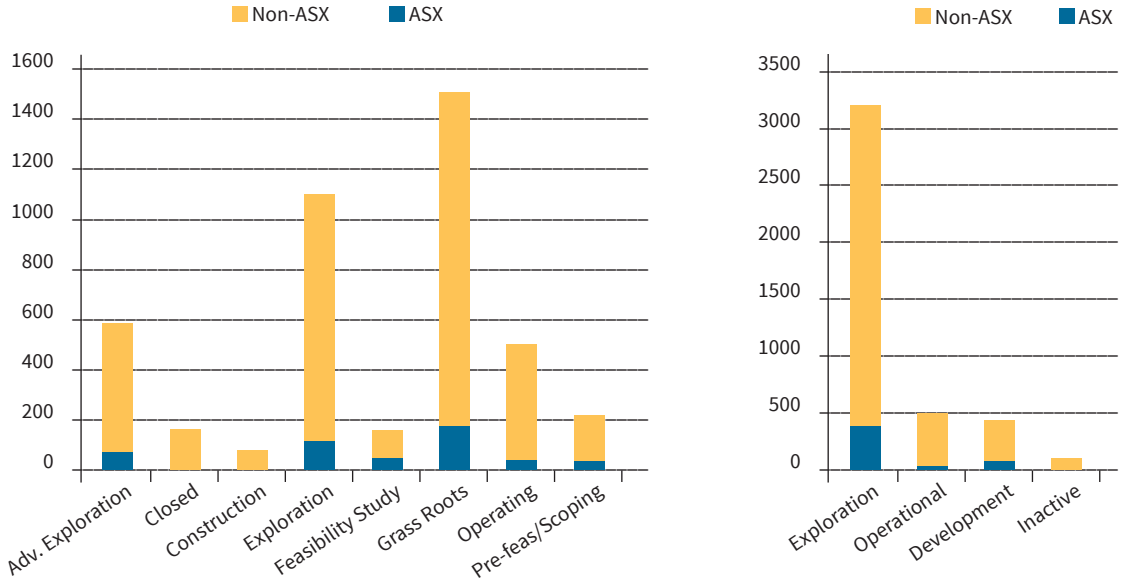
The strength of the Australian METS sector in Latin America, as discussed below, is further evidence of Australia's competiveness in all facets of the mining value chain.

Figure 42 shows the location of Australian-operated exploration and mining properties in Latin America.

Australia's number two position in exploration, by some margin, is indicated in Figure 43.

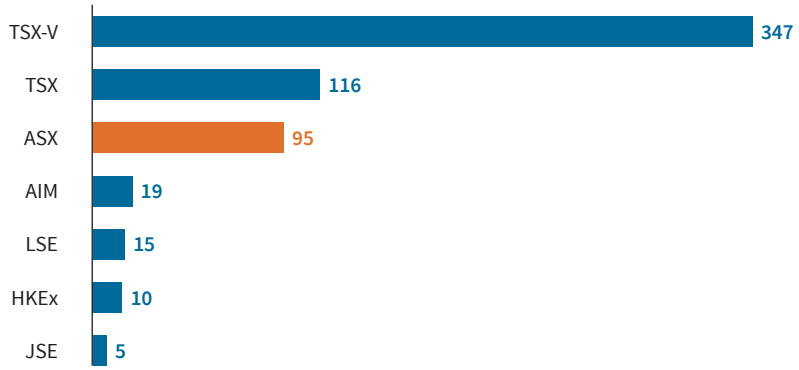
76 Austrade (2015), presentation on *Overview of Latin America*, Latin America Mining Video Conference, January 2015

Figure 40: Operations of ASX and non-ASX listed mining companies in Latin America, 2013



Source: SNL Metals and Mining analysis for IM4DC.

Figure 41: Number of listed exploration and mining companies in Latin America, by stock exchange, 2013



Source: Australian Securities Exchange, SNL Metals and Mining.

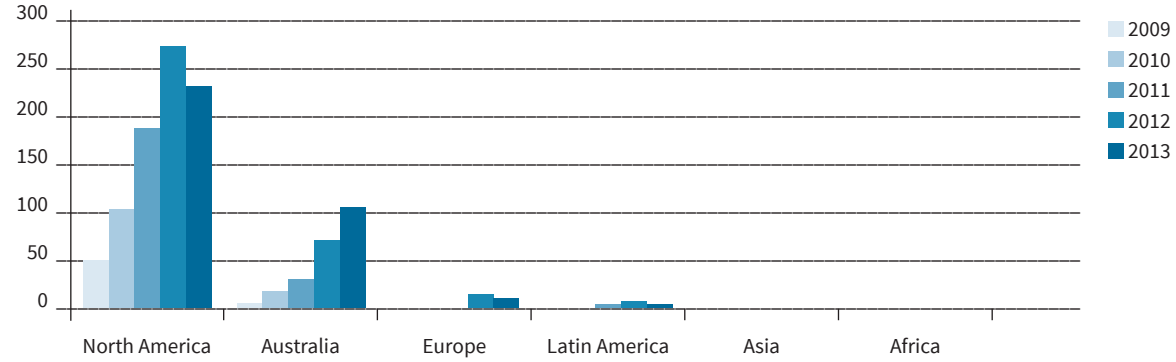
Figure 42: Location of Australian-operated exploration and mining operations in Latin America, 2013

Source: SNL Metals and Mining analysis for IM4DC.

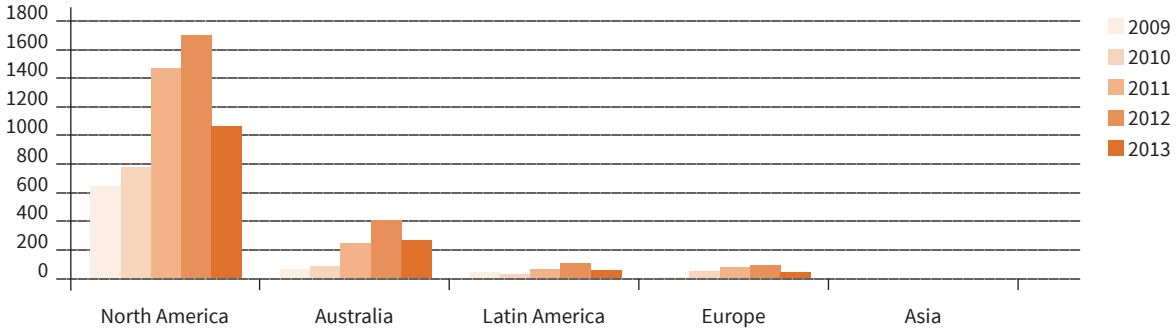
Figure 43: Investment in exploration in Latin America, by region of investor, 2009-2013

Key map

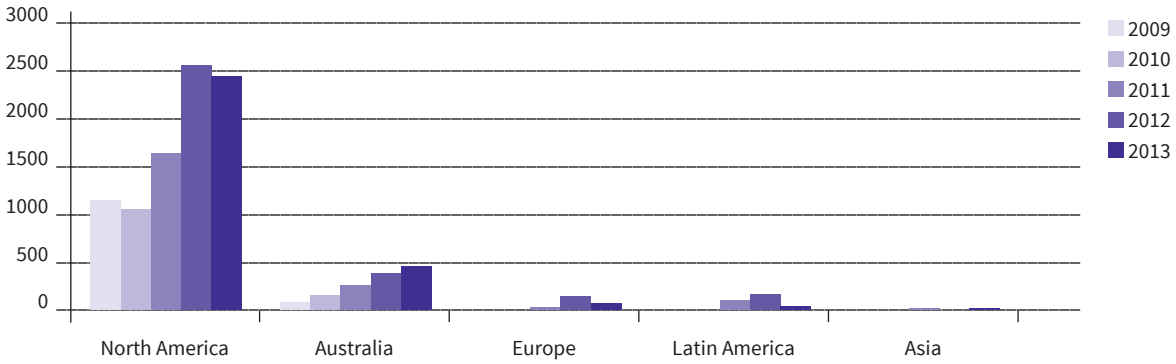
Grass roots (prospecting – target definition)



Exploration (target drilling – resource drilling)



Advanced exploration (resource estimation – infill/extension drilling)



Source: SNL Metals and Mining analysis for IM4DC.

3.10.2 Mining equipment, technology and services

Key countries in Latin America for METS trade and investment, as identified by Austrade[77] are:
- Chile: 59 Australian METS companies with registered offices
- Brazil: 30 METS companies with registered offices
- Peru: 60 METS companies with registered offices.

Australia is regarded by the Government of Chile as a role model in development of a strong METS sector that supports mining industry competitiveness and broadens its economic footprint[78]. Knowledge transfer and learning from Australia is being applied to industry initiatives to develop world class supply chains in Chile[79] [80].

3.10.3 Australian government engagement with Latin America

Until 2014, Australia had an integrated and well-coordinated approach to economic diplomacy in Latin America, focussed on Mexico, Colombia, Peru, Chile, Brazil and Argentina. In 2008, Foreign Minister Smith[81] acknowledged in Lima that the Australian government had some catching up to do to keep pace with increased Australian people to people, industry, educational and commercial exchanges with Latin America. Australia then established an embassy in Peru to complement other missions and to help support business and educational linkages. Subsequently, business led by mining and METS firms and universities, worked in close partnership with the government to rapidly build strong linkages, including in mining governance.

This mapped well against Australia's economic interests. Mining governance capacity-building featured in Peru and Colombia, plus nearby resource-rich nations such as Ecuador and Uruguay. The government has since withdrawn all development assistance to the region. We may need to consider increasing our economic diplomacy efforts in order to counter the withdrawal of aid and signal Australia's ongoing commitment to mutually advantageous business partnerships and commercial development in mining and other sectors such as agribusiness.

3.11 Summary of Australia's mining footprint

Overall, it is clear that the outreach and globalisation of the Australian mining industry this century has been significant with the growth of our METS being particularly impressive.

The chapter demonstrates the ongoing importance of integration and partnerships with our nearest trading neighbours and in particular the future importance of trade and investment in Indonesia, China and India. Of note though is that a number of companies also identified these countries as 'difficult markets' and so the role of government diplomacy and facilitation remains paramount.

More revealing perhaps is the growing importance of Africa and South America, especially Chile, Brazil and Peru in the latter, while Australia's strongest investment destination per company is in the African continent. Both these facts would suggest the vital importance of ongoing economic diplomacy and capacity building support from Australia to key countries in these continents in support of Australia's long-term mining interests.

77 Austrade (2015), presentation on *Overview of Latin America*, Latin America Mining Video Conference, January 2015
78 CSIRO (2014), *The Future of Mining in Chile*, CSIRO Futures 2014
79 BHP Billiton (2015), *World Class Supplier Program*, http://www.bhpbilliton.com/society/ourcontribution/world-class-supplier-program accessed November 2015
80 Fundación Chile, *World Class Suppliers Program*, http://www.fch.cl/en/iniciativa/innovum-en/world-class-suppliers-program/ accessed November 2015
81 Stephen Smith (2008), comments in doorstop interview outside APEC Ministerial Meeting, the Hon Stephen Smith MP, Minister for Foreign Affairs and Trade, 20 November 2008

Throughout the paper, the spectacular growth and globalisation of Australia's mining value chain with its attendant economic multiplier effects have been documented and analysed based on recent trends and available data. The importance of close relations between government and the industry have been underlined. The need for improved mining industry data and understanding about the Australian mining industry, wherever it operates, as well as support for improved mining governance in resource rich developing countries have been identified as keys to better outcomes for Australia and other resources-rich nations.

The rest of this paper now focusses on these issues and seeks to answer the question: how can industry and government play a more integrated and collaborative role in support of mutually advantageous economic outcomes whether though informed policy making, data collection, mining governance initiatives or through Australia's economic diplomacy and aid for trade initiatives?

A more comprehensive understanding of the Australian mining sector will be enhanced by refinement of data collection and further analysis. The need for high quality and timely data that can underpin policy decisions and economic diplomacy priorities underlines the case for greater attention by the Australian Government to understanding one of its largest business sectors operating both domestically and internationally – a position that is potentially under threat from the mercantilist policies of some other nations.

4 Measuring change, informing policy

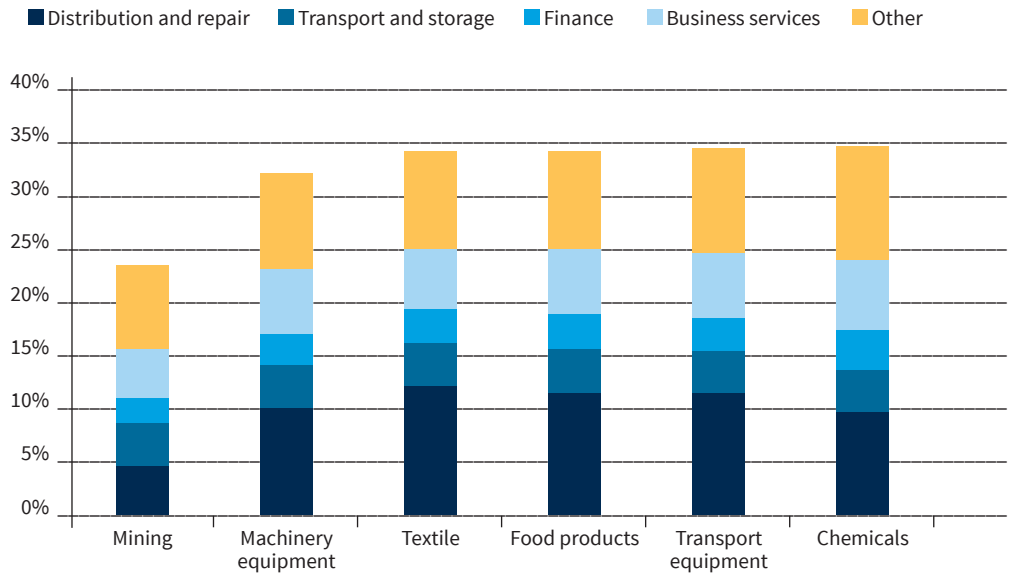
4.1 Changes to patterns of trade and investment: implications for Australia's mining and METS interests

Chapter 4 of this report highlights the changing patterns and nature of global trade (including investment), which is undergoing fundamental shifts. International trade has become far more globalised. Asia has become a dominant hub. Global companies have moved from single location production to multiple location production to take advantage of regional and global value chains.

Whether this latter phenomenon is characterised as slicing up the value chain, off-shoring, vertical specialisation or production fragmentation, today's unbundling of activities – which are increasingly found in services (such as METS) as well as in goods production – are changing the way global companies make their decisions about production, trade and investment whether in Australia or in the developing world.[82]

In addition to the well-discussed growth of consumption in Asia, services trade growth has overtaken growth of manufacturing trade in Asia, while globally, services trade growth in 2014 is almost equal to that of merchandise trade[83] [84]. In addition, there is a convergence of primary production, manufacturing and services, with significant levels of services being embodied in most physical products along the global value chain and lifespan of a product. Figure 44 reflects the increasing importance of services inputs into the production of goods including for mining, machinery and transportation.[85]

Figure 44: Services inputs are vital to goods global value chains



Source: OECD Trade and Agricultural Directorate (2013).

82 Stoler A., Redden J., Jackson L., (2010), *Trade and Poverty Reduction in the Asia Pacific Region*, World Trade Organisation 2010, pp74
83 UNESCAP (2015), *Asia-Pacific Trade and Investment Report 2015*, UN Economic and Social Commission for Asia and the Pacific, November 2015
84 WTO (2015), *World Trade Report 2014*, World Trade Organisation, March 2015
85 ITS Global (2010) *Services International Linkages: The importance of embodied services in trade and paths to increased trade*. A useful summary of linkages in trade of good and services

As such, the growth of regional and global value chains is changing the way in which goods and services are produced and delivered[86]. Within these fast growing value chains, goods and services are produced in multiple locations across borders, with different locations adding value at each stage of the production and delivery process. Many Australian companies are already engaged in global value chains. In manufacturing, an example is companies undertaking design and product development in Australia, manufacturing in another country and marketing in third country product destinations. In professional services, overseas 'capability centres' undertake functions in close collaboration with Australian offices to deliver services through a third office in another location.

As global companies have spread their supply chains across multiple markets, they have also integrated vertically and horizontally across country borders through investment.

In the light of these shifts, it is necessary to better understand Australia's increasingly complex international trade flows as well as Australia's two-way investment flows.

The mining and METS sectors are an intricate part of these shifts. For Australia, with clear competitive advantages and market leadership (with Canada) in mining, and very strong capability in METS, it is important to understand the opportunities that the shifts in trade and investment patterns offer. Equally, Australia needs better to understand the challenges that face Australian companies who invest and trade overseas and seek to support them though general or targeted trade liberalisation in bilateral, regional or multilateral negotiations.

4.2 If we don't measure it, we can't manage it: overcoming data challenges

In the past three decades, inbound foreign direct investment, notably in mining, food and now agriculture, has been a key driver of growth for Australia's exports, as well as growth of the domestic economy. Considerable analysis has been undertaken to understand Australia's *inbound* investment profile.

As noted earlier, however, poor data about Australia's *outbound* investment profile is hampering informed discussion and policy-making about its global mining presence. While Australia has collected good quality data about goods trade for many years, and data on services trade is improving, data on international investment has been high level, aggregated and inadequate to facilitate a deeper understanding of Australia's global investment (including mining) interests.

Canada, whose companies make up the largest cohort of exploration and mining investors by number and funds committed (Australia is ranked #2), closely monitors data on "Canadian Mining Assets Abroad" (CMAA)[87], produced by government agency Natural Resources Canada (see Box 3) as an adjunct to Canadian Direct Investment Abroad (CDIA) figures estimated by Statistics Canada from their national accounts. The CDIA data are equivalent to that produced by the Australian Bureau of Statistics, but there are no equivalent data to CMAA, and its detailed by-destination information on the mining sector collected by Australia.

The CMAA data show that the total value of Canadian mining assets in 2013 was CA$233.9 billion, held by 1,621 companies, of which the value of Canadian mining assets abroad was CA$153.2 billion, distributed across 106 countries. If Australia held such well-defined investment data, policy makers would be much better equipped to make informed decisions about the whole Australian mining sector, rather than sections of it.

86 Discussed in OECD (2014), *Global Value Chains: Challenges, Opportunities, and Implications for Policy*, OECD, WTO and World Bank Group, July 2014

87 Natural Resources Canada (2014), *Canadian Mining Assets: The Global Presence of Canadian Mining Companies*, Natural Resources Canada Information Bulletin, December 2014 (published February 2015)

Natural Resources Canada has also researched patterns of Canadian mineral exploration. Its paper *Canadian Global Exploration Activity*[88] looks at exploration activity in Canada, but also focuses on the market share and role of Canadian mining companies in jurisdictions globally. It finds that Canadian companies in aggregate lead global exploration expenditure by a large margin, with investment of US$4.4 billion in 2010. Australian companies are second in the ranking with 2010 investment of US$1.8 billion. Box 4 provides a summary of Canadian exploration findings, with Australian data discussed in detail in chapter 3.

Australia's global METS interests are now better understood than three years ago. Thanks to government-funded surveys commissioned by Austmine in 2012 and 2015, the METS association has produced a detailed picture of the sector and its global reach. Interestingly, Canada does not appear to have such detailed data on its METS sector, so in this respect, Australia is ahead.

In a recent research paper *Overseas Investment of Australian Companies*[89], Austrade noted that while "considerable analysis has been conducted to understand Australia's inbound investment profile", "_ …there has been little recent analysis of Australia's outbound investment profile as a whole". Existing ABS analysis is top-down, showing value of outbound FDI by market or industry of investment, but does not provide details by both market and industry.

The Austrade paper presented new information on the overseas direct investments of Australian companies by both market and industry. This paper is a welcome, but represents only the beginning of the recognition that up to date data provision is essential to understanding the role overseas direct investment plays in the growth of Australian companies doing business in international markets, and the benefits of this investment to the Australian economy.

The two case studies that follow are informative examples of how the Canadian Government is utilising data for the benefit of its mining industry.

It is somewhat salutary to note that part of the analysis in this Canadian Government report was based on property data from the database of Australian mining data company IntierraRMG, now subsumed within SNL Metals and Mining. It is understood that Geoscience Australia subsequently commissioned analysis of inbound and outbound exploration flows from the same company.

In light of the critical need for better data on which to base Australian policy, it is highly recommended that the Australian Government and the mining industry examine how they might better capture relevant, contemporary statistics and data particularly of Australian outbound investment for major sectors and its implications for Australian economic diplomacy. Stock exchange information, which is tracked by several information broker companies, offers the best source of data on publicly-listed companies, while these same brokers also track, where possible, major private and state-owned company activity.

88 Arlene Drake *(2012), Canadian Global Exploration Activity*, Arlene Drake, Natural Resources Canada, 2012 http://www.nrcan.gc.ca/mining-materials/exploration/8296 accessed November 2015

89 Christina Goodman (2015), *Overseas Investment of Australian Companies*, Trade and Investment Note, Christina Goodman, Austrade Economics, April 2015

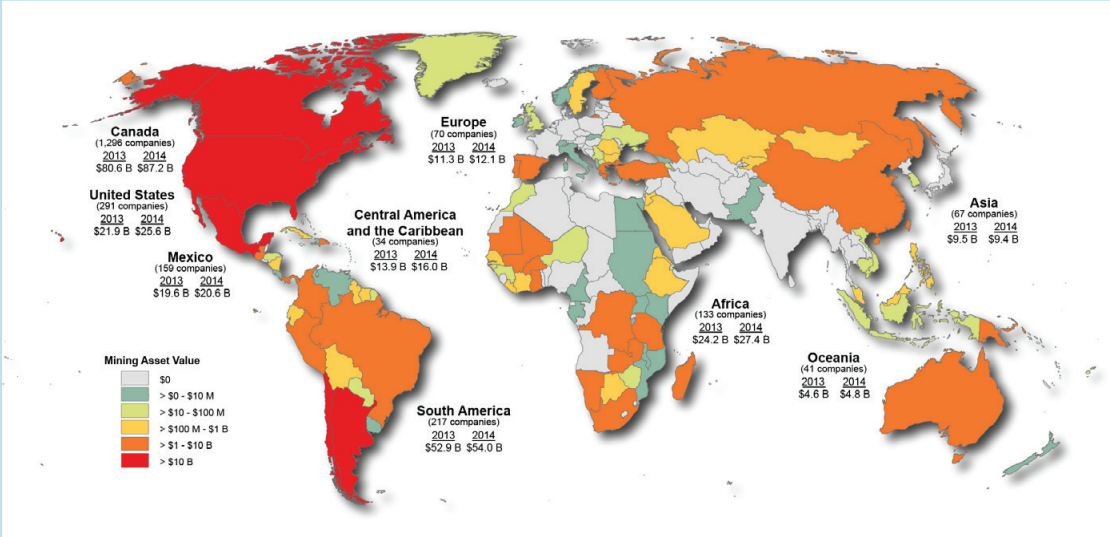
Box 3: How Canada measures and presents its international mining interests

For some years, Canada has closely tracked investment by its companies internationally, with a particular focus on exploration and mining. For exploration and mining investment data, Canada utilises stock exchange data and other sources.

The map, published on the Natural Resources Canada website[90], summarises the distribution of mining assets of Canadian listed companies, including 'Canadian mining assets abroad' (CMAA). Natural Resources Canada found that:

> "Canadian mining assets (CMA) totaled $256.9 billion in 2014, a 7.7% increase from the revised 2013 value of $238.5 billion. Canadian mining assets abroad (CMAA) totaled $169.7 billion, up 7.5% from the revised 2013 value of $157.9 billion. CMAA as a percentage of CMA remained stable at 66% for both years.
>
> "Canadian mining and exploration companies were present in 105 foreign countries in 2014. The majority of CMAA (68%) was in the Western Hemisphere (the Americas)… Almost every region experienced growth in 2014 with the exception of Asia… Africa is the region that experienced the greatest amount of growth in percentage terms (13.3%) in 2014.

Geographical Distribution of Canadian Mining Assets in 2014



> "Junior companies accounted for almost 90% of the total company count and for 8% of the total CMA value in 2014. About half of their assets by value were located in Canada with another 35% located elsewhere in the Americas…Senior companies held a smaller portion of their assets by value in Canada (33%), but also held a large portion of their assets in the rest of the Americas (46%).
>
> "For 2014, a total of 1,694 companies were identified as being headquartered in Canada and potentially having mineral assets in Canada or abroad:
> - 1,573 were identified as possessing mining assets
> - 26 (2%) had mining assets with a value in excess of $1 billion
> - 174 (10%) had operating revenues
> - 799 (50%) had interests outside of Canada, and
> - 586 (37%) had mining assets in at least two countries."

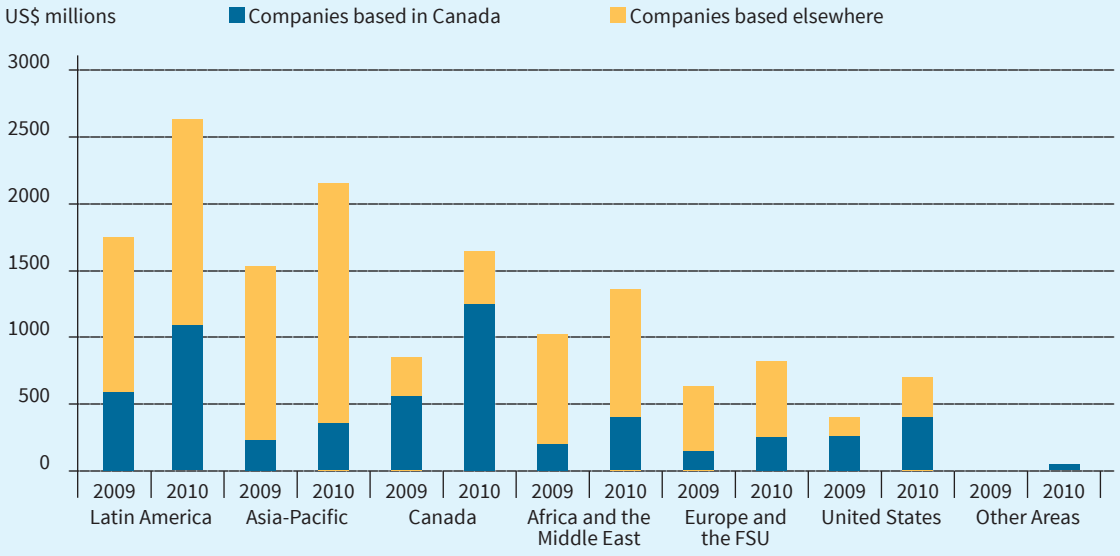
90 Natural Resources Canada (2015), Canadian Mining Assets Information Bulletin – The Global Presence of Canadian Mining Companies, December 2015 (published January 2016)

Box 4: Measurement of Canadian investment in exploration

The paper *Canadian Global Exploration Activity*, published by Natural Resources Canada in 2012[91], provides an overview of Canadian mineral exploration activity outside Canada. It also highlights the domestic and foreign components of the larger-company exploration market in Canada. In summary, the paper found:

- The value of exploration programs expected to be undertaken worldwide in 2010 for precious metals, base metals, and diamonds reached US$10.7 billion, up by US$3.4 billion, or almost 46%, from the US$7.3 billion that companies had planned to spend in 2009. The value of these programs includes the budgets of both larger companies and smaller companies.
- There are more mining companies based in Canada than anywhere else. In 2010, 298 of the world's 618 larger companies (companies planning to spend more than US$3 million) were based there.
- During 2010, the world's larger companies were expected to undertake exploration programs with a combined value of US$9.24 billion in 110 countries. The world's smaller companies were expected to undertake exploration programs around the world with a combined value of US$1.44 billion.
- Canadian companies account for the dominant share, by far, of the value of all mineral exploration programs planned worldwide. The value of the programs that the larger Canadian-based companies planned to undertake during 2010 was 39% of the value of all larger-company exploration programs while the proportion of the value of exploration programs planned by all Canadian-based companies was 41% of all activity expected worldwide.
- In 2010, Canadian-based companies planned to spend more on mineral exploration in foreign regions than they planned to spend in Canada.

Exploration Budgets of the World's Larger Companies for Selected Regions of the World, 2009 and 2010



91 Arlene Drake (2012), Canadian Global Exploration Activity, Arlene Drake, Natural Resources Canada, 2012

5 Mining governance: adding the missing link to developing country value chains

5.1 What is mining governance?

Mining governance can be defined[92] as:

> The necessary blend of (1) law and regulation; (2) government administration, monitoring and enforcement; (3) community engagement; and (4) voluntary private sector practices that enables:
> - Government to host responsible private sector investment in mining
> - Mining to be conducted sustainably
> - Benefits to be delivered to nations and regions, their economies and their communities
> - Investors to derive commercial returns.

Stakeholders include national and regional government, domestic and foreign owned mining companies, civil society organisations, industry associations, and education and research institutions.

Mining governance encompass interactions of stakeholders throughout the mining lifecycle – from investment policy, precompetitive exploration data collection and tenement administration; to mining approvals and regulation, revenues, monitoring and external impacts; to mines closure, post mining land use and post mining economic activity.

Nations that host well-governed mining sectors tend to:
- Attract investment of higher quality and value
- Achieve better financial returns
- Achieve better economic, social and environmental outcomes.

This is because their risk profile is significantly reduced – sovereign risk, regulatory risk, financial risk and social license risk. As well, such countries have policies and mechanisms that enable local businesses and communities to connect with mining activities to derive economic and social benefits, while mitigating detrimental impacts.

5.2 Australia's mining governance performance

Australia has long been a leader in the way in which mining is governed. Australian states were amongst the first in the world to implement pre-competitive geoscience strategies that provide no-cost data to explorers. They and the Commonwealth have sophisticated and efficient approval processes. Australian jurisdictions are at close to leading practice in occupational health and safety, and environmental, regulation and performance. Australia's communities generally understand and support mining.

The governance leadership of Australian jurisdictions is acknowledged by mining investors in their responses to the annual Fraser Institute Survey of Mining Companies[93], which consistently rank Australian states amongst the top jurisdictions globally (see Figure 45). The Policy Perception Index measures the effects of government policy on exploration.

The Fraser Institute Survey of Mining Companies seeks to assess how mineral endowments and public policy factors such as taxation and regulatory uncertainty affect exploration investment.

92 International Mining for Development Centre (2013), Annual Plan 2013-14
93 Fraser Institute (2015), *Survey of Mining Companies: 2014*, the Fraser Institute, Canada, February 2015

The 2014 survey was informed by 485 responses from individuals in companies involved in mining exploration and development, and related activities.

Survey responses on policy perceptions were tallied to rank countries and subnational jurisdictions according to the extent that public policy factors encourage or discourage investment.

Policy factors examined include administration of current regulations, environmental regulations, regulatory duplication and overlap, legal systems, the taxation regime, access to protected areas, land claims, infrastructure, socioeconomic and community development conditions, trade barriers, political stability, labour regulations, quality of the geological database, security, and labour and skills availability.

McKinsey Global Institute (MGI) also ranks Australia highly in its governance performance across six areas of the resource value chain. It its report *Reverse the curse: Maximizing the potential of resource-driven economies*[94], MGI identifies three key imperatives for nations to capture resources investment and unlock the latent value of minerals and energy endowments:
1. Effectively developing their resource sector
2. Capturing value from it
3. Transforming that value into long-term prosperity.

The research includes a ranking of best practices on six elements under these imperatives:

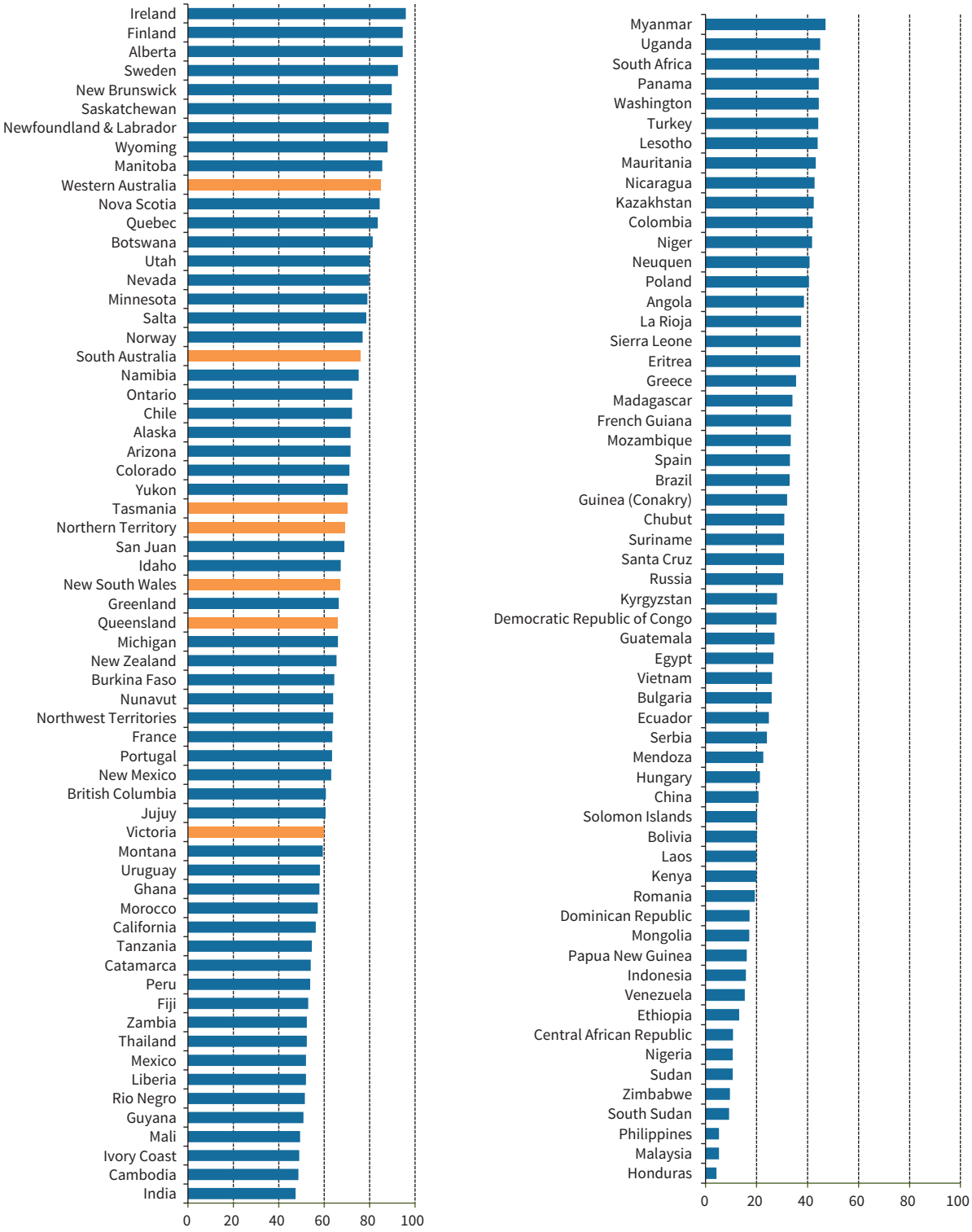
Develop resources
- building the resource sector's institutions and governance
- developing infrastructure.

Capturing value
- ensuring robust fiscal policy and competitiveness
- supporting local content.

Transform value into long-term development
- spending resource windfalls wisely
- transforming resource wealth into broader economic development.

94 McKinsey Global Institute (2013), *Reverse the curse: Maximizing the potential of resource-driven economies*, McKinsey Global Institute, December 2013

Figure 45: Policy Perception Index, Fraser Institute Survey of Mining Companies 2014 (Australian states and territory highlighted)



Source: Fraser Institute (2015).

Australia is ranked in the top five nations for five of the six criteria. It is ranked sixth on fiscal policy and competitiveness.

It is clear from the results that Australia, Canada and Norway (in alphabetical order) are assessed as the leading nations in resources governance and value capture and leverage. They are the only countries ranked in the top 10 in all six criteria.

As discussed in chapter 3, Canada and Australia (in that order) are the two largest minerals and coal investor countries globally in terms of public companies. Norway is a large international investor in oil and gas.

All three countries have active economic diplomacy programs, but as this paper argues in chapter 4, Australia's program is not as integrated or as well informed by economic data as both Canada and Norway – or for that matter Sweden and the United Kingdom.

Figure 46: Top five countries performing well across the six areas of the resource value chain

Resource-driven country ranking in given area[1]

Resource-driven countries that excel in 4 or more areas

	Develop resources		Capture value		Transform value into long-term development	
	Institutions and governance	Infrastructure	Fiscal policy and competitiveness[2]	Local-content development	Spending the windfall	Economic development
1	Norway	Canada	Canada	Canada	Norway	Norway
2	Canada	Malaysia	Chile	Norway	Australia	Qatar
3	Australia	Norway	Norway	Qatar	Canada	Australia
4	UAE[3]	Australia	Botswana	UAE[3]	Bahrain	Iceland
5	Chile	Lithuania	Mexico	Australia	Brazil	Canada
			Australia			

Notes: 1. Methodology is explained in detail in the source publication;

2. Analysis restricted to mining sectors due to data availability and comparability issues; Australia ranked #6;

3. United Arab Emirates.

Source: McKinsey Global Institute (2013).

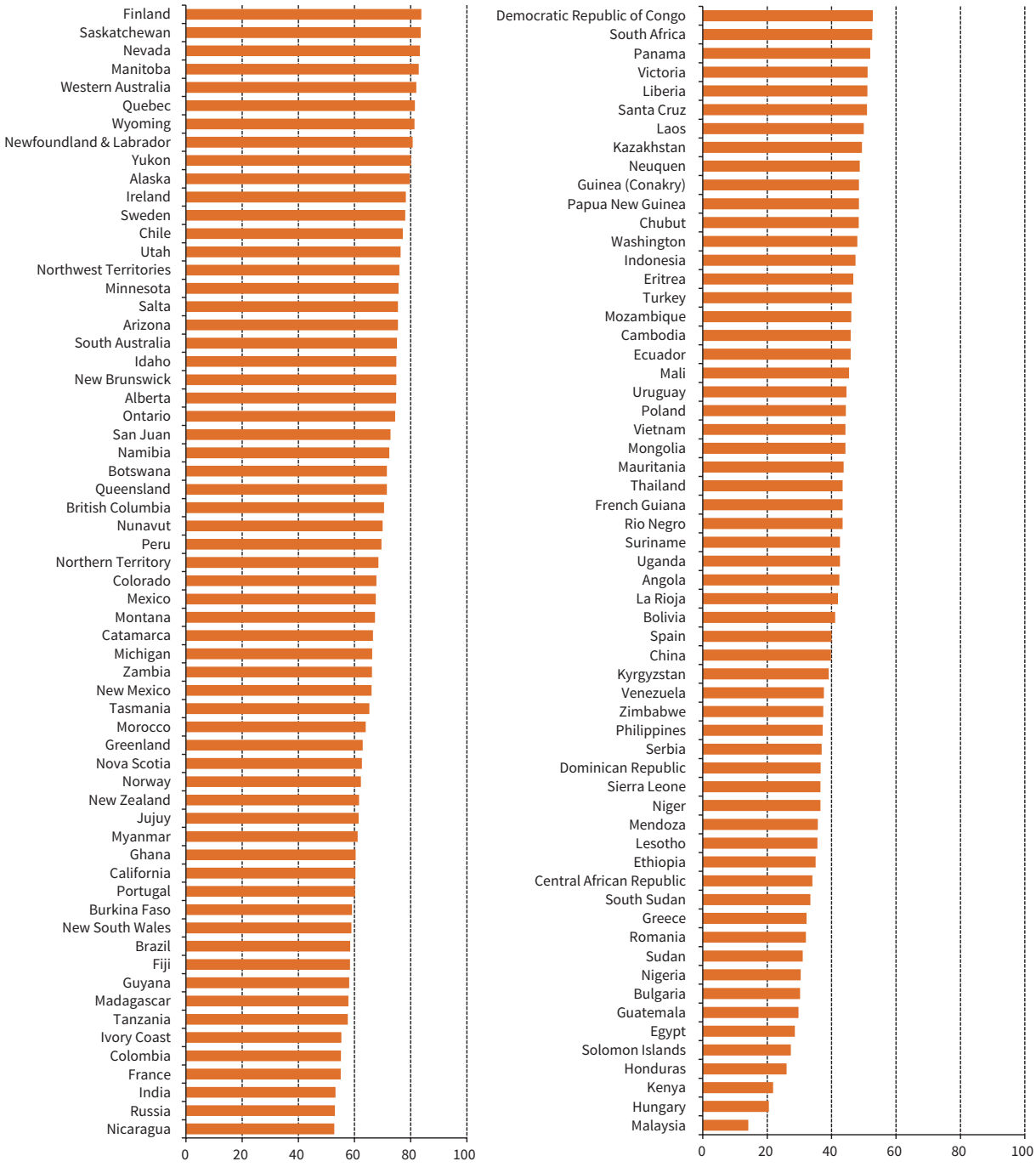
5.3 Status of mining governance in the developing world

As the results of the Fraser Institute Survey in Figure 47 indicate, in terms of investment attractiveness, industry respondents ranked most developing countries below Australian and Canadian jurisdictions, several US states, plus Ireland, Finland and Sweden.

Highly ranked developing country exceptions were Botswana, Namibia and Burkina Faso.

The Fraser Institute's Investment Attractiveness Index takes combines investor perceptions of both mineral potential and policy.

Figure 47: Investment Attractiveness Index, Fraser Institute Survey of Mining Companies 2014



Source: Fraser Institute (2015).

It combines the Policy Perception Index and the Best Practices Mineral Potential Index, with 40/60 weighting. The latter rates a jurisdiction's attractiveness based on the perceptions of respondents of geologically-determined mineral potential. The weighting is based on survey responses, which as in previous years, respondents indicate that roughly 40 percent of their investment decision is determined by policy factors, with 60 per cent determined by mineral potential

The Investment Attractiveness Index shows that the majority of developing jurisdictions are in the bottom three quartiles of investment attractiveness, with the top quartile dominated by developed jurisdictions.

Thus, most resource-rich developing countries have substantial scope for improvement of their governance and so to raise their investment attractiveness scores.

The MGI *Reverse the Curse* report finds that since 1995, the number of resource-driven countries[95] has risen by 40 per cent. This is as a result of rising resource prices and production, the number of countries in has increased significantly. In 1995, there were 58 resource-driven economies that accounted for 18 percent of global economic output. By 2011, there were 81 such countries contributing 26 percent of global economic output.

Resource-driven countries vary significantly in their governance capacity, their economic and institutional development and in their resource wealth. Figure shows that most resource-driven countries fall into the lower- and middle-income brackets and have significant variations in known reserves.

Some resource-driven countries, such as Australia, Norway, and Canada, have stable political systems, while others suffer from instability. Out of 35 fragile country situations[96] identified by the World Bank in 2013, 19 were in resource-driven countries.

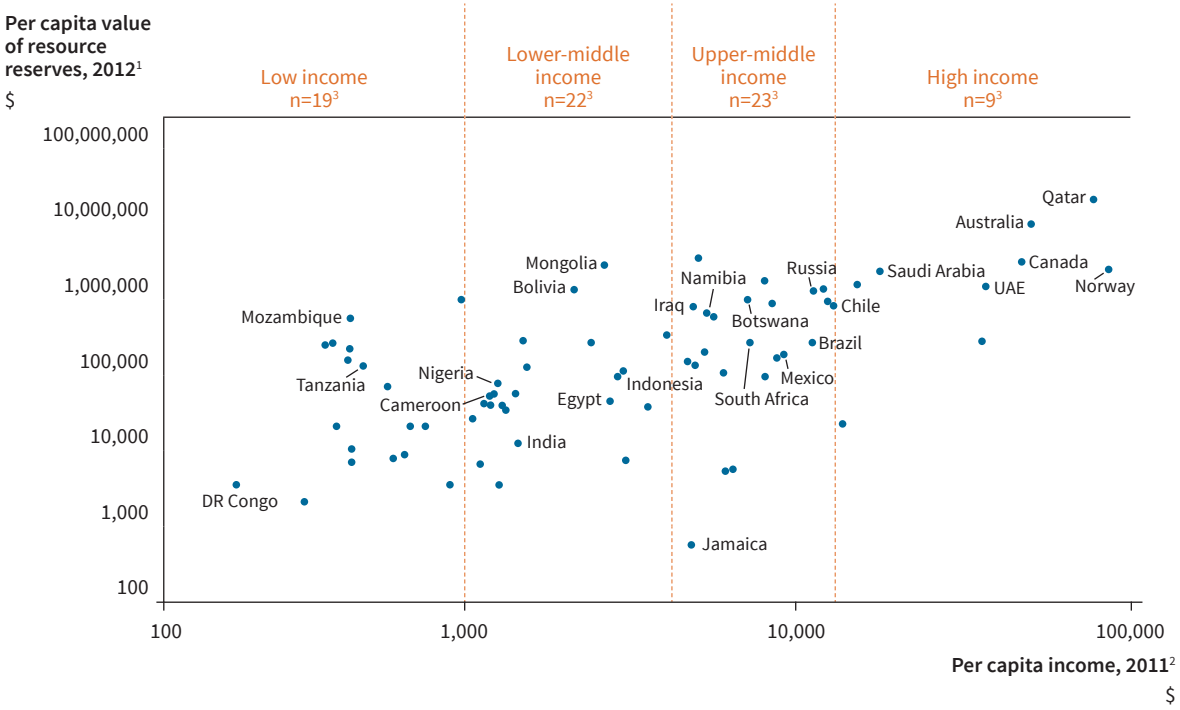
MGI says that investment in resource extraction in lower-income countries could their trigger economic and social transformation over the next two decades.

This will be enabled by:
- ongoing increases in demand for resources, which given the ongoing increase in global population and rising living standards, is highly likely and will follow the long-term demand trend
- the fact that about half of natural resource reserves are in non-OECD and non-OPEC countries.

95 "Resource-driven countries" are defined by MGI as those economies where the oil, gas, and mineral sectors play a dominant role, using three criteria: (1) resources account for more than 20 percent of exports; (2) resources generate more than 20 percent of fiscal revenue; or (3) resource rents are more than 10 percent of economic output

96 World Bank (2013), *Harmonized list of fragile situations FY13*, World Bank, 2013

Figure 48 Per capita income and value of resource reserves of resource-driven countries



Notes:

1. Includes reserves of oil, gas, iron ore, coal, copper, gold, nickel, silver, potash, and phosphate rocks (valued in current prices).
2. Per capita GNI in current prices; 2011 World Bank thresholds for categorization are $1,026 for lower-middle income, $4,036 for upper-middle income, and $12,476 for high income.
3. The sample size includes future resource-driven countries identified by the IMF (Afghanistan, Guatemala, Madagascar, Togo, and Uganda); 14 countries were excluded due to lack of data.

Source: McKinsey Global Institute (2013).

If governments in low-income and lower-middle-income countries use their endowments wisely and develop effective collaboration with extraction companies, the potential for economic and social transformation is impressive and shades most other routes to economic growth and poverty reduction in terms of scale and speed. MGI says:

> How large could the prize be? Based on a range of methodologies, including estimates from industry experts, announced projects, and equalization of investment per square kilometer (excluding OPEC countries), cumulative investment of between (US) $1.2 trillion and $3 trillion is possible in low-income and lower-middle-income countries by 2030 out of the worldwide total of $11 trillion to $17 trillion. In the high case, this would be almost $170 billion a year, more than three times development aid flows to these countries in 2011.
>
> If all resource-driven countries were to match the average historical rate of poverty reduction of the best performers in this group, there is potential to lift 540 million people out of poverty by 2030 overall. This is more than the number of people that China managed to shift out of poverty over the past two decades.

The US$2.1 trillion in-ground value of resource discovery and delineation by Australian companies alone in the five years to 2013 gives a further indication of the scale of the latent value of resource endowments. The challenge is for host nations, their communities and businesses, and mining companies to work together to activate these discovered resources into commercially robust mining operations that deliver substantial and sustainable benefits to all stakeholders.

Turning discovery into mine development and delivery of sustainable benefits is becoming increasingly difficult. Mineral deposits, and especially large-scale, long-life ones are becoming increasingly difficult to find[97]. Not only that, but high quality deposits that have high grades and strong commercial potential are becoming more rare, with more low-grade deposits in the portfolios of mining companies than previously[98],[99]. The technical, commercial and financial hurdles become more challenging to surmount. Achieving social and regulatory licences to operate are now also issues of equal importance to these factors affecting project viability. Conflict in particular is rising in frequency and cost to project proponents and governments alike[100].

To realise the potential of their resources endowments, many countries need capacity-building support from successful resource-driven nations with capability to transfer knowledge and support transformational change in governance. Australia, Canada, Norway, Sweden, Germany and the United Kingdom, plus multilateral agencies like the World Bank and NGOs like Transparency Initiative all have active capacity-building programs in resources governance in all developing regions of the world. There is a strong case for these capable nations to do more in capacity-building for effective resources governance.

MGI also notes, rightly, that extractive companies also need a new approach to building relationships with governments and communities in the countries where they operate to move to partnership in economic development.

5.4 Leveraging Australia's global leadership in mining and mining governance

Australia's leadership in mining governance adds to its leadership in all other aspects of mining to deliver an integrated system that delivers what is arguably the world's leading mining capability complex.

In many resource-rich nations, Australia is a preferred partner for investment in mining, and a preferred partner in METS investment and trade. Australian mining and METS companies have developed a reputation as quality investors and suppliers that apply high standards across the entire value chain. Their success in raising capital, in exploration and discovery, in mine development, in operating in diverse operating environments, and in delivering value both to shareholders and to nations and communities.

Australia's strong record in achieving sustained and inclusive growth from mining is recognised around the world. As a consequence, resource-rich country governments wish to learn from Australia. They seek out Australian governments and education institutions for guidance on mining policy, legislation and administration. International students seek out Australia's universities for mining education. Australian universities and research institutions partner with institutions in resource-rich developing nations.

It is no wonder that Australia's mining-related economic diplomacy is acknowledged by Australia's diplomats as one of the most potent tools for deepening geo-economic and geo-political relationships. Comprehensively applied, mining economic diplomacy is demonstrated to result

97 BCG (2015), *Tackling the Crisis in Mineral Exploration*, Boston Consulting Group, June 2015
98 Richard Shodde (2013), *The impact of commodity prices and other factors on the level of exploration*, seminar series presentation, Centre of Exploration Targeting, Perth, November 2013
99 Campbell McCuaig et al (2014), *Mines versus Mineralisation – Deposit Quality, Mineral Exploration Strategy and the Role of 'Boundary Spanners'*, Paper presented at Ninth International Mining Geology Conference, Adelaide, T C McCuaig, J E Vann, and J P Sykes, August 2014
100 Rachel Davis and Daniel Franks (2014), *Costs of Company-Community Conflict in the Extractive Sector*, Corporate Social Responsibility Initiative Report No. 66, Harvard Kennedy School, Shift and SMI Centre for Social Responsibility in Mining at The University of Queensland, Rachel Davis and Daniel Franks, 2014

in benefits for target nations, for their people, for Australian mining and METS companies and for the Australian economy.

Yet, mining-related economic diplomacy is under-utilised and applied inconsistently across resource-rich nations where Australia has significant interests. There is much to be gained from a more comprehensive, evidence-based approach to economic diplomacy. Canada's approach and experience provide valuable guidance for Australia for both taking opportunities and avoiding pitfalls.

Australia's approach to economic diplomacy and how it can be enhanced is discussed further in chapters 6 and 7.

6 Shared goals – sharing benefits

6.1 Poor history but recent progress in mining and development

Mining (including oil and gas production) in developing countries has had at best a mixed record in fostering inclusive economic growth. Many resource-rich developing countries have attracted investment of varying quality, applied poor governance and have achieved lower rates of development than less resource-rich neighbours. While other context specific issues come into play, such as civil conflict, land ownership and access issues or marginalisation of indigenous peoples for example, improved mining governance can go a long way to underpinning the ability of a developing nation to capture the benefits of mining while also encouraging a business friendly environment, which attracts further investment.

Sir Paul Collier cites a case study of Sierra Leone and Botswana[101] that illustrates how poor policies and governance can lead to gross underperformance of one of them (Sierra Leone) from resource development despite the two having similar resource endowments and Sierra Leone having some distinct comparative advantages. As Botswana has demonstrated, natural resources development underpinned by sound policy settings and competent governance can yield sustained and inclusive benefits. Botswana, though the economic dividend from mining, achieved the highest per capita income in Africa, and for a long period was the fastest growing country in the world.

There are signs that the chronic underperformance of many resource-rich developing nations may be turning around. Several studies have produced data that show that more nations are leveraging their resources windfall into strong economic growth.

McKinsey Global Institute in its *Reverse the Curse* report[102] notes that many lower income resource-driven countries have failed to convert their resource endowments into long-term prosperity. But MGI says that if countries are able to build a new growth model they can transform their potential resource windfall into long-term prosperity.

The World Bank[103] cites evidence that while mining dependent low and lower-middle income Sub-Saharan African (SSA) countries posted the lowest GDP growth rates in the region in 1991-2000, they have outperformed their non-mining and non-mining/oil peers in this decade. The World Bank also found that:

- These countries experienced higher rates of improvement in human development indicators than their regional cohorts
- They are also bridging the disparity gap and increasing access to quality health and education services
- The same countries are closing the governance gap at a higher rate than their regional cohorts, except for government effectiveness
- Contrary to resource curse theory, higher increased dependence on mining did not result in deteriorating governance
- There are early indications of positive impacts at community level.

101 Paul Collier (2014), *The long view: Making the most of Africa's natural resources*, a paper prepared for Investec Asset Management, Sir Paul Collier, Centre for the Study of African Economies, Department of Economics, and The Blavatnik School of Government, University of Oxford, 2014

102 MGI (2013), *Reverse the curse: Maximizing the potential of 5 resource-driven economies*, McKinsey Global Institute, December 2013

103 World Bank (2015), The Contribution of the Mining Sector to Socioeconomic and Human Development, presentation, The World Bank, January 2015 https://ec.europa.eu/eip/raw-materials/sites/rawmaterials/files/1%20-%20Paulo%20de%20Sa%2C%20WB.pdf accessed November 2015

These promising indicators demonstrate the value of building the capacity of resource-rich nations and their institutions to govern the resources sector well.

The Reserve Bank of Australia has found that economic outcomes for many resource-intensive economies has been positive in the past decade, where good governance and macroeconomic stabilisation frameworks have been in place.

Analysis by the RBA in *The Performance of Resource-exporting Economies*[104] found that:

> The surge in demand for resources over the past decade led to sharp increases in the terms of trade not just for Australia, but also for other economies with comparable resource exports such as Brazil, Canada, Chile, Russia and South Africa. Each of these economies experienced an increase in investment, although the surge in resources investment in Australia has been particularly large. The real exchange rates in these economies appreciated, weighing on other trade-exposed industries, while parts of the non-traded sector benefited from the boost to income and activity from the resources boom. In general, the resource-exporting economies experienced relatively strong growth in economic activity and inflation remained well contained, particularly compared with previous booms in resource prices.

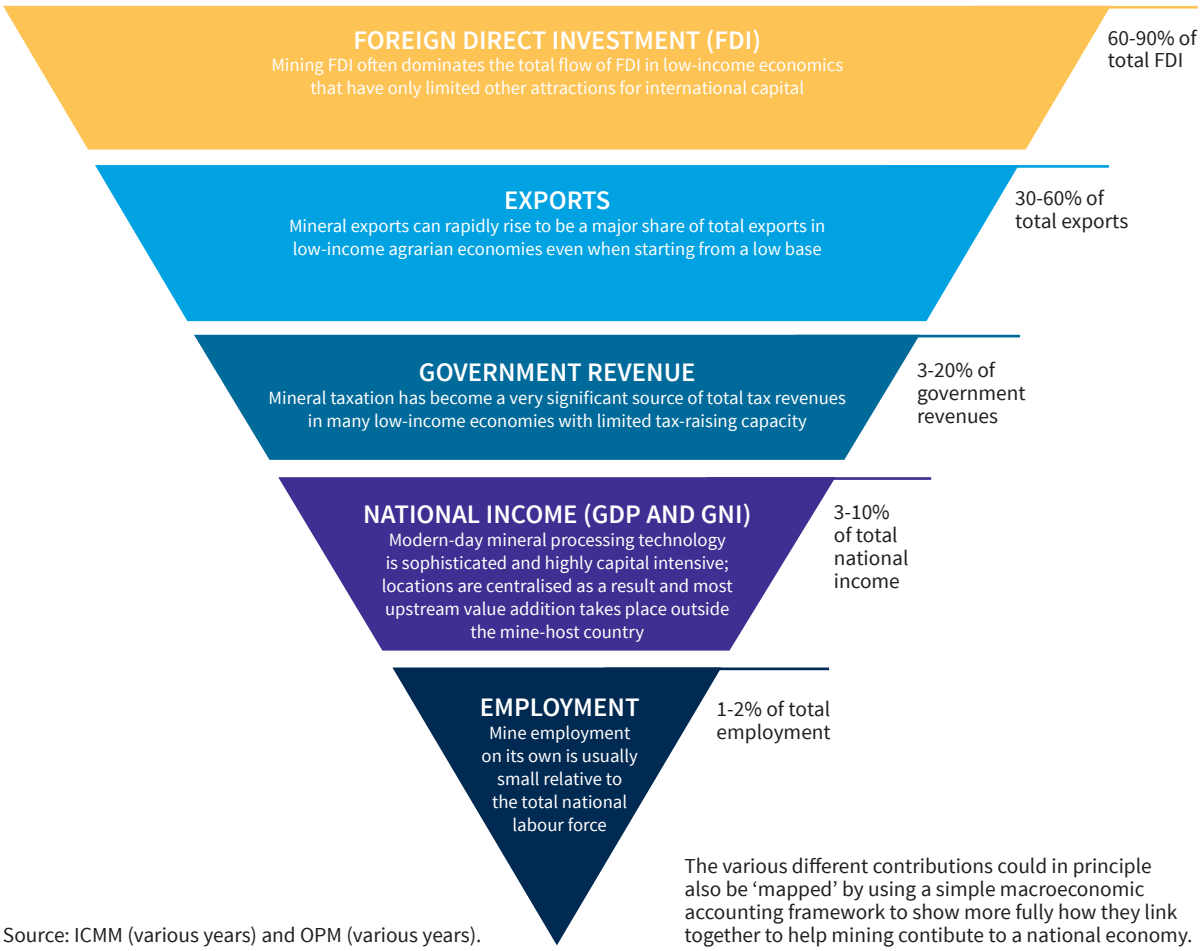
The mining sector contributes to economic and social development in a variety of ways in countries across the globe. Some of these impacts are relatively well-understood and well-documented, while others have potential to be transformative but are poorly understood and documented.

A comparison of mining contributions between countries is difficult due to a lack of reliable, accessible and standardized data. However, several organisations have sought to do this and highlights of results are set out in this section.

The International Council on Mining and Metals has provided a framework for such analysis in its publication *The role of mining in national economies (2nd edition)*[105]. The framework (Figure 49) represents the macro-level contributions of mining to national economies. The percentages are not additive but indicate the range of stand-alone contributions in each area.

104 RBA (2013), *The Performance of Resource-exporting Economies,* Reserve Bank of Australia 2013
105 ICMM (2014) *The role of mining in national economies (2nd edition)*, International Council on Mining and Metals 2014

Figure 49: Macro-level contributions of mining in low- and middle-income countries



Source: ICMM (various years) and OPM (various years).

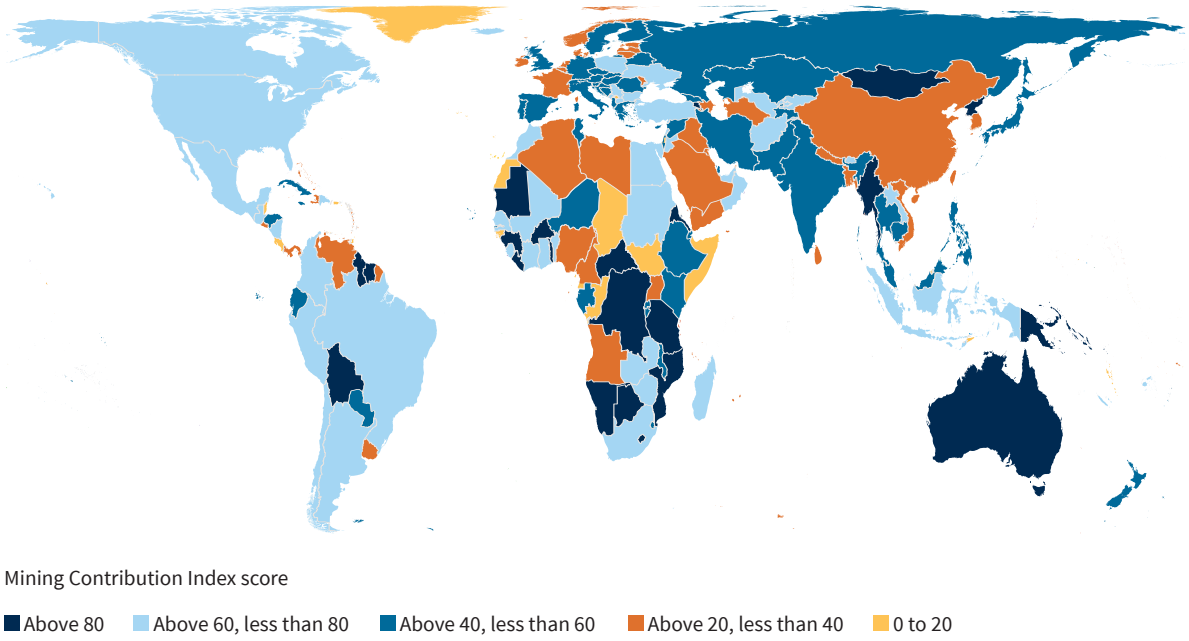
The various different contributions could in principle also be 'mapped' by using a simple macroeconomic accounting framework to show more fully how they link together to help mining contibute to a national economy.

The ICMM publication discusses each category of contribution, highlighting case studies compiled by ICMM in certain countries. A major conclusion of ICMM is that the mining and metals industry makes its most significant contribution in the most impoverished regions of the world.

ICMM has developed a Mining Contribution Index (MCI), illustrated in Figure 50. The MCI is intended as a tool to assess the relative importance of mining to national economies. ICMM sets out the method of calculation of MCI as follows:

> The MCI is a composite index comprised of three indicators, each capturing different aspects of mining's contribution to national economies:
>
> **Mineral and metal export contribution 2012.** Provides a measure for the scale of mining in relation to other productive activities, in particular for small, open and low- to middle-income countries.
>
> **Increase/decrease in mineral and metal export contribution 2007–2012.** Adds a dynamic component to the index by providing an indication of whether the importance of mining as an economic activity is growing or falling over time.
>
> **Mineral production value expressed as a percentage of GDP in 2012.** Provides a sense of scale of the value of production relative to the size of the economy. Note that it does not represent the contribution of mining to GDP – on average perhaps a third of production value represents value addition to the national economy.

Figure 50: ICMM Mining Contribution Index, 2014



Source: International Council on Mining and Metals, 2014, *The role of mining in national economies (2nd edition)*

6.2 Australian mining and development model offers lessons for developing nations and advantages for Australia

To achieve sustained growth and inclusive benefits from mining, and to avoid the so-called 'resources curse', it is clear that resource-rich countries need to adopt a growth model based on sound policies and good governance. The McKinsey Global Institute[106] has put forward a model that is summarised and adapted here. The key elements of the new growth model are:

- Building institutions for, and governance of the resources sector
- Developing infrastructure to support resources development and economic growth
- Ensuring robust fiscal policy and competitiveness
- Facilitating local content to stimulate local businesses and jobs
- Spending the financial windfall from resources wisely
- Transforming resource wealth into broad, inclusive socioeconomic development
- Gaining community support for responsible resource development.

Australia is acknowledged as adopting all of these elements successfully, if not always perfectly. Developing countries keenly seek to learn from Australia's approaches, successes and even shortcomings and to adapt and apply them.

There is a convergence of interests between Australia and resource-rich developing countries:

- In many developing countries, the strongest comparative advantages are their mineral and energy resources, where development of them offers the fastest and easiest pathways to economic development and poverty reduction.
- Resource-rich developing countries are seeking to improve their capacity to attract mining investment and do well from mining and recognise that quality of governance is key.

106 MGI (2013), *Reverse the curse: Maximizing the potential of 5 resource-driven economies*, McKinsey Global Institute, December 2013

- As a global leader in mining and mining governance, Australia is looked to by much of the rest of the world for guidance, with Australian institutions being sought as partners with developing country institutions.
- As a global investor nation, Australia has two main interests in developing countries building high standards of mining governance in which Australian (and other) companies invest:
  * Well governed companies, such as those operating under ASX rules, do better in well-governed operating environments and are better able to apply their technical and sustainability skills.
  * High standards of governance in developing countries 'level the playing field' for mining investment and militate against competition from poorly governed jurisdictions and mining companies.

6.3 Helping the competition or helping Australia?

Some in government and even business have expressed concern that mining governance capacity building funded by the Australian Government is 'helping the competition'. They seem concerned that building capacity in mining governance will enable developing nations to take market share of mineral and energy supply from Australia.

Such views are of course counter to longstanding government policy, supported by business, for opening of global and regional trade and for supporting developing nations to build capacity to engage in trade and grow their economies. As bipartisan trade and aid policy recognises, the growth of developing nations though more open, resilient and well-governed economies is unequivocally in Australia's interests.

Australia for example has played a significant role through its aid program in building the capacity of such countries as China, Thailand and South Korea to understand the rules of international trade and investment. This provides a common basis for the negotiation of bilateral preferential trade agreements with significant benefits for our economy.

'Helping the competition' views also ignore the shift of the Australian mining and METS sectors from domestic to an expanding global reach. Helping developing country governments helps to develop better investment regimes and enhances the reputation of Australian investors.

6.4 Australia's geopolitical advantage in non-traditional markets

Australian companies, institutions and diplomatic and trade representatives report that in many markets in the developing world, Australia is seen as geo-politically neutral as well as technically competent.

In Africa and Latin America, Australia does not have post-colonial or other geo-political baggage. Many nations in those regions view Australia as a trusted partner. For example, Chile, Peru and Colombia look west as much as they look north for mining education, institutional partnerships and investment. Australia's leading mining investment and METS trade position in Africa is testament to the status of Australia and Australian companies in African nations. African nations raise with Australia's diplomats and ministers their desires for assistance in building mining governance capability.

In much of Asia, Australia is viewed as a source of sound governance models and responsible investment. Cambodia, for example, proudly proclaims that its minerals law is "Western Australia

inspired"[107], while Mongolian alumni of Australian universities, many which have studied mining-related disciplines, proudly call themselves "Mozzies". Senior Indonesian delegations regularly visit Australia to examine aspects of mining governance though meetings with government, companies and universities.

Australia is able to use its reputation and geo-political neutrality to be the 'trusted adviser' to developing country governments in mining governance. In the process, it builds an integrated mining brand that brings benefits to Australian investors and traders.

6.5 Strategies of customer and competitor countries – opportunities and imperatives

As discussed in chapter 2, the resource security strategies of China, followed by Japan and Korea, are leading to some mercantilist approaches to mining investment in resource-rich nations. Europe has responded with its own raw materials strategy, which includes an approach to assuring supply chains from non-European nations.

There are risks and some evidence that mercantilist approaches to resources security may lead to sub-optimal sustainability outcomes in nations with weak mining governance regimes, including weak capacity within key institutions.

The Canadian Government appears to understand the potential for impact on Canada's interests, and has implemented an active, mining-focussed development assistance strategy in key countries that host Canadian mining interests in Latin America, Asia and Africa. Canada's strategies are informed by good data. Information on the Canadian mining governance capacity-building activities is available on the Global Affairs Canada website[108].

In Europe, both the United Kingdom and Germany have active aid programs focussed on improving mining governance. The UK focusses on Africa, while Germany operates programs in a number of countries in Africa, Latin America and Asia.

Australia's extractives sector development assistance activities were launched in October 2011, although some mining governance activities, notably in Africa, preceded these. The core activities are described on the DFAT website[109]. In December, DFAT is expected to announce a new centre to be the hub for extractives and development activities.

In the face of growing mining investment in developing countries by other nations, Australia's investment in capacity-building in mining governance can greatly assist developing countries to apply high standards of governance that will underpin better outcomes from mining. At the same time, Australia will enhance its overall mining reputation, to the benefit of Australian mining and METS companies.

Chapter 7 discusses further how mining governance capacity-building is an example of how informed economic diplomacy and mining related development assistance can attract mutual benefits for the Australian mining industry as well as for the economic development of resource rich developing countries and suggests ways in which Australia might enhance it activities in this domain.

107 Government of Cambodia (2015), display at IMARC 2015 Conference, Melbourne, November 2015
108 Natural Resources Management http://www.international.gc.ca/development-developpement/priorities-priorites/nrm-grn.aspx?lang=eng
109 Extractives sector development assistance http://dfat.gov.au/aid/topics/investment-priorities/infrastructure-trade-facilitation-international-competitiveness/extractives-sector-development-assistance/Pages/extractives-sector-development-assistance.aspx

7 Economic diplomacy and aid for trade

7.1 Reinforcing Australia's longstanding leadership in trade liberalisation

For many years, Australia has been one of the world's leaders in promoting trade liberalisation and in lowering barriers to trade at home. Trade liberalisation is core to Australia's economic diplomacy strategy, which was launched by Minister for Foreign Affairs Julie Bishop and the then Minister for Trade and Investment Andrew Robb in August 2014, under the banner "*Australia's economic diplomacy: our prosperity, global prosperity*". Economic diplomacy has four pillars:

- Trade – Pursue trade liberalisation through bilateral, regional and global trade agreements that open up new markets for Australian exporters and sustain a strong, rules-based architecture for global trade.
- Growth – Support global growth, including by using Australia's aid program and other measures to promote economic reform and infrastructure, and through regional and global economic cooperation fora.
- Investment – Promote investment into Australia and Australian investment internationally.
- Business – Advance the interests of Australian business overseas, the development of a stronger private sector in the region, and promote Australian tourism.

Economic diplomacy uses international diplomatic assets to advance Australia's prosperity and global prosperity through these four pillars.

The Government states that economic diplomacy is now at the heart of Australia's international engagement, drawing together foreign, trade and development activities and diplomatic resources to deliver greater prosperity for Australia, the region, and globally.

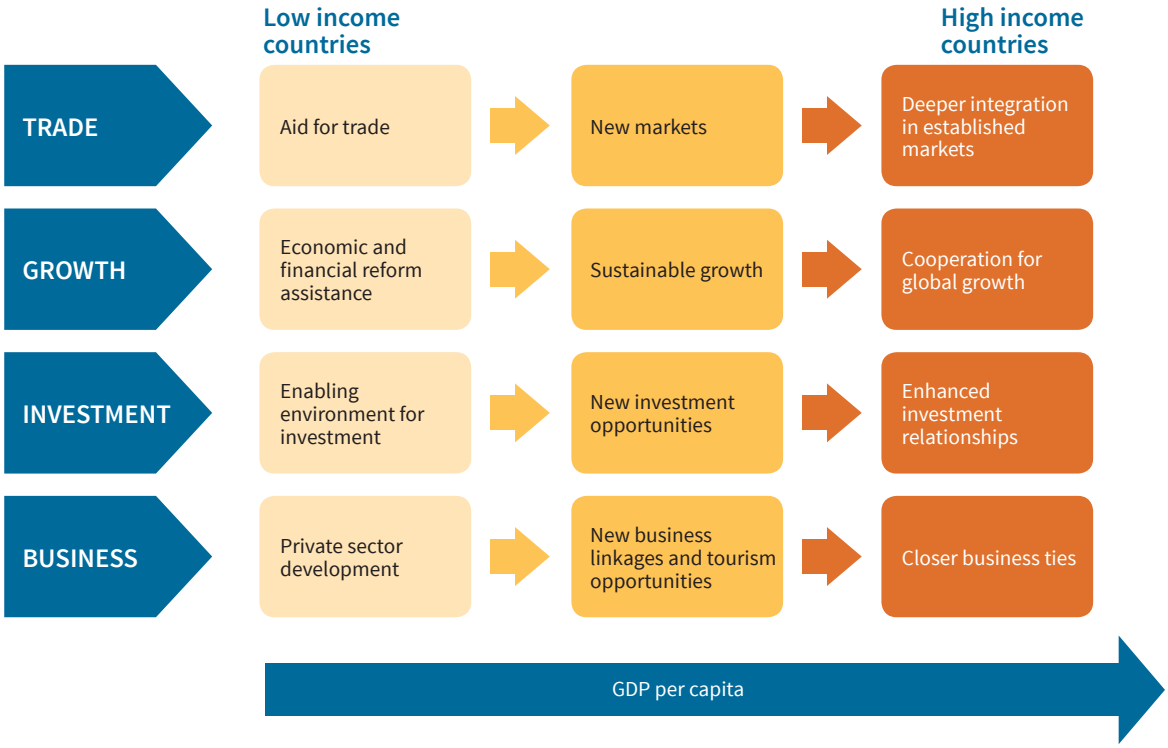
The Government says also that economic diplomacy must involve other Australian staeholders, including business:

> Economic diplomacy is a collaborative process, beyond government. Australia's business community, our think tanks, our NGOs and our community are an integral part of our economic diplomacy efforts. We look forward to working together to pursue shared opportunities to drive economic prosperity, in Australia and in our region.[110]

Figure 51 reproduces the government's graphic that illustrates economic diplomacy activities across its relationships with low, medium and high income countries.

110 Bishop and Robb (2014), *Australia's economic diplomacy: our prosperity, global prosperity*, joint media release: The Hon Julie Bishop MP, Minister for Foreign Affairs, The Hon Andrew Robb AO MP, Minister for Trade and Investment, August 2014

Figure 51: Economic diplomacy activities across Australia's international relationships



7.2 Implementing aid for trade

The government states that Australia's aid program is an important tool through which Australia supports its economic diplomacy objectives. It says that aid (and in particular aid for trade) is used as a catalyst to promote economic growth and poverty reduction. The aid program works in the national interest to help build stability and prosperity, including by supporting economic growth and poverty alleviation in poorer nations. Growth, prosperity and stability in developing countries, while vital as an end in itself in terms of reducing poverty and inequality, is clearly in Australia's interest as new trading opportunities and markets develop.

Aid for trade underpins capacity building support for developing countries entering into trade agreements with Australia and most contemporary trade agreements, bilateral and regional, contain an 'economic development or economic cooperation' chapter which seeks to directly assist developing country governments to implement the terms and conditions of a trade agreement with Australia.

When applied to resource rich developing countries this can mean Australian support for the implementation of trade and investment liberalisation measures which will reduce barriers of entry and increase the ease of doing business for Australian mining companies either operating or intending to operate in these countries. There are significant implications here for the effective use of aid for trade as Australia negotiates preferential trade agreements with India and Indonesia. The Australian Government is therefore encouraged to utilise some proportion of its aid for trade commitment in support of trade and investment related mining industry interests.

Australia announced in 2014[111] that it is scaling up its aid for trade activities to at least 20 per cent of Australia's annual aid spend by 2020. Areas of focus include governance and regulatory impediments, infrastructure, water, private sector development, services, and empowering women to engage in economic activities. The government emphasises private sector companies are important

111 DFAT (2014b), Australian aid: promoting prosperity, reducing poverty, enhancing stability, Department of Foreign Affairs and Trade, June 2014

partners in the delivery of aid for trade outcomes and the mining industry has an important role to play in this endeavour.

Aid for trade is development assistance that helps developing countries improve their capacity to trade and attract investment by reducing supply side barriers, which in turn drives economic growth and provides opportunities to build livelihoods and increase income. This type of aid is of direct value to the mining industry as it explicitly targets the very real, day to day obstacles and barriers that companies face in many developing countries. It also addresses shortcomings in the ability of a developing economy to engage with and benefit from mining-related trade and investment. Aid for trade, for example, helps developing countries to build the infrastructure and supply-side capacity they need to connect to regional and global markets and improve their trade (including investment) relations and performance.

Jim Redden of the University of Adelaide[112] based on a comprehensive series of case-studies of the role of global companies in trade and poverty reduction identifies five pre-requisites for developing a positive trade and poverty reduction relationship:

- Trade openness: low income economies can benefit from well designed, more open and transparent international trade.
- Domestic reform: As a complement to trade openness, a firm and consistent commitment to domestic policy reform on two fronts is necessary: policies to protect vulnerable groups from trade liberalisation; and policies to increase productivity, competitiveness and capture the gains of trade.
- A robust and responsible private sector: The engine room of economic growth must be the private sector. Support for the development of small and medium enterprises is crucial, as well as the need for translational companies and foreign investment to create productive employment.
- International reforms: A firm commitment is required from developed countries to market access, flexibility in trade negotiations and agreements as well as support for the financing of technology transfer and capacity building to developing countries.
- Political will and cooperation: Openness and unilateral reforms alone is insufficient. There must also be political will and strong cooperation across local, national, regional and multilateral levels.

The OECD Development Assistance Committee (DAC) categorises aid for trade investments under three main themes[113]: trade policy and regulations, economic infrastructure, and building the capacity of the private sector. Table 5 sets out the aid for trade priorities under each theme. The activities to date of Australia's mining governance capacity-building address all three themes and several of the topics under each.

Table 5: OECD aid for trade classification structure summary

Trade Policy & Regulations & Trade-Related Adjustment	Economic Infrastructure	Building Productive Capacity
• Trade policy and administrative management • Trade facilitation • Regional trade investments • Multilateral trade • Negotiations • Trade-related adjustment • Trade education/training	• Transport and storage • Communications • Energy generation and supply	• Banking and financial services • Business and other services • Agriculture • Forestry • Fishing • Industry • Mineral resources and mining • Tourism

Source: OECD (2015), Aid for Trade Sectors and Definitions, OECD

112 Redden (2013), Jim Redden, Visiting Fellow and Associate Expert with the Institute for International Trade, University of Adelaide, 2015

113 Note there is a fourth category called 'Adjustment Assistance' to assist for example with industry adjustment following trade liberalisation initiatives. To date, however, there has been little take up of this category

DFAT targets aid for trade to address key constraints to trade and investment in developing countries, including:

- **Weak public sector institutions**, with poor capacity to formulate economic policy and negotiate trade agreements
- **Poor infrastructure**, including poor transport and communications
- **Insufficient private sector capability**, including poor access to finance, supply chains, and a skilled workforce.
- **Gender inequality**, where women in particular, who constitute 70% of the world's poorest, are denied the opportunity to gain education, training and employment.

In this context and leaving aside the question of misalignment of the Indo-Pacific focus of economic diplomacy and aid for trade with Australia's geo-economic interests, it is curious that the DFAT *Strategy for Australia's Aid for Trade Investments*[114] does not more seriously embrace the sector where Australia has demonstrated world-leading capability: mining.

7.3 Mining governance capacity-building: no better example of economic diplomacy and aid for trade in action

Chapters 5 and 6 have highlighted Australia's comparative advantage in mining governance, its well-regarded standing in the international community and capacity to transfer skills and knowledge in support of resource rich developing countries.

Of interest, Global Affairs Canada goes to some lengths to specifically outline the approach of Canada in promoting strong corporate social responsibility and risk management practices in support of improved governance environments. It also notes the complementarity with Canada's development assistance program:

> Many of the Government's current capacity-building efforts in the area of natural resource management are guided by Canada's existing approach on extractives and sustainable development. Under the approach, Canada's development assistance supports developing countries to enhance their capacity to manage their extractive sectors, focusing on building resource governance capacity, growing businesses to improve local economic development, and enabling communities to maximize the benefits of the sector. It also supports implementation of leading international standards and guidelines, for both firms and countries, emphasizing transparency. While the approach is distinct from the CSR Strategy, the two are well aligned.

Mining governance capacity-building delivers aid for trade and supports economic diplomacy though training, research, advice and institutional capacity-building that help partner nations put in place and implement the policies, legislation, institutions and oversight that help to develop and sustain resources sectors to benefit these nations and their communities.

As discussed in chapter 5, mining governance capacity-building not only seeks to help partner nations to develop their resources sectors for national and community benefit, but also builds on Australia's globally-leading reputation for mining investment, knowledge, technology and governance. Benefits therefore flow both to partner nations and to Australia.

The following sets out how Australia's capacity-building activities can further support the Australian mining industry and mining governance outcomes consistent with the objectives of Economic Diplomacy and aid for trade initiatives (in the following, *italics* are from DFAT economic diplomacy documents).

114 DFAT (2015), *Strategy for Australia's Aid for Trade Investments*, Department of Foreign Affairs and Trade, June 2015

1. ***Trade: Pursue trade liberalisation through bilateral, regional and global trade agreements that open up new markets for Australian exporters and sustain a strong, rules-based architecture for global trade.***

   For example, under the trade pillar, Australia's engagement with lower income countries includes aid for trade – assisting partner countries to engage and be competitive in the global trading system. This can help boost partner country income and in time open up new markets for Australian exporters. As countries' incomes increase, Australia's engagement looks to build deeper integration in established markets for Australian exporters, importers and consumers.

Australian mining governance capacity-building supports the development of sound trade and investment policies and implementation of international trade and investment agreements by building the capacity of partner governments and universities to develop policies and practices and to analyse their implications for investor behaviour and returns to nations and sub-national regions.

Mining related capacity-building can address topics such as investment policies for resources and infrastructure, fundamentals of minerals economics and markets, sound administration of legislation, domestic policy and regulation to support and leverage mining investment, negotiation strategies for resource development agreements, and design of minerals revenue systems, including avoidance of transfer mis-pricing.

There are positive spillovers from capacity-building for negotiation of resources development agreements, as developing country governments also build wider negotiation capabilities, including for trade and investment agreements.

Box 5: Case studies: supporting engagement in trade and investment relating to mining

A. Mineral revenue systems

Australia supports resource-rich developing countries to design and administer robust systems to collect royalty, fee and taxation revenue from mining. For example, the Australia-Indonesia Partnership for Economic Governance has for several years worked within the Indonesian Ministry of Finance to build capability in taxation policy and administration, including revenue raising from mining. Australia has supported preparation of a major report on mining revenue, commissioned by the World Bank, and has arranged a study tour for officials to examine Australian approaches to mining revenue design.

In Africa, the World Bank, Centre for Exploration Targeting and International Mining for Development Centre collaborated to produce two sourcebooks on mineral revenue and transfer pricing, and ran workshops for government officials in four locations. This work is leading to improved capacity within developing country governments to design and administer sound mining revenue regimes, and to share information with other governments to improve monitoring and compliance.

B. Mineral development negotiation strategies

Australian universities have collaborated with institutions in developing countries to build capacity in leading 21st century practice in negotiation of mining and trade agreements though training workshops and the development of handbooks that guide developing country governments to prepare for, negotiate and implement mining agreements. Australia supported

the founding and activities of the African Resources Negotiation Network, which provides an ongoing knowledge-sharing platform for government negotiators. Funded by DFAT, the Institute for International Trade at Adelaide University has trained over 100 African public and private sector officials in trade law including rights and responsibilities involved in implementing trade agreements.

Government and community negotiators that are well prepared and equipped for negotiation with mining companies can improve the negotiation process for all as well as enhancing the sustainability of outcomes for nations, communities and companies. A spillover benefit is improved negotiation capability within developed country governments for all negotiations, including of trade agreements and their implementation in a transparent manner.

2. ***Growth: Support global growth, including by using Australia's aid program and other measures to promote economic reform and infrastructure, and through regional and global economic cooperation fora.***

Australia's aid program assists lower income countries with economic and financial reform measures to build the foundations for sustainable growth. At the middle and higher end of the per capita income scale, we work with countries in international forums, such as the G20, to build cooperation for global growth.

Australia's mining governance capacity-building activities can help in building capacity for nations to grow their economies sustainably though development of their resources sectors. They can do this this by developing capacity within partner government agencies, by supporting regional resources development bodies such as the African Minerals Development Centre, and by contributing to global and regional policies through forums and bodies such as Asia-Pacific Economic Cooperation (APEC), The World Bank and Extractive Industries Transparency Initiative (EITI).

Capacity-building helps alumni and partner institutions to recognise both needs and opportunities for infrastructure and services to support mining development and deliver sustainable economic development and growth dividends.

Box 6: Case studies: supporting global growth

A. Infrastructure policy, planning and delivery

Australia, through the Australia Africa Partnerships Facility and International Mining for Development Centre, has hosted several study tours for officials and advisers to governments in developing countries to examine Australian approaches to infrastructure policy, planning and delivery in mining regions, as well as the cities that service them. Participants were able to view examples of Australian infrastructure and interact with personnel from government, business and universities to understand principles and what approaches have worked well, or not, in Australia.

Officials from several countries have reported that they have influenced changes to infrastructure policies and planning as a result of their learning from study tours to Australia.

B. APEC Mining Task Force and Energy Working Group

Australia supports and participates in the work of the APEC Mining Task Force and APEC Energy Working Group. The Mining Task Force exists as a forum to facilitate closer cooperation of the mining sector in the region to achieve transformation and growth though promoting an enabling environment for mining investment and trade, facilitating innovation and encouraging social responsibility. A new Mining Sub-Fund has been established with initial funding from Australia to support collaborative capacity-building projects between APEC economies and involving the private sector. Initial projects will get underway in the second half of 2016.

APEC's Energy Working Group seeks to maximize the energy sector's contribution to the region's economic and social well-being, while mitigating the environmental effects of energy supply and use. EWG's mission is to build the capacity of APEC members to strengthen domestic and regional energy security and lower the carbon intensity of energy supply and use across the region, facilitated by information and data exchanges, joint research and development, and open trade and investment. Australia is deeply involved in EWG activities, including capacity-building in developing APEC economies.

3. Investment: Promote investment into Australia and Australian investment internationally.

Australia's aid program helps lower income countries to create an enabling environment for investment. This enables the growth of local industries and the provision of infrastructure. As the environment for investment is strengthened and per capita income grows, this creates new investment opportunities for Australian investors, and new sources of investment into Australia.

Australia's mining governance capacity-building activities are able build the capacity of partner nations to develop their resources sectors for national and community benefit though transfer of knowledge and skills about resources governance; building geoscience and geographic databases to attract investment and inform decision-making; and development of sound policies, regulation and oversight that both enhance the investment climate within nations and improve returns to those nations and their communities.

These activities help to enhance Australia's position as a preferred investment partner.

Box 7: Case studies: Promoting investment in mining

A. West African Exploration Initiative

The West African Exploration Initiative (WAXI) is a long term public-private partnership for research and training focussed on the mineral potential of the West African Craton, covering about 20 per cent of the continent. WAXI, which commenced in November 2006, is funded by international mining companies and the Australian Government (Australian Research Council and Australian Aid), via an AMIRA International consortium. It is led by eight international partners, including two Australian universities. WAXI includes geological survey organisations and universities in Burkina Faso, Guinea, Guinea Bissau, Ivory Coast, Liberia, Ghana, The Gambia, Mali, Mauritania, Senegal, Niger, Sierra Leone and Togo. Key motivations for WAXI are to assist exploration companies in focusing their activities in areas of maximum prospectivity and to help local geological surveys and universities in the region in their role of providing pre-competitive data and decision-support information.

WAXI has transformed geological knowledge of the West African Craton, utilising learning over many decades from other regions such as Australia's Eastern Goldfields. A 300Gb Exploration GIS has been developed with over 250 layers, much of which is currently publicly available, and all of which will eventually be published.

B. Leading practice in mining policy and governance

Short courses, study tours, advice to government assignments and technical assistance conducted by Australian government and university have built capacity within institutions in resource-rich developing countries. Examples of activities and topics are:

- Collaboration between Australian and Ghanaian universities to build a professional development program for West Africa in leading practice mining law
- The Australian-sponsored Infrastructure Skills for Development program aims to improve the infrastructure project management skills of public sector professionals, and to enable their agencies to more effectively implement cross-border infrastructure projects
- The Emerging Leaders in African Mining program helps professionals working in the sector to enhance their effectiveness as leaders and contribute to improved governance of mining
- Advice and technical assistance to governments in Africa and Asia-Pacific to develop policy and regulation that provides sound platforms for sustainable mining development.

4. ***Business: Advance the interests of Australian business overseas, the development of a stronger private sector in the region, and promote Australian tourism.***

   Australia works with lower income countries to create the right environment for their private sector to grow and be the engine of economic growth. In middle income countries Australia looks to build new business linkages and tourism opportunities. And at the higher end Australia works to establish deeper business relationships.

Australia's mining governance capacity-building activities are able to build on Australia's globally-leading reputation for mining investment, knowledge, technology and governance – helping to enhance the position of Australian companies involved in mining, mining equipment, technology and services, including education and training.

Australia's mining governance activities include capacity-building in local economic development, covering stimulation of enterprises and employment, enhancement of education and training, and infrastructure policy for local economic development.

Box 8: Case studies: Advance business relating to mining

A. Facilitating SME development in mining regions

The Australia-Africa Partnerships Facility and International Mining for Development Centre have mounted a range of activities aimed at supporting developing nations to build strong and diverse mining equipment, technology and services sectors. Particular attention has been given to linking of micro, small and medium enterprises with mining companies and their prime contractors.

Activities have included: study tours to Australia to examine policy and practice and to learn from experiences of both miners and suppliers; in-country workshops between mining companies and MSMEs aimed at connecting them; and lectures during policy workshops and study tours to highlight the role of mining equipment, technology and services (METS) in activating broad-based economic development.

B. Promoting trade and investment in mining services

Australian-sponsored capacity-building in mining governance has at its core the promotion of trade and investment, including in mining equipment, technology and services. Activities directly address how to build strong domestic services sectors through attraction of investment and the knowledge and technology that brings, and promote policies and strategies that leverage mining activity into broad-based economic development.

Activities include: an Australian-organised APEC Symposium on trade in mining and energy services; courses and study tours on infrastructure and strategies to enhance business development in resource-rich nations; study tours and capacity-building to enhance approaches to development of skills in mining regions, including skills required for mining services; and a proposed APEC collaborative capacity-building project on development of stronger METS sectors in economies.

7.4 Investment in mining governance delivers high impact and high value

Reviews of Australia's investments to date in capacity-building in mining governance have shown that they deliver high impact and value for money. Reviews have been conducted by the Australian Government and commissioned by the International Mining for Development Centre (IM4DC).

The IM4DC Mid-Term Review[115], commissioned by DFAT, found that IM4DC was highly relevant to the Government's Economic Diplomacy agenda and provided value for money. It found that while 2½ years into activities was too soon to assess long term impact, multiple preliminary indications

115 DFAT (2014b)

show "a very positive result in regard to (alumni) implementing return to work changes, influencing policy and networking".

Reviews of impact of IM4DC activities conducted by the UWA School of Psychology's Accelerated Learning Laboratory (ALL) found that while it was too early to identify long term social impacts, there is strong evidence of capacity-building to make change. Participants had developed their leadership capability, initiated innovative activities and changes, strengthened their networks, and can potentially contribute to the improvement of social, economic, and environmental status of their home countries if more time is given and if continuous support is provided.

DFAT itself has said that mining governance capacity-building is a prime example of Australian economic diplomacy in action[116], with high potential for positive impact.

7.5 Responsibilities of Australia's mining leadership

Australia is one of the leading investor nations in mining globally, though its publicly listed mining companies (chapter 3). Australia is also acknowledged as one of the two world- leading developed mining nations (chapter 5) across all dimensions of the mining value chain, including governance.

As such, it is argued that Australia not only has a strong business case for investment in building mining governance capacity in developing nations, but also a responsibility to share its knowledge and experience. Australia is a nation of means that has developed leading practice knowledge and technology around conducting mining sustainably in a variety of social and environmental dimensions, and in translating mining into inclusive economic growth. It therefore is important to share this capability with nations that are less well-equipped to manage and do well from mining.

It is untenable for Australia to withhold its knowledge of mining governance on the grounds of 'helping the competition', as argued by some with a mercantilist bent. Not only is this argument flawed from an ethical standpoint, but it also portrays a lack of understanding of a globalised Australian mining sector and mutual inter-dependency.

7.6 Innovation and mining governance

Australia's mining governance activities to date have in general been highly innovative and responsive to developing country needs, priorities and requests.

- They were established rapidly in response to expressed needs of resource-rich developing countries and in recognition of an opportunity for Australia to make a major contribution to transformational change by taking a leading role in a field where its leadership and skills are globally acknowledged.
- They are built on openness and sharing of learnings from Australia's global mining skills and domestic governance experience, and encouraged exchange of experiences between developing nations.
- They leverage global recognition of Australia's leadership in mining and governance to demonstrate and influence new ways of working between the mining sector, governments and communities.
- They are highly collaborative, bringing together stakeholders from government, community, industry and universities to co-learn and co-create new approaches to mining governance.

116 For example: comments by Rebecca Bryant, Assistant Secretary, DFAT to IM4DC 2014 Alumni Forum, Brisbane, July 2014; and speech by Brendan Berne, First Assistant Secretary, DFAT and Australia's APEC Ambassador to Mining for Development Conference, April 2015

- They are agile and responsive to the needs of client nations and institutions and were built on the principle of learning-by-doing, constantly adapting capacity-building strategies.
- They manage risk inherent in this new field and in engaging with new stakeholders though planning, transparency, agility and real-time monitoring, and thorough understanding of the rewards that can come from transformational change in governance and outcomes from mining.

It is noted that the Australian Government's Innovation Xchange is guided by a very similar set of principles. Innovation Xchange might like to consider or adopt some of the approaches that Australia has applied in its mining governance capacity-building.

In sum there is a range of innovative strategies the Australian Government can consider which will:
- Build on Australia's mining governance expertise and reputation
- Advance Australia's economic diplomacy objectives
- Support Australia's trade liberalisation and Aid for Trade objectives
- Promote and support the Australian mining industry during a difficult phase

Specific initiatives are spelt out in the recommendations that follow in chapter 8.

8. Conclusions and recommendations: building Australia's competitive advantage in the global mining value chain

8A Industry monitoring, policy and data collection

Industry monitoring and policy development

There has been little recent analysis of Australia's outbound investment profile. Existing ABS analysis is top-down, showing value of outbound FDI by market or industry of investment, but does not provide details by both market and industry. The Australian Government and the mining industry need to work together to ensure mining investment patterns, data collection systems, research on mining governance and related capacity building issues and ideas for new and innovative mining industry opportunities, are fostered into the future. In light of both the recent mining investment wave and now depressed commodity prices, which underlie the current downturn in mining industry investment, it is prudent to monitor more closely impacts on, and responses by all players in the mining value chain, including METS firms, to capture knowledge and inform appropriate policy formulation for the future.

Stock exchange information, which is tracked by several information broker companies, offers the best source of data on publicly-listed companies, while these same brokers also track, where possible, major private and state-owned company activity. Surveys of companies, such as the Austmine survey of METS firms, also offer rich information.

1. ***It is recommended that the Australian Government and the mining industry examine how they might better collaborate to capture relevant information on contemporary global trends in mining trade and investment markets, and Australia's place in them. This would include closer analysis of the implications for Australian mining interests of the spread of global value chains and the 'servicification' of the global economy with attendant implications for informed policy development in Australia and effective economic diplomacy strategies.***

2. ***Consistent with recommendation 1.1, the Australian Government, in cooperation with the mining and METS sectors, needs to enhance its data collection and statistical analysis, including adoption of new models to capture clearly defined global investment data in mining and related sectors (for example financial services), with a particular focus on outward investment principally for Australia but also for other investor nations.***

8B Supporting the Australian mining industry

Preferential Free Trade Agreements

Utilising improved data and information as suggested in recommendations 1.1 and 1.2 will help Australia to counter the mercantilist policies of certain governments in relation to resource security and mining investment, and strongly assist the promotion of broader mining industry interests in key bilateral and regional trade agreements such as the TTP and RCEP. Of particular importance are the upcoming bilateral trade negotiations with Indonesia and India as potentially lucrative markets for Australia.

3. ***While Australia's trade negotiators do a commendable job of consulting with the mining industry with respect to trade and investment agreements, it is recommended that more be done to assist and inform trade negotiators and policy makers with a holistic and comprehensive understanding of the mining sector, utilising up to date industry data as recommended and enhancing inter-departmental cooperation and collaboration with the mining industry.***

Economic diplomacy in support of the mining industry

The Australian Government says that economic diplomacy is now at the heart of Australia's international engagement, drawing together foreign, trade and development activities and diplomatic resources to deliver greater prosperity for Australia, the region, and globally.

Australia's mining-related economic diplomacy is acknowledged by Australia's diplomats as one of the most potent tools for deepening geo-economic and geo-political relationships. Comprehensively applied, mining economic diplomacy is demonstrated to result in benefits for target nations, for their people, for Australian mining and METS companies and for the Australian economy. Yet, mining-related economic diplomacy is under-utilised and applied inconsistently across resource-rich nations where Australia has significant interests.

4. ***It is recommended that there be a more comprehensive, evidence-based approach to economic diplomacy. Canada's approach and experience provide valuable guidance for Australia for both taking opportunities and avoiding pitfalls.***

The following recommendations as well as those in sections C and D further elaborate on how Australia might broaden its economic diplomacy efforts and approach.

Education and cultural services in support of the mining sector

Australian institutions have been engaged for more than 100 years in research, teaching, technology and skills transfer around minerals and energy. Testament to the capability of these institutions is their international footprint – education of international postgraduate students in mining-related disciplines, research and capacity-building support for the mining sector globally, collaborations with other institutions overseas and partnering with foreign governments to establish centres of excellence.

Developing countries often seek out Australian governments and education institutions for guidance on mining policy, legislation and administration. International students seek out Australia's universities for mining education. Australian universities and research institutions partner with institutions in resource-rich developing nations on various forms of policy and applied research work.

5. ***It is recommended that Australia's mining industry and the Australian Government work more closely together with universities and researchers to expand Australia's role in the delivery of mining related educational services prioritising short courses, collaborative research and capacity-building with foreign institutions, and scholarships for Masters and PhD courses in mining, engineering, geology, international trade and miming governance related fields.***

6. ***It is recommended that Australian governments, universities and other educational institutions pursue stronger cultural diplomacy in support of economic diplomacy: building cultural understanding, learning languages in schools, promoting student exchanges, bilateral cooperative agreements, cultural exchanges in the arts and entertainment industries and the pursuit of deeper links with universities in resource rich developing countries.***

8C A global mining system underpinned by good governance

Support for mining governance in resource rich developing countries

Nations that host well-governed mining sectors tend to:
- Attract investment of higher quality and value
- Achieve better financial returns
- Achieve better economic, social and environmental outcomes.

This is because their risk profile is significantly reduced for investors – sovereign risk, regulatory risk, financial risk and social license risk – and because good governance enables more inclusive development outcomes. Well governed mining regimes benefit Australian mining investors and operations through the creation of a user-friendly, transparent and efficient environment in which well-governed business can operate. Further, Australian Federal and State Governments are ranked very highly in mining governance against objective performance based criteria (see section 5.2) and as such Australia has much to offer by way of capacity-building.

The benefits of the Colombo Plan of the past are well documented with new innovations and versions of this approach being promoted by the Foreign Minister through the aid program. Australia has much to offer in terms of its mining governance expertise, specific technical skills in all aspect of the mining supply chain and in sustainability practices. These all go a long way to promoting Australia's economic and diplomatic interests globally. Mining governance has been the subject of direct aid from Australia, Canada, Germany, Norway and the UK, and through the World Bank, but relative to the documented impact of mining governance capacity-building, there has been little substantial, integrated and long-term activity to date.

Therefore with respect to mining governance, it is recommended that the Australian Government could consider or further reinforce the following initiatives:

7. ***General governance commitment: General support to resource-rich developing country governments in mining governance policy – endorse a specific budget allocation and capacity-building approach to this sector and request country/regional desks to report against activities dedicated to this priority.***

8. ***Regulatory and fiscal reform: The Australian Government could consider strengthening specific support to resource rich developing countries on legislative reform and regulative policy which provides more conducive conditions for foreign investors while ensuring the benefits of FDI are fairly captured by host governments and economies. This would include support for improving the capacity of developing countries to improve their capacity to administer policy, including policies concerning royalties, tax collection policies and fiscal reform.***

9. ***Sustainability: Enhanced support for sound policy and regulation would go some way to ensuring leading practice and consistency in terms of the requirements on foreign companies regarding community consent, social responsibility and sustainability, while also facilitating developing country governments to be consistent and transparent. Australia has much to offer in this area given its extensive experience in mining governance and reinforces the sustainability of regional energy and resources security.***

8D Mining related Aid for Trade initiatives

The government says that Australia's aid program is an important tool through which Australia supports its economic diplomacy objectives. It says that aid (and in particular aid for trade) is used as a catalyst to promote economic growth and poverty reduction.

Aid for trade is development assistance that helps developing countries improve their capacity to trade and attract investment by reducing supply side barriers, which in turn drives economic growth and provides opportunities to build livelihoods and increase income. It helps developing countries to build the infrastructure and supply-side capacity they need to connect to regional and global markets and improve their trade (including investment) performance.

When applied to resource rich developing countries this can mean Australian support for the implementation of trade and investment liberalisation measures which will reduce barriers of entry and increase the ease of doing business for Australian mining companies either operating or intending to operate in these countries. There are significant implications here for the effective use of aid for trade as Australia negotiates preferential trade agreements with countries such as India and Indonesia. The Australian Government is therefore encouraged to utilise some proportion of its aid for trade commitment to support for trade and investment related to mining industry interests.

As discussed in chapter 7, Canada's development assistance supports developing countries to enhance their capacity to manage their extractive sectors, focusing on building resource governance capacity, growing businesses to improve local economic development, and enabling communities to maximize the benefits of the sector. It also supports implementation of leading international standards and guidelines, for both firms and countries, emphasizing transparency. While the approach is distinct from Canada's CSR Strategy, the two are well aligned. In Europe, the United Kingdom, Germany and Norway all have active aid for trade programs focussed on improving mining governance.

Mining related aid for trade can address topics such as investment policies for resources and infrastructure, fundamentals of minerals economics and markets, sound administration of legislation, domestic policy and regulation to support and leverage mining investment, negotiation strategies for resource development agreements, effective community engagement, and design of minerals revenue systems, including avoidance of transfer mis-pricing. Recent reviews of Australia's investments to date in capacity-building in mining governance have shown that they deliver high impact and value for money.

The following recommendations are therefore put forward for consideration:

10. ***Overall Aid and Aid for Trade: Australia should consider an increase in the overall level of effective, well targeted aid and 'aid for trade' in support of economic diplomacy and mining governance in those regions where Australia has strong mining interest but also in support of economic growth imperatives and the reduction of poverty in developing countries. This is consistent with the Government's commitment to the Sustainable Development Goals and in promoting Australia as a reputable and ethical country.***

11. ***Ease of business and trade reform: Specific technical assistance should be increased to address the poor ratings of many resource rich developing and least developed countries resource rich in terms of the 'ease of doing business' as defined by the World Bank. Aid for Trade in support of improved trade facilitation, reduced duplication of procedures, more efficient bureaucracy, unnecessary licensing arrangements and dubious facilitation payments/hidden costs, would be of great benefit to Australian mining and METS companies working in developing countries. Technical support to address non tariff barriers in support***

of greater regional and multilateral harmonisation in trade and investment rules has the mutual benefit of reinforcing a synergy of cooperation in pursuit of regional energy security.

12. ***<u>Mining infrastructure</u>: Australia should consider an increase in support for mining and trade related infrastructure in resource rich developing countries including both soft and hard infrastructure, and infrastructure governance, including the use of innovative financing approaches.***

13. ***<u>Capacity building</u>: Specific training and capacity building programs for developing country officials in mining governance, trade and investment rules and how to undertake legislative reform in these areas should be reinforced through, for example, the Australia Awards programs and targeted short courses. Training for SMEs in resource rich developing countries on how to take advantage of FDI in mining, including METS and other areas of the mining supply chain, would enhance employment opportunities in these countries and contribute to sustainability. It will also enhance recognition of Australia as a reputable country to do business with.***

14. ***<u>Africa and Latin America</u>: Given Australia's major economic interests in Africa and as that continent's largest exploration and mining investor though publicly-listed companies, it is recommended that Australia's economic diplomacy in the region be strengthened and supported by an increase in well targeted aid and 'aid for trade' with a focus on capacity building and good governance in key sectors relevant to Australia's national interest including mining. There is also a case for targeted capacity-building in selected resource-rich developing countries in Latin America, where Australia has fast-growing mining interests.***