

# Sourcing Specialised Skilled Labour in the Global Arena: A Change in the Way We View Work in Australia?

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## Abstract

*This article presents a newly developed research agenda to explore the increased needs of resource-rich regions in terms of sourcing industry-specific skilled labour. The article begins with a conceptual framework that maps the human resource management issues that are being magnified by the resources boom in Australia. The paper focuses on one of the five key thematic areas encompassed within the framework—labour global mobility. The difficulty in sourcing specialised skilled labour at this time indicates a major paradigm shift that is challenging long-held beliefs and constructs related to the nature of work in Australia with specialised skilled migrant workers actively sourced to fill positions in resources firms. After reviewing the international literature, we explore labour-sourcing practices as a response to dealing with skill shortages in the labour demand and supply of Australia's resource-rich regions. This is followed by a discussion on how these practices have progressed in regional Queensland and Western Australia.*

## 1. Introduction

Australia's resource-rich regions are experiencing continued economic growth—despite global uncertainty—due to the appetite of China and India for Australia's minerals and energy products. As a result, resource-rich regions offer employment into the next decade for thousands of skilled workers from both Australia and overseas. Skills Australia (2011) estimated a much stronger growth than previously predicted for the resources sector which resulted in more construction labour demand and employment in mining and gas production. This was particularly evident in 2011; however, some

reductions in production that were experienced in 2011—as commodity prices declined—are once again on the rise in 2013 (CommSec 2012).

Pressure for industry-specialised skilled workers remains for Queensland and Western Australia where much of the resource activity is occurring (AWPA 2012). In response to identified skill shortages in Australia, the federal government created additional training places for skilled and semi-skilled workers through the vocational education and training (VET) and higher education sectors (Moodie 2011). In addition, ceiling caps on accessing temporary workers from overseas were lifted in 2011, with Western Australia also rezoned as a regional centre in 2011, thus permitting an unlimited supply of skilled overseas labour for the state (Butterley 2011).

Australian firms have begun to view accessing skilled labour in global terms and human capital is moving around the world at unprecedented levels. Hugo (2004a) refers to the current trend of global migrant movements as the 'Age of Migration', characterised by 'a massive increase in global population movement and an increase in the complexity of the types of movement. The types of movement include permanent and temporary, legal and undocumented, forced and voluntary, work and non-work-related, etc.' (Hugo 2004a, p. 1). This is not a new concept for Australia, as it has had a long history of migration and is considered a traditional migration nation with 24.6 per cent of the population in 2011 born overseas (ABS 2011). Several authors have documented the historical context of migration in Australia in their discussions of skilled migration (Hugo 2004a, 2004b; Phillips 2005, 2006; Saunders 2008; Shah and Burke 2005; Teicher, Shah and Griffin 2000). Australia's migration policy has been developed as a national policy for over 60 years when, in 1945, the first federal immigration portfolio was created. A recent discussion paper by the Australian Workforce and Productivity Agency (2012, p. 27) noted that 'migration plays an important role in buffering the economy against the volatility of the economic cycle, acting as a "shock absorber" in the Australian labour market' by providing 'fast and flexible solutions to skills shortages'. Hugo and others argue that migration has, and will remain, a crucial aspect of Australia's economic, social, and cultural development and future (Hugo 2004a, 2004b; Phillips 2005, 2006; Saunders 2008; Shah and Burke 2005; Teicher, Shah and Griffin 2000).

Even though there remains a shortage in specialised skills, the use of temporary migrant labour has a number of opponents in Australia. The extreme pressure on companies to source large numbers of specialised workers has created a major paradigm shift that is challenging long-held beliefs and constructs related to the nature of work in Australia.

This article begins with a theoretical framework for further research on human resource management in resource-rich regions. The international literature on global labour mobility is reviewed to discuss the changes currently experienced in Australia in sourcing workers. Finally, two case studies are presented to illustrate the changes that are occurring in labour-attraction practices in Queensland and Western Australia as their response to the pressures of supplying specialised labour to feed the resource-rich regions' requirements. Our two cases are somewhat different in that the issues experienced at the state level in Western Australia and the regional level in Queensland are reviewed. The rationale for doing this is to bring together some of the findings of two pilot studies conducted in 2012 that began investigating the issues of dealing with skills shortages. Although the two studies were conducted separately, the findings have synergy and similarities that are brought to this article to inform the future research agenda. To begin to map these relationships, the theoretical conceptual framework follows.

## **2. Theoretical Conceptual Framework: HRM Issues in Resource-rich Regions**

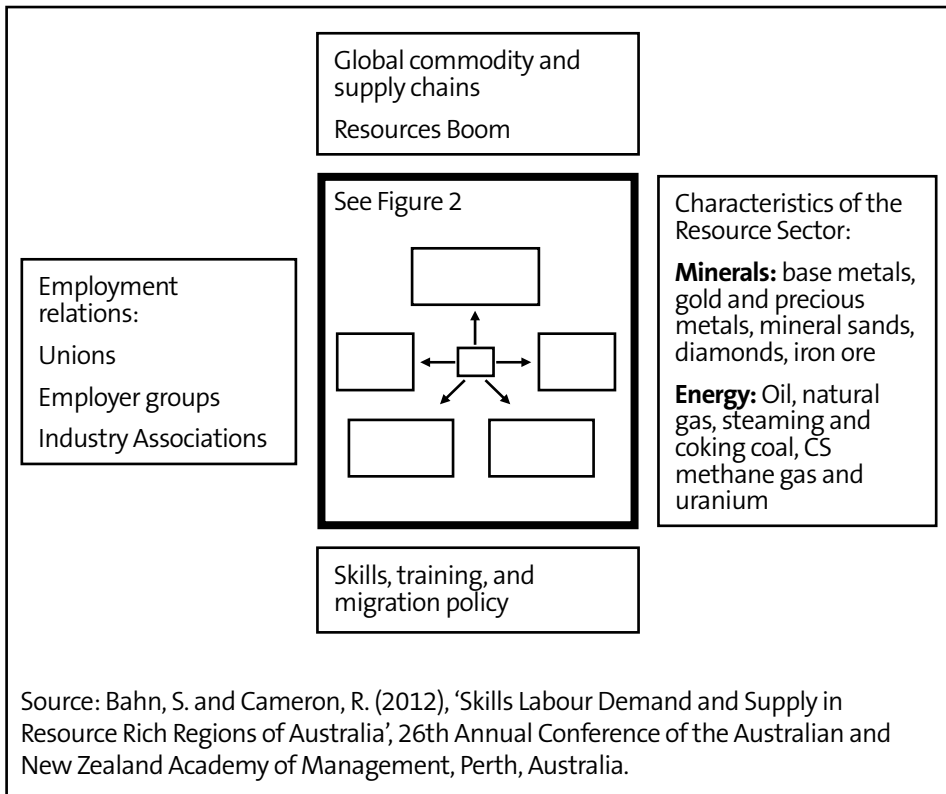
The theoretical framework in figures 1 and 2 has been developed and appears in a recently published paper (Bahn and Cameron 2012). The framework is supported by a human capital theoretical perspective. Human capital theory is underpinned by education and experience (Becker 1975), whereby the possession of knowledge that is in high demand and difficult to source leads to competitive advantage (Barney 1991; Pennings, Lee and Witteloostuijn 1988; Wright, Smart and McMahon 1995) enabling them to act in new ways (Coleman 1988) and is a key factor of organisational performance (Bruderl, Preisendorfer and Ziegler 1992; Gimenco et al. 1997; Pennings, Lee and Witteloostuijn 1988). Hornbeck and Salamon (1991, p. 3) describe human capital as 'the productive capacities of human beings as income-producing agents in an economy'. These highly skilled workers hold significant power in their ability to choose where they work, for whom they work, and the training in which they engage (Strober 1988). Human capital theory argues that education increases workers' skills, that increased skills lead to an increase in the workers' own and the organisation's productivity, and higher productivity is rewarded with larger earnings (Becker 1975; Mincer 1984). In terms of highly skilled migrants, these workers have become a prized commodity in the global arena and command large earning capacities as their skills are sought; they are examples of human capital theory at work.

The theoretical framework has as its central focus industry-specific skill shortages and the subsequent demand and supply of labour in Australia's

resource-rich regions. The purpose of the framework is to map a research agenda around five main thematic areas:

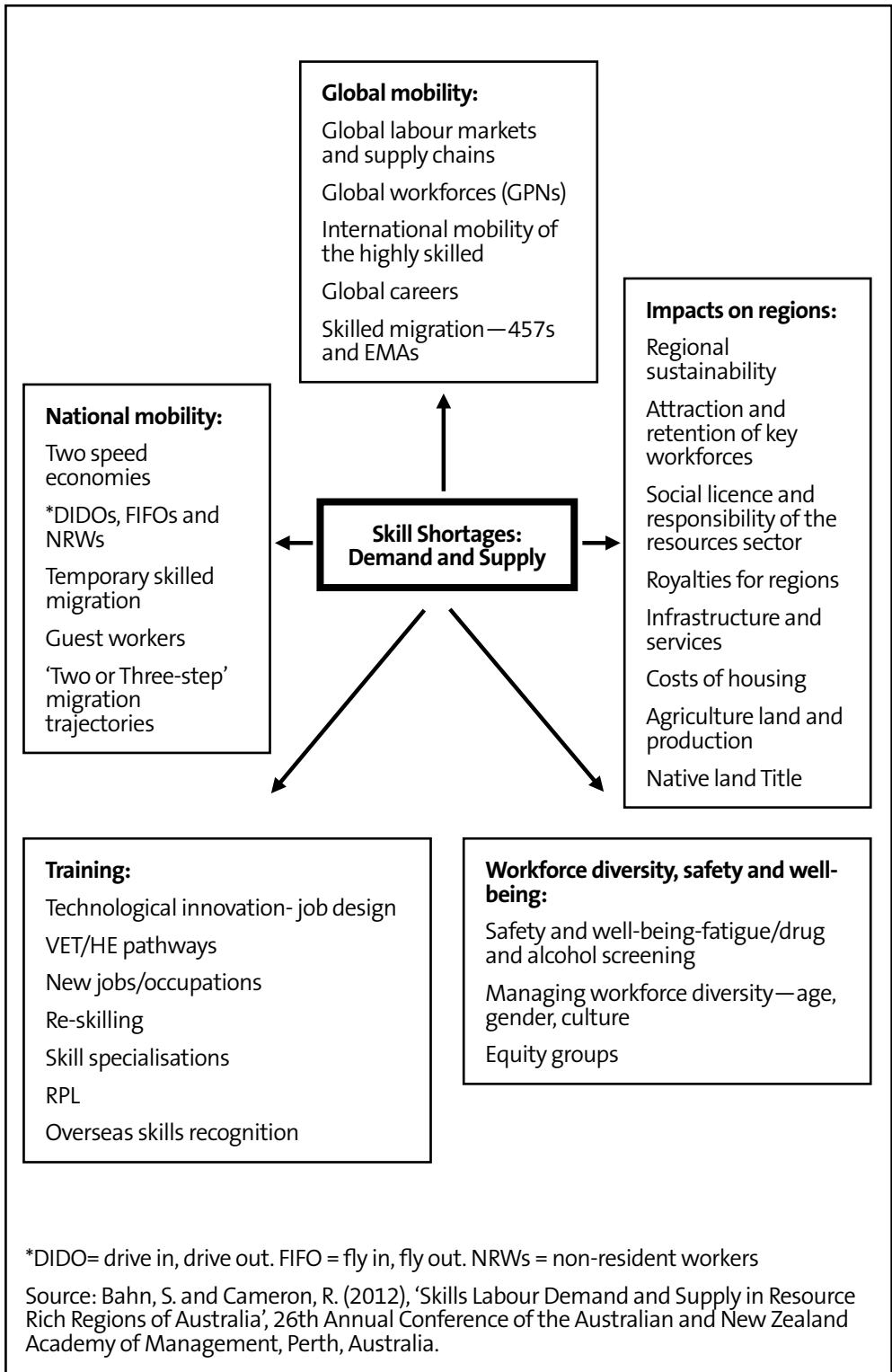
1. Global mobility;
2. National mobility;
3. Impacts on regions;
4. Training;
5. Workforce diversity, safety, and well-being.

**Figure 1: External Forces Having an Impact on the Conceptual Framework**



The framework is contextualised by some key macro forces and trends which have been visually depicted in Figure 1. The authors in no way claim these to be the only forces, trends, or contextual factors that are having an impact on the framework and its focus. To provide boundaries for a future research agenda, the focus is on four key areas. The external forces having an impact on the supply of skilled workers in Australia fall within four macro forces: Global Economics, Characteristics of the Resources Sector, Australia's

**Figure 2: HRM Issues in Resource-rich Regions: The Changing Nature of Work**



Migration Policy, and National Employment Industrial Relations. Factors that affect global economics include global commodity supply pressures, labour supply chains, and sourcing labour to meet the increased needs of the resources sector. Labour supply chains influence the flow of skilled workers globally, as specialised skills are sought for large resource projects. The balance of the number of projects versus the availability of specialised skilled workers to support them is currently being tested. The resources sector in Australia is characterised by the mining of base metals and minerals and tapping into oil and gas supplies. Australia's migration policy is influenced and regulated by the three tiers of government: federal, state and local. In Australia, policy is not always managed at the federal level, and individual state jurisdictions have considerable input in areas such as training, health and safety, and industrial relations. Conditions of employment in Australia are regulated by industrial relations policy and are influenced by industry associations, employer groups, and the unions.

Figure 2 extends the conceptual framework to focus on the human resource management issues currently being experienced in resource-rich regions in Australia, as evidenced by the data emerging from two pilot studies and it epitomises or magnifies growing trends in the changing nature of work. Five thematic areas have been identified that influence the demand and supply of specialised skills in Australia: Global Mobility, National Mobility, Impacts on Regions, Training and Workforce Diversity, Safety and Well-being. These five themes have been discussed by the authors in forthcoming publications; however, the topic for this article is that of global mobility.

### *Global mobility*

Literature concerning migrant labour is extensive. For this article we focus on three key themes: global labour mobility as opposed to sourcing local labour; extending movement between countries to work abroad to that of global careers where international appointments are expected; and how the two preceding themes relate to accessing a steady supply of skilled labour for Australian resources firms.

### *Supply chains*

The traditional view of the 'career' has undergone dramatic changes with the emergence of concepts such as the 'boundaryless career'. The boundaryless career was first termed by Arthur as 'the antonym of the "bounded" or "organisational career"' (Arthur 1994, p.296), a long-held traditional view of the career. The boundaryless career moves across employer boundaries, becomes validated and marketable outside the current employer, is sustainable outside the present employer by extra-organisational networks and information,

and is perceived beyond the hierarchical and structural constraints within organisations. The boundaryless career is 'one of independence from, rather than dependence on, traditional organisational career principles' (Arthur 1994, p. 296). The notion of career has moved even further away from organisational boundaries and across national and geographic boundaries.

There is no doubt that the increasing global flows of capital, goods, and services have also seen the increased global flow of human capital which, in turn, has created global work. This has meant that more and more people are pursuing global careers and this requires specialised management of these careers by individuals as well as organisations. Global careers can take many forms and are dependent on political, cultural, and organisational contexts. The most common types of global careers are work and career-related migration, and careers related to organisations and (or) employers often taking the shape of expatriation. 'A global career might involve immigration: but could also be restricted, within the organisational boundaries, to expatriation and repatriation management' (Dickmann and Baruch 2011, p. 21). The latter can take several forms: firm expatriation, self-initiated expatriation, overseas secondments, offshore transfers, and short-term assignments. Migration-related mobility occurs when:

people leave their home country to seek employment in a different geographic location outside the borders of their country of origin and/or country of nationality. Often the time of stay in the host country is not precisely defined or planned and might depend on a range of external circumstances and internal thoughts and emotions. The host country can become their new homeland. Alternatively, this can be temporary work, with no intention or even practical ability to gain naturalization in the new country (Dickmann and Baruch 2011, p. 9).

Global careers are changing the very nature of how we view work, careers, and career trajectories.

Due to the shortage of specialised skilled workers to support resource projects in Australia, steadfastly held traditional views about the nature of work are challenged. Central to this is the increasing mobility of labour globally, nationally, and regionally. In Australia, a long-held view is that work will be made available in the city in which we live and the industry sector in which we are trained (inward mindset). This is evidenced by the criticism of retraction of industries such as manufacturing wherein workers lose long-term employment. For example the Australian union movement has called for government support to 'prop up' failing industry in an effort to preserve whole communities under threat of retraining or relocating for alternative work (federal government subsidies for the Australian car industry

doubled to \$6.2b in 2008 (Kirchner 2008)). Furthermore, the recent access to skilled migrant labour and the immediate pressure to provide labour sees the notion of a global workforce emerging (global mindset). What is happening in resource-rich nations is that there is a paradigm challenge and a shift from the job for life, training for life, and sole occupational career trajectories to one which encourages and demands global mobility to meet the requirement of labour with specialised skills.

This notion of global labour has been discussed in the academic literature for several decades. One contemporary view used to describe global labour is that of Global Production Networks (GPNs), which is a framework particularly suited to analysing global labour operating in the supply chains of transnational corporations and their contractual partners. GPNs are discussed by scholars such as Henderson et al. (2002) and Coe and Hess (2012). This follows from the early work of Gereffi (1994) and the later work of Gereffi, Humphrey and Sturgeon (2005) that introduced the concept of the Global Commodity Chain. Their work was criticised by Henderson et al. (2002) who shifted the focus toward Global Value Chains and finally into GPNs. Dicken (2003) describes the GPN as an emerging global dispersion that integrates economic activities such as labour supply. Scholars in this area argue that there is increasing complexity in the form of the employment relationships arising from global labour networks (Ruberly, Grimshaw and Marchington 2010), particularly given that a number of workers in this sector are contractors (Rainnie, Herod and McGrath-Champ 2011; Bahn and Rainnie forthcoming).

The emergence of GPNs within an era of increasing international migration adds a dimension of complexity, particularly in the context of temporary skilled labour entering Australia. Non-traditional migration countries are entering the competition for skilled labour fuelled by globalisation, conflict and hostilities, internationalisation, and trade in higher education, global labour markets, ageing populations and falling workforce participation rates, skill shortages, increasing international mobility of the highly skilled, and changes in migration policies (Cameron and O'Hanlon-Rose 2011).

### *Global careers*

Long-term careers in organisations traditionally located in the home country in the workers' local area are documented in the seminal works of Hall (1976) and Schein (1978). The notion was that organisations would build loyal workers who retained a job for life. In more recent times, as work became more complex and companies expanded their international reach, individuals began to take control of their careers and move between firms (Inkson and Arthur 2002; Arthur and Rousseau 1996). In addition, Carr, Inkson and



Thorn (2005, p. 388) suggested that mobility was not the only factor that affected global careers and that this type of career is sought by 'proactive and internationally oriented attitudes of individuals'. They argue that, in the context of skilled migrant workers, they can realise their market value due to their specialised skills. It is in this context that Australia is accessing specialised skilled migrant workers within global companies that have their own global workforce moving from project to project between countries. The use of global labour has important implications for work and employment in that they produce less secure internal labour markets (DiMaggio 2003; AWWPA 2012). With the need for increased labour in resource-rich regions, there is an opportunity for redundant Australian workers to re-skill and move into the resources sector. However, when specialised skills are needed immediately for resource projects and global mobile labour is used, these opportunities diminish. In the study by Bahn, Barratt-Pugh and Yap (2012) there was evidence that it is common practice in resource projects in Western Australia to use global labour, as a number of these projects are managed by international companies using their own pool of labour that moves regularly.

### *Accessing skilled labour*

Since the 1980s, the Australian government has developed policies designed to target migrants with experience in areas where there is a skill shortfall through its General Skilled Migration program. There is a variety of options for potential migrants to apply for migration under the General Skilled Migration program. This depends on whether the application is for an onshore visa (applying from within Australia) or an offshore visa (applying from outside Australia). International students currently studying in Australian institutions and skilled migrants on temporary work visas are now eligible to apply onshore for Permanent Residency under the Skilled Migration program, subject to having ongoing employment (Shah and Burke 2005). There are also specific requirements to encourage successful business people to settle permanently in Australia and develop new or existing businesses. Employer-sponsored visas include the temporary visa (*Temporary Business (long stay) Visa 457*) and two permanent visas (*Employer Nominated Scheme (subclass 121/856)* (ENS) and *Regional Sponsored Migration Scheme (subclass 119/857)* (RSMS). There is a range of visa options under the General Skilled Migration program for skilled workers who want to live in Australia and who do not have an employer sponsoring them. These include options for skilled people applying as independent migrants as well as those sponsored by a relative, or nominated by a State or Territory government.

The skilled migration programs most pertinent to this discussion (providing labour for resource-rich regions) are the Sub Class 457 temporary work visa

and the newly established Enterprise Migration Agreement (EMA). The 457 skilled migrant visa was introduced as Australian policy in 1996 (Oke 2010) and allows employers to hire overseas workers to fill nominated skilled positions which they cannot fill domestically (DIAC 2009). Temporary skilled migrants can be on 457 visas for up to four years, with an option to move to Permanent Residency after that period. The number of primary 457 visa holders in Australia at 30 June 2011 was 72,030, an increase of 5.3 per cent in comparison with the same date in the previous year. The number of 457 primary visas granted in the financial year ending on June 30 2011 was 38.2 per cent higher than in the same period in the 2009–10 program year. The top three citizenship countries for primary 457 visa grants to 30 June 2011 were the United Kingdom (24.6 per cent), India (18.2 per cent), and the United States (8.1 per cent) (DIAC 2011a). Table 1 provides recent statistics on 457 visas granted in the 2010–11 program year as compared to the 2009–10 program year. The top three occupational groupings and top three industries for each of these program periods are presented.

**Table 1: Subclass 457 Visas Granted 2009–10 and 2010–11**

Top 3 Occupational Groups		Top 3 Industries	
2009–10	2010–11	2009–10	2010–11
Professionals 66 per cent	Professionals 62.9 per cent	Health Care and Social Assistance 18.7 per cent	Health Care and Social Assistance 13 per cent
Managers and Administrators 12.6 per cent	Technicians and Trades Workers 16.5 per cent	Information, Media and Telecommunications 10.9 per cent	Other services 12.4 per cent
Associate Professionals 12.2 per cent	Managers 15 per cent	Construction 9.6 per cent	Construction 12.3 per cent

Sources: DIAC (2010) and DIAC (2011)

The use of workers on Sub Class 457 temporary work visas and EMAs are global labour market resources that are a positive response to the demand for workers with the specialised skills required by projects in resource-rich regions. Bahn, Barratt-Pugh and Yap (2012) argued that the forecast models within government reports of increased labour demand have been neglected. For example the Australian Skills and Workforce Needs paper (AWPA 2012) confirms some significant labour market skills issues for the next decade. Under each of the four future scenarios they modelled, they predict a continued demand for more skilled workers with between 4.3 million and 6.4 million new jobs created. This means that the labour market will both expand considerably and be subject to major structural readjustment as some industries recede and others expand. They indicate

that the resources industries and managerial skills will be a specific focus for that demand. Perhaps most importantly, they predict potential skill shortages until 2025 indicating ‘that under all scenarios’ there will be at least a 250,000 deficit of higher-level qualifications (AWPA 2012, p. 5).

The issues of welfare and social costs of employing workers on 457 visas, the implications of skill ‘poaching’ from underdeveloped nations, the reduction in opportunities for young Australians, the transfer of skills from migrants to Australian workers given the temporary nature of the visa, and the displacement of industry engagement with training schemes have been researched. In addition, Bahn et al (2012b) argue that there is a paucity of information and discussion about the loss of opportunities that would occur if projects are slowed or cancelled in Australia due to restrictions on accessing specialised and semi-skilled labour.

EMAs were introduced in 2010 and ‘are a custom-designed, project wide migration agreement for large scale resource projects’ (DIAC 2011b). They make available semi-skilled and sub-trade occupations such as riggers and scaffolders but require, before approval, evidence of why Australian workers cannot be used. The use of EMAs for large resource-sector projects across Western Australia and Queensland over the immediate future will generate a lot of debate and will polarise sections of the community about the use of skilled migration programs for temporary workforce demands. This is particularly due to the nature of the EMA in that in this instance, workers who are semi-skilled rather than those with specialised skills can be brought to work in Australia and they can be sourced in large numbers rather than filling individual places on projects. The authors will be closely monitoring this program and its rollout across resource-rich regions as they represent an even bigger challenge to the strongly held beliefs about the nature and future of work in Australia.

### *Case 1: Resource-rich state: A macro view of Western Australian mining sector projects*

The Western Australian economy is facilitating strong economic growth in Australia and is experiencing a period of rapid production and growth which experts predict is likely to continue for at least the next 20 years (Skills Australia 2011). The Gorgon Gas project and the expansion of Woodside’s Pluto natural gas operations in Western Australia are key examples of large resources projects, fuelled by the world appetite for Australia’s minerals and energy sources (ABARE 2011). Resource projects of this magnitude require large numbers of skilled people. Nationally, at the end of April 2011, there were 94 resource projects at an advanced stage of development, either committed or under construction, representing a record level of capital

expenditure of \$173.5b (ABARE 2011). This was an increase of 30 per cent on the 72 projects that were at an advanced stage of development in October 2010, with a corresponding capital expenditure of \$133b. Of these projects, 39 were in Western Australia with a total value of \$109.5b (ABARE 2011). This demand for Australia's minerals and energy supplies is being driven by the rapidly growing Chinese and Indian economies (ABARE 2011).

As a consequence, skilled workers, particularly those with specialised skills, are required in large numbers in Western Australia. In their 2005 report on the availability of skilled labour in Western Australia, Shah et al. (2005) noted that, at this time, there was already a shortage of fitters, boilermakers, pipe fitters and welders, electrical trades, and those working in construction sub-trades, for example mobile plant, crane, hoist and lift operators, and structural steel construction workers; however, they expected that much of this labour would be sought internally. The DEEWR 2011 report on skills shortages in Western Australia (DEEWR 2011) noted that skill shortages were more apparent in the professional groups of engineering and health and that employers from the resources sector generally reported filling an average of 30 per cent of advertised vacancies in the first half of 2011. The report explains that:

Skill shortages can coexist with relatively high levels of unemployment. Sometimes shortages are restricted to experienced workers or those who have specialist skills. Shortages can result from a number of factors including: low levels of training, high levels of wastage, changes in technology, and increasing demand for new skills within an occupation. Locational mismatch may also result, where workers who have the skills are not in close proximity to the employers seeking those skills (DEEWR 2011, p. 4).

This locational mismatch created pressure on the federal government to create access to larger numbers of overseas workers. As a response, the Federal Minister for Immigration, Chris Bowen, announced on 19 July 2011 that Perth, Western Australia, had been rezoned as a regional area (Butterley 2011) and, therefore, there is no cap on the numbers of workers on 457 visas entering that state. This ensured a significant increase in the numbers of skilled migrants that can now be brought into Western Australia. In addition, the first Australian EMA was granted to Rio Tinto in Western Australia in 2012 (DIAC 2011b) with 1,715 semi-skilled workers being sought from overseas. These workers include boiler makers, riggers, and scaffolders. Skilled migrant labour in Western Australia is sourced through international labour recruitment drives, multi-national companies successfully winning contracts to work in Australia bringing in their own labour on temporary work visas and direct contact with national and international migration agencies.

*Case 2: Resource-rich region: A micro view of the Gladstone CSG/LNG projects*

Labour demand and skill shortages in regional Australia are having a profound effect upon regional sustainability and renewal. The Gladstone region is currently facing the combined effects of increased business opportunity and increasing competition for the skilled members of its diverse workforce primarily related to the construction of the infrastructure for the four Coal Seam Gas/ Liquid Natural Gas (CSG/LNG) projects and related developments (GEIDB 2012). There is already evidence of an emerging two-tier economy within the region with a housing crisis and a loss of existing workers to the new projects (GEIDB 2012). While the Gladstone region and its workforce are familiar with the 'boom-bust' cycles of industrial development, the impending number of large infrastructure projects, and the timing of their development, will place unprecedented demands on available skilled labour. The Gladstone region is 'front and centre' of Queensland's evolving economic growth with 35 per cent (or some \$45b) of investment being delivered in the region. The coincidence of these significant developments will demand a highly skilled workforce (Queensland Department of Education and Training 2011).

As a policy backdrop, the Queensland government has recognised the importance of supporting the resource sector projects within the state and, to that end, recently released a *Strategic Priorities Issues Paper* in 2011 which put forward four key strategic priorities for future activity as a response to a set of key issues that have an impact on skills development and labour demand in the state. The report noted that:

- In Queensland, resources sector activity occurs mostly in regional and remote areas. However, regional population growth is not uniform.
- Rapid growth in some regional areas is having adverse impacts on the community in terms of liveability, competition for the supply of labour, and a range of supply-chain impacts.
- There needs to be further consideration of strategies to supply the labour needed for major resources projects, including targeting the potential supply, using skilled migration or a temporary or fly-in/fly-out workforce, ensuring job opportunities for local workers, and creating new skills-development pathways to fast-track skills for the sector (Skills Queensland 2011, p. 8).

An example of how these strategic priorities are progressing is the recently announced collaborative venture between the mining industry and the energy industry to work together on workforce planning and development

solutions. This collaboration will be between the industry skills councils and (or) advisors to these sectors in Queensland, Energy Skills Queensland (ESQ) and Kinetic group. They are joining forces to combat:

shortages of critical skills, high labour costs and a boom/bust apprentice recruitment cycle. The adoption of a synergistic approach to these issues will provide benefits and opportunities for energy and mining sector stakeholders, as well as registered training organisations. The merger will bring two organisations together to create a bigger and stronger organisation that has increased capabilities to service and meet the needs of our industry and stakeholders. By joining forces, the expertise we now have in both the energy and mining sectors will be made available for both industries to benefit and grow (ESQ 2013, p. 3).

The Gladstone region is currently experiencing high demand for labour during the construction phase of the CSG/LNG projects and other developments by existing industry sectors. A crucial element of this will involve both geographic branding and image as well as a strong focus on supportive employers and communities, with particular emphasis on resolving the perennial settlement issues associated with family, housing, schooling, and cultural and linguistic challenges faced by skilled migrants and their families locating to regional Australia. In response, ESQ has been conducting a series of workforce-planning research projects specifically looking at the labour demands of the CSG/LNG industry in Gladstone. To this end, they will be developing a dedicated CSG/LNG workforce-development strategy. Table 2 details the investment and workforce needed for these four CSG/LNG projects based at Gladstone.

**Table 2: Detail on the Four CSG/LNGP Projects in Gladstone**

<b>Queensland Curtis LNG (QGC—A BG Group business)</b>	
Project Outline	LNG production facility to process coal seam gas—Curtis Island
Estimated CAPEX	US\$15b (development program, including a 540 km pipeline network to deliver gas to Gladstone and construction of world scale LNG plant)
Timing	First cargoes expected 2014
Employment	Construction—peak 5000 (various locations) Operational—up to 1000 (various locations)
Estimated Production	8.5 mtpa initially, with approval for 12mtpa

**GLNG (Santos, Petronas, Total and Kogas)**

Project Outline	LNG production facility to process and export coal seam gas—Curtis Island
Estimated CAPEX	US\$16 billion (including upstream field development, liquefaction plant and associated infrastructure)
Timing	Mainland facilities and Plant construction commenced in 2011. First cargoes expected 2015
Employment	Construction—peak 5000 (various locations) Operational—1000
Estimated Production	2 trains with combined capacity of 7.8 mtpa of LNG

**Australian Pacific LNG (Origin and ConocoPhillips)**

Project Outline	LNG production facility to process coal seam gas—Curtis Island
Estimated CAPEX	AUD\$14 billion Train 1 and Train 2 infrastructure
Timing	First exports expected first half 2015
Employment	LNG facility Construction—3300 peak LNG facility Operations—approx. 175 (Trains 1 and 2)
Estimated Production	Stage 1—2 trains at 4.5mtpa each Stage 2—(TBC) a further 2 trains at 4.5mtpa each

**Arrow LNG Plant (Shell Australia and PetroChina)**

Project Outline	LNG production facility to process coal seam gas—Curtis Island
Estimated CAPEX	TBA
Timing	Final investment decision due by the end of 2013 and first export of LNG is targeted for 2017. Stage 1 involves the construction of 2 LNG trains with a further 2 trains to be constructed in Stage 2
Employment	Anticipated peak workforce of 3,715 during construction and 200 to 300 operational at LNG plant and associated facilities
Estimated Production	Plant designed for maximum capacity of 18 mtpa including the construction of Stage 1 of two trains, each with 4 mtpa capacity

A new research agreement has been made between the Queensland state government (Skills Queensland) and industry proponents (Origin/Conoco Phillips, Arrow Energy, QGC and Santos) to support the future workforce needs of the CSG/LNG industry (Skills Queensland 2011). The government and industry are funding future research into building workforce-development strategies to increase the supply of industry-specific skills identified by the Queensland CSG/LNG industry. This research will build on that already undertaken by ESQ in 2009. This is an example of how these specific-skill supply strategies are progressing.

Skilled migration has become a key element in Australia’s strategy to deal with major human capital issues and imperatives and regional skilled migration initiatives, as a ‘glocalised’ response to regional skill shortages is needed. Recent reforms in migration policy towards a demand-driven economic modelling system have seen greater input from states and territories and regions to inform the required skills and types of targeted skilled migration programs needed. This reform aims to assist in meeting regional skill demands in the Gladstone region. Cameron et al. (2012) have researched the human, social, and cultural capital contributions of skilled migrants and their families in the Gladstone region. The attraction, settlement/integration and retention of skilled migrants and their families is a crucial human capital initiative and strategy for a sustainable Gladstone region which is facing significant workforce and labour market challenges.

The following table summarises and compares the two cases.

**Table 3: Summary of the Two Cases**

Case 1: Resource-rich State: Western Australia		Case 2: Resource-rich Region: Gladstone	
<b>Geographical scope:</b>	State based	<b>Geographical scope:</b>	Regional
<b>Industries:</b>	Mining: iron ore production, base metals, industrial minerals and rare earths LNG production Petroleum production	<b>Industries:</b>	Coal Seam Gas/ Liquefied Natural Gas industry  3 projects: • QCLNG • GLNG • APLNG
<b>Economic value:</b>	2011–12, Western Australia’s mineral and petroleum production was valued at more than \$106 billion.	<b>Economic value:</b>	Together these projects are expected to generate \$45 billion in capital expenditure and produce 28.8 mtpa of LNG. Generate 18,000 jobs and increase gross state product by over \$3b.



### 3. Concluding Discussion

Due to the significant interest in Australia's metals, minerals, and energy from rising countries such as China and India, there has been an enormous increase in the number of projects emanating from the resource-rich regions. These projects need workers that not only have specialised skills but also large numbers of semi-skilled workers such as riggers and scaffolders. For a number of reasons, Australian workers are competing for these employment opportunities with overseas workers. First, companies operating large resource projects in Australia are not always Australian firms, for example Hess and Van Oord. Hess is an international recruitment company and Van Oord is an international dredging and offshore contractor. These companies often have very specialised operations in engineering capabilities, design and construction of specialist drilling equipment, and experience in 'ramping up' large resource projects. Such companies have a highly specialised global workforce that travels from project to project, country to country, on a regular basis; that is, they go where the work is and their workers expect to have a global career. These companies rarely hire Australian workers because the training and experience in these roles is often not available in Australia. The equipment they use has only recently been required here and specialised training to a very limited cohort of this kind is not a viable proposition for Australian training organisations. For example, specialist helicopter engineers are required to maintain machines to fly to and from oil rigs. These helicopters are built in the United Kingdom and maintenance training is currently only available in the United Kingdom and France. To up-skill an Australian worker in these capabilities would require up to six months of additional training for a specific licence in Europe (and in some cases these engineers require up to six specialised licences).

Second, Australia has had a long-held value of providing work for Australian workers first. Even when industries begin to fail, outsourcing of labour overseas is viewed negatively. There is an expectation by the Australian population that the federal government should continue to support and prop up industries when they are in decline to preserve Australian jobs. One such example is the manufacturing sector (Kirchner 2008) which is under increasing pressure due to the high cost of labour and production in Australia compared to that available overseas. It could be argued that rather than outlaying considerable national funds to prop up an industry, that these workers could be retrained to work in the resources sector. There appears to be an inward-looking mindset of semi-skilled workers in Australia who have an expectation that their jobs will be preserved, regardless of global competition and economic forces. This is evidenced by the reluctance

of workers living on the Eastern seaboard to move to Western Australia to work in the resources sector. Reasons for not moving west, indicated by human resource managers, include that Sydney and Melbourne have more social and entertainment opportunities than Perth does (Bahn, Yap and Barratt-Pugh 2012). We agree that there are a number of factors that influence the decision to move and resettle families, including that fly-in fly-out arrangements place pressure on relationships (Burnie Advocate 2012), and there are infrastructure deficiencies such as housing availability in Western Australia (Huddleston, Huddleston and Tonts 2011). By contrast, workers from other countries expect and are willing to work in countries other than their home country. For example, workers from England and Ireland have experienced higher levels of unemployment in recent years. These workers accept that they need to move around the globe and go where the work is to provide for their families and to continue their careers. They have learned that they cannot expect their home country to provide employment opportunities if the sector in which they previously worked has failed (Bahn et al. 2012b) (for example coal mining in the United Kingdom) (Faull 2008). Further, this inward perspective of some Australian workers is at odds with our higher education graduates who are taught about global issues and encouraged to gain overseas working experience.

The conceptual framework presented in this article notes five areas of interest: global labour mobility, national labour mobility, the impact on regions of skills shortages dealt with through increased migrant labour, the impact on skills training for Australian residents, and workforce diversity, safety, and worker well-being. The inward focus of Australian workers highlights the tensions the nation is experiencing when faced with skill shortages in key occupations and an oversupply in declining industries. Global labour and global careers appear to have acceptance in other First World and developing countries. The difficulties of future work for Australian workers with a continued inward focus and expectation of work for life in the same industry, in the same location and the same country, is fraught with pitfalls. The two studies completed on sourcing skilled migrant labour for the resources sector show clearly that firms will source workers from overseas when they are met with resistance from Australian workers to relocate.

The issue of skills shortages in Australia will not go away in the short term with a prediction of a continued need for resources well into 2020. As Hugo (2004a) stated, we are in an 'age of migration'. The difficulty in sourcing specialised skilled labour indicates a major paradigm shift that is challenging long-held beliefs and constructs related to the nature of work in Australia. How Australia responds to the idea of a global workforce in dealing with

the skills shortages of the resource-rich regions is yet to be determined. As a concluding thought, perhaps Australian workers need to rethink their notions of how we work and where we work and develop a more outward perspective to compete globally. The federal government and the union movement could begin to embrace and financially support retraining for workers in the manufacturing sector to move into resources, given that the divide between the two industries is not insurmountable. A beginning at the individual level could be for workers to embrace a move to central Queensland or Western Australia to engage where they can in those regions' opportunities for highly profitable employment. This issue is complex and requires empirical research. The completed pilot studies and additional published research undertaken by the authors are forming a growing body of work on this important and nationally significant topic. This body of work has informed the development of the conceptual framework presented in this article and this framework underpins the future research agenda formulated by the authors.

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