



**Meeting the Skill Requirements of Western Australia's
Resources Development Sector. Examples of International
Models:**

Report to the State Training Board of Western Australia

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Executive Summary

Study objectives

The purpose of this report is to identify overseas initiatives that have been successful in encouraging resource developers to develop a skilled workforce in return for access to natural resources. The consultant has also been asked to evaluate these overseas initiatives in terms of their effectiveness and applicability to relevant State and Commonwealth policy frameworks and to make recommendations for change.

The following report has been commissioned by the State Training Board of Western Australia in response to a particular need identified by the Board to better plan for future skill needs.

Concern over skill shortages has been noted by Government and by industry. Recent relevant expressions of concerns about the resource sector and skill shortages include the House of Representatives' *Sea of Indifference* report¹ and the WA Chamber of Commerce & Industry report on skills shortages².

Skills pool as a public good

The skills pool, like the environment, has a number of the characteristics of a public good. The benefits to the economy and society from the investment in skills exceed the benefits to any one individual or enterprise. This justifies a role for government in ensuring that a major resource for the economy, like the environment, is safeguarded, maintained and enhanced.

Governments have a particular responsibility to ensure that the employment and training opportunities for their citizens are maximised. Governments are expected to fund the basic education of the population and to fund training places to assist individuals to acquire skills in demand. However, Governments, responding to community concerns for accountability, also want to see evidence from enterprises offering new employment that taxpayers' investment in education and training receives a return on investment rather than bypassing the existing skills pool to import skills from elsewhere.

These considerations suggest the need for Government to seek for large projects, in particular, a "skills pool impact statement". The finite nature of the economy's skills pool needs to be recognised. This means identifying the steps that government and enterprises

¹ The Parliament of the Commonwealth of Australia, *A Sea of Indifference: Australian industry participation in the North West Shelf project*. Report by the House of Representatives Standing Committee on Industry, Science and Technology, March 1998.

² WA Chamber of Commerce and Industry, *CCI Skills Shortage Project (1997/1998): Final Report and Summative Evaluation Prepared for the Department of Employment, Education, Training and Youth Affairs*, August 1998.

making use of this resource need to take ensure that this resource is replenished and added to.

Data sources

The study collected data from the following sources:

- discussions with officers of the State Training Board and the Department of Training;
- discussions with members of the Project Steering Group;
- personal and telephone interviews with around 30 Australian resource development companies and engineering construction companies involved in the resource development sector;
- telephone interviews and internet correspondence with a smaller number of international resource development companies and industry and government agencies involved in training policy and provision;
- meetings and telephone interviews with a number of peak industry and training organisations, including the WA Chamber of Commerce and Industry and the WA Chamber of Minerals and Energy; and
- extensive literature and internet searches and collection of company and government publications and data.

Interviews

The interviews with companies in the industry and other stakeholders produced the following findings:

- The industry is made up of three distinct but related sectors (operators, contractors and refiners/processors), each of which has different training and skill development practices and needs.
- Relationships between construction contractors and resource companies are mainly arms-length and contractual-based, with no significant client pressure on construction companies in terms of their skill and training policies. Cost-cutting pressures are severe, especially in the light of low commodity prices; training is not exempt from such pressures.
- Skills shortages are a more severe problem for contractors than for mining operators and refiners. The latter have relatively strong internal labour markets, are able to attract labour through high wages, and are becoming more professional and sophisticated in their human resources practices. Contractors, on the other hand, are

subject to highly fluctuating workloads due to the cyclical nature of the resources industry, which reduces their incentive to train for the long-term.

- As a result, mining companies commit a large amount of time and energy into training, particularly on existing staff (as opposed to entry level trade skills), whereas apprenticeship training is the key investment in human resources by construction contractors. Processing plants do train apprentices; in some cases, training apprentice numbers beyond their own needs.
- Contracting out (both in the public and private sector) has an adverse impact on the level of training, as companies and organisations have fewer resources and less core staff in whom they are willing to invest. The increasing use of labour hire companies, only a few of whom are involved in apprenticeship and further training, is symptomatic of this trend (although there are current moves to introduce group apprenticeship schemes into the labour hire industry).
- There was no consensus on potential reform measures which government or industry may wish to adopt.
- While some companies saw immigration as a potential solution, it was not preferred by most. Traditional sources of migrant labour (short-term and long-term), such as the UK, had almost dried up in the wake of the EU (which meant there was a growing European-wide labour market in engineering construction) and the decline of the Australian dollar against European currencies.
- From a government perspective, it has a responsibility to ensure that the employment and training opportunities for its citizens are maximised. Therefore, while short-term immigration may be a satisfactory solution for some companies, it is not a complete or long-term solution from a public policy perspective.

Overseas training systems and initiatives

The body of the report provides key examples of relevant training and skill development arrangements from overseas. This includes a discussion of a typology of government-business relations in skill formation, financing issues, relevant sectoral level models and a number of other interesting initiatives, including some from other parts of Australia.

The focus is on those countries with significant resource sectors (Canada, UK, Sweden and Norway) and those countries where Australian resource companies have mines (Argentina, Canada, Chile) or mineral refining/processing plants (Netherlands and the UK).

These approaches are examined in the context of the broad types of training systems that have been identified in terms of the roles of key stakeholders and the incentives and the institutional structures that support them. These systems are divided into three major types - *“Major stakeholders involved in a tightly connected system”*, *“state-driven”* and

“loosely coupled, enterprise-based”³. These three types are abstractions. It must be emphasised that many variations of these systems exist and several may be in operation at the same time in any one country.

Comparative Training Systems

<i>TRAINING SYSTEM</i>	<i>COUNTRIES</i>	<i>Relevant initiatives identified by this report</i>
<i>Major stakeholders working in a tightly connected system</i>		
	Austria, Germany, Switzerland, Netherlands, Many countries in Latin America	<ul style="list-style-type: none"> • Strong collective responsibility for providing entry level training • Tripartite control in setting policy • Employer associations play key role at local level • Levies used at industry level (Netherlands) • Industry-funded development of operator training (Netherlands) • National levies used in Latin America.
<i>State-driven system</i>		
Demand-led	Hong Kong, Singapore, Republic of Korea, Taiwan, China	<ul style="list-style-type: none"> • Close working relationship between bureaucracy and large enterprises (Korea, Taiwan, Singapore). • Strong emphasis on performance monitoring and use of sanctions by government (Korea) • Bureaucracy actively identifies skills needs in economy (Korea) • National levies (Korea, Taiwan & Singapore)
<i>Loosely coupled, enterprise-based and voluntary system</i>		

³ International Labour Organisation, ‘Training Systems: Adjusting to Change’, *World Employment Report 1998*, ILO, Geneva, 1999.

High labour turnover	United Kingdom, United States, Canada, Australia	<ul style="list-style-type: none"> • Voluntary promotion of HRM quality standard by government to foster training culture (UK) • Widespread use of performance indicators by Government to develop a normative culture for enterprises (USA, UK) • Voluntary enterprise participation in school industry programs (Canada) • Some instances of industry-specific levies especially for construction sector (UK, Ireland) • Use of common standards on resource projects producing closer partnership relationship with suppliers (UK)
Low labour turnover	Japan	<ul style="list-style-type: none"> • Long term relationships with suppliers built on trust and mutual assistance.

Source: Training systems typology in column 1 adapted from: *Training Systems: Adjusting to Change World Employment Report 1998*. International Labour Organisation-1999, page 70

The report also discusses the lessons to be derived from the overseas models, and looks in particular at their applicability in a Western Australian context.

A close look at other resource-based regional economies show that Western Australia is in several respects, unique. One important way that the response of government over time has been different is the absence of specific measures that recognise the finite nature of the resources.

In contrast, Norway, with a similar level of resource dependence to that of the economy of WA, and Alaska have put aside a proportion of the revenue collected by government for specific purposes. In Norway, the decline in petroleum activity expected after the turn of the century led the Government to set up the Petroleum Fund to accumulate financial assets that will allow a smooth adjustment to new sources of economic growth. The Alaska Permanent Fund has been used to not only pay for social infrastructure; it has also paid citizens an annual cash dividend.

Western Australia, however, has never acknowledged that minerals are a temporary or finite resource.

Recommendations

Six recommendations are made. These are presented as a graduated progression from the less to the more demanding in terms of requirements proposed for the industry.

The first recommendation is to develop a set of performance indicators using existing data sources of the extent and nature of the training effort of each of the three sectors related to resources development in relation to:

- places provided for apprentices and graduation rates;
- places for entry-level training for operators;
- extent of post initial training for existing trade qualified or technician workforce; and
- extent of training to upgrade skills of the operator workforce.

Justification: The information, reported above, from the US and the UK showed that in otherwise voluntarist training systems, performance indicators play a key part in fostering a normative culture among enterprises as to what their contribution is expected to be. This applies in a range of diverse areas such as affirmative action and school-to-work transition.

The second recommendation is to use the provisions in State Agreements to require enterprises to provide information on a set of performance indicators on training effort in relation to:

- places provided for apprentices and graduation rates;
- places for entry level training for operators;
- extent of post initial training for existing trade qualified or technician workforce; and
- extent of training to upgrade skills of the operator workforce.

Justification: At least one State Agreement requires that the company submit proposals in relation to “use of local labour, professional services, manufacturers, suppliers, contractors and materials and measures to be taken with respect to engagement and **training** of employees by the company, its agents and contractors” (emphasis added).⁴

This explicit mention of training could provide the basis for seeking information from resource companies on the extent and nature of their training effort. It could be attempted, in the first instance, by administrative means (ie asking the companies to provide the information under existing reporting arrangements); if this proves unsuccessful, then subsequent Agreements could have a clause included which specifically mention training as an indicator of local content.

The Korean approach to workforce skills development and government business relations is a model for a more explicit role for government in the skill formation process.

⁴ Parliament of Western Australia Iron Ore (Yandicoogina) Agreement Act 1996 , Clause 6 (j).

Performance measures that were simple, relevant and unambiguous have underpinned the agreements between the bureaucracy and large enterprises in Korea. Sanctions, in the form of withdrawn subsidies, are used by the Korean Government to penalise poor performers.

The Minerals Council of Australia use the annual publication of performance indicators, based on data supplied by the enterprises themselves, to bring pressure on their members to improve their safety and health record.

The third recommendation is to ensure that issues related to the employment and training of employees are addressed in the State Government's approvals processes in Western Australia for major project developers.

Justification: The new resource projects may require approvals in relation to the Environmental Protection Act, Aboriginal Affairs Planning Authority Act, Aboriginal Heritage Act, Native Title Act, Town Planning and Development Act, Mining Act and other relevant Acts.

As the state's "skill pool" is a semi public good, the likely impact of the project in terms of depleting the State's skill pool needs to be assessed in the same way that environmental impacts need to be assessed. A "skills pool impact" assessment would involve appraising the capacity of company processes to meet workforce training needs and other issues related to workforce planning.

The fourth recommendation is to develop a quality standard for training and human resource management by building on the Minerals Council of Australia's safety and health strategy. Models for such a standard are Investors in People and the Department of Training's Quality Framework for Western Australian Vocational Training leading to a Quality Endorsed Training Organisation award (QETO).

The key features of a quality standard for the resources development sector need to be:

- independent third party assessment to enhance its status as a significant achievement,
- promotion by intermediaries that have high credibility with enterprises to which it is directed, and
- major public recognition by the industry, government and the community for attainment of the standard.

As part of this exercise, funding could be provided to develop a **Best Practice Model** for the implementation of the human resource management quality standard in the resource development and related sectors.

Justification: The role of Government in a “voluntarist”, non-interventionist training system, such as in the US and the UK, is nevertheless a positive one. As noted above, government, through the promotion of a set of expectations about desirable performance standards for enterprises, can place subtle pressure on enterprises to achieve public recognition as a "good employer".

For example, the Minerals Council of Australia has responded to government and community expectations by involving member companies in the development, implementation and monitoring of a safety and health policy.

In the Australian mining industry, there are similar, positive responses from enterprises to Government calls for voluntary enterprise commitments with relation to indigenous employment and environmental management.

The fifth recommendation is to develop a proposal for a Resource Sector Skills Shortage Development Fund. The Fund should be based on specified outcomes to be achieved in meeting agreed skill shortage targets. The amount of funding required could be determined on the basis of the actual cost of providing the required training. An essential feature of this fund is that it cover and support the training efforts of engineering contractors as well as resource operators.

The fund should be administered by a Western Australian-based employer association to ensure that the initiative had maximum credibility with the enterprises involved. The operation of the fund should be explicitly linked to publicised initiatives to fund training to meet skill shortages.

Justification: Industry-specific levies, particularly in the construction sector, exist in economies where there is relatively little pressure on enterprises to participate in a collective training effort. The UK engineering construction sector operates its own levy despite the abolition of levies in most of other sectors of the UK economy. The construction industry in Queensland, including the engineering construction activities of the mining sector, has in 1999 agreed to a small levy for all enterprises in the sector.

The sixth and final recommendation develops means of monitoring the training effort of individual enterprises in the resources development sector. The monitoring should include making information public in an easily digestible form on a regular (eg annual) basis. The information made public should include the above indicators as well as the number of enterprises that have attained the nominated quality standard.

Justification: The monitoring of the performance of large enterprises has been an important element of the success of the Korean model of state-driven economic development. As the data on sector take-up of the Investors in People standard showed, the UK Government monitors the extent of take-up of the standard among enterprises. The Minerals Council of Australia also monitors the safety and health performance of its members by publishing an annual report.

Timing of policy implementation

There is the issue of timing for the different policy options proposed. The current downturn in the level of investment in the resources sector suggests that there may be little interest in a collective response to the issue of how to avoid skill shortages in a boom time.

However, forecasts of economic growth (July 1999) for the Western Australian economy vary from 2.75 to 7.5 per cent with the WA Treasury forecasting 4.5 per cent annual growth over the next financial year.⁵ It has also been estimated that of the potential resources investment of \$65 billion, actual investment worth at least \$10 billion is likely to go ahead at some stage within the next 12 months.⁶

These data suggest that the current downturn in investment in the resources sector will bottom out at some stage during financial year 1999-2000. However, reaching project approval stage will still involve a considerable lead time of one to three years before a mine is operational. These data suggest that there is scope to plan ahead in the medium term to put in place measures to ensure that skill shortages problems are minimised.

Conclusion

Western Australians have long been attuned to the problems of skills shortages caused by the fluctuations of the global commodity markets and related local engineering construction cycle. Skill shortages associated with the operation of these cycles have been seen, by government and industry alike, as major constraints on development.

This report does not pretend that the cycle itself can be eliminated, nor that simple solutions can be found to the skill shortage problems it causes. The report presents evidence that overseas examples provide valuable lessons. However, a major finding is that there is no one model which can be imported directly into the Western Australian context.

Nevertheless, the report does provide insights into key elements of an effective policy that could be developed to reflect Western Australian conditions. The set of options presented in this report have the potential to mitigate the worst effects on the local labour market of a boom-bust, resources-dependent economy.

⁵ Information presented at Western Australian Business Forum Breakfast Briefing, Parmelia Hilton, Perth, 1 July 1999.

⁶ Assessment of Ms Nicky Cusworth, Chief Economist, WA Chamber of Commerce and Industry, Western Australian Business Forum Breakfast Briefing, 1 July 1999.

Skill Requirements of Western Australia's Resources Development Sector: Examples of International Models

One of the most pressing issues facing Western Australian industry is the recruitment of a skilled workforce. These recruitment difficulties are associated with a number of factors, including high turnover and attrition rates, the remote location of many worksites and the decline in the number of trades apprentices being employed in the public and private sectors.⁷

Industry can no longer expect to hire skills that have been paid for by someone else. Traditionally the publicly run utilities have provided this training ground; but with considerable downsizing this source is drying up. It is reasonable for industry to expect to employ a workforce equipped with the basic skills on which specialist knowledge can be built but also for industry to pay for the training needed.⁸

1 Introduction

1.1 Objectives

The terms of reference for the study are provided in Appendix 1. In summary, the consultants were required to deliver a report that:

- identifies overseas models that have been implemented by government or other stakeholders that seek a greater commitment from and contribution by resource developers to the development of a skilled workforce in return for access to natural resources. Where models that operate outside the resource development sector are identified, they are to be included together with a discussion of their effectiveness and applicability to the Western Australian resource development sector;
- includes an evaluation of overseas models identified and provides comment on their effectiveness and applicability to the local environment within relevant State and Commonwealth policy frameworks;
- makes recommendations for change where relevant State and Commonwealth policy frameworks are not capable of accommodating identified overseas models in the light of given State and Commonwealth responsibilities.

⁷ Annual Report of the Western Australian Department of Training for the year ended 30 June 1998, October 15, 1998; p 12.

⁸ The Parliament of the Commonwealth of Australia *A Sea of indifference: Australian industry participation in the North West Shelf project*. Report by the House of Representatives Standing Committee on Industry, Science and Technology, March 1998; p 49.

1.2 Methodology

The consultants were commissioned on April 20, 1999. A full description of the project methodology is given in Appendix 2. In essence, it consisted of the following discrete but related elements:

- discussions with officers of the State Training Board and the Department of Training;
- discussions with members of the Project Steering Group;
- personal and telephone interviews with around 30 Australian resource development companies and engineering construction companies involved in the resource development sector;
- telephone interviews and internet correspondence with a smaller number of international resource development companies and industry and government agencies involved in training policy and provision;
- meetings and telephone interviews with a number of peak industry and training organisations, including the WA Chamber of Commerce and Industry and the WA Chamber of Minerals and Energy; and
- extensive literature and internet searches and collection of company and government publications and data.

1.3 Structure of the Report

The report is structured around the three objectives identified above. However, at the outset, it was felt important to provide a background and context to the study. This is done in section 2.

Section 3 then provides several examples of relevant training and skill development arrangements from overseas. This includes a discussion of a typology of government-business relations in skill formation, financing issues, relevant sectoral level models and a number of other interesting initiatives, including some from other parts of Australia. Advantages and disadvantages of the various overseas models are discussed throughout.

Section 4 looks at the lessons to be derived from the overseas models, and looks in particular at their applicability in a Western Australian context.

Section 5 concludes with a set of recommendations for the State Training Board to consider, including implementation options.

2 Background

2.1 The impetus behind the study

The State Government has long been aware of the regular occurrence of skills shortages in the resource development sector. The WA Department of Training has funded ongoing study in this area (e.g. the Worley reports on skill requirements in the operating and construction phases of large resource projects⁹) to assist both it and industry to better plan for future skill needs.

Concern over skill shortages is long-standing, and has been noted by many observers and by industry. Recent relevant expressions of concerns about the resource sector and skill shortages include the House of Representatives' *Sea of Indifference* report¹⁰ and the WA Chamber of Commerce & Industry report on skills shortages¹¹.

The background to the State Training Board's interest in the issue is provided in Appendix 3. This Attachment reproduces relevant parts of the paper presented to the Board in November 1998, including the principles proposed to underpin any proposed policy initiative.

The following section examines in more detail the industry and policy context in which the report has been written and defines more clearly what the problem of skills shortages really is.

2.2 What is a skills shortage?

The UK National Skills Task Force has noted the lack of clarity in the language that is widely used to discuss skills issues¹². The UK Taskforce suggests that three different meanings be distinguished: actual skill shortages, skill gaps and other recruitment difficulties.

'Skills shortages' refer to a genuine lack of adequately skilled individuals available in the accessible labour market. This could have several dimensions. It may result from a basic lack of people with the required skills due to a tight labour market. It may be due to significant geographical imbalances in supply. This means that there may be sufficient skilled people in the labour market but they may have easy access to available jobs.

⁹ Worley Limited, *Update on skill requirements of major resource development and infrastructure projects*, WA Department of Training, 1998

¹⁰ The Parliament of the Commonwealth of Australia, *A Sea of Indifference: Australian industry participation in the North West Shelf project*. Report by the House of Representatives Standing Committee on Industry, Science and Technology, March 1998.

¹¹ WA Chamber of Commerce and Industry, *CCI Skills Shortage Project (1997/1998): Final Report and Summative Evaluation Prepared for the Department of Employment, Education, Training and Youth Affairs*, August 1998.

¹² UK National Skills Task Force, *Towards a National Skills Agenda: First Report*, 1998

Alternatively, there may be a genuine shortfall in the number of appropriately skilled individuals - either at new entrant level, or for higher level skilled occupations. On the other hand, 'skills gaps' can be defined as existing or new entrants having lower skill levels than necessary to meet their business objectives.

The third type of skill shortage often perceived by employers stems from 'other recruitment difficulties'. This is an umbrella term incorporating all other forms of employer recruitment problems, except for 'skills shortages' and 'skills gaps' as defined above. Such problems can be caused by poor recruitment practices, poor perceived image of the industry, low remuneration, or poor terms and conditions of employment, and can occur even where there are sufficient skilled individuals available and accessible for work.

These three types or perceptions of skills shortages are illustrated by the available information of the skill requirements of major WA resource development and infrastructure projects. A lack of adequately skilled individuals in the accessible market only applies to some occupations in demand. Other occupations in demand are seen as being easily recruited from other sectors, presumably through being able to offer higher wages.

Table 1 presents, in summary form, information from the most recent Worley Report (August 1998) on which trades and technician level occupations are identified as being in demand for the period 1998-2002. The table divides the occupations in demand into those identified as a priority skill area because the shortage cannot be met from other sectors and those occupations in demand but where the demand can be met by recruiting from other sectors ("skills can be obtained from other sectors").

The information in Table 1 suggests that skill shortages created by a genuine shortfall in the accessible labour markets is smaller (although still important) than the total estimated set of skill requirements.

The Worley report also notes skill shortages in terms of recruitment difficulties: "general difficulties have been reported in attracting skilled labour to some remote locations. These projects must compete with Perth-based companies on pay scales". The report also notes that a shortage of 'good' construction managers and construction engineers has been identified.

The three types of skill shortages require different responses. A genuine shortfall in the type of skill being sought needs to be distinguished from where an employer has "other recruitment" difficulties that may not be directly related to the availability of skills. Some employers may have inflexible recruitment practices such as demanding employees with a narrow set of specific skills. The Worley report notes that for civil/structural draftspersons in demand, knowledge of specialised packages is required. This unnecessarily restricts the pool from which vacancies can be filled and begs the question of whether the employer should be providing the training in the specific software packages that they use.

Table 1: WA resources and infrastructure projects: summary of skill requirements identified for Trades and Technicians 1998 -2002 and how will be met

Demand unable to be met by other sectors	Demand met by recruiting from other sectors
Boilermaker	Chef /Cook
Mechanical Fitter	Concreteer
Piping Fitters	Carpenter
Instrument/Electrical/Electronic	Labour/Trades Assistant
Process Plant Operator	Rigger/ Dogman
Plate Welder	Sheet Metal Worker/Insulator
	Scaffolder

Employer recruitment and selection practices, therefore, can play a crucial part of the process to ensure that skills are available where they are needed. Recruitment and selection practices are also crucial in helping to ensure that the widest range of suitable individuals are aware of the opportunities that exist and those with the required skills are considered for selection. One fundamental way to respond to skill shortages is to help employers make more effective use of the existing skills available to them. This option will, in turn, often depend on the extent to which customised training is available within a suitable time frame.

2.3 The Policy Context

2.3.1 *The skills pool and Government's role*

The skills pool, as a factor of production, represents a semi public good. A public good is defined by economists as having two key attributes. One is that it is a good shared by all (non-rivalry in supply) Non-excludability is the other aspect. This means that the good cannot be rationed off and sold as a product or service on the open market. Air and the quality of the environment are the classic public goods. Public goods such as basic education and health care are funded by Government and financed out of taxation because their quality and quantity may be inadequate if left to individuals to fund alone.

Skills are not quite in the same category as other public goods because benefits also accrue to individuals and enterprises. However, in aggregate, a highly skilled pool of

workers also offers major benefits (or “externalities”) to a national or regional economy in terms of attracting and maintaining high levels of investment.

Governments have a particular responsibility to ensure that the employment and training opportunities for their citizens are maximised. Governments are expected to fund the basic education of the population and to fund training places to assist individuals to acquire skills in demand. However, Governments, responding to community concerns for accountability, also want to see evidence from enterprises offering new employment that taxpayers’ investment in education and training receives a return on investment rather than bypassing the existing skills pool to import skills from elsewhere.

The Commonwealth Government, in its February 1998 *Minerals and Petroleum Resources Policy Statement* notes that the Commonwealth’s overall objectives in relation to the industry are, among other things, to “facilitate the availability of a highly skilled labour force” and to “pursue the development of an education and training system...which is comprehensive in scope and national in perspective, is quick to identify the need for new or emerging skills and is developed in collaboration with the industries themselves.”¹³

These stated objectives of the Commonwealth Government highlight the considerable sunk cost of infrastructure that the Government has invested in on behalf of the taxpayer to develop a skills pool that has breadth and depth. Governments at both State and Commonwealth level, therefore, have a strong interest in ensuring that their substantial investment in human resource development is utilised by enterprises offering new employment opportunities before resorting to alternative sources of skills offshore.

A particular feature of the current economic situation is strong economic growth but little or no growth in employment. A feature of the “new economy” is strong economic output growth utilising existing labour resources, resulting in significant increases in labour productivity. This is due to the benefits derived from technological changes and the adoption of more effective ways of working. Nevertheless, the phenomenon of continuing high levels of unemployment places a special responsibility on Government to ensure that access to new employment opportunities are maximised.

In terms of what the responsibility of Government in this area means in practice, there are several ways in which Government policy and activities influence - at least potentially - training and skills development in the resources development sector. We list the most important of these below.

2.3.2 State Training Strategy

The State Training Board has recently issued a State Training Strategy with detailed profiles of fourteen industry sectors and nine regional priorities and objectives.

¹³ The Commonwealth Government *Minerals and Petroleum Resources Policy Statement* February 1998, p14.

According to the Department of Training's 1998 Annual Report, the State Training Strategy is designed to meet both long and short-term planning needs and to complement and supplement national VET planning processes. The State Training Plan: 1998-2003 sits within the long-term strategic framework of the State Training Strategy, and is a VET system plan profiling industry, regions and target groups.

The State Training Plan and associated resource allocation prioritisation processes were piloted in the development of College Profiles and competitive tendering processes in the second half of 1997.

2.3.3 Building and Construction Industry Training Levy

An Act of Parliament was passed in 1989 establishing a Building and Construction Industry Training Fund, which was funded by a levy on project owners of 0.2 percent of the value of the project. While aimed primarily at the housing and commercial office building sectors, the engineering construction sector is also subject to the levy. This meant that the construction element of the pre-commission phase (see below) in the resources sector was subject to the levy.

However, in 1992 a report was commissioned by the State Government (the Carigg report) to investigate the operation of the levy, including its coverage. The report recommended that mining and petroleum work (and related contractors and sub-contractors) would be exempted from the levy. Regulations to this effect were passed in March 1994.

By contrast, in Queensland an equivalent body, the BCITF, was established in January 1999 and is responsible for collecting funds for training in the construction industry. The mining and petroleum industry are included in the arrangements in Queensland. The funding source for the BCITF is an agreed payment of 0.05% of the value of each project (compared to 0.2% in the WA legislation). The training plans for Construction Training Queensland (the body contracted to plan and allocate training funds collected by the BCITF) include entry-level and operator training in the mining and petroleum sectors.

2.3.4 WA State Agreement Acts

2.3.4.1 Background, purposes and benefits

Another policy instrument with potential relevance to training and skills development in the resource development sector are State Agreement Acts, which have been operating between the Western Australian Government and resource developers since 1952. The Acts are a legal instrument that binds both parties to specific responsibilities designed to stimulate resource development based on detailed project development proposals.

State Agreements cover 73 per cent of all mining projects and 60 per cent of employment in the industry.¹⁴ According to a 1997 statement on State Agreements by the WA Department of Resources Development¹⁵, the primary objectives for the State Government in requiring resource companies to enter into State Agreements are to:

- ensure the efficient and effective development of the State's natural resources by the private sector for the benefit of the Western Australian community;
- ensure resource development opportunities are maximised and the decision-making process for major projects is coordinated and functions expeditiously;
- enhance long-term certainty and investment security to the mutual economic advantage of developers and the State;
- manage interactions between major project developers, government agencies and the community to achieve development that will benefit all Western Australians.

According to the DRD statement, the main public good benefits from the agreements are:

- identification of developer and state government obligations in relation to the provision of infrastructure such as schools, medical services, police and community facilities, cost sharing for the construction and maintenance of public roads and provision and management of water resources;
- maximising use of Western Australian labour, professional services and materials, including a requirement to submit reports on implementing local content requirements;
- maximising State economic development through expedited development approvals;
- increasing the value-added component (where commercially viable) of minerals through further processing within Western Australia, (such as steel production in the Pilbara).

2.3.4.2 *State Agreements in practice*

Over time, the complexity of the agreements and the cost of administering them have increased significantly. The DRD Statement also notes other disadvantages of the Agreements system are their inflexibility regarding large mineral specific leases such as iron ore and bauxite. The ability of the State Government to encourage exploration and

¹⁴ Government of Western Australia, *In Agreement: How major developers obtain project security through State Agreement Acts*. August 1997, p1

¹⁵ *Ibid*, p6.

mining of other minerals can be restricted by the provisions of the relevant Mineral-specific State Agreement. State Agreements must also operate within an ever-increasing statutory framework imposed by the Native Title Act and environmental legislation.

Monitoring the provisions in the agreements require companies to report once every two to three months about their local content. Increased monitoring procedures of local content provisions in State Agreements in particular were implemented in 1996. According to the Federal House of Representatives Enquiry into *Australian Industry Participation in the North West Shelf*, WA policy aimed at “encouraging the use of local industry, encouraging best practice and opening lines of communication between sections of major resource project industries.” The policy set up the WA Local Content Advisory Group (now called the Australian Industry Participation Advisory Group, or AIPAG) to inform developers of State and Commonwealth policies and their obligations to comply, including reporting and active monitoring requirements.¹⁶

AIPAG is chaired by the Minister for Resources Development and has members from the Departments of Resources Development and Commerce and Trade, plus representatives from the Chamber of Minerals and Energy, Chamber of Commerce and Industry, the Australian Petroleum Production and Exploration Association, the Heavy Engineering Manufacturers’ Association and the Trades and Labor Council. There is no representation from the Department of Training.

The reports from resource companies compiled as part of State Agreements go to the Department of Resources Development who monitor them and liaise with the Industrial Supplies Office, or ISO (which is co-funded by DRD and the Department of Commerce and Trade and operated from the Chamber of Commerce and Industry) on local industry content opportunities. Despite specific mention being made of training in at least one Agreement¹⁷, training statistics are not collected and reported to DRD.

DRD has recently been restructured; formerly, it had a local content unit with two full time officers. This unit has now been disbanded, and its policy and monitoring functions have been distributed to other parts of the Department. A clearer line of responsibility has been drawn between the Department’s monitoring and policy roles and the ISO’s industry facilitation role.

In terms of sanctions for not complying with the provisions in the State Agreements, there is a default clause on the agreements, and an arbitration provision, but it appears that neither has ever been called upon. However, in terms of maximising the development of a skills base in Western Australia, the most recent Agreements have specifically excluded companies (and their subcontractors on the project) from the Building and Construction Industry Training Levy.

¹⁶ The Parliament of the Commonwealth of Australia, *A Sea of indifference: Australian industry participation in the North West Shelf project*. Report by the House of Representatives Standing Committee on Industry, Science and Technology, March 1998; p 31.

¹⁷ Parliament of Western Australia Iron Ore (Yandicoogina) Agreement Act 1996, Clause 6 (j).

2.3.4.3 *State Agreements and maximising use of Western Australian labour*

As noted above, one of the objectives of Government in signing State Agreements is to require resource developers to provide opportunities to maximise “the use of Western Australian labour, professional services and materials, including a requirement to submit reports on implementing local content requirements”.¹⁸

The House of Representatives Standing Committee report on Australian industry participation in the North West Shelf project, citing the 1997 Worley Report, noted the effect that skills shortages could have on the quality, cost, and timing of projects. The Standing Committee endorsed the Worley Report’s conclusion that skill shortages in Australia could result in the design, management and/or fabrication being done outside Australia.¹⁹

The House of Representatives Standing Committee recommended that all relevant government agencies (State and Federal), developers and other bodies should consider the strategies required to fill the demand for each type of skilled employee. The Standing Committee also recommended developing a system for avoiding impediments to industry participation. The strategies recommended were:

- increased training provision in high demand skill areas,
- accelerated trade training and skills upgrading programs, and the
- promotion of apprenticeships and traineeships.

The Standing Committee noted that in the longer term, closer links need to be developed between industry and the education system. The report emphasised a need for government to not only forecast skill gaps but also to develop strategies to fill them before they become impediments to the development and operation of major projects.²⁰

2.4 The Industry Context: Three sectors, not one

The focus of this report is on the resources development sector. This is defined as offshore oil and gas extraction, metal ore mining (iron ore, bauxite, copper ore, gold, nickel, silver, lead and zinc) and petroleum mines and exploration. For the purposes of this report, three stages of the resource development process are distinguished. Also identified are the distinctive labour market characteristics for trades and technicians of each stage.

¹⁸ Government of Western Australia *In Agreement: How major developers obtain project security through State Agreement Acts*. August 1997, p12.

¹⁹ Idid, p48.

²⁰ The Parliament of the Commonwealth of Australia *A Sea of indifference: Australian industry participation in the North West Shelf project*. Report by the House of Representatives Standing Committee on Industry, Science and Technology, March 1998; p 49.

The three stages are:

- the pre-commission phase,
- operations, and
- refining and processing.

These are described below in terms of ten key features.

2.4.1 Stage 1: The pre-commissioned phase

1. Activities: engineering, fabrication and construction.
2. Companies: examples include Clough Engineering, Boulderstone Hornibrook, United Construction, Kewdale Engineering and Construction, ABB Engineering Construction, John Holland Construction and Engineering, Kvaerner Metals, AOC Australia, Specialised Welding, Ralph M. Lee, Monadelphous, CBI Constructors, BOS Australia, Thiess Contractors.
3. Workforce Numbers: In 1996 the WA non-building construction workforce was estimated at 10,310 persons. Construction trade services had an estimated 52,100 persons in its workforce. Workforce is metropolitan based (71 per cent in 1996).
4. Average workplace employment size²¹: 58 employees (Construction).
5. Labour Market Structure: Small number of large companies with small core workforce; large number of small subcontractors with high levels of labour turnover
6. Wage Levels: \$32, 585 (1996-97 national figure)
7. Training Arrangements: Heavy reliance on publicly funded training through use of apprenticeship system. Widespread use of Group Training Companies.
8. Expenditure on Training: \$267 per employee (non-building construction nationally – 1996). \$212 per employee in WA.
9. Job Prospects: currently very low construction activity in resources.
10. Potential Skill Shortages: Due to volatility of the sector, exceptionally hard to forecast.
 - trades – electrical, metals, carpenters

²¹ For workplaces with 20 or more employees in 1995, Table 3.2 A. Morehead et al *Changes at Work: the 1995 Australian Workplace Industrial Relations Survey*. p30.

- dual licensed electricians
- electrical mechanics

2.4.2 Stage 2: Mining Operations

1. Activities: Extractors of, or exploration for minerals – off shore oil and gas as well as on-shore mining of iron ore, bauxite, copper ore, gold ore, mineral sands, nickel ore, silver, lead and zinc.
2. Companies: examples include Hamersley Iron, North Limited, Pasminco, Western Mining Corporation, Woodside Petroleum, Rio Tinto, BHP, MIM Holdings, WAPET, Iluka, Aloc World Alumina.
3. Workforce Numbers: Estimated 1, 144 persons in oil and gas, metal ore mining estimated 15, 113 persons, services to mining (eg. Exploration) 7, 457 persons (1996). 68 per cent of the workforce is rural and remote.
4. Average workplace employment size²²: 140 employees (Mining)
5. Labour Market Structures: Large company internal labour markets.
6. Wage Levels: \$68, 080 average (1996/97)
7. Training Arrangements: Strong tradition of enterprise on-the-job training and significant investment in formal structured training for the existing workforce.
8. Expenditure on Training: W.A expenditure is \$1, 861.5 per employee²³, \$896 is the National average.
9. Job Prospects: Reduction in workforce numbers due to productivity gains²⁴.
10. Potential Skills Shortages:
 - Minimal metal and engineering trades,
 - electrical trades,
 - multi-skilled plant operators and
 - underground miners.

²² For workplaces with 20 or more employees, Table 3.2 A. Morehead et al *Changes at Work: the 1995 Australian Workplace Industrial Relations Survey*. p30.

²³ Mining Profile, State Training Strategy. November 1998, page 40

²⁴ Mining Profile, State Training Strategy. November 1998, page 31

2.4.3 Stage 3: Refining/ processing of metal products

1. Activities: Galvanising, casting, forging, rolling and smelting of iron and steel products.
2. Companies: examples include WMC, Pasminco, North Limited, BHP Minerals Development, Worsley Aluminium, Alcoa
3. Workforce Numbers: 18,600 in metal product manufacturing. Concentrated in metropolitan and non-metropolitan regional WA.
4. Average workplace employment size²⁵: 107 employees (manufacturing)
5. Labour Market Structures: Internal labour market with a strong reliance on process operator skills.
6. Wage Levels: \$34,379 (1996/97)
7. Training Arrangements: Reliance on publicly funded apprenticeship training for maintenance trades. On-the-job training for process operators.
8. Expenditure on Training: not available.
9. Job Prospects: Major increase in jobs forecast for metals and minerals processing.
10. Potential Skill Shortages:
 - instrument/ electrical,
 - mechanical fitting and piping areas,
 - process plant operators.

2.4.4 Differences between the sectors

The above outline suggests significant differences between the structures and operating conditions in each of the three stages, which in turn means very different skills and training incentives and demands for the industry sector which predominates in each stage, namely the engineering contractors, the resource operators, and the mineral refiners and processors respectively. The key sector is resource operations. This sector is dominated by large enterprises that are able to mobilise huge capital investment resources. The sector is distinctive in terms of the large sunk costs involved and hence high barriers to entry and exit. The high asset specificity (large, single sites in isolated locations) ensures that only a small number of large firms have the resources to operate in the sector.

²⁵ For workplaces with 20 or more employees, Table 3.2 A. Morehead et al *Changes at Work: the 1995 Australian Workplace Industrial Relations Survey*. p30.

Other defining features of the sector are the arms-length relationship with a small number of customers; the volatile revenue streams that are declining in relative value over time; and the limited opportunity to improve productivity other than through cost reduction. The large capital requirements of mining operations also mean that labour costs are a low proportion of total costs of operation, compared to other industries. Nevertheless, the sector has high labour on-costs due to the additional costs of employing workforce in isolated locations.

Resource companies also dominate the labour markets in which they operate.²⁶ This is due to the isolation of the sites they operate from and the high wages they are required to pay to attract labour to work at these locations. This means that a large resource company is less prone to fears of “poaching” for the bulk of its staff.²⁷

Resource firms, therefore, according to orthodox economic theory, have no disincentives to train. The extent of use of costly capital equipment with the high cost of equipment downtime in fact means that they have strong incentives to invest in training. The aggregate data on training expenditure by sector shows that they do invest more in training than any other sector by a considerable margin.

Resource companies, therefore, are likely to be significant investors in training, operating in a high skill organisational setting. However, resource companies do not have similar long-term supplier relationships with other firms in their immediate labour market. They are usually self contained, vertically integrated operations. They face little incentive to over train for firms that are suppliers of services such as fabrication and construction because the relationship is a front end, finite one. The formal contractual basis of relationships between the supplier of fabrication or construction services and resource companies illustrates the absence of a long-term, recurrent, trust based, relationship.²⁸ While resource companies have every incentive to train their own workforce and pursue a high skill strategy, they have little or no incentive to invest in training for a wider skills pool for the industry.

Large construction firms, on the other hand, are in an opposite position. Individual construction firms may have a considerable incentive to invest in the training for their employees to promote continuous innovation. However, large companies also have an incentive to at least participate in collective efforts to provide training for skills in demand. This helps to explain the strong support for the apprenticeship system and a levy system in the construction industry

²⁶ They can be regarded as labour market monopsonists. See C.Crouch, D. Finegold and M.Sako 1999, p197.

²⁷ This excludes the very highly qualified who are likely to operate within a global labour market.

²⁸ In contrast, Large companies that dominate specialised labour markets may be prepared to train in excess of their immediate needs to assist small firms that are dependent on them. This is the case for large Japanese car manufacturers in relation to their supplier companies. The large firms benefit from this investment in training because of the long-term supplier relationships that exist. The improvement of the skills pool for their immediate labour market helps to improve the capacity of the small companies to produce high quality products. See C.Crouch, D. Finegold and M.Sako 1999, p178-180.

The nature of the relationship between large construction companies with a small core workforce and a large number of subcontractors supplying specialist trade skills is a potentially long-term dependent one. Investment in training to lift the skills pool of the industry will produce relatively short-term benefits for the large firms by reducing the scarcity of skilled labour and improving the quality of the services supplied.

These considerations suggest that identifying incentives and support structures to encourage investment in training to meet skills shortages are likely to differ greatly by industry sector in Australia. An indication of the extent to which this holds true can be gleaned from the interviews that were conducted with resource development companies operating in WA, and their engineering construction contractors. These are described and discussed in the next sub-section.

2.5 Company interviews

Letters were sent to 70 companies involved in mining operations and construction in WA, requesting involvement in the study. In addition, a small number of industry associations were invited to assist with the project. Useful telephone and personal contact was made with approximately 50 companies, and about 30 of these provided more detailed information. In addition, a meeting with representatives from the WA Chamber of Commerce and Industry and the Chamber of Minerals and Energy was held. The letters, the list of companies interviewed, and the basic interview framework are included as appendices 4, 5 and 6 respectively.

The purpose of the interviews was threefold:

- first, to find out whether these companies had international operations, or knew of relevant international experience which could be useful for the project. Some interesting case studies were highlighted - these are discussed later in this report;
- second, to seek company perspectives on the issue of skill shortages and training in the industry; and
- third, to canvass possible solutions to any problems identified in the discussion.

The interviews were not intended to be a comprehensive survey of skill requirements for the industry. These have been conducted on a regular basis since 1995 for the Department of Training by Worley Ltd. Rather, they were designed to provide a reasonably representative sample of opinion from the industry about the issues involved, as well as getting access to information about relevant developments overseas.

The discussion that follows provides a brief list of the main points raised in the interviews. It treats the operator companies (including refining and processing operations) separately from the engineering contractors, in order to see the extent to which the differences in skill and training identified above in theory also work in practice.

2.5.1 Resource Operators

Useful interviews with 10 operating companies were held. These included mining companies in the iron ore, mineral sands and copper industries, two oil and gas operators, and two companies involved in refining. The discussion is in three parts: those relating to the construction phase, those relating to the operating/processing phase, and comments on what government can do to address training and skill needs.

In the **construction** phase, some of the key points to note were as follows:

- there is not much construction currently going on in WA. Alcoa World Alumina has an expansion underway at Wagerup. Worsley Alumina has a major \$800 million expansion currently underway, which is being managed by the Kaiser-Bechtel Joint Venture (KBJV). At least partly because of the lack of other engineering construction work, this project has experienced very few problems in terms of skill shortages or pressure on labour costs. Being located in Bunbury has also helped in attracting labour to the project.
- in all cases, operators relied on contractors to build their facilities. Hamersley Iron was in the process of winding up its Project and Construction Division, after 35 years of operations.
- nearly all operators relied on *ad hoc* project teams to conduct their design and build phase. There was little evidence of ‘strategic partnering’ through long-term alliances. Relations between contractors and operators were generally arms-length and contractual (‘we put out the specs, and they build to them’ was how one interviewee expressed it; another said the relationship was ‘you build it, and we’ll see you at the end’).
- some companies had experienced major problems in the construction phase, citing industrial relations problems. Skill shortages were also mentioned by at least two of the companies. One company argued that ‘maybe the government needs to put a training guarantee into resource agreements’ as a way of ensuring the local workforce is developed.
- others, however, did not have any major problems. Worsley’s current construction site involved close interaction with the KBJV. The joint venture operates a labour coordination office out of Bunbury which channels all contractors to the project. This site also serves to reduce poaching, improves quality and allows for HR and skills checks on contractors.

In terms of the **operational** phase, the interviewees made the following points:

- skills shortages were not a major problem. Companies generally had a relatively stable and well trained workforce and were able to attract labour when required.
- the major area of stress was in the electrical area, in particular the need for dual skilling with instrumental and software/process control skills. A number of companies had established dual skilling programs with local TAFE colleges.

- one company mentioned a severe problem in attracting trained staff in waste heat recovery operations - the small co-generation power plants established separate from the main grid (see box).

The Impact of Public Sector Withdrawal from Training - Case Study

The decline of public sector training has been remarked on in many forums and was also mentioned by a number of interviewees. An interesting example raised by one company arose from the corporatisation of Muja Power Station, which had led to the closure of its training functions and redundancy for relevant staff. The private sector has not been able to take up the task, as the costs involved are considered too great.

Staff in these areas (turbine operators and boiler attendants) need 6 months on-the-job training, plus further TAFE training to get the appropriate certification to run the turbines. They also need experience in shutting down and restarting the kilns - this is a time-consuming exercise which mining companies are very reluctant to do, since downtime is very expensive. Muja had been able to do it because it had the appropriate equipment and simulators, as well as staff who could train and assess operators. Skill shortages in this area were particularly worrying for the company because they had the potential to upset wage relativities with other tradespeople, as boilermakers in the waste heat area could command a better price – yet this aspect of the operation was not considered to be the company's 'core business', as it is not directly related to mining operations.

- most companies were involved in apprenticeship schemes to some extent, either through Group Training Schemes or through employing their own apprentices. A number regarded themselves as large trainers in their region, and felt a social obligation to take on apprentices surplus to the company's own immediate training needs.
- several companies have undergone major organisational restructuring, with a significant 'flattening out' taking place. There has been an increased commitment to continuous learning, teamwork, etc. Systematic and formal training and HR planning for staff at all levels is on the increase, and in at least one case, for contractors as well. Several link their training to the national competency standard framework. Only one company had ISO 9000 certification, although two more were currently in the process of obtaining it and another claimed they were on a par with it but had chosen not to certify. Some mentioned that quality processes had not made as great an advance in mining as in manufacturing. A couple of companies were aware of the Investors in People standard (see section 3 below), but none had taken steps to achieve registration.

- one large company expressed concern that TAFE was too rigid in its operation (eg, in its hours of operation which were too inflexible to fit into a 24 hour mining operation); another suggested TAFE's equipment and teaching materials could not keep pace with industry developments.
- one company, Worsley, had piloted a school-to-work program for non-TEE year 11 and 12 students at a local high school with a TAFE college, with 20 students doing nationally accredited metal industry modules. It had also developed with the local TAFE an adult traineeship program for refinery operators, as part of their commitment to the local community.
- Alcoa World Alumina, at its Kwinana Refinery, is also committed to an extensive involvement in providing structured work placements for school industry programs.

In terms of what **government** can do, there were not actually a large number of proposals, suggesting that the analysis above - that operators have reasonably self-contained labour markets and are relatively sophisticated trainers - is accurate. Suggestions consisted of two main types:

- there was some mention of a need to reform apprenticeships; one company suggested that they could be shortened, another suggested they become less bureaucratic and a third that they were being replaced over time with traineeships.
- at least three companies argued that government could help indirectly by improving (ie, speeding up) project approval procedures and helping to defray capital costs over a longer period to smooth out the construction cycle. This would help to maintain workload levels, which were the main determinant of cyclical skill shortages.

2.5.2 Contractors

A total of 17 contractors provided detailed responses to the survey, along with the Chamber of Commerce and Industry. Key points arising included the following:

- all companies had experienced skill shortages. For most, there was a never-ending 'tender mentality' which dictated their training and skills activities and demands. A few companies were diversified enough to be able to provide more continuity of work for their staff, and could thus move staff from one sector (eg commercial) to another (eg, mining) in certain circumstances.
- consequently, most companies felt that the most important determinant of training and skills shortages was the endemic situation of a fluctuating workload. 'It's a demand issue, not a training issue', was a typical comment. If government could find ways to ensure a steadier workload, then many skill shortages would not occur.

- there was generally very strong support for traditional apprenticeships, with almost all companies employing apprentices directly. Many considered that the construction industry required well-rounded 'generalists' rather than what were perceived to be narrower 'competency-based' trainees. At least two companies explicitly derided traineeships as a way of promoting training in the industry.
- two companies canvassed the idea of re-introducing the training levy as a way of encouraging training but two others explicitly opposed levies.
- the government's sponsorship of skill demand surveys was welcomed and encouraged to continue by several respondents (although one considered that the surveys had 'got it badly wrong' in the past and another thought they should be able 'to do it better').
- about one third of companies had ISO 9000 certification. There was not generally as much formal in-house training as in the operator companies, and what did exist was mainly aimed at professional core staff. Few companies employed large numbers of tradespeople in their core workforce, and hence were not heavily involved in further training for tradespeople (as opposed to initial training through apprenticeships).
- not many companies had heard of Investors in People. Reactions to this standard were mixed, with some being sceptical that it would achieve much, and one fearing it might be too prescriptive.
- client pressure (or advice or assistance) for contractors to train their workers was virtually non-existent. Contractors were expected to have a trained workforce. One respondent had heard that clients were refusing to allow training to be conducted on-site, but none of the other contractors interviewed had heard of this occurring. However, most workers on-site were already trained, so there was not a great deal of on-site training taking place outside of apprenticeships.
- attracting young people into apprenticeships was seen as a major problem by several companies, which government should address through the school system.
- the main areas of skill shortage were welders and instrument electricians.
- a small number of companies (3 or 4) had resorted to importing overseas labour (not counting New Zealanders, whom most companies had used). While their experiences had been mixed - mainly due to bad publicity and opposition from unions - each considered that they would do so again if required. The Chamber of Commerce and Industry representative was a strong supporter of improving immigration procedures to enable increased access to immigrant labour on short-term contracts as a way of easing skill shortages, once other avenues were exhausted.
- two companies mentioned that an emerging issue was the need to employ and train indigenous people on mining construction sites.

- there are differences between labour force in Perth-based construction and workers who are attracted to the North West, with the latter having a much higher proportion of New Zealanders and younger workers. Perth-based companies lose workers to the North West because of the higher pay which such work can attract.
- apart from balancing the workload and continuing with the skills surveys, there was no real consensus view on what government could do. Several respondents explicitly said that they thought government could do very little. Some suggested that there could be more incentives for companies to take on apprentices, especially in downturns, but at least 2 companies rejected this and argued that ‘training without work is useless’. One company suggested that boosting upskilling and adult retraining in the upturns would also be helpful.
- many companies had overseas experience. In most of these cases, the host government required the employment and (on the job) training of local people and a steady decline in expatriate labour. But skill levels in general were low and most interviewees did not consider there was much that could be usefully transferred to WA from these experiences.

2.5.3 Summary

As pointed out above, there is a considerable difference in the training and skill profiles and activities of construction and operating companies in the resources sector. Construction companies are much more subject to skill shortage pressures, and have fewer resources with which to put into place comprehensive and sophisticated human resource programs for their staff. Operating companies, by contrast, have more highly developed internal labour markets and are less subject to skill shortages. Contractors are more supportive of traditional apprenticeships and value the mobility and transferability they provide (since they can then call upon it in upturns). However, further training is restricted because of this mobility (since employers cannot be assured of getting a return on their training investment), unlike the resource companies who are increasingly investing in operator training.

2.6 Summary and conclusion

From the discussion with companies and analysis of the background to the skills shortages issue, we can summarise the main points thus:

- The industry is made up of three distinct but related sectors (operators, contractors and refiners/processors), each of which has different training and skill development practices and needs.
- Relationships between construction contractors and resource companies are mainly arms-length and contractual-based, with no significant client pressure on construction

companies in terms of their skill and training policies. Cost-cutting pressures are severe, especially in the light of low commodity prices; training is not exempt from such pressures.

- Skills shortages are a more severe problem for contractors than for mining operators and refiners. The latter have relatively strong internal labour markets, are able to attract labour through high wages, and are becoming more professional and sophisticated in their human resources practices. Contractors, on the other hand, are subject to highly fluctuating workloads due to the cyclical nature of the resources industry, which reduces their incentive to train for the long-term.
- As a result, mining companies commit a large amount of time and energy into training, particularly on existing staff (as opposed to entry level trade skills), whereas apprenticeship training is the key investment in human resources by construction contractors.
- Refineries in regional labour markets (eg, Alcoa in Kwinana and Worsley in Bunbury) are involved in both apprenticeship training, school-to-work placements and further training of existing employees of part of a wider commitment to their local labour market.
- Contracting out (both in the public and private sector) impacts adversely on the level of training, as companies and organisations have fewer resources and less core staff in whom they are willing to invest. The increasing use of labour hire companies, only a very few of whom are involved in apprenticeship and further training, is symptomatic of this trend (although there are current moves to introduce group apprenticeship schemes into the labour hire industry).
- There was no consensus on potential reform measures which government or industry may wish to adopt.
- While some companies saw immigration as a potential solution, it was not preferred by most. Traditional sources of migrant labour (short-term and long-term), such as the UK, had almost dried up in the wake of the EU (which meant there was a growing European-wide labour market in engineering construction) and the decline of the Australian dollar against European currencies.
- From a government perspective, it has a responsibility to ensure that the employment and training opportunities for its citizens are maximised. Therefore, while short-term immigration may be a satisfactory solution for some companies, it is not a complete or long-term solution from a public policy perspective.

The overall impression gained from the WA and Australian analysis is that companies, particularly in the engineering construction sector, are resigned to the reality of the construction cycle, and therefore see skills shortages as a longstanding and virtually

intractable problem. The corporatisation and privatisation of government enterprises which had previously 'trained for the pool' has only reinforced this attitude.

Therefore, in the light of these views, the current study's focus on developments overseas makes good sense, as a way of attempting to 'break the cycle' of low expectations in terms of the ability of industry and government to do anything about skills shortages. Having said that, we need to be aware of the limitations of the study. In particular, its remit is to look at training and skills, yet much of the underlying cause of the problem is the cyclical nature of the resources development sector, which is outside the terms of reference of the study and is, in any case, a very difficult issue for governments to deal with effectively.

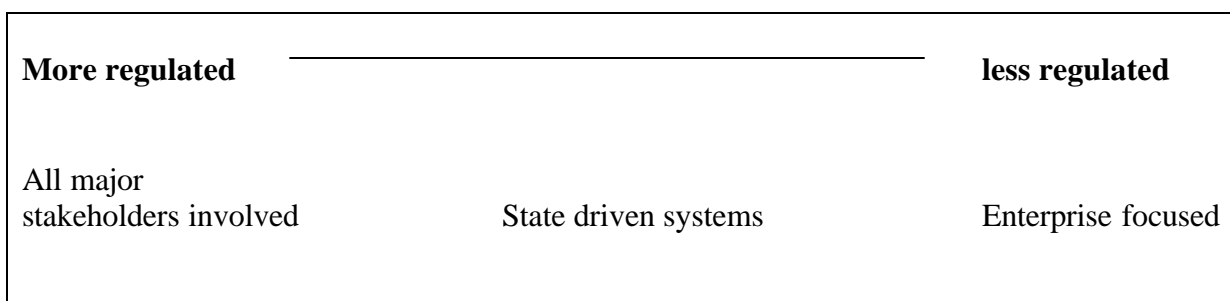
3 Overseas Models of Skill Development

3.1 Types of government business relations re skills formation

The following analysis presents information on different approaches used by government to promote training. The focus is on those countries with significant resource sectors (Canada, UK, Sweden and Norway) and those countries where Australian resource companies have mines (Argentina, Canada, Chile) or mineral refining/processing plants (Netherlands and the UK).

These approaches are examined in the context of the broad types of training systems that have been identified in terms of the roles of key stakeholders and the incentives and the institutional structures that support them. These systems are divided into three major types - “*Major stakeholders in a tightly connected system*”, “*state-driven*” and “*loosely coupled, enterprise-based*”²⁹. These three types are abstractions. It must be emphasised that many variations of these systems exist and several may be in operation at the same time in any one country.

In terms of regulatory frameworks, the above three systems can be viewed as arrayed on a spectrum from the more regulated to the less regulated.



²⁹ International Labour Organisation, ‘Training Systems: Adjusting to Change’, *World Employment Report 1998*, ILO, Geneva, 1999.

TABLE 1 Training Systems

<i>SYSTEM</i>	<i>COUNTRIES</i>	<i>MAIN FEATURES</i>
<i>Major stakeholders in a tightly connected system</i>		
	Austria, Germany, Switzerland, Netherlands, many countries in Latin America	Pressures on individual enterprises to undertake training resulting from strong cooperation amongst employers' organisations, federal and state governments and trade unions. Results in high, uniform level of training at entry level in European setting.
<i>State-driven system</i>		
Demand-led	Hong Kong, Singapore, Republic of Korea, Taiwan, China	State plays a leading role in coordinating the demands for and supply of skills. Govt & business relationship operates in an open and competitive economic environment.
Supply-led	Economies in transition; many developing countries, especially in Asia and Africa	Government takes on a prime responsibility for formal sector training in training institutes. Little or no pressure on employers to train.
<i>Loosely coupled, enterprise-based and voluntary</i>		
High labour turnover	United Kingdom, United States, Canada, Australia	Emphasis in voluntary participation of firms to train. Results in highly variable training effort
Low labour turnover	Japan	Low labour mobility, life-time employment for many staff, "long-termism" arising from the absence of stock market pressure. Wage system based on seniority and enterprise-based trade unions.

Adapted from: Training Systems: Adjusting to Change World Employment Report 1998
International Labour Organisation-1999, page 70

The next three sections describe examples of each of these models.

3.2 Tightly connected relationship between major stakeholders

Training arrangements, support structures and incentives in Netherlands are similar to those in Germany, Austria, Switzerland, and Denmark. A distinguishing feature of these countries is a tight connection between the education system and the labour market. This is based on an extensive involvement by employers and normally trade unions as well in setting competency standards and to varying degrees by employers in providing training places for young people. Government plays a key support role in regulating the operation of education and training system and the labour market in such societies. In such countries the education and training system is generally segmented into vocational and general education, pathways and the vocational pathways are closely tied to preparation for particular occupations.³⁰ The labour market in these countries is generally organised around occupations that can only be entered by those holding the relevant occupational-specific qualification.

3.2.1 *The Netherlands: the key role of employers and collective responsibility for training*

The Netherlands training system, like that of Germany's, is primarily employer-led. Enterprises and their representative associations in the Netherlands play a fundamental role in the promoting the provision of training for employees. Government's role is limited to improving the conditions for this training.³¹ The incentive for enterprises to provide training in the Netherlands stems from the duty of care imposed by the broader health and safety and environmental regulatory framework and quality systems that enterprises operate within. The role of Government is to support a network of leading bodies to help enterprises arrange appropriate training. Employer associations also play a key role in managing a training levy to encourage a minimum level of training.

Information available from Pasmenco's annual report and provided by management at the Budel Zink smelter in the Netherlands has highlighted the role of a training levy and the role of "leading bodies" in organising training for process workers.³² In 1996, the leading body for process workers, VaPro, introduced a self paced Open Learning program, modelled on the UK City and Guilds self paced Open Learning material. The Dutch adaptation of the program added an interactive multi-media CD support. The assessment of competencies follows the UK's National Vocational Qualifications (NVQs) system.

³⁰ See also McKenzie, P (1998) *The Transition from Education to Work in Australia Compared to Selected OECD Countries*. Paper presented to the Sixth International Conference on Post-compulsory Education and Training organised by the Centre for Learning and Work Research, Griffith University, Gold Coast, Queensland, 2 December 1998.

³¹ Sponk, G. *Developments in Vocational Education and Training: the Netherlands*. CEDEFOP, February 1997, p1.

³² Budel Zink is a wholly owned subsidiary of Pasmenco. Budel Zink is an electrolytic zinc smelter that produced 215,400 tonnes in 1998 earning a gross sales revenue of \$A382.6 million in that year.

Budel Zink is member of the employer association covering metals, plastics, and electronics process industries.³³ The company contributes 1.314 percent of wages paid to all employees in one year to FME's Training-Fund and the Fund pays the company back for its training activities the same amount.³⁴ Two thirds of the training budget went to apprentice training, with the remainder of the budget allocated to general and specific training for process workers as well as train the trainer training.

The main pressure on the enterprise to provide training for its employees is a responsibility to maintain a duty of care. If there is an accident or damage that leads to injury or damage, government inspectors request information about the nature and extent of training undertaken. ISO and health and safety standards based on International Safety Rating System (ISRS) emphasise the need for training without being specific in terms of amount or what form it should take.

The Netherlands is an example of a training system based on a tightly connected relationship between major stakeholders. For example, attainment targets for senior secondary vocational education are a joint responsibility of schools, employers and employee organisations.³⁵ The 1996 Education and Vocational Training Act also provides for administrative involvement of employers and employees in school policy.

Twenty two National Vocational Education Bodies, administered by the social partners, are organised by business sector. These bodies are not only responsible for the development of a cohesive qualification structure for secondary vocational education (the qualification structure is formed from occupational profiles determined by the business community). They are responsible for obtaining trainee placements and monitoring the quality of these placements. The National Vocational Education Bodies are no longer responsible for the guidance of the apprentice in the company and for the assessment and certification of the apprentice. Their role has changed to one of quality control for the entire senior secondary vocational education.³⁶

3.2.2 Norway: a small resource based economy and skill shortages

Norway has a population of 4.3 million and an economy that is heavily dependent on oil revenues. Its population is widely spread, with about half living in areas with scattered populations. A traditional commitment to decentralised decision making sits alongside an equally strong Norwegian egalitarian commitment to reducing geographical and social differences. The framework for government decision making is one that involves closely employers and unions.

³³ De Vereniging van ondernemingen in de metaal-, kunststof-, electronica- en elektrotechnische industrie,

³⁴ General courses,19.1 per cent; Specific courses,7.9 per cent; Train the Trainer, 11.1 per cent; and Apprentice training,61.9 per cent.

³⁵ Sponk, G. *Developments in Vocational Education and Training: the Netherlands*. CEDEFOP, February 1997, p4.

³⁶ *Apprenticeship in the EU Member States: Country Report*. CEDEFOP, August 1997.pp125-139.

Norway is one of the strongest economies in the OECD. In 1995, its GDP per capita of US\$22,700 (at purchasing power parity) was exceeded only by Switzerland, the United States, and Luxembourg (OECD, 1997b). Unemployment in March 1998-- at around 4 per cent of the total labour force -- is comparatively low, and Norway has managed to avoid the persistently high levels of unemployment experienced by most other European countries since the late 1970s. Unlike many other OECD countries, Norway faces the problem of a shortage, rather than an excess, of labour.

Norway's strong employment performance has clearly been helped considerably by the wealth generated by oil and natural gas production (which in 1998 accounted for about 15 per cent of GDP). This wealth has enabled the authorities to increase public sector employment (in the 1980-95 period 176,000 jobs were created in the public sector while 59,000 jobs were lost in the business sector). It has also enabled Government to reduce labour supply by increasing the numbers on various income support schemes and expanding education provision.

The decline in petroleum activity expected after the turn of the century has emphasised the need to maintain good conditions for mainland industries by avoiding a deterioration of competitiveness and maintaining the ability to adjust. It is recognised that in the future, economic growth will to a greater extent depend on *competence, technology and higher productivity*.

This means that the Government has been particularly cautious about the use of oil revenue in the domestic economy. In order to limit the use of oil revenue domestically and to create a buffer for public finances, the government has increased the Petroleum fund to accumulate financial assets that will allow a smooth adjustment to the new situation. It is acknowledged by Government that the supply of labour and natural resources will limit economic growth in the longer term, at the same time as profitability requirements and competition for capital will increase.

In both the public and private sectors, collective wage agreements require employers to document the need for continuing training, and to develop training plans. About one-third of workers attend courses organised by their employers each year, and Norwegian enterprises spend about 3.5 per cent of their annual wage bill on such courses. In the latter regard, Norway is about mid-point of the range from 2 to 5 per cent that OECD countries are estimated to spend on employer-provided training.

Particular measures in place and proposed to address skill shortages focus on initial preparation for work, the school to work transition and lifelong learning. Specific measures include:

- A fund system is to be initiated in co-operation with the social partners. The purpose of the fund is to have those in employment take responsibility for the salaries of the apprentices by paying into a fund. The resources are to be paid out from the fund to enterprises that take on the responsibility of training an apprentice. Contributions to

the training part of the apprenticeship are given to the enterprises by the educational authorities on the same basis and according to the same rules as before.

- The follow-up service for school drop outs is based on inter agency co-operation and interaction between different bodies such as: primary and lower secondary schools, upper secondary schools, the Public Employment Service, social and health services etc.
- Lifelong learning proposals designed to raise the educational standards of the work force are encouraged by ensuring that practical measures are in place to enable all adults to obtain a basic primary or lower secondary education, to complete an upper secondary qualification, to enter higher education, or to engage in continuing education and training.
- A Government appointed committee has recommended the creation of local and national mechanisms to achieve these objectives, the creation of statutory rights to basic and upper secondary education for adults to parallel that already granted to young people, and a statutory right to study leave. It has proposed that Government bear the cost of primary and lower secondary education for adults, that the national student loan scheme and taxation rules be reviewed to encourage lifelong learning, and that continuing education and training become the subject of collective agreements between employers and the trade unions.
- The Confederation of Norwegian Business and Industry (NHO) has launched and is heavily resourcing a major national project to bring schools and local businesses more closely together.

3.2.3 Sweden and the move to a more flexible training system

Another economy with a significant resource sector is Sweden. While Sweden, in many ways, follows the northern European pattern of strong employer associations and a major emphasis on collective responsibility for public goods such as training, the country has changed in recent years its “corporatist” approach to training.

Sweden abolished its apprenticeship system in the 1930s because it was believed at the time that the small firm sector would not be able to provide the training. The lack of participation of small enterprises in skill provision in Sweden is still notable, despite the prominent role of Swedish employer associations.

The AMS (Labour Market Board – formerly a tripartite centralised planning body) has now become decentralised. Now policy is increasingly set at regional local government levels. At this level, local AMS staff work closely with firms and educational authorities on local labour market issues³⁷.

37 *ibid* page 155

The focus of training has also shifted from a standardised format geared to mass production. In house training has grown significantly since the end of the 1980s. The concept of lifelong learning, and “learning enterprise” have been used extensively in Swedish policy making.³⁸ Flexibility and rapid adaptability as shaped by quickly changing product markets became central concerns across the political spectrum. There was also a concern to encourage company identity as part of the young workers’ vocational preparation.

Employers in Sweden have withdrawn from participation in training policy at national and regional levels. Employers argued that the unions’ main concern in collective bargaining over training had been restricted to financial terms of time off for study rather than the content and purpose of study.³⁹

Swedish skills provision remains in a state of considerable flux. It is not yet possible to describe the outlines of a coherent and accepted model. Will the state-led system of the past become a company model after the US fashion? Or will it prove more successful than the German one at extending to further VET.⁴⁰

3.2.4 Latin America

A variant of the “cooperative” system has evolved in many Latin American countries. It has shifted from the German model towards vocational training institutions (VIT) to train the skilled and semi-skilled labour force and thus complement the formal education system. These VITs were financed by a training levy from 1 to 2 per cent of the payroll, but with the major difference that they were directly administered by the government with the participation of employers and workers. Existing links between formal education and vocational training have been scarce. However, reorganisation is being debated with Governments looking for coordination to be achieved at the local level through market mechanisms which ensure that VITs, still partly funded by levies, can meet the immediate needs of local employers.⁴¹

For example, Chile has been an important mining country, particularly in copper. Regulations promoting training of the workforce or the use of local workers are not included in the legislation regarding mining investment (both local and Foreign Direct Investment). Usually firms mainly rely on a relatively experienced workforce, particularly in the north of Chile where mining has been the most important economic activity for many years. In some cases they undertake their own training programs.

38 *ibid* page 153

39 *ibid* page 156

40 *ibid* page 157

⁴¹ International Labour Organisation *Training Systems: Adjusting to Change World Employment Report* 1998. 1999, page 74.

The most important recent initiative was the establishment of the National Service for Employment and Training (SENCE). This is a decentralized institution connected to the Department of Employment. Its objectives are the improvement of productivity in industry by promoting training of the workforce in private enterprises, and social equity through a subsidy system for people on low incomes. SENCE operates two main programs.

The first is a tax incentive that has become the major legal mechanism for promoting training in the companies. This tax incentive allows private enterprises to discount from tax duties a certain percentage of the expenses related to the planning and execution of training activities for their employees. The amount deducted is limited to 1 percent of the payroll. There are some additional benefits for small and medium sized enterprises and contractors' training. SENCE also offers professional advice and is linked with a number of training providers. Both in-house and contracted training programs are included.

The second mechanism is a grant system at national level that subsidises training for disadvantaged Chileans over 25 years old, or for 15-24 year olds who did not complete formal education. Subsidies for food, transport and course fees are available.

Although these programs are very general, including social objectives, industry has shown some level of interest by responding favorable to the tax training incentive, but also by keeping in contact with SENCE and the network of training institutions.

3.2.5 Disadvantages of tightly connected systems

While tightly connected systems generally achieve good labour market outcomes for young people, one of their limitations is their inflexibility.⁴²

Another major deficiency that should be noted is the narrow focus on entry level training. This appears to be less of a deficiency in the Dutch system. However, it is regarded as a major weakness in the German system.⁴³

3.3 State-driven approaches to skill formation

3.3.1 The role of developmental states in the Asian economies

In the economies of Singapore, Hong Kong, Taiwan, China and the Republic of Korea, exceptionally high rates of economic growth have required education and training systems able to grow as rapidly and to adapt to changes in demands for skills.⁴⁴

⁴² McKenzie, p. 11

⁴³ Crouch, C; Finegold, D and Sako, M. *Are Skills the Answer? The Political Economy of Skill creation in Advanced Industrial Countries*. Oxford University press, New York, 1999.p145-146.

⁴⁴ Ibid, p76

Governments have played a key role. In some cases, investment in skill development preceded the growth of the particular industry (such as in the electronics industry in the Republic of Korea). This helped to attract foreign capital and to ensure that the industry had a sufficient skill base on which it could be launched.⁴⁵

A recent article has highlighted the role of the state in several Asian countries in the coordination of the supply and demand for certain job skills. As a result, education and training have had a major affect on these countries' industrial policy.⁴⁶

In Singapore, for example, targets have been set for on-the-job and work-based training and for the level of investment in training by employers are set by the Singapore Productivity and Standards Board. It is the responsibility of the Board to ensure that the skills of the labour force are upgraded to meet the demands of existing and new industries and that the supply of labour is sufficient to meet existing and anticipated demand.

In Taiwan, the mechanism for coordinating the supply of educated and trained personnel in order to meet the current and future demands of industry is the Council for Economic Planning and Development (CEPD). This powerful ministry helps to generate the industrial strategy and ensures that other ministries fall in line to meet the objectives of the economic plans. The CEPD has the responsibility for ensuring that the education and training system delivers appropriately trained personnel to meet the requirements of the economy, as defined by the Industrial Development Board.

In Korea, the Economic Planning Board has performed the function of the main linking mechanism. It has had three major functions: planning and formulating economic policy programmes, coordination of economic and other policies by ministries, and evaluation of policy programmes. The Board has been, for the last 30 years, the major influence on the formulation of educational and industrial policies. The priority accorded to industrial and economic development by successive Korean governments has meant that deliberations of the Economic Planning Board took precedence over other issues on the agenda of different ministries. Korea, Taiwan and Singapore have each used a levy system to fund training.

The state driven approach to the successful coordination of supply and demand for skills depends on a number of favourable circumstances. These have been identified as:

- rapid social and economic change, which aggravates the uncertainty individuals face;
- a social context that promotes high public commitment to education, thereby lessening the bureaucrats' task to one of strategic direction rather than, also, trying to stimulate commitment;

⁴⁵ Ibid, p76

⁴⁶ Green, F; Ashton, D; James; D; and Sung, J. "The Role of the State In Skill Formation: Evidence from the Republic of Korea, Singapore and Taiwan", *Oxford Review of Economic Policy*, Spring 1999 v15 (1).

- the bureaucrats' objectives are more or less coherently aligned to the task of promoting economic growth, that do not suffer from excessive contamination by sectional interests or corruption;
- the bureaucrats are better informed about existing and impending skills demands, because of superior knowledge of global economic trends and because their own policies are directly modifying the domestic industry and labour market; and
- having the available mechanisms to manage and utilize that knowledge, and to implement the decisions taken.⁴⁷

3.3.2 Lessons

The lessons from this approach are the value of the state having a strategic vision for the skills demand required for the economy's future growth. However, the Korean experience in particular shows that this is insufficient. A fundamental element in the relationship between the bureaucracy and business in Korea is reciprocity.⁴⁸ In direct exchange for subsidies, the state exacts certain performance standards from firms. Three distinct stages or features of the reciprocity have been distinguished: identification of performance standards, monitoring of those standards and the availability of sanctions.

In Korea, the performance standards expected appear to have been general and relative. The relationship involved a general long-term exchange rather than an exchange of particular subsidies for specific outcomes. Performance was monitored by the bureaucrats through a simple measure that could not be distorted or manipulated - performance in export markets. Sanctions were applied to firms that failed to meet their performance targets by shifting subsidies from worse to better performing firms. There are implications from this experience which have relevance in the context of the WA State Agreement Acts. These are discussed in the concluding section of this chapter.

3.4 Loosely coupled, enterprise-based and voluntary

In this system there are very few institutional pressures on employers to train. The emphasis is on maximising the choices open to the individual, and pressures and incentives are aimed primarily at the individual. The general criticism of the "voluntarist" system is that it suffers from a lack of skills (especially intermediate skills) and allows only a relatively slow introduction of new technology.

3.4.1 United States of America

⁴⁷ Ibid, p99.

⁴⁸ Schneider, B. "Elusive synergy: Business-Government relations and development", Comparative Politics, October 1998, PP101-122.

The United States education system is highly decentralised and enjoys a great deal of local autonomy in setting standards. This structure is replicated in post-school training institutions. However, the US approach to the provision of skills does not merely rely on strong enterprise and individual contributions. Government also plays a significant role at federal and state levels in setting a normative framework of expectations about what constitutes high performance.

Federal legislation providing funding for school to work programs and funding for school vocational education programs require a ranges of performance indicators. Both sets of legislation specify the collection of program-related information, including data on academic achievement, occupational preparation, and measures of participation among special populations. States are given considerable lee-way, however, in defining the specific measures, populations, and instrumentation used to collect data.⁴⁹

One US State government with a significant regional resource-based economy is the State of Oregon. The State's "benchmarks", which are linked to the "strategic plan" for the State, include a set of education indicators, coupled with indicators of economic performance

The significance of the Oregon approach is not simply in the collection of the relevant data on education and skills creation. Also important is its packaging as part of a regular examination of the overall economic and social performance of the State. This is presented as a whole-of-government and whole-of-state assessment to the State legislature. The comprehensive scorecard approach assists government, employers and individual citizens to clarify priorities for action.

Oregon—Selected Economic Performance and Education Benchmarks

The Education benchmarks are developed against the overall goal of quality jobs for Oregonians. The specific objective of the state's strategic plan is that Oregon's workforce will be the best educated and trained in America by the year 2000, and equal to any in the world by 2010.

Kindergarten—Year 12

- High school drop out rate
- Percentage of 8th graders who have established defined skill levels in reading and math
- Percentage of high school students who have completed a structured work experience, including a practicum, clinical experience, community service learning, or school-based enterprise program

⁴⁹ Klein, S and Medrich, E *Toward Establishing a Unified System of Performance Measures*, Report prepared for the Office of Vocational and Adult Education, U.S. Department of Education, MPR Associates, Berkeley, California, May 1997

Post Secondary Indicators

- Percentage of Oregon Adults (aged 25 and older) who have completed a bachelors degree
- Percentage of Oregon adults (aged 25 and older) who have completed high school or an equivalent program
- Percentage of Oregon adults (aged 25 and older) who have completed some college
- Percentage of Oregon adults (age 25 and older) who have completed an associate degree in professional–technical education

Skill Development Indicators

- Percentage of adult Oregonians with intermediate literacy skills in prose, document, quantitative, oral listening and writing.
- Percentage of Oregonians who report they use a computer to create or edit documents or graphics, or to analyse data
- Percentage of Oregonians in the labour market who received at least 20 hours of skills training in the past year

Source: Oregon Progress Board (1997), Oregon’s Benchmarks

3.4.2 United Kingdom

A case study of the United Kingdom identified the existence (and persistence) in that country of a ‘low skill equilibrium’ which reflected an adjustment made by employers for lower levels of skills rather than the needs of the economy being effectively met⁵⁰. The main thrust of government policy over the last decade has been to introduce market mechanisms to coordinate the demand for skills with their supply, to improve the performance of schools and to provide for the delivery of government training programmes. The responsibility for training workers is to remain firmly with the employers.

A recent OECD Report on training arrangements in the UK acknowledges that the new Government has put into place an impressive number of reforms, studies, strategies, programmes and new bodies concerning education and training’. A team of experts from the OECD visited the United Kingdom as part of a review of arrangements for the transition from education into working life in OECD countries. The team was clearly

⁵⁰ Finegold, D. and Soskice, D. “The Failure of Training in Britain: Analysis and Prescription”, Oxford Review of Economic Policy, 4(3) 1988, pp. 21-53.

very impressed by some aspects of UK provision and concluded that the UK is creating a genuine system of lifelong learning from which other countries can learn. They also pointed to areas in the UK system of initial vocational education and training which appeared weaker compared to the UK's competitors and the need to focus on re-engaging young people who have dropped out of the system.⁵¹

A successful attempt to counter the voluntarist approach is the vigorous promotion by Government of the Investors in People standard. Investors in People is a quality standard for managing human resources in the enterprise. However, unlike other quality standards it requires minimal documentation. Also there is no externally imposed pressure from government or export markets to meet the quality standard as is often the case with ISO 9000.

Investors in People was first developed in the United Kingdom in 1990 by Government in partnership with leading employer associations. It is now strongly endorsed by the Trade Union Congress. Over 5 million employees are now involved in Investors in People in over 4,000 enterprises. The UK Government have made it mandatory for all public sector agencies to achieve the standard by the year 2000.

The standard specifies the principles that tie training and development activity directly to business objectives.⁵² It also ensures that resources which are committed to training and development are put to their most effective use. The standard provides a clear benchmark of good practice in training and development that any organisation, large or small, can measure progress towards improved business performance.

The key elements of Investors in People are:

- the enterprise makes a public commitment at a senior level to develop all employees to achieve enterprise objectives using a written but flexible plan specifying how training and development needs will be assessed and met. This plan is to be communicated to employees showing how they can contribute to success, involving employee representatives and unions where and if appropriate.
- the enterprise undertakes to review regularly the training and development needs of its employees through its planning process and make links where appropriate to publicly recognised qualifications.
- the enterprise commits itself to training its employees throughout their career.

⁵¹ Baroness Blackstone, (UK Minister for education & Employment) *Other Countries Can Learn From Lifelong Learning In Britain*, Press release, 267/99. 15 June. 1999.

⁵² See Attachment 2 for a description of the indicators used for assessing whether an enterprise has attained the Investors in People standard.

- the commitment by the employer to training entails an evaluation of the investment in training at all levels against specific goals and targets in order to improve its future effectiveness.

UK evidence shows that enterprises that have adopted the standard are clearly better performers than a matched sample of equivalent enterprises. It is, of course, not possible to untangle which came first: the better performing enterprise that decided to adopt good practice, in the form of Investors in People, or the enterprise that improved its performance because of Investors in People.

The following data present the most up-to-date information on the take-up of Investors in People. They show that there is a higher than average take-up in the mining and quarrying sector. This is most probably due to the number of large enterprises in the sector. Large enterprises with established training are more likely to participate in Investors in People

Table 2: Investors in People UK – Sector Penetration as at 28/03/99 (%)

Industry	Proportion of employees in recognised and committed IiP organisations (%)
Mining/Quarrying	42.5
Construction	10.0
Overall Average	33.0

Investors in People represents a good example of a government policy initiative within a “voluntarist” training system that is aimed at promoting a training culture among enterprises large and small. Appendix 7 presents a summary of three case studies of the operation of the Investors in People standard in small to medium sized enterprises in the UK construction industry. The case studies show the difficulty of working out the precise effect of the Investors in People standard apart from other changes in the enterprise.

However, the case studies do show that the Investors in People standard builds on and complements the achievement of a recognised quality standard such as ISO 9000 or its British equivalent. These case studies suggest that a narrow focus on a quality standard or health and safety are not likely to deliver the broader benefits of workforce commitment that the Investors in People focus is capable of producing.

3.5 Financing Issues

Several different mechanisms are in place around the world to finance training. Some of the most important and relevant for this study are described below.

3.5.1 *Financing training through a levy*

One fiscal instrument which is not a drain on government income is the training levy.⁵³ Levies typically involve an annual amount being assessed by the government, usually of 1 or 2 per cent of the wage bill paid by employers. In some cases, smaller firms may be exempt, and larger firms may pay more. Levies are used in all three of the above training systems although their coverage varies considerably between systems. State-driven systems such as those of France and Singapore have levies that apply to all or most employers. Levies in enterprise-focused systems tend to only operate in particular sectors such as construction.

Use of the payroll levy to support national training agencies has been long established in Latin America. Brazil first introduced such a levy to support an agency in 1942, Colombia in 1957, Venezuela in 1959, and Peru in 1961. In Singapore, earmarked payroll levies are based exclusively on low-paid labour. Firms which pay above designated rates are exempt from the levy. The levy is used to fund the retraining of older workers, encourage the use of advanced technologies and upgrade workers' skills. The levy has also been used to fund a range of programmes designed to tackle different problems of market failure encountered at different stages in the development of the labour force.

A payroll levy in Bahrain is particularly interesting because of the differing percentages levied on Bahraini national (1 per cent of wage cost) and expatriate workers (3 per cent of wage cost) employed by enterprises with more than 100 workers, mainly to encourage the training and employment of nationals. Indonesia has a similar levy imposed on employers of foreign nationals. The levy, paid into a national training fund, is \$US100 per month per foreign national employee.

3.5.2 *The levy-plus-grant or rebate system.*

Under the levy-plus-grant systems a portion of the levy is returned directly to the firm to cover training conducted either directly by the firm or contracted through a training agency. The rebate may be on a cost-incurred basis, as in Singapore and Tunisia, or on a grant basis to establish an in-firm training system, as in Nigeria and Zimbabwe.

France provides a good example of the levy-plus-grant system. Under a scheme introduced in 1971 on the basis of agreements between the employers and the unions, firms with ten employees or more have to devote at least 1.5 per cent of the wage bill to training, and firms with fewer than ten employees 0.25 per cent. A firm which does not train has to pay the whole amount of the levy. Training needs to be organised on a formal basis; pure on-the-job training is not taken into account. However, trainees' wages are included as training expenses. Out of the 1.5 per cent levy, 0.2 per cent has to be spent on

⁵³ International Labour Organisation Training Systems: Adjusting to Change World Employment Report 1998. 1999, pages 91-95.

individual training leave, 0.3 per cent on training schemes to help young people into work, and the remaining 1.0 per cent on the training outlined in an annual training plan agreed upon by the works council.

The use of a levy as the source of finance for public training agencies and programmes is attractive to policy makers because it effectively broadens the tax base, adding a new source of revenue without seriously undermining existing ones. However, with a steady source of income such agencies can easily become unresponsive to the demands of the economy. The management of large numbers of participating firms makes the monitoring and evaluation of training difficult. When evaluations are carried out, they are often for the purpose of determining if firms have fulfilled their training commitment, and not for the purpose of assessing quality, relevance and equity aspects of training. Without adequate monitoring, control cannot be maintained over the substance and quality of training and considerable waste may occur.

Large enterprises tend to benefit disproportionately from levy-plus-grant schemes. They have the capabilities and resources to set up their own training, tailoring programmes to their specific needs and building a stable staff. However, schemes seldom take into account total training costs and, for this reason, are less attractive to small employers. The French system addresses the needs of small employers through outside service providers, but the overall cost of the training system is high and control over the quality and kind of training is difficult to maintain. Such schemes are particularly appropriate for purposes of retraining and upgrading; they are less effective for financing pre-employment training, such as the subsidisation of apprenticeship.

If there is a rationale for a levy, it has to be of the “level playing field” variety: firms that do not provide in-service training have a commercial advantage over firms that do. According to this argument, this advantage should be removed by imposing a levy on all firms so that they share the costs between them.

In some countries industry-specific schemes have been tried. Even within a single industry, however, there is usually no uniformity in the skill needs of firms. In particular, small firms tend to have smaller in-service training needs than large ones because they employ proportionally fewer technical and managerial workers than large ones and the beneficiaries of in-service training are concentrated in the managerial, technical and craft occupations. The outcome is that small firms pay the levy but are not able to make use of the grant, with the consequence that they subsidise larger firms.

Where skill training is provided by employers, workers contribute through reduced wages during the training period. This is seen as equitable since in theory it is the worker who benefits from the training in terms of being able to command increased wages on the labour market. However, for employers to be able to transfer the costs of general skill training to workers, they must be free to pay lower wages during training. The ability to shift training costs to employees is a powerful incentive for enterprises to engage in training and can result in a considerable volume of additional financing for training. Its

potential for resource mobilisation is therefore high, provided that negotiated or legislated provisions are respected.⁵⁴

3.5.3 Levy - UK Engineering Construction Industry Training Board (ECITB)

The Board is concerned with the training of personnel from craft through to post-graduates. The Construction Industry Training Board (CITB) and the ECITB are the only surviving statutory Industry Training Boards. Like the CITB, the ECITB secured employer approval to continue with a levy/grant system for operators after the 1973 Employment and Training Act which abolished the levy/grant system for ITBs which did not secure employer support for this. The ECITB site levy was increased to 1.5 per cent in 1989/1990 and has remained at that level since then. The Head Office levy is 0.4 per cent.

The ECITB is concerned with the whole spectrum of skills, both on site and in head offices. The principal site skills are welders, steel erectors, pipe fitters, mechanical fitters and platers. Head office employees include professional engineers with mechanical, electrical and chemical engineering backgrounds, designers and draughtsmen and procurement and estimating staff. In addition to the training of skilled site workers and apprentices. The ECITB also sponsors courses for field supervisors, specific training for head office personnel, in particular in project management, and Fellowships for project managers and site managers.

It is significant that it is not only engineering contractors who sit on the Board, but also their clients, in particular from the oil and power generation industries. These clients let contracts which specify that contractors must operate ECITB training schemes, and this greatly increases the industry's commitment to training.

3.5.4 Apprenticeship Training Levy - Ireland

In four sectors of industry in Ireland (construction, motor, printing & paper and engineering -excluding electronics), the apprentice is paid a training allowance from an apprenticeship fund rather than wages paid by the individual employer.⁵⁵ These four sectors account for about 95 per cent of all craft apprenticeships. Rates of pay vary slightly within crafts. The July 1997 pay rates for an apprentice craftsperson in the construction industry are as follows:

1st Year 33% of craft rate	3rd Year 75 % of craft rate
2nd Year 50% of craft rate	4th Year 90 % of craft rate

The training allowance equates to the normal take home (net) pay of the apprentice, based on the agreed industry apprentice wage norm. The Training and Employment Authority

⁵⁴ Ibid, p95.

⁵⁵ Apprenticeship in the EU Member States: Country Report Ireland, 1997.

also makes a contribution, from the apprenticeship fund, towards the apprentices travel and/or accommodation costs incurred in attending off-the-job phases of training.

The apprenticeship fund is created by a statutory Apprenticeship Training Levy, of 0.25 per cent of payroll, which all employers in the four sectors above must contribute, and from State funds with appropriate EU support. In all other sectors of industry apprentice costs during off-the-job phases are the responsibility of the individual employer. Employers in these sectors are not subject to the Apprenticeship Training Levy.

3.6 Sectoral responses

3.6.1 Mining in Canada

Canada, like Australia, has a significant resource development sector. The Mining Industry Training and Adjustment Council (MITAC) is one of 23 sectoral councils in Canada established by Government to bring together employers, workers, educators and governments to address human resource needs on a sector-by-sector basis.

The industry's proportion of financing for MITAC is calculated on a payroll assessment basis. Each year, member companies contribute one cent for every hour an employee works. Contributions are made by participating work sites. A union's contribution to the sector council is determined by the size of the union's locals. A local with under 200 members contributes \$100; a local with 200 to 500 members contributes \$250, and a local with more than 500 members contributes \$500 per year.

The main activities of the Council are to:

- increase opportunities for workers to upgrade their essential skills (such as literacy, numeracy, computer use);
- arrange job placements for recent post-secondary science and technology graduates within the mining industry by offering a Science and Technology Youth Internship called the Youth Opportunities Program;
- develop generic training curricula, designed to meet the needs of the mining industry ensure transferability of training;
- design courses on environmental protection and occupational safety and health, based on best practices and
- improve adjustment planning for workers and communities affected by mine closures.

The Council works through Joint Workplace Training Committees. The Workplace Committees address such issues as the role of training in the workplace, the benefits and barriers to training, the roles and responsibilities of a joint workplace training committee and the tools to launch a needs analysis of workplace training.

However, progress in establishing new industry focused training courses appears to have been slow. The extensive consultative processes involved in conferring with all the relevant stakeholders brings with it considerable delays in achieving outcomes.

3.6.2 Investors in People in Oil and Gas Resource Sector in the UK

A report on the implementation of Investors in People in the oil and gas sector in the UK offers some insight into the operation of the human resource quality standard in the resource sector.⁵⁶ The report presents evidence of how companies in the oil and gas sector utilising the IIP standard has helped to create a flexible framework within which skills and work practices can be adapted to meet business needs.

Investors in people is a tool for initiating change. Our company has undergone rapid expansion and responsibility for management of the company has moved from the managing director to a team of managers reporting to him. We needed a way to manage the growing company. Investors in people made sense.

Dave Morris, training manager, The PSL Group.

Investors in People has been used with team-based working in the sector to create a working environment in which employees have a clear understanding of the contribution they make to the achievement of business objectives coupled with the motivation and ability to maximise that contribution.

The report notes that in the resource sector it is vital for organisations to assure the competence of their employees in support of the safety case. Investors In People provides organisation with a framework in which to build systems that ensure employees are equipped to undertake the work demanded of them.

Use of the Investors in People standards in the oil and gas sector has been shown to demonstrate:

- the value of the use of plans to identify the level of competence required throughout the organisation to meet business aims,
- how to identify the most effective ways to achieve the competence levels required,
- improved confidence that every employee knows what their role is and what is expected of them,

⁵⁶ *Performance improvement through People; information about investors in People for the oil and gas sector.* Engineering Construction Industry Training Board (ECITB) and Offshore Petroleum Industry Training Organisation

- implementation of a process of continual review and evaluation that ensures training and development plans and skills of employees continue to be relevant to business needs.

Investors in People has been found to be a vehicle for competence assurance.

Safety considerations within the oil and gas industry have made ‘role competence’ a prime imperative. Absolute performance standards must be achieved across a dynamic labour market containing key core staff and variable levels of contract personnel. Competence assurance systems operating against a background of such complexity are well supported by the formal structures of Investors in People. AMEC’s competence assurance system is now embedded within our performance management system and the wider Investors in People framework.

John Clarke
Head of training and development
AMEC Process and Energy Ltd

The ISO9000 quality series requires that there are documented processes for ensuring quality in design, production and delivery. Investors in People has been useful in helping to ensure that all employees understand the quality and environmental policies of the organisation and the relevance of these to their jobs. Investors in People has also assisted organisations in meeting Health and Safety regulations and ECITB guidelines.

People are prime assets in our company. Investors in People provides the vehicle for developing people who in turn add value to the company. We have used investors in people as a model for delivering other standards, such as ISO9001

Investors in People also serves as a business management tool that uses effective training and development of people to deliver business objectives. Many organisations in the sector use it to drive through programmes of change to make them more competitive.

Investors in people focuses attention on how the business is run. We feel we will become a better managed business as a result of achieving the Standard. Senior management are using the Standard to update our business plan, as well as improve communication and motivation within the company

In a recent survey by the Centre of Research in Employment and Technology in Europe (CREATE), 231 organisation recognised as Investors in people gave their reasons for committing to the standards. The reasons given were:

Reason	Per cent response	Reason	Per cent response
to acquire a competitive edge	72	to build a framework for people management	69

to align business needs and human resources	62	to benchmark training and development	58
to enhance corporate image	41	as a vehicle for change	32
to confirm good practices	30		

Investors in People provides a framework of good practice against which an organisation can audit (and continuously improve) its training and business development policies, processes and procedures in line with business objectives.

People are a major resource for BP Oil Grangemouth Refinery. A key area in our business plan is to ensure that all employees fully understand our visions and values and their role in achieving our business goals. Investors in people gave us the opportunity to evaluate our communication, training and development policies. We expect our systems to meet the Investors in People Standard.

Tony Fitzpatrick
Human resources adviser
BP Oil Grangemouth Refinery Ltd

3.7 Australian mining companies operating mines overseas

The following section presents information on two examples of overseas operations of major Australian mining companies. The key elements of their operations are:

- strategies to employ the local indigenous population
- an emphasis on best practice training and development for the mine's workforce and substantial involvement in community development.

3.7.1 MIM's Bajo de la Alumbrera project - Argentina

MIM Holdings started Argentina's first major mining project in February 1998. The Bajo de la Alumbrera project includes a copper and gold mine with its crushing, grinding and flotation processes in Catamarca Province in Argentina's north-west. The filter plant, connected to the concentrator by a 316 kilometre pipeline, is located in Tucuman Province. The Alumbrera port, connected by a pre-existing 830 kilometre railway line to the filter plant, is in Santa Fe Province. Total capital expenditure on the project, including financing costs, was US\$1.2 billion.

MIM investigated world best practice as the basis of developing the mine. Mines in Canada and the US were judged to have world best practice. Key features of best practice were determined to be:

- labour agreements based on annualised salaries, 12 hour shifts, no overtime;

- local recruitment and signing up rural semi skilled workers to operate equipment;
- employment of women on the site driving major trucks; and
- working with local peasant communities to upgrade housing through low interest loans.

The operating mine currently employs 731 people directly and 607 as subcontractors.. The workforce has been drawn from a variety of non-mining and non-industrial backgrounds and has been trained to meet internationally competitive standards. Expatriate employees with relevant experience work with local people to provide the necessary skills.

Minera Alumbrera Limited is committed to training and developing Argentines so that expatriate staff with specialist skills necessary to get the project off the ground will be largely replaced over time. The project currently employs 74 per cent of its permanent workforce from Catamarca and Tucuman provinces.

For most of these employees, it is their first exposure to mining. Due to the large number of employees involved and the lack of experienced and qualified workforce in that region, Minera Alumbrera had to develop a program for the development of the workforce. The first step was a comprehensive recruiting program where learning skills was the main criteria for hiring personnel. The main objective was to build a comprehensive career path model at superintendent level. The in-house program focused on mining operations and maintenance. Spanish language courses are also available for expatriate employees. The long term nature of the mining contract (19 years) has also being an incentive for the training program.

The project uses a benchmarking system based on the best practice standards for maintenance, operations and safety. Most standards come from the experience of the sponsor companies, like MIM, but the project has also been working closely to ISO9000 in some areas. The company has also been working with Argentinean universities in setting some standards.

The central government recently has been promoting a major program for enhancing workforce technical skills. US\$160 million has been allocated to this scheme. Although it is in its early stages, the government hopes the program will have an important long term impact in the development of skilled workforce. The program is based on industry's long term requirements in terms of training and technical skills development. Companies apply for funding through specific projects. The program considers only the development of skills at vocational level; university training is excluded. The program is at a national level and includes different industries. Minera Alumbrera is planning to participate in the near future in this program.

3.7.2 Investors in People in an Australian-owned UK smelter

Britannia Refined Metals is a wholly-owned subsidiary of MIM Holdings operating in Kent in the UK. The company is a zinc and lead smelter employing 400 people. It produces 250,000 tones of lead a year in a highly competitive market in Europe of 1.6 million tons a year. The workforce is recruited locally except for professional managers. The workforce skills base varies from the “unskilled” to fitters and electricians. The company has achieved Investors in People accreditation.

The General Manager praised highly the value of the Investors in People standard. Unlike other initiatives sponsored by Government which he thought were often “ham fisted” and a waste of money, IiP was different.

Companies that have achieved the standard are seen as progressive or “forward looking”. Britannia has put the IiP logo on its letterhead.

It is something that means something to their customers. Also among politicians, it is an indication that you are a progressive company that responds to the needs of your workforce.

The appeal to establishing better communications with employees was a major reason for initially getting involved. Also in terms of the training provided by the company, the pattern had previously been largely ad hoc. They were suffering from training overload. Training was initiated at departmental level, plant level, and corporate levels with little coordination between them. Now the approach is to have twice yearly meetings to identify key training needs for the next year. This review process enables priorities to be set for training. This does not mean that training is always seen as required. If it is necessary to pull back, the IiP process ensures that there is consultation about the reasons for this.

Britannia focused on the process first. They were not intent on gaining accreditation (‘never did it just to get the badge’) as the primary motive. There are now a set of core beliefs that are shared among the management team. The benefits were seen to be:

- better communication
- better system of training
- better link between workplace goals and training and
- better way of tying the individual into the organisation.

The company is under considerable pressure to maintain its competitiveness. This involves cost cutting and lifting efficiencies. The pressure from continental Europe is an important factor justifying the need for IiP.

The difference in approach starts with the first line supervisor who is now responsible for ensuring the agreed training is undertaken. At least once a year, the supervisor is required to have a one-to-one discussion with each person they are responsible for. This is different to the Performance Effectiveness review process. This one to one review process is less formal and more friendly than the formal performance appraisal process.

In terms of other quality systems, Britannia has ISO 9001, ISO 14001 (an environment management standard), and they are soon to achieve the QS 9000. The other quality systems are more concerned with how to do a particular job safely or to a certain environmental standard. The IiP on the other hand is more loosely based. It does not require specific work instructions. It is more based on reviews at the right time. IiP, therefore, is more linked to financial and planning systems than it is to other quality systems.

Government played a role in promoting the scheme through the local Training and Enterprise Council (TEC). The TEC was the local first point of contact. “They have done a good job” in raising awareness of the standard.

3.7.3 Lessons from Australian Mining Operations Offshore

The above examples of Australian mining companies operating overseas show that they are keen to adopt what they perceive as world’s best practice in relation to human resource management. MIM Holdings at the planning stage scoured the world to identify best practice in areas such as employment policy. The result was a strong emphasis on providing employment and skills training for the population living in the immediate vicinity of the mine.

Local level initiative on the part of management, in the case of Britannia Refined Metals, resulted in the achievement of the Investors in People standard. The location of the smelter in a fairly densely populated area, no doubt, provided a strong incentive for management to prove through external recognition and independent assessment in some way that they are a good employer with a competent workforce.

As noted below in part 4, Australian mining companies in Australia are also now adopting an employment strategy to employ more of the immediate indigenous population in the areas in which they are located. In a similar way, community concerns about the environmental impact of smelters in built up areas is encouraging Australian resources companies with downstream processing operations to ensure that they achieve recognised quality standards such as ISO 9000 and the ISO 14000.

3.8 What the overseas models show

3.8.1 Who are the key stakeholders

Information on a range of training systems shows that the following are or potentially are significant players or stakeholders in the skill formation process:

- Enterprises (differentiating between large and small in employment size)

- Employer/industry associations
- Unions
- State Governments
- National Government
- Individuals

The role of each stakeholder is markedly different according to the type of training system in which they are situated. Employer associations, for example, play a leading role in the tightly connected training system based around the apprenticeship system. However, their role is underpinned by a system of compulsory membership of all enterprises in a particular region or sector. In view of employer associations' pre-eminent role as representatives of industry, governments in Europe increasingly delegate to employer associations the capacity to self regulate.

In marked contrast, employer associations in loosely connected, enterprise-focused training systems play a very different role. Their focus is mainly to play a broad representative role and the provide consultancy services. Employer associations in voluntarist training systems have the greatest impact where they cover all or the major enterprises in a particular sector. This situation is likely to only apply in Australia in a sector with a small number of large enterprises such as the resource development sector. Employer associations in other sectors with a large number of enterprises, large and small, necessarily find it more difficult to play a broad representational role. They are more likely to focus on providing services to those enterprises willing to pay for them.

The overseas experience in developing collective responses to the provision of training shows the key importance of non-government intermediaries such as employer associations. However, the relative weakness of intermediaries in "voluntarist", enterprise-focused training systems makes it more difficult to achieve a collective response.

However, the US and the UK, despite the limited role of government and intermediaries, have been successful in promoting a normative culture of expectations about what is a "good employer". In the US, this is done through the widespread use of performance indicators. In the UK, there has been an explicit attempt to develop a training culture among enterprises through the promotion of the Investors in People standard.

The role of government in state-driven training systems pointed to the importance of reciprocity in agreements between government and business. The key features of these reciprocal relationships were the specification of performance outcomes, appropriate monitoring, and the availability of sanctions.

3.8.2 *Operating principles*

A survey of overseas training arrangements both in the resources sector and in other sectors suggests that government policy to encourage skills development should meet the following criteria:

- Be cost neutral or clearly related to improved productivity for individual enterprises
- Be tailored to the needs of individual enterprises
- Be consistent with world best practice
- Identify participating roles for all stakeholders
- Be transparent in terms of performance based outcomes
- Outcomes should be measurable in the form of simple performance indicators
- Performance should be easily monitored
- Sanctions should be specifically related to the industry's own Code of Practice or an enterprise's own statement of goals in relation to corporate responsibility.

3.9 Conclusion

At the beginning of this section, a table adapted from the ILO was presented, indicating the main types of overseas training models and their key features. Below, we have reproduced this table, but replaced the key features with relevant initiatives from the overseas models. These initiatives provide the basis for our consideration of the feasibility and applicability of transferring them to the Western Australian situation. This forms the subject of the next two sections of the report.

Table 3: Comparative Training Systems – Relevant Initiatives

<i>TRAINING SYSTEM</i>	<i>COUNTRIES</i>	<i>Relevant initiatives identified by this report</i>
<i>Major stakeholders working in a tightly connected system</i>		
	Austria, Germany, Switzerland, Netherlands, Many countries in Latin America	<ul style="list-style-type: none"> • Strong collective responsibility for providing entry level training • Tripartite control in setting policy • Employer associations play key role at local level • Levies used at industry level (Netherlands) • Industry-funded development of operator training (Netherlands) • National levies used in Latin America.
<i>State-driven system</i>		
Demand-led	Hong Kong, Singapore, Republic of Korea, Taiwan, China	<ul style="list-style-type: none"> • Close working relationship between bureaucracy and large enterprises (Korea, Taiwan, Singapore). • Strong emphasis on performance monitoring and use of sanctions by government (Korea) • Bureaucracy actively identifies skills needs in economy (Korea) • National levies (Korea, Taiwan & Singapore)
<i>Loosely coupled, enterprise-based and voluntary system</i>		
High labour turnover	United Kingdom, United States, Canada, Australia	<ul style="list-style-type: none"> • Voluntary promotion of HRM quality standard by government to foster training culture (UK) • Widespread use of performance indicators by Government to develop a normative culture for enterprises (USA, UK) • Voluntary enterprise participation in school industry programs (Canada) • Some instances of industry-specific levies especially for construction sector (UK, Ireland) • Use of common standards on resource projects producing closer partnership relationship with suppliers (UK)
Low labour turnover	Japan	<ul style="list-style-type: none"> • Long term relationships with suppliers built on trust and mutual assistance.

Source: Training systems typology in column 1 adapted from: *Training Systems: Adjusting to Change World Employment Report 1998*. International Labour Organisation-1999, page 70

4 Evaluation and Applicability of Overseas Models

4.1 Restating the problem

The main issue is how to gain a commitment from and contribution by resource developers to the development of a skilled workforce. If this is interpreted as a commitment to investing in skills formation within the sector, in aggregate this does not appear to be an issue. The sector clearly spends more on training than any other sector.

However, there still might be an issue of investing in only some aspects of skills formation. It is important to distinguish between the following types of skills development and to identify the extent of expenditure on training on each aspect:

- places provided for apprentices;
- places for entry level training for operators;
- post initial training for existing trade qualified or technician workforce and
- training to upgrade skills of the operator workforce.

If training is concentrated on training to upgrade skills of the operator workforce with a relative under-investment in the other aspects of skills development, this may reflect a reliance on other sectors to provide entry or post initial training. A comment in the Workforce Skill Snapshot for the Mining industry in the State Training Strategy (November 1998) suggests that the resource sector is under-investing in front-end training for its workforce:

Many technician/trade/semi-skilled occupations are trained through the publicly funded system. Due to the high proportion of tradespersons within its workforce, [the Mining sector] consumes significantly more resource allocation proportion to the size of the total workforce than other industry divisions.⁵⁷

However, the issue could be more broadly defined as how to gain a commitment from and contribution by resource developers to the development of a skilled workforce for the State as a whole. The propensity of the resource sector with its high wages to attract skilled labour from other sectors of the WA economy is illustrated by the following quote from an employer association report (August 1998):

⁵⁷ *Workforce Skills Snapshot, Mining*, WA State Training Strategy, November 1998, p2. Data presented in the workforce profile of the Mining sector suggests a high apprentice-to-trade ratio. Table 13 gives a figure of 8,104 tradespersons and related workers in the WA Mining industry for 1997. There were 3,666 paraprofessionals in the industry in 1997. On page 30, the profile notes that there are 6,631 apprentice and trainee students enrolled in trade training directly related to the trade occupational requirements of the groups of industries associated with the Mining industry division. A further 6,631 apprentices are identified as “focused indirectly towards meeting future ... needs for this industry division as well as 7,118 institutional-based students and trainees enrolled in metals and mining training focused directly or indirectly towards meeting these needs.”

As a consequence of a resource sector expansion in the coming years, and the flow on effects to other industry sectors, Western Australian industry will experience a substantial skills shortage in the metal and engineering occupations...During “boom” conditions, industry is unable to find enough skilled labour to satisfy demand. This demand affects all levels of industry.

Large construction companies dominate the market and are awarded the major resource sector construction contracts. To satisfy demand for a skilled construction workforce, these companies relocate skilled workers from Perth-based fabrication workshop facilities to the construction sites. This relocation is sought by workers because of the higher pay rates and allowances available for the remote area construction activity.

The companies advertise and recruit labour to fill the gap in the metropolitan workshops caused by the relocation of workers to construction activity. Most of the new labour is sourced from small and medium sized fabrication companies in the Perth metropolitan area. These workers are also attracted to move to the larger workshops because of better pay and conditions.

This continual movement of skilled labour from the small and medium sized employers eventually creates a skills shortage that cannot be filled. The small to medium sized companies cannot compete in terms of pay and conditions and are unable to recruit skilled workers because the skill pool is empty.

Both interpretations (sector specific and in the wider regional economy) of the problems of skills shortage and skills development are used in the following analysis of the policy options available.

4.2 Resource Companies and Community Expectations

As the President of Minerals Council of Australia, Mr D M Stewart, noted in his speech at the 1999 Minerals Industry Dinner,

The minerals industry is going through a period of significant change. Change in response to market pressures. Change in response to community pressures. And change in response to political pressures. Many of these pressures are interrelated, but the industry has been listening to its critics and responding in a progressive and constructive fashion.⁵⁸

⁵⁸ Stewart, D M. *President’s Address*, 1999 Minerals Industry Dinner, Great Hall, Parliament House, 2

Requirements in relation to environmental legislation (such as *Environment Protection and Biodiversity Conservation Bill* currently before Parliament) and the Native Title Act 1993 are two of the most important aspects of the policy framework of Commonwealth Government.

The mining industry has responded by committing itself to operating in a more open and transparent way than in the past.

This openness is expressed most clearly in the Minerals Industry Code, and many member companies have already published extensive public reports on their environmental performance as a result. We are committed to conducting our business in partnership with the community.

The pressure to respond to community concerns about the environment is demonstrated by the following quote from a speech on June 2 by Hugh Morgan:

Seemingly, overnight, we had been transformed from heroes to despoilers. Our economic contribution, important then and important now, seemed to be overwhelmed by widely shared fears that we would mindlessly deplete our national resources, and that we would be careless or worse with the environment. The result was diminished access to land for exploration, longer and more difficult approval processes, and on a few famous occasions, government denial of pre-existing rights to mine...

More recently we have become more attentive to what others think about us. We have learned from the era of growing environmental awareness that it was we who had to change our behaviour to reflect society's changed views about environmental protection. We had considered ourselves, not without reason, to have been good environmental managers. The problem was that our view of ourselves was not as widely shared as we might have wished.⁵⁹

Another recent policy initiative is the Chief Executive Officers for Indigenous Employment Project, conducted by the Federal Department of Employment, Workplace Relations and Small Business (DEWRSB). The form that this recent policy takes, with its emphasis on adaptability to the needs of individual enterprises, is an important departure from the standardised approach of most government programs.

A number of major companies, particularly in the mining sector, are beginning to lead the way in creating viable, commercially based indigenous

June, 1999.

⁵⁹ Morgan H M A *Sustainable Minerals Industry:- A New Era Minerals*. Council of Australia annual seminar, June 2, 1999, Canberra

employment opportunities. This new initiative will encourage more Australian companies to become involved. Companies that undertake to employ indigenous people will be offered flexible funding assistance under this program.

The project will generate more jobs in the private sector for indigenous people. It will encourage Australian companies to use their innovation, business insights and problem solving skills to develop successful programs to employ more indigenous people directly in their companies and indirectly related to company operations.

Strict rules, prescription and program guidelines have not proven to be successful with private sector employers. Companies need the scope to test new ideas to suit their specific needs. Governments should be there to assist and advise where this is needed.

This new approach changes the way the Government and private sector companies will work together. Companies will sign a Memorandum of Understanding with the Department of Employment, Workplace Relations and Small Business, offering to employ indigenous people. The Department in return will offer flexible funding to support the company to achieve its objective. The funding will be based on the number of outcomes achieved.

Specific strategies suited to the needs of each company will be developed. These strategies will vary from company to company but may include pre-employment training, mentoring, cross-cultural training and other support. The ideas generated through this project will become models of best practice for other companies.⁶⁰

4.3 Points of intervention

4.3.1 Quality standard for human resource management

The importance of quality standards in relation to environmental protection to individual enterprises is a prominent feature of the information on domestic and overseas operations in the three sectors related to resources development.

ISO 9000 and ISO 14001 are two examples of quality standards adopted by European and Australian refining/processing operations. A standard adopted in relation to human resource management is Investors in People. This standard has been widely adopted in the UK resources sector (mining and oil and gas).

⁶⁰ Indigenous Employment Program Chief Executive Officers for Indigenous Employment Project.

The UK experience also shows that the adoption of a common quality standard in relation to skills development is best achieved through a local intermediary that has strong credibility with the enterprise.

The Minerals Council of Australia plays such a leadership role in relation to safety and health.

In recognition of the fact that no minerals fatality, injury or disease is acceptable, the Minerals Council decided in 1996 to take a leadership role on safety and health. The Council made safety and health its top priority, agreed on a statement of vision and beliefs, safety awareness definition and established the Safety and Health Committee. One of the Committee's activities has been to formulate a policy statement on operator/contractor safety and health management.

The Council's safety and health program is supported by the work being done by State and Territory Minerals Councils and Chambers as well as individual minerals companies.

The specific policy for the industry has been formulated by a representative committee of the Council's members. The policy on Operator/Contractor Safety and Health Management not only relates to its members direct employees but also to contractors and their employees.⁶¹

The Leadership Working Group is working with the Australian and New Zealand Minerals and Energy Council on strategic frameworks for mine safety management. The Group is also developing a leadership strategy on workplace health issues relevant to the minerals industry.

The Council, in addition to developing a vision statement and supporting policies, has instituted a system of reporting national performance data on the issue. The key role of performance measures in assessing the effectiveness of a new policy is acknowledged in the quote from the Minerals Council in releasing its second Safety and Health Performance Report:

This Annual [Safety and Health Performance] Report, as well as the Council's quarterly reports of safety and health statistics, was developed in response to the lack of information readily available on the industry's safety and health performance. Without such information it is difficult to measure progress and provide the feedback needed to drive improvements.⁶²

⁶¹ It is the policy of the Minerals Council of Australia that: 1. Operators have the responsibility to protect the safety and health of every person on site including contractors and their employees. 2. The relationship between the operator and contractor will include the agreement and implementation of a plan to effectively identify and manage safety and health issues. Minerals Council of Australia, Policy on Operator/Contractor Safety and Health Management.

⁶² The Safety and Health Performance Report is the only national compilation of safety and health performance statistics for the Australian minerals industry. Data for the report are collected from the State

Supporting the “stick” of collection and public reporting of performance data is the “carrot” of a public recognition process by the Minerals Council for top performers: National Safety and Health Innovation Awards.

The above outline of the Minerals Council’s existing effects in relation to safety and health suggest that that a similar framework could be applied to the broader but entirely complementary process of skills development. The key elements of the approach are:

- Formulation of industry-wide policy by high profile enterprise representatives
- Collection of performance data
- Public release of performance data to apply pressure on laggard performers
- Use of a public recognition system of awards run by high profile enterprise representatives to reward good performers.

4.3.2 Performance indicators and entry level training

Collecting data on and monitoring the number of apprentices and other forms of entry level training in the resources sector is one means of assessing the extent of the sector’s commitment and contribution to skills development. This information for the sector or for individual enterprises does not appear to exist at present or is not in an easily available form.

Information on the other aspects of the training effort of the resource sector enterprises could also be collected. Performance indicators could be developed for the following aspects of enterprise training effort:

- places provided for apprentices and graduation rates;
- places for entry level training for operators;
- post initial training for existing trade qualified or technician workforce; and
- training to upgrade skills of the operator workforce.

In devising performance indicators, in the context of arrangements such as State Agreements, it is important that the following issues are addressed:

- have the companies receiving Government assistance been informed fully about what is expected of them?
- have the expected outcomes been specified in general and in detail?
- do appropriate and reliable monitoring mechanisms exist?

mines inspectorates and the NSW Joint Coal Board as well as from individual enterprises and mines.

- are those charged with monitoring performance able to sanction noncompliance with the original undertakings?

4.3.3 The role of supporting arrangements

Resource companies in Canada were closely involved with the equivalent of local TAFE Institutes. This involvement included the provision of work placements for students and graduates with relevant skills from these community colleges. These arrangements are best initiated by one-to-one contacts between workplaces and particular training providers.

However, as the US information on school-to-work indicators showed, it is possible to develop robust performance indicators to measure the extent and nature of the linkages between enterprises and education institutions.

4.3.4 Industry funding to help cover the costs of institutionally based training

The use of levies to support training arrangements was noted in a range of training systems. The comprehensive levy was restricted to state-driven systems such as France and Singapore. Industry-specific levies, operating through employer associations, exist in the Netherlands and in Germany.

However, sector specific levies continue to exist in systems that otherwise have placed minimal obligation in enterprises to invest in skills development. Sector-specific levies were noted in the engineering and construction sectors in the UK and the Republic of Ireland.

One suggestion is to introduce an Apprenticeship Training Fund, as in Ireland, based on a minimal levy. The fund could be based on a set compulsory contribution from enterprises in the three sub sectors of engineering construction, resource operations and refining/processing. An exemption could be granted where enterprises could show that they were meeting minimum expenditure and training requirements.

It will be important to permit access to funding for training for certain categories of training. Levy-sourced funding for training should be related to the short and long skill development needs of the industry broadly defined rather than meeting the immediate skill needs of particular enterprises. Restriction of funding support to apprenticeship training may be too narrow. Funding should also be available to cover the cost of structured work placements in enterprises for full-time students in paraprofessional training relevant to the industry.

Monies collected through the levy could also be directed to paying for training to supply specific skills deemed to be in shortage. This could be done by upgrading the skills of existing employees without trade qualifications. The funding could also be used to pay for refresher courses for trades qualified and technician level employees.

It is important that the fund be controlled, as in Holland and the UK, by a industry representative body. The pressure applied by a body that is a collective representative of the industry is crucial to the success of the levy. A levy administered and monitored by Government, as was the case with the Training Guarantee in Australia, 1989-93, is likely to be viewed by enterprises as part of the tax regime, and hence a liability to be minimised.

4.3.5 The role of common industry standards

Feedback from the companies interviewed suggests that the adoption of quality systems in the resources sector in Australia lags behind manufacturing and even the services sector. Overseas evidence suggests that the resources sector in other countries such as the UK have a much better track record in terms of adopting common standards.

For example, the overriding concern with cost reduction in the oil and gas industry has led to industry-wide cost reduction programs in the UK and in Norway. These programs have two main elements:

- standardisation of equipment and parts via rewritten specifications; and
- alliances and partnering to share risks and rewards.

The Cost Reduction Initiative for the New Era (CRINE) in the UK came about in late 1992 from an awareness by the North Sea oil and gas industry that it risked becoming uncompetitive unless it could reduce costs, especially in engineering and procurement. A working group on Codes, Standards and Specifications was established and has made a number of recommendations on how the industry can reduce costs by changing its specifications practices.

Evaluation of the success of the program is very encouraging, with cost reductions of 40% having been achieved without reduction in performance. An additional and somewhat less expected benefit has been the creation of a strong network between operators, contractors and suppliers which is moving the industry away from its former litigation-ridden practices.

CRINE also includes an education and training program, which involved the launch in 1998 of the 'Energy for Learning for Energy' Toolkit. The Toolkit has four interconnecting components - Tender Process Guidelines, Company Guidelines, Learning Log and Investors in People Lifetime Learning Workbook aimed at industry, companies and individuals.

The Tender Process component addresses the industry perspective. Only by making people development a critical issues in contract award decisions will the continual skills development of the workforce be placed on the business agenda as a key priority. At the company level, the Company Guidelines propose that companies in the industry should have a clear policy for Training and Development linked to Business Objectives. Commitment to Investors in People is one route which companies may consider.

The final two pieces of the Toolkit jigsaw apply at an individual level and are seen to dovetail with each other. The Investors in People Lifetime Learning Workbook has been integrated into the overall Toolkit to complement the Learning Log. The Workbook is geared towards providing individuals with assistance regarding self-assessment and personal development planning. The Learning Log has been designed to record individuals' achievements and plans in a standardised, portable format to help sustain their employability.

The Australian Petroleum Production and Exploration Association has recently initiated the ACE (Australian Competitive Energy) Best Practice program, based to a large extent on the CRINE experience. The extent to which training will be included in this program is unclear but should be monitored.

4.4 How WA is Different

While other countries' resource sectors are also faced with cyclical commodity activity which makes skills planning and training difficult, we should note that WA has some key characteristics which make addressing its skills shortages problem particularly difficult. The most important of these are:

- The isolated location of most mining activity in WA means that large premiums must be paid to workers to attract them to the site, which can distort the rest of the economy.
- The small size of the local WA economy adds to this distorting picture, as the rest of the engineering sector is unable to compensate for the skilled workers attracted to the mining areas
- Externally provided on-the-job training is more difficult to conduct in isolated locations.
- Attracting international labour as a potential solution is more difficult, as there is no easily accessible pool of labour outside the other states of Australia and New Zealand. By comparison, in the North Sea and even in remote US and Canadian mining sites, mining companies have easier access to skilled workers either in their own countries or related trade blocks (the EU and NAFTA).

Therefore, while the lessons derived from overseas experience are worthwhile, we need to be aware of their limitations in directly transferring them to WA. Thus, our recommendations build on and rely on existing structures and institutions, while realising the need for a new approach to a previously intractable problem.

In addition to the structurally and geographically unique position in which Western Australia finds itself in terms of meeting the skill requirements of its resources development sector, there is also a significant difference between WA and other jurisdictions in the general policy approach taken by the State Government to the sector.

For example, a recent report from the WA Technology and Industry Advisory Council (TIAC) on R&D in the minerals and energy industry⁶³ noted how the British and Norwegian governments treated the discovery of oil and gas in the North Sea as a windfall opportunity that would not last, both for industry and the country. Consequently, both countries used the opportunity to develop policies to encourage the growth of related manufacturing industries. More relevant to this report, each country adopted a strong bargaining position with the oil companies in negotiations over license allocation, technology development, etc. Furthermore, in the case of Norway, a proportion of taxation revenues from the sector were directed to a Petroleum Fund to be available for long-term public investment in industry and social development. British Columbia in Canada, likewise, has created 'BC 21', a package of initiatives funded from timber and other resource royalties which is being used to invest in training, jobs and public infrastructure.⁶⁴

From a different political perspective, Alaska, under a Republican administration in the 1970s, invested its windfall tax revenues from large oil discoveries into a new entity called the Alaska Permanent Fund⁶⁵. The Permanent Fund is put to three uses:

- paying for highways, schools, and other infrastructure;
- returning a large proportion to citizens directly through annual cash dividends; and
- investing the remainder in a portfolio of stocks and bonds which would continue to earn dividends after the oil ran out.

Dividend cheques began to be paid out in 1982; since then, Alaskans have received more than US \$7 billion from the Permanent Fund. In 1998, the per capita dividend was US \$1,540 per citizen.

Western Australia, however, has never really adopted an attitude that minerals are a temporary, or windfall, resource to which the people of the State are allowing mining companies access. Rather, as the TIAC report notes, "there is ... a disturbing sense that Western Australians may have come to believe that the State's mineral and petroleum resources will last forever"⁶⁶. The State's overriding policy stance has been to encourage further exploration and mining as its basic strategy for encouraging long-term economic growth.

Therefore, the State's prime aim is generally to facilitate, rather than negotiate, resources development. This puts it in a relatively weak bargaining position in its dealings with the resource industry, as there is an underlying worry that the companies may not invest in

⁶³ WA Technology and Industry Advisory Council, *Western Australia's Minerals and Energy Expertise: How Can it be optimised? - Growing the R&D Sector*, June 1999, pp. 45-6.

⁶⁴ Daniel Drache, *Jobs and Investment Strategies: The Challenge for Policy-Makers*, A Report Prepared for the Australian Business Foundation Ltd, December 1997

⁶⁵ Peter Barnes, 'The Pollution Dividend', *The American Prospect*, May-June 1999.

⁶⁶ TIAC, *Western Australia's Minerals and Energy Expertise*, p. iii.

the State if ‘pushed’ too hard. This policy stance is reflected in the way in which the State Agreement Acts have been written. The basic aim is to encourage the project.

Nor has there been any attempt to set aside or ‘hypothecate’ royalties or tax revenues arising from mining which can be invested in public infrastructure or other programs (as in Norway and Alaska) or have them returned to the citizenry directly (as occurs in Alaska).

This difference in policy stance is important in the context of this report. The approaches identified above in Norway, the UK, Alaska and British Columbia – such as hypothecating mining revenues for long-term public investment, and adopting a stronger bargaining position with mining companies - offer an opportunity for assisting skills development. This can be done either by providing increased revenues for government investment in training, or by negotiating to ensure greater company investment in training.

4.5 Conclusion: a new role for government

The challenges faced by governments in addressing problems such as skill shortages are formidable. They are made even more so by the loss of strategic influence and authority over industry in the wake of the impact of globalisation, and the decline of traditional points of leverage (such as government utilities).

In 1997, a Canadian, Professor Daniel Drache, prepared a report for the Australian Business Foundation Ltd, which examined employment and investment strategies in three Canadian provinces (British Columbia, Quebec and Ontario). His conclusions concerning the need to think in new ways about how governments can act are pertinent to this report and inform its recommendations, which are contained in the next chapter:

Drache argues, on the basis of the Canadian experience with resource-based regional economies, that governments must become more strategic in the way they acts. He argues that State governments, in particular, need to find ways to make the ‘drivers’ of the economy and its public policy ‘levers’ work together rather than against each other. Any successful model for state initiative requires the Government to reach out and involve the principal stakeholders. They have to be at the table and part of the planning process. For many governments, rethinking the consultation process is a formidable task.

Having business at the table is the first step towards ensuring that the wealth generated from the resource sector will be equitably allocated for developmental and other social needs:

Today, government has to reengineer itself in a self-consciously innovative manner. The challenge is to open the planning process to the broad public without having the decision-making process captured by powerful private sector actors and without weakening the critical role of government as the

*guardian of the public interest.*⁶⁷

⁶⁷ Daniel Drache, *Jobs and Investment Strategies*, p. 49.

5 Recommended Points of Intervention

The recommendations are formulated to reflect a progression from the minimalist points of intervention to more substantial proposed changes. The proposals can also be regarded as varying from options that require, on the part of the State Government, no regulation or legislation to options that would require separate legislation.

5.1 Proposal 1

Develop a set of performance indicators using existing data sources of the extent and nature of the training effort of each of the three sectors related to resources development in relation to:

- places provided for apprentices and graduation rates;
- places for entry-level training for operators;
- extent of post initial training for existing trade qualified or technician workforce;
- extent of training to upgrade skills of the operator workforce; and
- the nature and extent of enterprise links to school-industry programs.

Responsibility for implementation: State Training Board and the Department of Training.

Justification: The information, reported above, from the US and the UK showed that in otherwise voluntarist training systems, performance indicators play a key part in fostering a normative culture among enterprises as to what their contribution is expected to be. This applies in a range of diverse areas such as affirmative action and school-to-work transition.

5.2 Proposal 2

Use the provisions in State Agreements to require enterprises to provide information on a set of performance indicators on training effort in relation to:

- places provided for apprentices and graduation rates;
- places for entry level training for operators;
- extent of post initial training for existing trade qualified or technician workforce; and

- extent of training to upgrade skills of the operator workforce.

Responsibility for implementation: Department of Resources Development.

Justification: At least one State Agreement requires that the company submit proposals in relation to “use of local labour, professional services, manufacturers, suppliers, contractors and materials and measures to be taken with respect to engagement and **training** of employees by the company, its agents and contractors” (emphasis added).⁶⁸ This explicit mention of training could provide the basis for seeking information from resource companies on the extent and nature of their training effort. It could be attempted, in the first instance, by administrative means (ie asking the companies to provide the information under existing reporting arrangements); if this proves unsuccessful, then subsequent Agreements could have a clause included which specifically mention training as an indicator of local content.

The Korean approach to workforce skills development and government business relations is a model for more explicit role for government in the skill formation process. Performance measures that were simple, relevant and unambiguous have underpinned the agreements between the bureaucracy and large enterprises in Korea. Sanctions, in the form of withdrawn subsidies, are used by the Korean Government to penalise poor performers.

The Minerals Council of Australia use the annual publication of performance indicators, based on data supplied by the enterprises themselves, to bring pressure on their members to improve their safety and health record.

5.3 Proposal 3

Ensure that issues related to the employment and training of employees are addressed in the State Government’s approvals processes for major project developers.

Responsibility for Implementation: The Department of Resources Development in association with the Department of Training.

Justification: The new resource projects may require approvals in relation to the Environmental Protection Act, Aboriginal Affairs Planning Authority Act, Aboriginal Heritage Act, Native Title Act, Town Planning and Development Act, Mining Act and other relevant Acts.

As the state's "skill pool" is a semi public good, the likely impact of the project in terms of depleting the State’s skill pool needs to be assessed in the same way that environmental impacts need to be assessed. A “skills pool impact” assessment would

⁶⁸ Parliament of Western Australia Iron Ore (Yandicoogina) Agreement Act 1996 , Clause 6 (j).

involve appraising the capacity of company processes to meet workforce training needs and other issues related to workforce planning.

5.4 Proposal 4

Develop a quality standard for training and human resource management by building on the Minerals Council of Australia's safety and health strategy. Models for such a standard are Investors in People and the Department of Training's Quality Framework for Western Australian Vocational Training leading to a Quality Endorsed Training Organisation award (QETO).

The key features of a quality standard for the resources development sector need to be:

- independent third party assessment to enhance its status as a significant achievement,
- promotion by intermediaries that have high credibility with enterprises to which it is directed, and
- major public recognition by the industry, government and the community for attainment of the standard.

The breadth of organisational issues covered by the UK's Investors in People standard suggests that there is scope for the Minerals Council of Australia's to broaden the scope of its safety and health policy. This would enable more attention to be paid by enterprise management to creating the conditions that are more conducive to problem solving and learning from mistakes rather than maintain a narrow focus on implementing set safety procedures.

There is scope for Government to encourage the contractors and mining operators to adopt a broader approach to adopting best practice human resource management. As part of this exercise, funding could be provided to develop a **Best Practice Model** for the implementation of the human resource management quality standard in the resource development and related sectors.

Responsibility for implementation: Department of Training to work with the Minerals Council of Australia to investigate suitability of existing quality standards related to human resource management and, if necessary, develop a best practice human resource management quality standard with funding from the Commonwealth Government.

Justification: The role of Government in a "voluntarist", non-interventionist training system, such as in the US and the UK, is nevertheless a positive one. As noted above, government, through the promotion of a set of expectations about desirable performance standards for enterprises, can place subtle pressure on enterprises to achieve public recognition as a "good employer".

For example, the Minerals Council of Australia has responded to government and community expectations by involving member companies in the development, implementation and monitoring of a safety and health policy.

In the Australian mining industry, there are similar, positive responses from enterprises to Government calls for voluntary enterprise commitments with relation to indigenous employment and environmental management.

5.5 Proposal 5

Develop a proposal for a Resource Sector Skills Shortage Development Fund. The Fund should be based on specified outcomes to be achieved in meeting agreed skill shortage targets. The amount of funding required could be determined on the basis of the actual cost of providing the required training. An essential feature of this fund is that it cover and support the training efforts of engineering contractors as well as resource operators.

Required contributions from enterprises are more likely to be acceptable if there is a clearly defined set of outcomes that are responsive to training needs determined by representatives of the enterprises themselves.

The fund should be administered by a Western Australian-based employer association to ensure that the initiative had maximum credibility with the enterprises involved. The operation of the fund should be explicitly linked to publicised initiatives to fund training to meet skill shortages.

Responsibility for implementation: State Training Board should seek tenders from employer associations to collect, manage and disperse funds generated by the required contribution.

Justification: Industry-specific levies, particularly in the construction sector, exist in economies where there is relatively little pressure on enterprises to participate in a collective training effort. The UK engineering construction sector operates its own levy despite the abolition of levies in most of other sectors of the UK economy. The construction industry in Queensland, including the engineering construction activities of the mining sector, has in 1999 agreed to a small levy for all enterprises in the sector.

5.6 Proposal 6

A means of monitoring the training effort of individual enterprises in the resources development sector should be developed. The monitoring should include making information public in an easily digestible form on a regular (eg annual) basis. The information made public should include the above indicators as well as the number of enterprises that have attained the nominated quality standard.

The monitoring should be carried out by an agency independent of the industry.

Responsibility for implementation: The WA Department of Training could monitor the industry's training effort on behalf of the State Training Board. The advantage of STB involvement, through the Department, is the broader coverage of enterprises than those covered by State Agreements with their large project focus.⁶⁹

Alternatively, the Department of Resources Development, as the agency responsible for monitoring the local content provisions in the State Agreements, could be asked to monitor the performance indicators related to skills usage in the enterprises covered by the State Agreements.

Justification: The monitoring of the performance of large enterprises has been an important element of the success of the Korean model of state-driven economic development. As the data on sector take-up of the Investors in People standard showed, the UK Government monitors the extent of take-up of the standard among enterprises. The Minerals Council of Australia also monitors the safety and health performance of its members by publishing an annual report.

Timing of Policy Initiatives

There is the issue of timing for the different policy options proposed. The current downturn in the level of investment in the resources sector suggests that there may be little interest in a collective response to the issue of how to avoid skill shortages in a boom time.

However, forecasts of economic growth (July 1999) for the Western Australian economy vary from 2.75 to 7.5 per cent with the WA Treasury forecasting 4.5 per cent annual growth over the next financial year.⁷⁰ It has also been estimated that of the potential resources investment of \$65 billion, actual investment worth at least \$10 billion is likely to go ahead at some stage within the next 12 months.⁷¹

The rate of return on investment in mining is estimated to be as low as 2 per cent.⁷² This means that many projects that previously assessed to be viable will no longer be judged to be so. This low rate of return means that resource companies will be particularly wary of any policy proposal that is seen as entailing an extra cost.

These data suggest that the current downturn in investment in the resources sector will bottom out at some stage during financial year 1999-2000. However, reaching project

⁶⁹ As noted in part 2, around 60% of all direct employment in mining and 73% of the total value of mineral production are covered by State Agreements. There are many smaller mining operations, particularly in the gold mining industry, which are not covered by the Agreements mechanism.

⁷⁰ Information presented at Western Australian Business Forum Breakfast Briefing, Parmelia Hilton, Perth, 1 July 1999.

⁷¹ Assessment of Ms Nicky Cusworth, Chief Economist, WA Chamber of Commerce and Industry, Western Australian Business Forum Breakfast Briefing, 1 July 1999.

⁷² Ibid.

approval stage will still involve a considerable lead time of one to three years before a mine is operational. These data suggest that there is scope to plan ahead in the medium term to put in place measures to ensure that skill shortages problems are minimised.

The following table shows the relationship between the recommendations and the country sources for key elements of the proposals.

Recommendations and overseas initiatives

Training System	Rec 1	Rec 2	Rec 3	Rec 4	Rec 5	Rec 6
<i>Major stakeholders working in a tightly connected system</i>	*** Norway	*** Norway	*** Norway	** Netherlands	*** Norway	*** Norway
<i>State-driven system</i>	** Korea	** Korea	** Korea		*** Korea	*** Korea
<i>Loosely coupled, enterprise-based and voluntary system</i>	*** USA, UK	*** Alaska	*** Alaska	*** US, UK	* UK	** US, UK
Training issues in WA resource & related sectors						

- *** strongly represented
- ** represented
- * represented in some sectors only

Conclusion

Western Australians have long been attuned to the problems of skills shortages caused by the fluctuations of the global commodity markets and related local engineering construction cycle. Skill shortages associated with the operation of these cycles have been seen, by government and industry, alike as major constraints on development.

This report does not pretend that the cycle itself can be eliminated, or that simple solutions can be found to the skill shortage problems it causes. This report has shown that overseas examples provide valuable lessons. However, an important finding is that there is no one model which can be imported directly into the Western Australian context.

Nevertheless, overseas policy and practice does provide insights into key elements of an effective policy that could be developed to reflect Western Australian conditions. The set of options presented here have the potential to mitigate the worst effects on the local labour market of a boom-bust resources-dependent economy.

Appendices

Appendix 1: Terms of Reference

Appendix 2: Methodology

Appendix 3: State Training Board Documents

Appendix 4: Letters to companies and industry associations inviting them to participate in the project

Appendix 5: List of Companies Interviewed

Appendix 6: Basic Interview Questions

Appendix 7: Investors in People Case Studies