

Initiating and Supporting

Major Economic Infrastructure

for State Development:

Opportunities for Government

September 2004





WESTERN AUSTRALIAN
TECHNOLOGY & INDUSTRY ADVISORY COUNCIL

Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government

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Foreword

Australian governments at all levels must be alert to the fact that international business is increasingly focusing on the availability and adequacy of infrastructure in determining global location for investment. With mounting international competition for investment, the need for active government participation in the processes of attracting and securing investment is highly important. In particular, there is a widespread view that Australian governments can be more effective in ensuring the provision of investment-attracting infrastructure.

A characteristic of Western Australia's resource abundance is that it most often occurs in remote, rugged and sparsely populated areas. This means that appropriate new infrastructure becomes a key factor in project economic assessment and therefore in investment attraction.

With this background, TIAC initiated a project titled, *Initiating and Supporting Economic Infrastructure for State Development*, in order to stimulate a discussion between governments and industry on the range of policy options that may be available to provide or facilitate infrastructure as an investment stimulant.

The project has yielded two reports as follows:

Initiating and Supporting Major Economic Infrastructure for State Development: Defining the Issues; and

Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government.

The first report sought to define and discuss the issues, highlighting the roles of Commonwealth and State governments. It drew on some of the key issues raised in The Review of Commonwealth-State Funding Final Report (The Garnaut-FitzGerald Report) and focused them on economic issues that face Western Australia. A range of policy impediments to economic development and the provision of infrastructure were identified. A copy of the first report can be obtained from TIAC's website: www.wa.gov.au/tiac

This, the second report, identifies and examines a number of processes by which governments can facilitate investment and infrastructure provision for major projects. There are a number of opportunities for governments in Australia to better address the competitive challenges we face.

TIAC acknowledges the co-operation of officials from the Commonwealth Government and the governments of Queensland, Victoria and Western Australia in the preparation of this report. In addition, government officials from several other countries also provided valuable assistance.

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Dr Brian Hewitt
Chair of the Project Steering Committee

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Executive Summary

Governments in Australia, and indeed governments around the world, are increasingly focused on attracting foreign direct investment to their shores. Several countries, including Australia, are seeking to attract major resource-based projects, including an increasing number of downstream processing projects. The competition for such investment is intense.

Western Australia is a particularly development-oriented State. Major resource projects and the development of its natural resources have been keys to the strong economic performance of the State.

For the past four decades, the growth of Western Australia has been closely associated with large scale minerals, and more recently, gas projects. Indeed the State's history since the late 1800's has been one of economic development on the back of minerals and other primary development and production. A direct result of the resources-driven economy has been higher growth rates and higher employment rates in Western Australia than for the rest of the nation.

Major resources projects have been drawn to Western Australia and Australia by the presence of minerals, energy and agricultural resources, encouraging governments, and a stable economic, policy and political environment.

Western Australia and other regions of the nation have great potential for further development. Projects include processing of world-class gas resources into LNG and gas-to-liquids products, and utilisation of energy in processing of minerals and other primary products.

Looking forward, these conditions are not sufficient on their own to ensure the attraction of major projects. Many economies that were previously closed to the world's resources explorers and investors have now opened their doors. Cases in point exist across Africa, Eastern Europe, South America, Asia (especially China), and the former Soviet Union nations.

Not only are these countries more open to foreign investors, they positively encourage investment as they work to develop their economies and social conditions. Many contain areas of high prospectivity for minerals and energy and have positive policies that actively promote exploration and development. Many also have the capacity and willingness to give direct and discriminatory support to new projects in the form of tax relief, provision of infrastructure and even concessional finance.

While the world market for many resource *products* is currently buoyant (some would even describe it as a "sellers' market") the market for resource *projects* is increasingly a buyers' market. Countries and sovereign states of the world are actively competing against one another for the investment dollar.

Australia and particularly Western Australia now operate within this global condition. Its task in attracting large projects is made more complex by Commonwealth-State financial relations and the mechanics of the Commonwealth Grants Commission, which works to equalise fiscal imbalances – effectively diluting the incentives for States to improve their economic performance. Also, being a member of the World Trade Organisation (WTO) imposes certain disciplines on the sorts of support that can be offered to individual firms.

At the same time, there is much that Australia and its States and Territories can do to make themselves more attractive locations for major investments. Western Australia for example does have the advantage of a long history of attracting and sustaining new major projects, often in remote areas. It has skills in design and construction work, and in large scale mining operations. The infrastructure that it does have is relatively new and efficient.

This report identifies ways in which Australia and Western Australia can build on this history of achievement with resource projects and continue to be globally competitive investment destinations. Provision of infrastructure is an important factor, but one which should be considered within the context of all the factors which go to achieving competitiveness as an investment destination.

This review of opportunities that are available to government draws on experience elsewhere around the world in attracting new investment. It examines in some detail a number of case studies to elicit the lessons and models that might be useful in an Australian and Western Australian context.

Conclusions and Recommendations

While Australia, and the individual States and Territories that comprise the nation, remain generally competitive for major economic development, several substantial deficiencies have been identified in this report. In addition, there is a need for “world best practice” approaches to sustaining a competitive investment climate.

Current approaches to investment attraction, development facilitation and provision of infrastructure in Australia are not working as efficiently or effectively as they should, principally due to a lack of co-ordination between Commonwealth, State and local governments.

During the past two years, Commonwealth and State agencies responsible for attracting inward investment have started to work more closely and in a more co-ordinated way. Commonwealth and State approvals processes are also more closely co-ordinated than previously. There remains room for improvement, however, through adoption of whole-of-government approaches and greater co-operation and co-ordination between all tiers of government.

In particular, infrastructure policies and investment incentives schemes remain substantially unco-ordinated. In some jurisdictions, these policies are deficient. At best, this situation is confusing for project proponents. At worst, it could mean that proponents look elsewhere to make their investment, resulting in substantial opportunities forgone.

Investment Climate

The investment policy climate in Australia is very good by most measures. However, Australia is competing for investment with a number of developing countries that are able to offer lower costs that may balance out less competitive factors (e.g. greater sovereign risk). Australia therefore needs to continue to improve its climate for investment, particularly so as to attract footloose industries.

In 2002, the Australian Government, through Invest Australia, produced a report *Global Returns: the national strategic framework for attracting foreign direct investment*. The framework is designed to provide direction for a strategic, targeted and co-ordinated approach to attracting foreign direct investment (FDI) into Australia. It recognises the strong partnerships that are needed with States and Territories and the private sector to implement the framework effectively. To this end, a National Investment Advisory Board has been established to co-ordinate investment attraction activities between jurisdictions.

Recommendations

1. State and Commonwealth governments should continue to work together to implement the provisions of *Global Returns*. In particular:
 - Ensuring that the National Investment Advisory Board (NIAB) is effective in its co-ordination role;
 - Closely co-ordinating international representation and marketing;
 - The intergovernmental National Investment Research Group (NIRG) to co-ordinate a whole-of-government approach to investment-related research and analysis;
 - Implementation of mechanisms for gaining advice from the private sector and partnerships in investment attraction activities; and
 - Involving local government in investment facilitation.
2. Governments should continue to work together to improve the overall investment climate through co-ordinated policy initiatives. This will require:
 - Receipt of feedback from the NIAB, NIRG and private sector on policy deficiencies in addition to advice on investment attraction;
 - Bureaucratic and political commitment at all levels of government to analyse and act on identified issues;
 - Greater transparency of processes, decision-making, project support, infrastructure policy; and
 - The Western Australian Government to focus on whole-of-government efficient investment attraction and approvals processes.

Infrastructure Policies

Neither the Commonwealth nor Western Australia have comprehensive policies on infrastructure, although they do have policies on certain infrastructure elements (e.g. roads). This is a major policy gap, particularly if trade-off decisions need to be made on infrastructure spending, and if the two governments are to work together in providing infrastructure.

The Commonwealth has an Employment and Infrastructure Committee of Cabinet and has recently announced the Energy White Paper and AusLink road funding initiative, but its activities fall short of a coherent infrastructure policy.

The Government of Western Australia has announced that it will undertake a comprehensive State Infrastructure Study to audit the infrastructure that already exists in Western Australia and identify the longer term infrastructure needs for industry and community development. The study will be the first stage in the development of a co-ordinated State Infrastructure Strategy to provide a whole-of-government approach to identifying specific priorities for the allocation of resources to infrastructure projects over the long-term.

The Western Australian Government has also developed a Strategic Planning Framework for the Western Australian Public Sector – within a sustainability framework – that includes the goal: “To develop a strong economy that delivers more jobs, more opportunities and greater wealth to Western Australians by creating the conditions required for investment and growth”. Strategic outcomes include “greater economic infrastructure that facilitates new development”.

In the past, high levels of state debt relative to revenue have inhibited public investment in infrastructure in Western Australia and some other States. More recently, levels of State debt have fallen to a level where governments have more room to make infrastructure investment decisions before threatening AAA credit ratings. That said, demands for infrastructure are increasing and governments need frameworks and mechanisms for assessing infrastructure needs and priorities.

Recommendations

3. The Commonwealth should develop a whole-of-government infrastructure policy to provide a framework for Commonwealth involvement in infrastructure provision in close co-operation with State and local governments, particularly in the development of strategic infrastructure to support major development of national significance.
4. The State Government, in consultation with local government should expedite development of a comprehensive, whole-of-government State Infrastructure Strategy with a key objective of state economic development within a sustainable development framework. Key elements of this policy should include:
 - Integration of the provision of all classes of social and economic infrastructure in support of development;
 - An economic development focus to all infrastructure planning;
 - Policies for direct government involvement;
 - Mechanisms to identify opportunities for private sector and involvement of government business enterprises (GBEs) in infrastructure provision, and facilitation of such involvement;
 - Mechanisms to assess relative costs and benefits of infrastructure on a case-by-case basis;
 - An integrated view of infrastructure, including “hard” infrastructure (e.g. energy, roads, ports, community facilities), “soft” infrastructure (e.g. research, training), and both traditional and new economy infrastructure (e.g. innovation, skills development); and
 - Cabinet-level and cross-agency co-ordination of infrastructure planning, including redefined roles for existing infrastructure co-ordination bodies.

Private Sector Involvement

A goal of governments should be to maximise private sector provision of infrastructure in order to reduce the cost and finance burdens on governments, reduce risks and maximise efficiency of both delivery and operation.

Recommendations

5. Within revised infrastructure policies, Commonwealth, State and local governments should develop further ways in which to encourage private sector involvement in major economic infrastructure, either through direct provision by proponents, provision by third party providers, or through appropriate public-private partnership (PPP) arrangements. Governments should actively seek to extend private sector infrastructure provision to resource development projects through:
 - Better appreciation of, and approaches to management of risk to both providers and governments;
 - Taxation regimes conducive to investment in high capital cost, long life assets;
 - Revision of regulation of infrastructure assets to provide long-term benefits to customers and the economy; and
 - Western Australian Government undertaking systematic performance reviews of strategic infrastructure provision (however provided) to assess long-term economic benefits/costs of different mechanisms and cases.

Decision-making

Governments need more comprehensive, nationally consistent approaches to decision-making in order to have rigorous and transparent approaches to assessment of costs and benefits, and to better manage risk. While the Department of Treasury and Finance (DTF) and the Department of Industry and Resources (DoIR) currently have a mechanism under development for consistent assessment of costs and benefits of major projects, an approach for assessing costs and benefits of all classes of infrastructure is required in Western Australia.

Recommendations

6. Western Australia should include – within the State Strategic Planning Framework and its new infrastructure strategy – a mechanism to assess the costs and benefits of infrastructure on a project-by-project basis.
7. Western Australia and the Commonwealth (and other jurisdictions) should agree on a common project assessment methodology that examines regional, State and national economic costs and benefits.

Commonwealth-State Financial Relations

The current approach to Commonwealth-State financial relations does not adequately account for the costs incurred by States in providing major economic infrastructure for development. This creates a disincentive for States and Territories to invest in major projects that result in national economic benefit but that result in marginal or negative financial impact on the State.

Recommendations

8. The Commonwealth Grants Commission to seek to resolve methodological issues for assessment of disabilities arising from provision of major economic infrastructure by States:
 - The Western Australian Government should work with States and Territories with similar concerns to put forward alternative methodologies.
9. The Commonwealth should undertake a review of Commonwealth-State financial relations to achieve a framework that provides incentives to States to support economic development of national significance.

1 Introduction

This report, *Initiating and Supporting Major Economic Infrastructure for State Development: Opportunities for Government* examines approaches for governments to better facilitate development of major projects and in particular, facilitate provision of infrastructure to support development.

This report is the second of two on this topic. They have been prepared by the Western Australian Technology and Industry Advisory Council (TIAC) to enable a better understanding amongst community stakeholders of the issues, with particular reference to Commonwealth–State financial relations.

The first report, *Initiating and Supporting Major Economic Infrastructure for State Development: Defining the Issues* sought to identify and discuss the issues, highlighting the roles of the Commonwealth and State governments. It drew on some of the key issues raised in *The Review of Commonwealth-State Funding Final Report* (The Garnaut-FitzGerald Report) and focused them on the economic development issues that face Western Australia and other high-growth States where major projects play a major role in their economies.

The first report identifies a range of policy impediments to economic development and provision of infrastructure. This report identifies opportunities and options for governments to address such impediments.

1.1 Purpose of Report

The purpose of this report is to identify and assess options for governments to better facilitate major economic development and provision of infrastructure to support such development.

The report sets the matter of infrastructure provision within the wider policy framework of industry development, with some brief discussion of its potential contribution to the social and economic well-being of the whole community.

This report – together with the first report – aims to stimulate discussion amongst stakeholders with the goal of achieving productive debate between governments about how the identified issues might be addressed. Approaches include policy changes at both State and Commonwealth levels, and reforms to Commonwealth–State revenue sharing arrangements.

1.2 Context for Report

This report is presented against a backdrop of considerable interest in the roles of government in stimulating economic development and attracting footloose international investment. It focuses in particular on the attention given by governments to the provision of infrastructure as a mechanism for encouraging significant projects to locate in Australia.

This interest is not unique to Australia. Many other countries are seeking innovative and more effective ways of attracting foreign direct investment in the form of major projects to their shores. For this reason, a major component of this report is a survey of relevant international experience. These reviews are undertaken for selected countries, chosen on the basis that they characterise a range of government approaches to the issue – and hence a range of options considered by governments in Australia.

There is a need to be cautious about the suitability of overseas models to be fully transferred and applied in Australia. The survey of other countries demonstrates that there are very significant differences between nations with respect to climate and physical settings, systems of governance, economic and social conditions and national priorities.

Additionally, the policy settings that are effective for one part of Australia, or for one type of industry, may not work in another location, or industry. Accordingly, the international case studies include a review and assessment of the industry policy environment for the country or region within which they are set.

2 Issues for Economic Development

The Australian economy has enjoyed a long period of high growth, outperforming most other advanced countries in recent years. During the past 10 years, annual GDP growth has averaged almost 4 per cent.

There is little doubt that developments in the resources sector, notably large scale projects, have been a significant factor in this performance. The role of the resources sector is especially pronounced in Western Australia. Its economy has traditionally been driven by primary industry and, in particular over the past 40 years, by the minerals and energy sector.

The Western Australian resources sector comprises all phases of the minerals, and oil and gas industries and in future, is likely to include production of paper pulp from plantation timber. It comprises both small and large scale projects and an increasing number of downstream processing plants. Other States and Territories – notably Queensland and the Northern Territory – also have economies in which the resources sector plays a major role.

2.1 The Role of Major Projects in the Economy

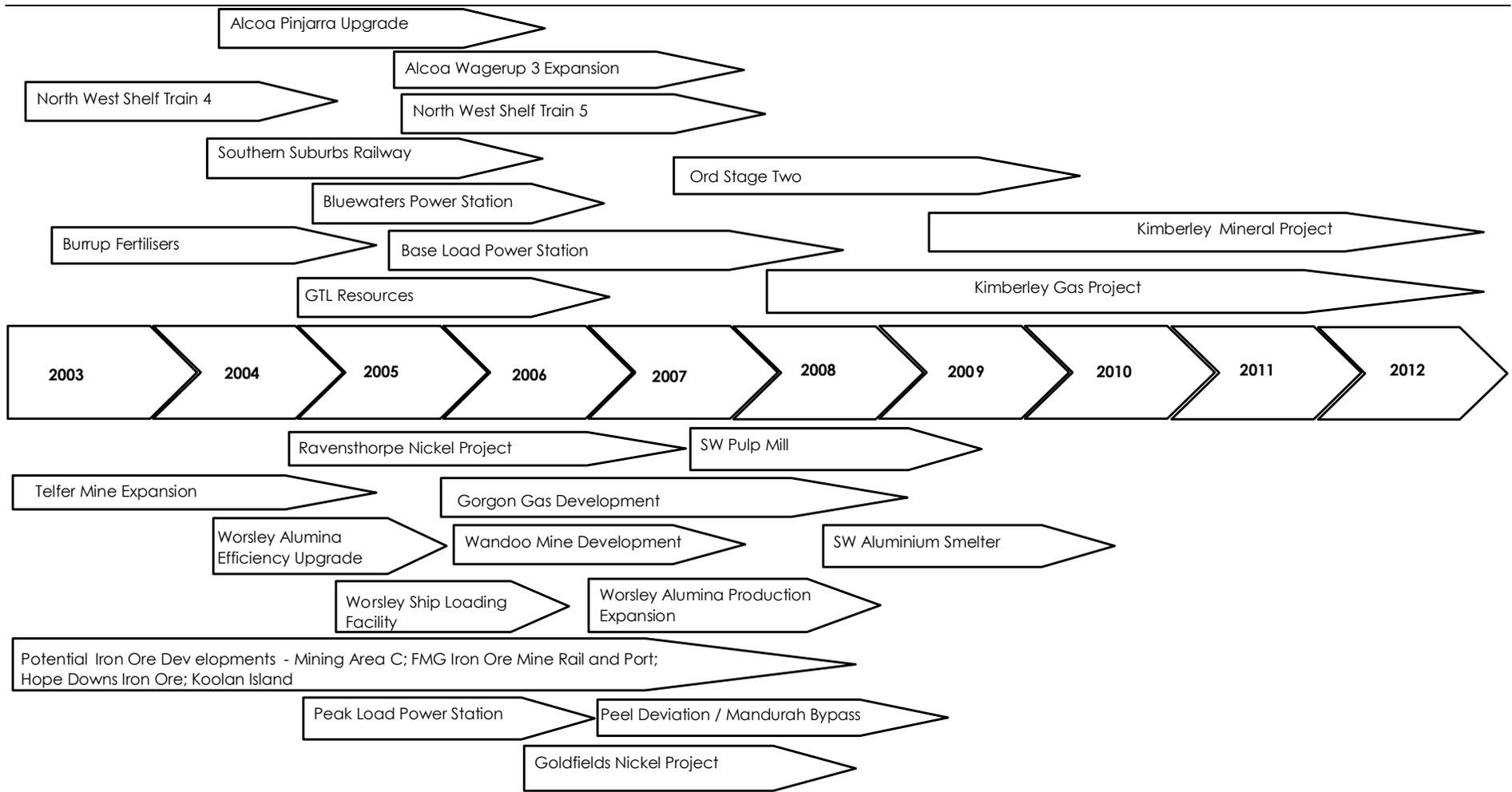
The resources sector is dominated by large, world-scale projects. To compete in global markets, agriculture and resources production and processing has to be very efficient. This usually necessitates establishing world-scale operations to achieve the required economies of scale. Western Australia currently hosts world-scale projects in products such as iron ore, LNG, alumina, gold and nickel. Western Australia's resources endowment presents further opportunities for resources development and processing. International demand for many of the products that Australia produces, or could produce, is growing. The high level of investment in LNG, iron ore, coal, DRI, alumina and aluminium reflects investor confidence in long-term market demand.

Western Australia's rich resources endowment presents significant opportunities for further resources development and processing. The most prospective opportunities include:

- a second LNG plant in the Pilbara;
- new gas processing industries in the Pilbara;
- additional iron ore mines;
- new gas-based industries (including LNG) and bauxite mining in the West Kimberley;
- expansion of downstream processing of iron ore into direct reduced iron;
- continued expansion in the world-leading alumina production region of the South West;
- potential development of an aluminium smelting industry;
- further development of the laterite nickel industry in the Goldfields and Great Southern; and
- development of a large scale paper pulp mill.

Figure 1 illustrates current and potential major projects in Western Australia.

Figure 1 Current and Potential Major Projects in Western Australia



The resources sector, with its growing value-adding component, will thus continue to underpin the economy of Western Australia for many decades. In turn, Western Australia will continue to make a major contribution to the Australian economy as a major exporter of goods.

Other industries in which Western Australia has comparative advantages include shipbuilding and agricultural processing. The State's strength in shipbuilding is principally due to technology and skills in design and large scale aluminium fabrication. In agricultural processing, the advantages include supply of cost-competitive raw materials, proximity to markets and world-class food processing technologies and systems. Western Australia's strong training infrastructure is also an advantage in ensuring an ongoing supply of skilled labour – although high, demand for labour in the next few years will be difficult to satisfy.

By attracting and supporting resources and other major projects, Western Australia is making a major contribution to national economic welfare.

2.2 The Challenge of Attracting New Investment

In the past, Australia's rich resource endowments were sufficient in themselves to ensure that resources development would proceed. Developers of major mining and petroleum projects often shared with government the responsibility to provide much of the social infrastructure such as townships, community facilities and economic infrastructure such as water and electricity supplies – as well as project-specific infrastructure, such as railways and ports.

However, the nature of major developments has changed during recent years:

- Competition in commodity markets and steady downward trends in real prices mean that the economics of major projects are often less robust than in past times;
- There is now a great deal more competition for the investment dollar between would-be project developers seeking equity funds and within major global corporations that have an range of investment opportunities before them at any one time (projects often compete for capital funds with similar projects in alternative locations);
- Some projects are not location-dependant as they do not depend on access to resources (e.g. gas) in a particular location, but have several alternatives;
- Australia is seeking to host more downstream processing projects, which typically have access to alternative locations elsewhere; and
- To be competitive in international markets, major developments need to be built and operated to world's best practice, and generally to be of a very large scale.

At the same time, other countries that compete with Australia have improved their attractiveness for investment in major development:

- Developing countries have reduced the traditional uncertainties for potential investors by implementing more certain regulatory and fiscal regimes; and
- Several countries offer substantial incentives for potential investors – including infrastructure and tax concessions – making them an attractive location for new project investment.

The challenge for Australian governments, therefore, is to develop and enhance the investment climate so that it is more attractive for potential investors in large projects. This challenge has a number of dimensions. Attracting investment requires attention to approvals processes, regulation, energy supply, and infrastructure – as well as the other more generic issues such as taxation regimes, exchange rates and sovereign risk.

2.3 Maximising the Benefits

Most investment in major projects is likely to be foreign direct investment (FDI) by multi-national corporations. While such investment is likely to have positive effects on the national economy, governments wish to ensure that substantial economic benefits flow to local and State economies as well. In assessing the costs and benefits of attracting FDI in the term of major projects, governments typically assess the direct revenue impacts relative to the costs of any assistance provided in the form of infrastructure or other mechanisms. They also need to assess the “spillover” effect that such projects can have on the broader economy through employment, development of service businesses, technology transfers, and development of skills and capacity.

The achievement of such benefits often requires light handed policy intervention by governments to facilitate (for example) Australian and local industry participation, and local research and development activities. Typically, this involves companies committing to industry participation programs in exchange for tariff concessions on imported equipment. In framing such government policy, care must be taken not to erode project economics to the extent that competitiveness is adversely affected.

2.4 The Role of Government

Resources operations are typically located in rural and remote regions of Western Australia and other parts of the nation, close to the deposits of minerals, coal, oil and gas on which industry is based.

There are growing impediments to providing essential infrastructure for major projects. Resources projects find it increasingly difficult to provide infrastructure themselves and remain competitive in the global marketplace. Third party infrastructure providers also find it less attractive than previously to provide infrastructure on commercial terms.

Changing government priorities and limited funds mean that resources for government infrastructure provision are limited. The community is demanding increasing levels of government infrastructure and services – for example in public transport, metropolitan roads, health, aged care and education. Despite lower government debt levels in recent years, such demands mean that governments still have to make substantial trade-offs between expensive infrastructure for communities and infrastructure to support major development, typically in regional areas.

The Government of Western Australia contends that current Commonwealth-State financial arrangements provide substantial disincentives to high-growth States to provide infrastructure and incentives in order to attract projects of national economic significance.

The State Government maintains that about 90 per cent of royalty revenues from projects that occur in Western Australia are redistributed to other States through the Commonwealth Grants Commission mechanism. That is, while the revenue benefits from the strong Western Australian economy are redistributed to poorer performing States, the costs of attracting resource projects and providing infrastructure to support State and national economic development, while recognised by the Grants Commission, are not taken into account in assessing revenue sharing relativities.

This problem is exacerbated in the case of offshore oil and gas projects, where the Commonwealth receives both Petroleum Resource Rent Tax and company tax payments directly, while the State incurs most of the costs of onshore infrastructure to support such projects.

In August 2002, the Treasurers of New South Wales, Victoria and Western Australia released a report titled *Review of Commonwealth-State Funding* (The Garnaut-FitzGerald Report¹). The Report concluded that equalising the fiscal effects of a State's good or poor economic performance, as undertaken by the Commonwealth Grants Commission, dulls incentives for growth-promoting policies, and distorts decision-making.

Based on the findings of the Garnaut-FitzGerald Report, the Government of Western Australia made several submissions and representations to the Commonwealth Grants Commission for consideration in its 2004 Review of State Revenue Sharing Relativities. The submissions requested the Commission to review its formulae so as to take account of State expenditures on economic development.

As a result of the Grants Commission's 2004 Review, there is now improved recognition of differential needs across States for indirect support for economic development in the form of social infrastructure (schools, hospitals, police stations, etc), major State roads, and budget subsidies for the provision of water and electricity services to the general community in regional areas.

Still not recognised, however, are any differential needs across States for direct industry development assistance (including infrastructure subsidies or other assistance for the specific benefit of firms, project attraction incentives, geological mapping programs, marketing schemes and other promotional programs) and subsidies for electricity in regional areas that are funded through cross subsidies among consumers (rather than from State budgets).

In addition, the Grants Commission's assessment of each State's revenue raising capacity continues to be based on the actual level of taxable economic activity in each State², without regard for the impact of past and present State assistance and other policies which may have impacted on the level of economic activity.³

¹ Ross Garnaut and Vince FitzGerald, *Review of Commonwealth-State Funding*, August 2002.

² Including royalties on mineral production.

³ With the exception of a few policies that have a direct impact on the revenue base (e.g. restrictions on poker machine gambling; stamp duty exemptions on certain transactions, etc).

The Grants Commission said in its 2004 Report⁴ that it was not convinced on conceptual and practical grounds that equalisation would be improved by alternative approaches. The Commission appeared to leave the way open for further examination of methodological issues, however. It suggested a review of equalisation principles in close consultation with the States and Territories prior to the next review in 2009, as well a Commission work program to address some of the issues raised by States.

The Commission also pointed out that the issues went beyond its remit to matters of Commonwealth Government policy.

2.5 The Foundations for Government Involvement

There are a number of features of major projects that represent a basis for government involvement in their facilitation. These are:

- Economic impact: Projects are large and involve a large capital expenditure and ongoing operation costs, usually for a long-term. They have large direct and indirect impacts on regional and State and national economies.
- High start-up costs: Partly because of their size, but also because of their impact, significant projects are required to undergo extensive approvals processes.
- Long life: The usually long life of these major projects brings special forms of risk. Over the decades of a project's life, markets may well change, as will exchange rates and technologies.
- Potential for sovereign risk: Other matters within the control of governments may also change – regulatory regimes, taxation regimes and domestic cost structures can all change to the benefit or detriment of the project and its viability.

It is clear that one area where governments can play an important role is in making the investment environment as clear and as predictable as possible. This means well understood and light-handed regulation that is well founded and hence not subject to frequent change. It means approval processes that are clearly stated and transparent, streamlined, and applied with consistency.

Additionally, there are other sound and practical reasons for governments to facilitate selected major projects and infrastructure. These reasons generally take the form of “market failure”, and are usually considered under the following headings.

1. The infrastructure is a “public good”: it is not practical to exclude some users. An example might be a shipping channel that is required for the first project to establish in an area. If this circumstance is left to the workings of the free market, the first project would bear the full cost of surveying and dredging the channel, whereas subsequent projects might well be able to access it for nothing or at much less cost. (Typically shipping channels into port areas are constructed by port authorities, which levy user-pays charges.)

⁴ Report on State Revenue Sharing Relativities – 2004 Review, Commonwealth Grants Commission, February 2004.

2. There are significant externalities: there are non-market benefits which, if they are not taken into account, lead to an under-provision of infrastructure. For example, the development of a freeway benefits property owners in the area as well as users. If this positive externality is not taken into account, (which the free market would not be able to do because it has no means of capturing the extra benefit), there will be less production than that which would maximise social well-being.
3. The infrastructure is a natural monopoly – that is, it is cheaper to have one supplier than several – and high prices will be charged (and large profits made) if provided privately unless regulation is implemented at the outset to provide for a commercial access regime.
4. They are of a large scale, hence challenging to construct and to finance. This is probably less of a consideration in Australia today with well developed financial markets and considerable experience and know-how in construction and financing of major projects. However, any regulation of infrastructure needs to take full account of risks and returns.

2.6 Defining the Issues

The review of international experience and case studies in the previous report highlight the following as the most relevant issues for government in the facilitation of economic development.

1. The cohesiveness of the approach to government involvement – where there are several governments involved (as there always will be in Australia), the extent to which they integrate their approaches, communicate with each other and have common approaches to information required and timing of commitments:
 - Importantly, this also includes consistency in terms of form of commitment. The practice of the Commonwealth Government providing funds to the proponent for common user infrastructure while the State governments tend to fund infrastructure directly can and has led to poor outcomes.
2. The consistency and transparency of governments' rationale for involvement – the certainty with which the public and proponents can understand how governments will become involved and why:
 - This includes the use of methods to assess the value of infrastructure at a micro level – such as cost-benefit analysis – and that information being made available to the public.
3. Management of risks – how support can be provided and policies implemented that:
 - Do not result in government providing funding for infrastructure or projects directly that do not proceed or do not deliver the expected benefits; and
 - Provide a policy and regulatory environment to assist private sector infrastructure providers to achieve returns commensurate with risks.
4. The use of direct support versus the use of incentives – governments can provide support through generic incentives rather than targeted assistance, with project proponents and private sector infrastructure providers fully responsible for project specific infrastructure:
 - Accelerated depreciation for certain asset classes and regulatory regimes that provide incentives for investment are two examples.

5. The importance of policy and the business environment in influencing the attractiveness of investment in major projects and infrastructure – with negative examples in Australia including:
 - Approvals processes that remain complex, time consuming and costly, despite government efforts to streamline them;
 - High construction costs in remote parts of Australia, notably the Pilbara; and
 - Regulatory policies and processes relating to infrastructure such as gas pipelines that have increased risks and reduced returns for investors.

Any discussion on funding of infrastructure for major economic development must also take into account the wider policy issues affecting investment in projects and infrastructure in Australia.

6. The need for Commonwealth-State financial arrangements to provide incentives to States and Territories to foster major development for national benefit.

3 Infrastructure Provision Elsewhere

3.1 Case Studies Documented

The Appendices to this report provide a number of detailed case studies of how other countries and States have addressed the need for infrastructure and other forms of development assistance to investors in major projects. This chapter and Chapter 4 draw on those case studies and summarise approaches.

Bodies such as the International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD) and United Nations Conference on Trade and Development (UNCTAD) also publish reports on investment patterns and facilitation. Relevant findings for several of these reports are summarised, also.

Jurisdictions examined in detail are:

- Singapore
- Malaysia
- Canada
- Trinidad and Tobago
- Qatar
- The United Kingdom
- Queensland
- Victoria

Comparatively few jurisdictions⁵ around the world have programs aimed at providing targeted economic infrastructure to support large scale projects. Many, however, have programs that provide infrastructure to support smaller-scale industrial development. Most countries have programs to facilitate investment of various kinds and to provide targeted industry assistance or incentives. All situations hold lessons for Australia and Western Australia in facilitating industry development and provision of major economic infrastructure.

The following sections summarise the principal types of infrastructure that are provided. Chapter 4 examines mechanisms for provision of infrastructure, again drawing on the case studies.

3.2 Government Funded Multi-user Infrastructure

3.2.1 Industrial Estates

Most jurisdictions examined provide industrial estates for light and medium industry. They are very common in Australia. Typically, these estates have appropriate zoning under planning schemes, include serviced land with roads, water and energy supplies and are located close to, but sufficiently distant from, towns that provide both markets and workforces.

⁵ “Jurisdictions” in this context is inclusive of both nations and states or provinces within nations.

Some are located near to heavy industry zones to house service industries. In some cases, industrial estates have been subject to strategic environmental approval, making case-by-case approvals for new facilities a relatively straightforward process.

In many cases, such areas are provided by state or provincial governments, or by local government. Some countries – for example the US and Canada – have federal funding programs that contribute to infrastructure for development, particularly in economically depressed areas or areas undergoing industry restructuring. In some federations, such as Malaysia, both state and the central government provide industrial estates and co-ordinate service provision to them.

Most state, provincial and local governments providing such infrastructure do so in the belief that the net returns outweigh the costs over a relatively short timeframe and that returns are substantially to the region in which the infrastructure expenditure takes place.

This is the case in Australia, with the possible exception of areas such as the Pilbara, where local government believes that it is not gaining sufficient return from existing infrastructure and large scale industries to be able to provide substantial new funding for either economic or community infrastructure.

In some cases, development of industrial estates leads demand by a considerable period. In other cases, such estates lag demand, potentially leading to opportunity costs when industries have nowhere to locate to service a new market. A local example is the lack of light industrial land in the Peel region, which may inhibit the development of industries to service both the growing mining and processing sector, and provide goods, services and jobs to the rapidly growing population of the region.

3.2.2 Industrial Zones

“Industrial zones” in the context of this report are classed as areas provided for large scale industrial projects. They may include some or all of:

- Heavy industrial zoning;
- Cleared, level land;
- Road infrastructure;
- Port infrastructure;
- Cooling and process water supplies;
- Electricity and gas infrastructure;
- Strategic environmental approvals;
- Land access agreements with traditional owners; and
- Nearby worker accommodation and other social infrastructure such as schools and hospitals in towns.

In all cases, such estates have been provided by governments, either directly or through government-owned corporations. There are several examples around the world of such industrial zones. Case studies from Qatar, Singapore, Trinidad and Tobago, Queensland and Western Australia are detailed in the appendices and are summarised below. Most of these zones are very large, with deep-water port facilities, energy infrastructure, roads and water supplies.

In some countries (e.g. Trinidad and Tobago and Malaysia) these zones may also be classified as “free zones” which are dedicated to export industries and which provide for low or zero rates of import and export taxes.

Trinidad and Tobago

Trinidad and Tobago has one current operating industrial zone, a world-class industrial estate with deep-water harbour and related facilities at Point Lisas. This zone is the hub of Trinidad’s natural gas industry. It is home to more than 100 tenants, including all of the country’s petrochemical plants and many service industries. Currently, over 7.6 million tonnes per annum of gas-based commodities are exported from Port Point Lisas. An iron and steel industry is located close by. Facilities include port facilities, roads, cleared land and utilities for industry.

The La Brea Industrial Estate, with its accompanying natural deep-water harbour at Brighton, was developed as an alternative industrial site to Point Lisas. At present, La Brea offers dock and deep draught harbour facilities, site and utilities for land-based industries, bio-remediation and offshore logistical support.

These estates have been developed by a State-owned business enterprise, The National Gas Company of Trinidad and Tobago Limited and associated companies (NGC group). The NGC group is engaged in:

- Marketing, transmission and distribution of natural gas for the domestic market;
- Market development activities, including project facilitation and investment promotion, project planning and market research;
- Port, marine and industrial site/infrastructural development; and
- Offshore gas compression activities, which provide the country with its most cost-effective supply of natural gas for power generation.

Singapore – Jurong Island

JTC, a state-owned corporation, developed Jurong Island by amalgamating and reclaiming seven islands off the south-western shores of Singapore. In 2001, Jurong Island hosted 72 companies investing close to S\$22 billion in oil refining, petrochemical manufacturing, specialty chemical manufacturing and supporting facilities.

The breadth of companies and the infrastructure and key support facilities means that Jurong Island is developing comprehensive manufacturing processes. The recently installed chemicals logistics park is a prime example. It commenced in September 2003 to assist manufacturers to ship their chemical products from Jurong Island. Other infrastructure facilities include: sewerage treatment; electricity and gas supply; information and communication services; chemical process technology centre; fire safety; efficient public transport system and road network; and an amenity centre.

Malaysia

Malaysia has few dedicated heavy industrial zones, but has created a number of zones of large scale manufacturing. These include Free Industrial Zones for industries that produce mainly for export and the Multimedia Super Corridor, which contains high quality communications and electricity infrastructure and is covered by “secure cyberlaws”.

Qatar

Ras Laffan Industrial City (RLC) is a 106 km² industrial city located on Qatar’s huge North Gas Field, on the Arabian Gulf and approximately 80 km north of the capital city of Doha. RLC is operated by the state-owned Qatar Petroleum and is one of the world’s fastest growing industrial export locations.

The RLC was developed as a result of a 1990 strategic plan to utilise Qatar’s natural gas reserves. It was designed to accommodate a large number of gas-based industries. A substantial amount of infrastructure has been developed to attract projects to RLC. It is home to the world’s largest LNG port. Other common facilities include: desalination and cooling seawater systems; berthing facilities; pipe racks for GTL transfers; export storage tanks (on reclaimed land); roads; sewerage; surface drainage; telecom services; non-hazardous waste disposal; and landfill facilities.

Significant funding was provided for these extensive facilities. Funding for the port construction (between 1991 and 1996) was US\$830m and land infrastructure cost US\$30m. There has also been funding provided within the government investments in joint venture companies (for example, there was a US\$4,000 million investment in Qatar gas between 1993 and 1996 and US\$3,000 million in RasGas between 1995 and 1999).

Gladstone State Development Area

In Australia, the Gladstone State Development Area is a prominent example of an integrated industrial zone. It is not contiguous, but is made up of smaller industrial areas in the Gladstone-Calliope region. It provides all of the facilities that are available in some other countries. General infrastructure has been provided by State and local government as the region has developed. This includes heavy-haul railway, electricity supplies, water and general port facilities.

Industry-specific infrastructure, such as specialised port facilities, and electricity and gas supplies have been provided or funded State and Commonwealth governments in response to the needs of committed projects.

Burrup Peninsula

The Government of Western Australia has committed to fund Burrup Peninsula infrastructure to the value of \$183 million both directly and through government business enterprises (GBEs), including the Water Corporation and Dampier Port Authority. While a proportion of the cost of this infrastructure will be recouped over time from user-pays charges, State involvement has been necessitated by the lack of certainty of the timing of projects (and which will proceed), and by the (initially) sub-commercial returns on infrastructure.

While it was intended to provide services for several expected gas-processing facilities, to date only the Burrup Fertilisers project is being constructed. The commitment of this project triggered the infrastructure commitment. A gas to liquids proposal by GTL Resources recently received conditional support through the Commonwealth Strategic Investment Co-ordination (SIC) process and could proceed shortly.

In contrast to State provision of multi-user infrastructure, the Commonwealth has determined infrastructure funding on a project-specific basis – although the funding is intended to be for “common-user” infrastructure. This has led to some misalignment between State and Commonwealth, particularly when projects have not proceeded or other projects have a need to access this infrastructure.

With industrial land on the Burrup likely to be fully committed in the next few years, the State Government is looking to develop other heavy industrial zones in the Pilbara. The Maitland-West Intercourse Island area, also near Karratha, is the most likely to proceed, but the Government estimates that expenditure of a further \$300-500 million in infrastructure spending will be required.⁶ Basic infrastructure such as road access, port facilities and utilities will be required to support future projects in these areas.

Much of the required infrastructure capital spending may not be recovered directly through user charges. The capital funding will not be affordable by the State under current Grants Commission arrangements, as the State will not be able to recover these costs from the fiscal benefits generated by the development. This is an important example of the adverse impact that the Grants Commission process can have on State development policies, and the negative national impacts that may result.

3.2.3 Ports

Port facilities are usually integral to industrial zones, for example in Trinidad and Tobago, Qatar, Singapore and the Burrup Peninsula. In some cases, however, port facilities are developed separately and at some distance to projects that use them. This is often the case when ports have predated major development and potential for heavy industrial sites immediately adjacent to new ports is very limited. Malaysia is an example of this situation, whilst in Canada, primary resources are often located far inland. Western Australian examples are the ports of Geraldton, Bunbury, Fremantle, Albany and Esperance, which are all utilised by major projects located some distance away. The Gladstone-Calliope region has developed around a natural deepwater harbour, with port facilities being progressively expanded and tailored as industries have developed.

Ports by their nature are usually multi-user facilities or have major elements (channels, navigation aids, general purpose wharves, etc) that are multi-user. Some ports are single-user, however. Most ports contain specialised loading facilities that are single-user (e.g. wheat, alumina, iron ore loading). These facilities are often constructed, owned and operated by the user but can also be constructed by port authorities and operated on a user-pays basis. In some cases, hybrid arrangements may be used.

⁶ Western Australia's Rejoinder Submission to the Commonwealth Grants Commission, Department of Treasury and Finance, March 2003.

In Australia, GBEs (port corporations) usually own and operate multi-user ports on a commercial basis. Governments allow them to borrow to undertake capital works and to charge for usage of port facilities. However, the nature of capital works and the requirements of new users means that investment may not generate commercial returns in the early years of operation, or until additional users arrive. In such cases, governments may subsidise port operations through payment of “community service obligation” payments to bridge the shortfall in returns. This is being done for the Dampier Port Authority, which is constructing a large multi-user wharf to service the future GTL Resources project and fertiliser industries.

The Commonwealth recently agreed to provide funds to the Dampier Port Authority to provide facilities to the GTL Resources project. The provision of these funds is subject to the project proceeding and an agreement being reached with the State Government regarding the “hypothecation” of the Commonwealth funds into concessional usage charges to GTL Resources.

In Gladstone, the State Government has provided funding for port facilities both directly through the port authority and indirectly through infrastructure funds to project proponents.

3.2.4 Railways

Most railways are multi-user facilities. Efficiency and economic imperatives dictate this. The principal exceptions in Australia are the iron ore railways of the Pilbara, which were constructed by iron ore companies for their own use. Even in this case, operation of the Mt Newman railway is subject to an agreement with the State Government to provide access to other iron ore producers under defined conditions.

The use of iron ore railways in the Pilbara is the subject of increasing debate. Future iron ore mines operated by new entrants to the Western Australian industry will require railways to transport product to ports. Project proponents argue that it is more efficient to utilise much of the existing railway infrastructure of the incumbent and competing producers, rather than construct completely new railways that run substantially in parallel. Incumbent producers argue that their railways are optimised as an integral part of their production chain and that third party access arrangements are difficult to accommodate.

In this case, the role of government is as a regulator and mediator, not as an infrastructure provider.

The multi-user nature of railways and their very high up-front costs have led to governments constructing most of Australia’s railways, or providing a substantial part of the capital cost (e.g. Alice Springs to Darwin railway). In Queensland, the State Government has made major investments during the past 35 years in new railways running between the Central Queensland coalfields and ports. These investments have resulted in substantial long-term returns to the Government through usage charges, though up-front costs were very high.

3.3 Purpose-built, Project-specific Infrastructure

Purpose-built, project-specific infrastructure may be provided in a number of ways:

- Project developers can provide it themselves (for example an iron ore railway and port);
- Specialist infrastructure providers, including government business enterprises, can construct and operate infrastructure and receive payment from users (e.g. a gas pipeline or electricity supply); or
- Governments may provide or fund infrastructure directly (e.g. roads, which can be paid for through licensing charges).

The Commonwealth Government has determined infrastructure funding almost exclusively on the basis of providing infrastructure for a particular project, but on the condition that it is “multi-user” in nature. Support is provided directly to project proponents (for example, the Comalco Gladstone alumina refinery) while being conditional on infrastructure being made available to other users on commercial terms.

The Queensland Government has provided funding for project-specific infrastructure to project developers, recent examples being:

- Support to the now-defunct Australian Magnesium Project of \$50 million toward the development infrastructure at the Stanwell Energy Park and \$24 million for a waste-water pipeline and upgrading of a treatment facility. This infrastructure had potential to service other commercial and industrial users in the Stanwell Energy Park, who would have paid commercial rates for its use.
- \$150 million funding for common user infrastructure to support the Comalco Alumina Refinery at Galdstone: 2 wharves, 2 conveyors and one caustic tank; a rail loop and coal unloading facilities; a fibre optic telecommunications cable and telephone connections; a road loop to the site; a haul road for heavy equipment during construction; and heavy lift barge unloading facilities.

4 Mechanisms for Infrastructure Provision

Mechanisms for provision of infrastructure can be considered separately from the types of infrastructure provided. Provision of some types of infrastructure may be best suited to certain mechanisms, but for most infrastructure types, a range of options are open.

4.1 Provision by the Private Sector

Responsibility can be taken by the private sector for infrastructure where they can charge users and gain an adequate financial return over the length of the project, or where they benefit from the infrastructure to the extent that it is worthwhile funding it privately. Much project-specific infrastructure is funded in this way – for example, the port facilities for the North West Shelf Venture and the rail and port facilities for the Pilbara iron ore producers were provided by the project owners. In such cases, infrastructure owners expect to be the sole or principal users and access by other parties, if granted, is usually under a strict access regime that does not compromise the utility that the owner seeks from the infrastructure.

Other infrastructure can be provided by specialist private sector operators. Gas pipelines in the Pilbara and Central Queensland typify third party financing arrangements. In future, more rail infrastructure for industry is likely to be provided in this way. For example, there is a proposal for privately-owned multi-user railway lines in the Pilbara, while the Emu Bay Railway in Tasmania and the Silverton Tramway from Broken Hill in NSW (both now sold) are past examples.

Even where the “below rail” infrastructure may be provided by a government enterprise, “above rail” services using privately owned and operated locomotives and rolling stock may provide the haulage services.

4.2 Use of Government Business Enterprises

One approach to infrastructure provision is for governments to call on their own business enterprises to undertake the construction, or to project manage the construction, and/or to manage and operate the infrastructure. Government business enterprises (GBEs or State Owned Enterprises in some countries and Public Corporations in Western Australia) are government owned businesses structured as far as possible on commercial lines. The advantage of this approach is seen to be that a government can use its commercial arm to deliver assets and services at a competitive rate, but with the government retaining control of the investment program.

Governments can also use other agencies (e.g. main roads departments) – see Section 4.3.

It should be noted that the use of GBEs does not diminish the exposure of governments to scrutiny of debt by credit rating agencies. These agencies examine capacity to service total government debt, including debt held by GBEs.

Major industrial zones in other countries have been constructed and are managed almost exclusively by GBEs. In Australia, GBEs construct and operate port facilities, electricity infrastructure (but no longer gas supply infrastructure), water supply infrastructure and some heavy-haul railways.

In their pure form, GBEs are established under Corporations Law with:

- A straightforward profit objective, subject only to good corporate behaviour, ethical dealing etc;
- No advantages conferred by government ownership - e.g. no purchasing preferences, normal liability for tax (or payments to the government equivalent to normal tax), no statutory monopoly, no subsidies or subsidised inputs, no cheap government borrowing;
- No disadvantages due to government ownership – e.g. no requirement to hire excessive numbers of staff;
- No political interference;
- Community service obligation (CSO) (subsidy) payments for any requirement to operate uneconomic activities that a government requires them to undertake;
- Accounts prepared on normal private sector (not public sector) lines;
- An expectation that dividends will be paid with average returns on capital similar to returns by private businesses facing similar levels of risk;
- Borrowing in the market rather than from the government (although some GBEs are able to borrow at concessional government interest rates); and
- A Board of Directors made up of independent individuals with relevant business experience – no ex-officio public servants or political appointees.

This mimicking of private sector form and disciplines is usually called “corporatisation”.

GBEs contrast with the traditional form of government owned business which was a department or statutory entity which had mixed (and often conflicting) objectives, was subject to many of the public sector controls (on staffing, wage rates, investment levels, etc), financed “cheaply” by the government, required to undertake uneconomic activities for political reasons, etc. There are few such entities remaining in Australia, but they remain relevant as a comparator with GBEs. Some GBEs are still subject to government intervention, in the form of ministerial direction or informal “requests” to undertake certain activities.

The relationship to infrastructure investment is that GBEs are presumed to make rational commercial decisions independent of government budget constraints and rules. They would thus be more likely to invest where it was commercially sensible to do so, whereas the history of traditional government businesses was often one of stop-start investment depending on the government’s budget position, and a tendency to delay investment due to low or negative profits, or other non-commercial considerations.

There remains, however, an inherent tension between the commercial remit of GBEs and the desire for governments to have them invest in infrastructure that may not be commercial, at least in the short-term. There is also a problem with lack of transparency of the real net costs of providing infrastructure, the requirement and quantum of CSOs and the real amount of government subsidies provided through various mechanisms. These issues make it difficult to directly compare experiences between countries.

The value of using corporatised entities is unclear in practice. A study was done by the New Zealand Treasury several years after the corporatisation wave of the 1980's to see if the GBE model was working as well as anticipated. It was found that substantial gains in efficiency (e.g. costs per unit of output were down 20-30 per cent), customer responsiveness and profits had been achieved in the first three years or so after corporatisation. However, after that the gains flattened out. GBEs gradually started to resemble government departments again – the GBE form was not stable in the medium term.

Observation of Australian GBEs suggests that the issues are the same here. A recent Productivity Commission research paper⁷ compared and contrasted the various corporatisation models used in Australia. It found that some were more effective and efficient than others and that more 50 per cent of GBEs were not achieving commercial rates of return.

4.3 Government Borrowing and Use of Government Agencies

Governments may also use their departments or agencies (as distinct from GBEs) to construct and maintain infrastructure. Examples include provision of roads by main roads departments, schools by education departments and hospitals by health departments. Such departments borrow either directly or through treasury agencies to fund such infrastructure. In some cases revenue (e.g. licence fees) are used to fund and repay this debt; in other cases there is no cost recovery.

This section discusses a view expressed in the media from time to time: that State governments (Western Australia included) have now overcome their past history of excess debt and are now at the other extreme, reluctant to borrow (for infrastructure investment) because of undue weight placed on the objective of maintaining a AAA credit rating.

Credit ratings agencies give high ratings to organisations that exhibit prudent financial management, do not have too much debt, and face good business prospects. The high ratings substitute for, or confirm, the financial markets' own judgement – it is safest to lend to businesses with these characteristics. In other words, high credit ratings mean low interest rates on borrowings. While this relationship seems to be universally accepted, there is no empirical evidence that would enable a direct relationship to be quantified.

Governments in Australia today are very conscious of the need for prudent financial management and reduced debt – and hence higher credit ratings. This is true at both the State and Commonwealth levels in Australia, and in many other countries.

Governments see prudent financial management, and low debt levels, as important in themselves. They are also given special importance because of the attitudes of the credit ratings agencies. Such agencies tend to make judgements of credit worthiness on the basis of the net debt ratios for an economy, almost regardless of the reasons for that debt having been incurred.

Some media opinion suggests that the credit-ratings-driven approach means that governments are not undertaking desirable infrastructure investment, and that economic development is therefore falling short of potential. Some of the comment implies that almost any government financed infrastructure will lead to economic gains. Why turn this down for the sake of a credit rating?

⁷ Financial Performance of Government Trading Enterprises 1998-99 to 2002-03, Productivity Commission Research Paper, 20 July 2004.

State debt to revenue ratios are generally putting less pressure on AAA credit ratings now compared to the past. The debt to revenue ratios of most States, including Western Australia are now well below the 50 per cent benchmark below which ratings agencies seriously consider a ratings downgrade. In the early 1990's, Western Australia's debt to earnings ratio peaked at above 70 per cent, causing ratings agencies to re-rate Western Australia downwards.

There are a number of reasons for government caution, besides the financial ones just mentioned. One is the number of examples of poor infrastructure investments by government. Fundamentally, it is impossible to generalise that governments are either over-investing or under-investing on infrastructure. Each infrastructure investment needs to be dealt with rigorously on its individual merits. A close financial analysis is required for each case, including an assessment of likely levels of usage and a rigorous cost-benefit assessment.

4.4 Public-Private Partnerships

Public private partnerships (PPPs) are a relatively new means of providing infrastructure which can overcome financing and other bottlenecks associated with traditional public sector provision. They offer a means of accelerating infrastructure development for sound projects.

To date, PPPs have been used mostly for multi-use, high-utilisation urban infrastructure. There are few examples yet of PPPs being used to provide economic infrastructure that directly supports major development. This is principally due to the higher risks involved and often low initial returns. However, PPPs offer one potential mechanism to fund and provide infrastructure.

“Public-private partnership” is an umbrella term used to describe arrangements where both the public and private sectors are involved in the delivery of public infrastructure and related services. PPPs encompass sub-categories such as BOOT (build own operate transfer) and DBFO (design build finance operate). Traditional public service provision (now that the public sector no longer undertakes construction itself) is DBT (design build transfer).

PPPs often involve transfer of the asset to the government after a number of years (e.g. 30+ for toll motorways), though transfer is not a necessary feature. It is presumed that at the time of transfer, the government would re-tender ongoing operation and possible upgrading to the private sector – either to the same company as before, or a rival.

PPP schemes offer a compromise between the polar options of complete privatisation, on the one hand, and state owned and supplied infrastructure, on the other. They are promoted as a mechanism whereby governments can secure value for money in the delivery of public infrastructure services.

A PPP is generally seen as being distinguished by the characteristic that the private sector provides the capital assets and the services they generate and bears the asset-related risks, while the public sector facilitates and contracts for the project and either buys the services produced (e.g. a courthouse or school) or subsidises them (e.g. public transport). Alternatively, government can see a PPP as a substitute for services it would otherwise have provided itself (e.g. a toll road).

Key value for money drivers are usually seen as:

- **Risk transfer:** Allocating some of the risk to a private party, which can better manage them at least cost, can substantially reduce the overall cost to the government.
- **Whole-of-life costing:** Integration of up-front costs with ongoing service delivery costs.
- **Innovation:** Using competition as an incentive for bidders to develop innovative solutions in meeting output specifications.
- **Asset utilisation:** Private sector providers are motivated to develop opportunities for revenue beyond the government payment stream and this is used to reduce the cost of services to government.

The essential proposition underlying PPPs is that better value for money can be achieved through accessing the efficiencies and innovations brought by the private sector and by allocating to it the risks that it is better placed to manage at lower cost.

Although not all PPPs achieve what is expected of them, there is now evidence suggesting that significant cost savings can be secured from PPP delivery – typically in the order of 15 to 20 per cent relative to the public sector alternative.

4.5 Intergovernmental Financial Relations

Intergovernmental financial relations are very prominent in the debate on provision of economic infrastructure. The Commonwealth Grants Commission (CGC) has recognised the importance of the economic development issue.⁸ The issue arises because of a conflict between the principle and practice of fiscal equalisation.

The principle of fiscal equalisation requires that expenditure requirements and revenue capacity be based on a standard policy. However, in practice the assessments of revenue capacity are standardised only for differences in tax rates, and in some cases to remove the impact of different policies that directly impact on the size of revenue bases (e.g. stamp duty exemptions on certain transactions, restrictions on gambling activity, etc).

There is no standardisation of revenue bases to remove the impact of individual States' policies on economic development, however. While some State development policies may be ineffectual or counterproductive, good policy settings and well-targeted assistance can generate net economic benefits.

As a consequence of this inconsistency, the Grants Commission process can create a disincentive for States to invest in projects that improve economic activity. The Government of Western Australia argues that the fiscal benefits of these projects are shared around the nation, while economic development costs are either not recognised, or only recognised at a “standardised” level. The large costs of providing economic infrastructure to support large scale industrial development are not recognised.

⁸ *Economic Development Policies: How should equalisation account for their costs and benefits?* CGC discussion paper CGC 2002/6; and *Treatment of economic development assistance*, discussion paper CGC 2003/5 June 2003.

The Grants Commission's 2004 Review recognised differential needs across States for indirect support for economic development, particularly in regional areas. The Commission agreed that Western Australia has "disabilities" in providing social infrastructure, major roads, and budget subsidies to its GBEs and other providers of water and electricity services to the community.

However, the Grants Commission did not agree to take into account differential needs across States for direct industry development assistance (including infrastructure subsidies or other assistance for the specific benefit of firms, project attraction incentives, geological mapping programs, marketing schemes and other promotional programs) and subsidies for electricity in regional areas that are funded through cross subsidies among consumers (rather than from State budgets).

The Commission cited conceptual and practical hurdles to improving equalisation through alternative approaches. In particular, it said that the difficulties in identifying differences in specific economic policies and in adjusting revenue bases for the effects of economic development policies and of assessing expense needs were too great to be able to practically address.

The Commission appeared to leave the way open for further examination of methodological issues, however. Indeed, in a minority view, Commission member Professor Ken Wiltshire said that he believed that there is already much identifiable expenditure associated with facilitating economic development, and that this could be augmented by survey. He proposed that at a minimum, identifiable revenue from economic development could be netted off before revenue equalisation is considered and that this could be done only for those sectors where States could demonstrate the linkages.

4.5.1 The Case of Burrup Infrastructure

The situation with funding of Burrup Peninsula infrastructure highlights the problem. The Western Australian Government has committed to spend up to \$183 million on economic infrastructure on the Burrup Peninsula, little of which would be recognised as an "expenditure need" under the CGC's current methods. The projects that the State hopes to attract are estimated to yield tax and royalty benefits for the State of around \$450 million in net present value (NPV) terms (Department of Industry and Resources estimates). However, the net benefit will be only \$45 million after the redistributive impact of the Grants Commission process is taken into account – significantly less than the State's investment.

The government of Western Australia estimates that the other States will receive around \$400 million in NPV terms, while the Commonwealth will receive around \$4 billion NPV. It should be noted however, that the State will receive returns on this infrastructure through user charges, but these returns will be insufficient to cover costs, particularly in early years of operation.

4.5.2 Approaches to Accounting for Economic Development Costs

The CGC discussion paper proposed two broad approaches to accounting for economic development costs:

1. assessing disabilities for economic development expenses; and
2. adjusting the revenue assessments.

The need for economic development spending is closely related to the existence of “market failures” that stand in the way of optimal private sector development. Such market failures are particularly evident in remote areas where economies of scale exist for the provision of infrastructure in greenfields development hubs. This type of market failure is particularly evident in Western Australia, which is a low population density State with large development potential.

Other potential market failures include distortionary international subsidies for competing projects that act to prevent projects from siting in Western Australia.

The CGC discussion paper proposed two possible methods of adjusting the revenue assessments to reflect economic development expenditures:

1. Adjust revenue bases to exclude contributions from activities attributable to State development assistance; and
2. Adjust standardised revenues for a standard rate of return on expenses incurred in developing the revenue base.

Western Australia contends that assessment of disability factors for economic assistance should be based on a rationale of national economic benefit. It should not take into account State assistance that aims to shift activity from other States, with no gain to the national economy.

If adjustments to the GST distribution formula are to be made for direct economic development assistance offered by State governments, it will be necessary to demonstrate not only that subsidised support in this form is more than just a policy choice (e.g. it is justified by market failure), but also that the underlying needs are greater in some States (e.g. Western Australia) and that the differences across States can be reliably quantified, at least in broad terms.

In this context, the Burrup example provides an illustration. The subsidy component of Western Australia’s \$183 million infrastructure commitment needs to be separated from the user-pays (recoverable) component, and should also exclude any subsidy component that exceeds the amount justified by market failure.

In addition to the potential asymmetry between States in the sharing (through the GST relativities) of the revenue benefits but not all of the costs of economic development, there is also the asymmetry between the States and the Commonwealth, with the Commonwealth in some cases reaping the lion’s share of revenue benefits through its broader tax bases, but not providing a commensurate share of infrastructure costs.

In the context of the Burrup example, an alternative to the Grants Commission recognising (as a differential need) the net cost of Western Australia’s infrastructure contribution would be for the Commonwealth to meet that cost and the Grants Commission to exclude the Commonwealth’s contribution from the assessment of Western Australia’s GST share.

4.5.3 International Examples

While there are few examples of intergovernmental financial relations in other countries raising issues of which jurisdiction should be paying for infrastructure, there are several international precedents that can inform discussion in Australia.

Canada Strategic Infrastructure Fund

The Canada Strategic Infrastructure Fund targets large scale projects of national and regional significance to provide both economic and community infrastructure, with enhancement of trade a key goal. The fund emphasises partnerships with any combination of municipal, provincial, territorial governments, as well as the private sector, and each partnership is governed by specifically tailored arrangements. Regional equity considerations are taken into account and costs are generally shared between the three levels of government. Investments are made in areas that are vital to sustaining economic growth and supporting an enhanced quality of life for Canadians.

Infrastructure in the resource-rich and rapidly developing Northwest Territories has received particular attention from this fund.

US Infrastructure Funding

Both state and federal governments in the US share responsibility for funding economic and community infrastructure. However, in the cases examined, such infrastructure could not be classed as “major” and expenditure levels in each case were relatively small.

Nevertheless, the extent of co-operation between governments in funding infrastructure directly, or assisting others to provide it, is noteworthy. As with Canada, some of this can be attributed to the greater taxing powers of states in the US, providing greater financial incentives to fund infrastructure to support economic development.

4.5.4 Overhaul of Fiscal Equalisation?

A full solution would require a fundamental overhaul of current fiscal equalisation arrangements. However, the Western Australian Government contends that, by taking into account important “national interest” activities that are not currently assessed, a better fiscal equalisation outcome can be achieved.

In its 2004 report, the Commission acknowledged that the issues raised by States – including the issues of treatment of economic development expenditure – involve important issues of concept and principle. It suggested a review of the underlying principles or objectives of equalisation be conducted either by the Commission or others outside the regular review process.

4.5.5 A Separate Approach to Infrastructure Expenditure?

The Grants Commission said in its 2004 report⁹ that there are grounds for considering whether equalisation (and by implication the Commission itself) was being asked to do too much:

⁹ Report on State Revenue Sharing Relativities, 2004 Review, Commonwealth Grants Commission, February 2004.

Equalisation is an important element of intergovernmental financial relations in Australia. But it is not the only channel by which funds flow from the Australian Government to the States, and it is not the only vehicle by which national objectives and priorities, appropriate to the wider canvas of federation, can be progressed. Many objectives in Commonwealth-State relations might be better addressed by bilateral, rather than multilateral, arrangements.

It appears, then, that a more fundamental review of intergovernmental financial relations by the Commonwealth Government is justified.

4.6 Co-ordination between Governments

In several jurisdictions examined, there is no state/provincial layer of government and major economic infrastructure is provided by central government. In some cases, there is co-ordination with local governments.

Most federations examined appear to have achieved close co-ordination between state/provincial governments and the federal government. In the US, state agencies assist with community and corporate applications for federal infrastructure funding. In Canada, federal infrastructure funding is generally provided through partnerships between federal, provincial/territorial and local governments, with the private sector sometimes involved also. Governance arrangements are tailored on a case-by-case basis.

In Australia, governments have had a mixed history of co-operation. The Australian Marine Complex at Jervoise Bay was co-operatively funded to a total of about \$170 million. The Commonwealth provided \$80 million from the Federation Fund. The Western Australian Department of Industry and Resources and statutory body LandCorp have been involved in development, and LandCorp receives a subsidy of \$7.5 million from the Western Australian Government to develop the precinct. It is being managed by a private sector firm.

In Queensland, the funding of infrastructure and provision of other support for the Comalco alumina refinery from Commonwealth and Queensland governments was fully complementary. The Commonwealth granted Comalco an interest-free \$137 million, 20-year interest free loan, comprising \$102 million for multi-user energy facilities and \$35 million for the establishment of the Rio Tinto Foundation for a Sustainable Minerals Industry. The Queensland Government pledged \$150 million funding for common user infrastructure.

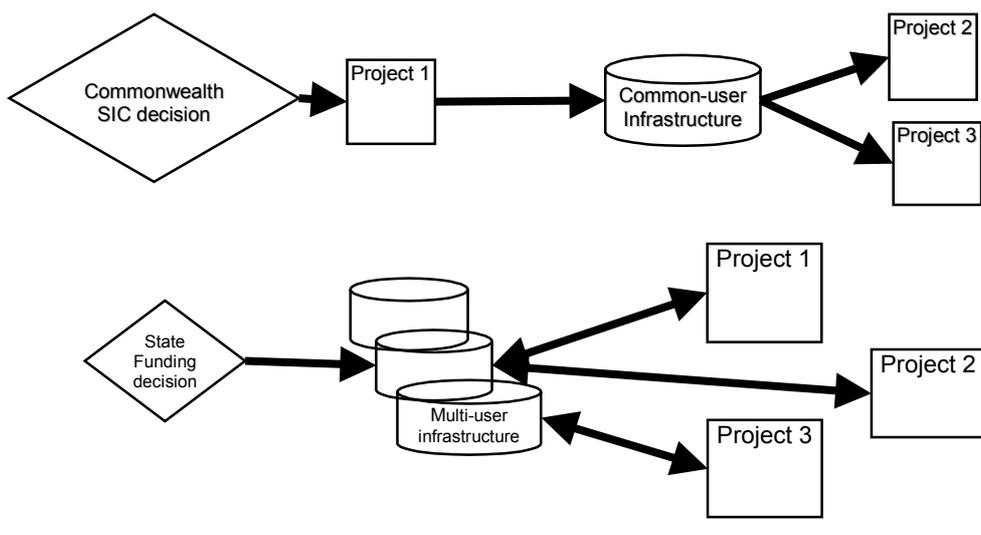
Provision of infrastructure on the Burrup Peninsula, however, has not been well co-ordinated. While the Government of Western Australia and its GBEs have committed to directly providing up to \$183 million for multi-user infrastructure, the Commonwealth, in seeking to provide infrastructure funds to project proponents, has committed \$38 million to support the proposed GTL Resources project but has provided no funding to date.

Figure 2 illustrates the situation: If project 1 does not proceed, then no infrastructure funding flows from the Commonwealth. Its risk is low, but the risks for projects 2 and 3, which require the use of project 1's infrastructure, are high. The Western Australian approach reduces the risks and provides greater certainty to project proponents.

However, it results in increased risk to the State Government. If projects are delayed, fail to proceed or close prematurely, the State Government can be left with underutilised or stranded assets. The experience with the Beenup mineral sands project, the Mid West Pipeline (privately built and operated, but underwritten by Western Power) and the Burrup infrastructure package are three examples.

There is clearly a need for greater coherence between Commonwealth and State approaches to project support and infrastructure funding.

Figure 2 **Differences between Government Infrastructure Approaches**



4.7 Co-ordination within Governments

There are also varying levels of co-ordination *within* governments in Australia for both facilitation of industry development and provision of infrastructure.

4.7.1 Commonwealth Government Co-ordination

At the Commonwealth level, co-ordination of approval and support for major projects is vested in Invest Australia (IA), which provides prospective investors with a single contact point within the Commonwealth Government. Projects must first qualify for Major Project Facilitation (MPF) status. Through the MPF service, IA provides the proponent with information, advice and support to assist with necessary government approvals. IA also identifies the sequence and timings for key approvals and the relevant government programs that may assist the project. Through an interdepartmental process, IA seeks to ensure that all required approvals and decisions are provided in a timely manner.

MPF objectives include:

- To assist proponents of large projects to obtain decisions on necessary Commonwealth Government approvals; and
- To identify any impediments to the investment proceeding and where appropriate advise government of the need for policy or procedural change.

Co-ordination of project and infrastructure support is generally provided through the SIC process. The objective of SIC is to attract to Australia, projects with significant net economic and employment benefits that would have otherwise located offshore. The Commonwealth policy¹⁰ is that SIC assistance is provided in limited and special circumstances where projects are expected to generate significant net economic benefits for Australia. A substantial proportion of assistance provided through the SIC process is for multi-user infrastructure.

While the MPF and SIC processes are examples of effective co-ordination, the Commonwealth's approach to infrastructure policy is less effective. The recent Auslink and Energy White Papers provided policy direction for roads and energy infrastructure. However, there is no whole-of-government approach to infrastructure policy in general. There is a Cabinet Committee that deals with infrastructure, but no one minister has responsibility for co-ordination. Consequently, there are gaps in overall infrastructure policy.

Infrastructure Policy in Canada

Canada has a comprehensive approach to infrastructure policy and delivery. There is a Minister for Infrastructure and a department, Infrastructure Canada. It works with municipal, provincial and territorial project proponents and the private sector to identify regional and local development priorities and to finance specific infrastructure projects. Infrastructure Canada's goal is to help meet national social, economic and environmental objectives.

Four major programs comprise the integrated Canadian approach:

- Canada Strategic Infrastructure Fund – directed to projects of major federal and regional significance in areas that are vital to sustaining economic growth and enhancing the quality of life of Canadians.
- Infrastructure Canada Program – to enhance infrastructure in Canada's urban and rural communities and to improve quality of life through investments that protect the environment and support long-term community and economic growth. Co-managed with provinces and territories with co-funding of many projects.
- Municipal Rural Infrastructure Program – to support smaller scale municipal infrastructure projects that improve the quality of life, sustainable development and economic opportunities, particularly of smaller communities. Includes a component addressing the infrastructure needs of First Nations communities. Agreements being established with each province and territory for co-management of the fund.
- Border Infrastructure Fund – to improve efficiency of the busiest Canada-US border crossing points.

Strategic infrastructure programs are delivered in collaboration with many federal partners. As the co-ordinating and funding agent, Infrastructure Canada is responsible for project review, selection and approval, negotiation of the contribution agreement, and ongoing monitoring and oversight.

¹⁰ Strategic Investment Co-ordination Guidelines, available at [www.investaustralia.gov.au].

Each funded project has three key partners involved:

- Infrastructure Canada, as the funding agent for the project, negotiates agreements with each of the funding partners and project proponents;
- An implementing department that has the project-specific knowledge related to each project; and
- The funding partner may be a provincial, territorial or local government, First Nations community, private partner or a combination. Once the project has been selected, the funding partners enter into contribution negotiations with Infrastructure Canada.

4.7.2 State Government Co-ordination

State and Territory co-ordination of industry attraction and development appears generally to be effective. Most activity is undertaken by broad-based industry departments, with the exceptions often being in the agriculture and tourism sectors, which have their own agencies. Co-ordination of approvals is also generally effective. However, as the Keating Review in Western Australia has highlighted, there remains considerable room for improvement in the timeliness and efficiency of approvals processes.

Co-ordination of infrastructure policy also appears to be more comprehensive in most States and Territories, as befits jurisdictions with the principal responsibility for infrastructure. In Queensland and Victoria, for example, infrastructure policy is administered by the departments which are responsible for industry development. In Western Australia, however, responsibilities are split. The Department for Planning and Infrastructure is responsible for general economic infrastructure (e.g. roads, rail, etc) while DoIR looks after industry-specific infrastructure. Other agencies are responsible for community infrastructure such as education and training, and health facilities.

Queensland State Infrastructure Plan

Queensland has a comprehensive State Infrastructure Plan, which was developed in 2001 and which is complemented by annual implementation plans. Notable features of the Queensland plan are:

- It seeks to bring an economic development focus on all infrastructure, within a sustainable development framework;
- An integrated view of infrastructure, covering both traditional “hard” infrastructure as well as “soft” infrastructure such as research and training;
- Coverage of infrastructure provision by all levels of government and the private sector;
- A long-term focus; and
- Delivery and annual updates through implementation plans.

Victorian Regional Infrastructure Development Fund

The objective of the Victorian Regional Infrastructure Development Fund (RIDF) is to improve the competitive capacity of regional Victoria and enhance its development. This is achieved by providing funds for capital works that:

- Support industry development;
- Improve critical transport linkages;
- Develop and improve tourism infrastructure; and
- Establish better links within regional Victoria to new opportunities in education and information technology.

A priority is for the Victorian Government to work in partnership with regional communities and other levels of government to attract investment. Applications for funding are sought from a wide range of government and non-government organisations.

An integral part of the assessment process involves close co-ordination of State Government departments and agencies.

Assessment of economic impacts of the program's first two years has been undertaken. This includes assessment of:

- Regional impact of each project individually; and
- State-wide impact of all projects combined.

The assessment found that the initial RIDF expenditure of \$93 million will deliver \$879 million of net additional impact over the next 20 years.

Development of Western Australian Infrastructure Strategy

The Government of Western Australia announced in January 2004¹¹ that it will undertake a comprehensive State Infrastructure Study to audit the infrastructure that already exists in Western Australia and identify the longer term infrastructure needs for industry and community development in Western Australia. The Study will:

- Determine whether the mix of infrastructure throughout the State is complete, competitive and timely to support the State's key industries;
- Identify and prioritise future infrastructure requirements in relation to transport, telecommunications, energy, water, industrial land, technology parks, ports and tourism-related infrastructure and related soft infrastructure (i.e. intellectual and conceptual skills, training-based knowledge and skills, etc); and
- Propose a consistent, integrated and systematic evaluation process to prioritise the assessment, planning and delivery of infrastructure.

The government says that the study will be the first stage in the development of a co-ordinated State Infrastructure Strategy to provide a whole-of-government approach to identifying specific priorities for the allocation of resources to infrastructure projects over the long-term. The study will also have a strong regional focus, and will identify regional solutions to regional issues.

¹¹ *Building Future Prosperity* - Industry Policy Statement, Government of Western Australia, January 2004.

Western Australian Strategic Planning Framework

The State Government has also developed a Strategic Planning Framework for the Western Australian Public Sector.¹² The framework is set within a sustainability context. Its economic goal is:

To develop a strong economy that delivers more jobs, more opportunities and greater wealth to Western Australians by creating the conditions required for investment and growth.

The strategic outcomes under this goal include:

- Greater economic infrastructure that facilitates new development;
- Industrial development and investment that builds on Western Australia's strengths; and
- Social infrastructure such as schools, health facilities and recreational areas built and maintained to a high standard.

Achievement of these and other economic, social and environmental goals will be made easier by the development and implementation of the State Infrastructure Strategy.

4.8 Assessing Priorities for Infrastructure

While infrastructure can provide economic benefits, it does not follow that all infrastructure should be funded by governments. The resources put into providing a piece of infrastructure always have an opportunity cost – that is, by being used for that purpose they are not able to be used for another purpose.

This concept holds that investments in infrastructure should be made only if they deliver higher returns than the expected returns from other projects competing for public funds. It demands that priorities among competing projects should be established.

There are several ways for determining these priorities. Private companies (and GBEs), when considering what infrastructure to construct, generally apply strict commercial criteria. Governments have to take into account broader issues, and frequently apply cost-benefit analysis to understand the economic value of infrastructure. It allows a systematic assessment of economic and social benefits against the direct and indirect costs of providing infrastructure.

As a macro level, for example, across a region, returns are very hard to estimate. For this reason, cost-benefit analysis is best undertaken at a more micro level, assessing each major piece of proposed infrastructure separately.

Cost-benefit analysis has been used in several cases. For example, cost-benefit analysis was undertaken for the Alice Springs to Darwin Railway, which showed a positive return. The Western Australian Government has a project analysis system to assess the costs and benefits of government assistance. It undertook economic modelling of the costs and benefits of providing multi-user infrastructure for the Burrup and established that the net economic results were positive. This contrasts to the earlier Western Australian decision processes to provide infrastructure which did not involve cost-benefit (or risk) analysis.

¹² Better Planning, Better Services: A Strategic Planning Framework for the Western Australian Public Sector, November 2003.

Cost-benefit analyses are often debatable. For example, there has been some discussion about whether the benefits from the Alice Springs to Darwin railway actually will be as large as assessed in the study that was conducted prior to construction. However, cost-benefit analyses and other forms of assessment do at least provide a framework and allow specific rationales to be reviewed.

A related concept to cost-benefit is opportunity cost – the return forgone in using resources to provide, for example, industrial infrastructure rather than spending on the most valuable alternative use, for example, community infrastructure in a metropolitan area. This concept holds that investments in infrastructure should be made only if they deliver higher returns than the expected returns from other projects competing for public funds. It enables priorities among competing projects to be established.

The issues of opportunity cost have come into sharp focus in relation to Burrup infrastructure and other government funding priorities.

4.8.1 Who Should Pay?

A general proposition emerging from commentators is that present developers should, on economic efficiency and equity grounds, pay for their infrastructure needs either directly or indirectly. If the infrastructure is shared with other users, they should also pay. However, government contributions may be justified if a development would not proceed otherwise (or would proceed on a smaller scale) and there are substantial wider economic and social benefits.

There is also an argument for government involvement if the infrastructure project is too large or difficult to the private sector. However, the strengthening of private sector financing and engineering capabilities has weakened this traditional argument. Some very large infrastructure projects have been built by the private sector.

It also seems that State governments tend to prefer direct provision of facilities, whereas the Federal Government will usually give financial assistance to the project proponents to fund infrastructure. In order to secure the development of the HIs melt project in Kwinana, for example, the Western Australian Government committed some \$30 million to acquire land and develop port facilities. The Commonwealth Government has approved a \$125 million taxable grant incentive to secure development of the project in Australia. The grant is to be used to develop multi-user infrastructure, available to other users on commercial terms.

5 Other Project Support

5.1 Investment Incentives

5.1.1 National Jurisdictions

Investment incentives in the form of targeted taxation concessions are the principal means by which many countries attract foreign direct investment. Developing nations that are not WTO members tend to have more extensive incentives regimes, as they are not restricted by WTO rules. Thailand, for example, has recently cut back its investment incentives, due to its accession to the WTO.

Investment incentives typically take the form of:

- Concessions from import duty on raw materials, machinery and equipment for approved industrial projects;
- Taxation concessions and exemptions from corporation tax on profits;
- Tax holidays for periods following investment;
- Accelerated depreciation on plant and equipment;
- Loss write-off provisions;
- Free zones for dedicated export industries, with exemptions from import and export licensing, customs duty and sometimes corporations tax;
- Research and development tax concessions; and
- Export insurance underwriting.

Trinidad and Tobago, Malaysia and Brunei offer most of the above concessions to investors.

In developed countries such as Canada and Australia, incentives for investment have shifted in recent years to emphasise their broadening economic bases and aspirations for more technology-based industries. Incentives include:

- Research and development grants and tax concessions;
- Venture capital grants and partnerships; and
- Export market development grants.

Such incentives are usually marginally relevant to major project investment and even less so for infrastructure.

A number of jurisdictions have specific concessions for firms providing infrastructure as part of their investment. Malaysia is an example.

5.1.2 State/Provincial Incentives

Incentives provided by state or provincial governments appear to be closely aligned to the taxing powers of each jurisdiction. In Canada for example, provinces share corporations taxing powers with the federal government and provinces typically offer tax incentives to corporations that are investing, and undertaking research and development and training, or which are small businesses.

Queensland has implemented an investment incentives scheme, which provides targeted financial support, if and when required, to influence the location of important projects and the attraction of leading companies to the State. The operation of this scheme has been the subject of some controversy in the media and with other States and Territories that have agreed not to compete with industry funding.

5.2 The Natural Operating Environment

The economics of major projects and infrastructure are heavily influenced by their location and operating environment. In general terms, the more remote the location, the more expensive it is to undertake development there. Remoteness is often accompanied by climatic extremes.

The northern regions of both Australia and Canada have similar remoteness attributes. Their climatic situations are very different, but both provide testing environments in which to construct and operate. Projects in these regions often compete with projects in less remote, less hostile and less costly locations.

Parts of regional Australia are inherently expensive places in which to invest, due to the remote location of many projects and the consequent paucity of infrastructure such as roads, energy and water supplies, and ports. The harsh climate of northern Australia increases both project and infrastructure costs. The Pilbara and Kimberley exemplify this, while Gladstone and the South West of Western Australia have stronger infrastructure bases.

Arguably, Western Australia and Northern Territory have a greater demand for, and cost of infrastructure provision for major developments than the Australian average due to the nature of their economies, their large land area and the low density of population. Queensland shares some of these characteristics.

Furthermore, construction costs for both projects and infrastructure in remote parts of Australia such as the Pilbara can be 20 to 30 per cent higher than comparable locations in other countries and elsewhere in Australia. A 1991 Productivity Commission inquiry into construction costs found that, while in some areas, notably mineral processing plant, Australian costs were comparable or better than those in other developed countries. In other areas, such as chemical and forestry products, there were cost disadvantages of around 20 per cent compared to the lowest cost developed nation. Compared to Asian economies (such as Singapore and Hong Kong), cost disadvantages of 50 per cent and higher were common. Recent experience with proposed gas processing plants in the Pilbara indicates that the cost differential identified for chemicals plants has improved little.

Governments in Canada have responded to similar issues with targeted programs which both seek to provide infrastructure, reduce operating costs and maximise sustainable benefits for local communities. The key example is the emphasis of expenditure in the Northwest Territories under the Canada Strategic Infrastructure Fund.

Australia has no major programs that target economic infrastructure for regional development in a holistic, co-ordinated way.

5.3 The Impact of Government Policy

The environment and existing government policies of jurisdictions have major impacts on the economics of major projects, their need for others to provide infrastructure and the economics of infrastructure. In any examination of infrastructure, it is important to consider the impact of government policies on project economics and investment.

5.3.1 Land Access

Access to lands held or claimed by traditional owner parties is a particular requirement of projects in Canada, Australia and some developing countries. Land access is itself a vital piece of “infrastructure”. The time taken to gain access has delayed a number of projects in several jurisdictions. The principal roles of governments are to:

- Provide a statutory framework under which productive negotiations can take place;
- Ensure that traditional owner parties have adequate resources to negotiate; and
- In cases where it is more efficient for governments to negotiate (e.g. for access to land for an industrial zone or for a pipeline easement), to undertake such negotiations (the Burrup Peninsula and DBNGP corridor widening projects are two examples where the Western Australian Government has undertaken negotiations).

An emerging issue in Western Australia is the lack of resources available to “prescribed bodies corporate” that are established after native title determinations to administer native title lands. Such bodies have very little finance available to them to enter into negotiations with either governments or project proponents.

5.3.2 Approvals Processes

Government approvals processes are prominent amongst the issues identified by project proponents when considering investment locations. Australia, with Canada, is regarded as having relatively efficient processes. However, as the Western Australian Keating Review of approvals highlighted, there is great scope for improvement.

Proponents of projects that require both Commonwealth and State approvals have reported some lack of co-ordination between the two. Agreement was recently reached between the Commonwealth and several State and Territory governments, including Queensland and Western Australia, for accreditation of State environment assessment processes, which should enhance co-operation between Commonwealth and State agencies. Implementation across the Western Australian Government of most of the 56 recommendations of the Keating Review will reduce complexity and enhance co-ordination between State approvals agencies.

The efficiency and effectiveness of approvals processes needs to be constantly monitored by governments and changes made as required to ensure that the processes are efficient, timely and have the confidence of the community.

An emerging issue in Western Australia is the capacity of the Environmental Protection Authority (EPA) to deal with the large number of major approvals (double the past average) that are expected during the next three years. This situation is being addressed through extra resourcing, including outsourcing of some elements of assessment processes.

5.3.3 Regulation of Infrastructure Assets

Infrastructure operators are expressing strong concerns about regulatory policies and processes that can lead to increased risk and lower returns for third party infrastructure providers. Prominent amongst these are pipeline owners and electricity companies. The Commonwealth has moved to examine pipeline issues by commissioning a Productivity Commission review of the regulations applying to gas pipelines in Australia, which is examining the benefits, costs and effects of the Gas Access Regime, including its effect on investment in the sector and in upstream and downstream markets.

The final report of the Commission said that the current Gas Access Regime, in effect, is a form of cost-based price regulation and its significant costs include deterring and distorting some investment. An alternative less costly form of regulation is warranted, the report said. A key recommendation is the addition of a less costly monitoring option. The choice between price regulation and monitoring for each covered pipeline would be based on which was assessed as generating the greater net economic benefits. Price regulation would only apply when the net benefits would be markedly greater than those of the monitoring option.

5.3.4 Taxation

The changes to Australian corporate taxation announced in the 1999 New Tax System reduced corporate tax rates at the expense of the accelerated depreciation system for assets. This reduced depreciation allowances and consequently the financial attractiveness of long-life projects, including infrastructure projects, relative to other investments. At the time, the Government said:

Recognising the potential impact of removing accelerated depreciation on large capital intensive projects with long lives, the Government will be prepared to consider such projects in the context of an expanded strategic investment co-ordination process, including consideration of the option of targeted investment allowances.¹³

Subsequently, the Government introduced a system of depreciation for specific classes of assets, for example upstream, midstream and downstream petroleum assets, based on effective life. However, this has not fully compensated for the scrapping of accelerated depreciation. Neither has the SIC process provided effective incentives for many projects (see Section 6.3).

As discussed in Chapter 2, infrastructure for major projects faces greater risks than general infrastructure. In addition, major project infrastructure often has a shorter economic life than its physical life, governed by the life of the project(s) it supports. Yet such specialised infrastructure is sometimes treated the same as other infrastructure for depreciation purposes, when arguably it should be allowed to be depreciated more rapidly.

5.3.5 Sovereign Risk

Australia is viewed as a location of relatively low sovereign risk, with stable systems of government and law. However, Australia is not seen by all as having very low risk. Difficult approvals processes and the propensity for governments to “change the rules” are two issues for investors in Australia. Such perceptions can only be overcome by improved government performance in this regard.

¹³ *The New Business Tax System: Benefits of Tax Reform for the Mining Sector*, [<http://www.rbt.treasury.gov.au/>].

5.3.6 Government Co-ordination

As the case studies have highlighted, State and Commonwealth governments have policies and programs designed to provide either infrastructure or investment incentives to new projects. The fundamental problem with the current system appears to be the lack of co-ordination between the levels of government.

This problem is most starkly illustrated on the Burrup Peninsula, where the State is looking to provide multi-user infrastructure in advance of project development, while the Commonwealth has attempted to provide incentives direct to project developers.

The issue is less apparent in Queensland, where the packages provided by each level of government for the Comalco and AMC projects were designed to be complementary. Unlike the packages for Burrup Peninsula development, they were all project-specific, although the infrastructure funding was for multi-user infrastructure.

5.4 Other Support for Economic Development

Governments elsewhere in the world, as in Australia, endeavour to take a holistic approach to facilitation of economic development. Australia and individual States all have comprehensive policies for facilitating economic development, including major project investment.

In some States, notably Queensland, economic development policies are fully integrated with infrastructure policies – as described in Chapter 4. In some other States, notably Western Australia, infrastructure policies are not holistic and not well linked with investment facilitation.

It appears that there are two significant limits to the effectiveness of infrastructure and investment facilitation policies:

- Inadequate co-ordination between government agencies; and
- Inadequate co-ordination between levels of government.

In some States, such as Queensland and Victoria, the co-ordination between government agencies to attract investment, facilitate project development and ensure provision of infrastructure is very good. Compared with these States, Western Australia has considerable room for improvement.

Interagency co-ordination of approvals is being addressed through implementation of the recommendations of the Keating Review. Infrastructure co-ordination is lagging, however, and to this end, the State Government has committed to a State Infrastructure Study to examine existing infrastructure and identify the longer term infrastructure needs for both industry and community development in Western Australia. This study will be the first stage of a co-ordinated state infrastructure strategy.

6 Lessons from Australian and International Experience

There are a number of important lessons arising from Australian and international approaches that are examined in this report. The lessons can be summarised as follows:

- Australia and its States must compete more vigorously for major project investment, but on different grounds to some other less developed countries, which do not have the same constraints of WTO rules or as much pressure from their community for spending on social infrastructure;
- Having comprehensive and coherent investment attraction policies at both Commonwealth and State levels is an essential prerequisite to successful investment attraction;
- Infrastructure policies are a very important component of investment attraction, and at the Commonwealth level and in some States, including Western Australia, these need to be comprehensive and integrated with economic development policies;
- More attention needs to be given by governments to managing and mitigating risks to both governments and project proponents;
- The type and extent of support for projects need to be assessed on a case-by-case basis, including assessment of costs and benefits;
- Current policies and approaches to Commonwealth-State financial relations require some modification to provide greater incentives for States such as Western Australia and Queensland to support major economic development.

The following sections discuss these lessons in detail. Chapter 7 sets out recommendations.

6.1 The Importance of Economic Development Policy and a Positive Investment Climate

As discussed in Chapter 5, it is important to ensure that the overall policy environment is conducive to economic development. Australia is competing globally to attract footloose projects. The Commonwealth and State governments need to continually develop and enhance the investment climate to attract potential investors in large projects. This means ensuring that approvals processes, regulation, energy supply, taxation, industrial relations, investment facilitation and assistance, and infrastructure all need ongoing attention to ensure that Australia remains competitive.

Australia is a developed country with developed-country costs, however. In many cases it is competing with developing countries that have lower cost structures for new investment. Projects in those countries also compete with established projects in Australia.

Importantly, in seeking to attract investment, developing countries may not need to comply as strictly with such things as WTO rules, or may not have the same pressure from their communities for social infrastructure and services. Therefore, Australia may not be able to compete with such countries in relation to taxation concessions and provision of industry-specific infrastructure such as very large industrial zones.

Australia therefore needs to ensure that it is more than competitive on other factors that are attractive to investors – for example, low sovereign risk, competitive energy supplies and efficient approvals processes.

6.2 Need for Comprehensive and Coherent Investment Approaches

Many countries have only one principal level of government. Australia, as a federation, has split responsibilities between States and the Commonwealth in relation to industry development. Amongst other things, this means that:

- The Commonwealth has responsibility for approvals and regulation of oil and gas activities in offshore waters;
- States have principal responsibility for approvals and regulation of all on-shore activities, while the Commonwealth may become involved in matters of “national environmental significance”;
- States compete between themselves for new investment (although all States except Queensland recently agreed not to enter into “bidding wars”) and each State has its own investment attraction and development facilitation programs;
- The Commonwealth operates its own investment attraction and development facilitation programs through Invest Australia (although there is now a formal co-ordination mechanism with States and Territories);
- The States have principal responsibility for infrastructure, with the Commonwealth being responsible for national highways as well as providing some infrastructure on an ad hoc basis; and
- Criteria for deciding on infrastructure requirements and methods of ensuring that infrastructure is provided differ between jurisdictions.

These split responsibilities and activities mean that there has been a lack of co-ordination and coherence, notably between the Commonwealth and individual States. The 2002 restructure of Commonwealth investment attraction activities following the Blackburne Review has led to improved co-ordination between the Commonwealth and States. The National Investment Advisory Board has been established to co-ordinate Commonwealth, State and Territory investment attraction activities. In addition, Invest Australia chairs the inter-government National Investment Research Group and a National Marketing Group, to co-ordinate a whole-of-government approach to investment-related research, analysis and marketing.

An Australian Inward Investment Marketing Plan for 2003-2006 has been produced and is being implemented. Complementing this is a National Investment and Business Brand that all jurisdictions are encouraged to use in the individual and joint marketing activities.

Co-ordination of approvals has also improved through co-operation on petroleum regulation and accreditation of State environmental assessment processes under the Environment Protection and Biodiversity Conservation Act.

However, on key policy issues such as investment incentives and provision of infrastructure, differences in approach remain. This lack of coherence between approaches at best is confusing to potential investors, and in some cases may result in them finding it “too hard”.

Other federations examined, notably Canada, have more coherent approaches to investment attraction and facilitation between the two main levels of government.

6.3 Generic Policies Incentives are Preferable to “Picking Winners”

Project neutral policies to attract and facilitate investment in projects and infrastructure are in most cases preferable to project-specific incentives, which require a “picking winners” approach by governments. Advantages of project-neutral approaches include:

- Efficiency: Policies are put in place and the market determines what investment occurs;
- Transparency: Prospective investors can easily determine the investment competitiveness of a location and make a decision about whether to further pursue the feasibility of an investment there; and
- Decision-making: Project neutral policies often are implemented within a comprehensive economic, social and environmental framework, improving overall decision-making by governments.

Market failure, however, can result in potential investors deciding not to invest in new projects or infrastructure. In such cases, government intervention may be required in the form of project-specific facilitation and/or incentives. Processes for such intervention need to be transparent. They also need to be coherent between jurisdictions.

6.4 Infrastructure Issues are an Important Component of the Industry Development Agenda

Potential project developers consistently identify infrastructure as a vital prerequisite for investment, along with more general requirements, such as timely approvals and competitive taxation.

However, this report identifies some problems with approaches to infrastructure policy and practice in Australia:

- Policies are inconsistent and in some cases incompatible between the Commonwealth and States;
- The Commonwealth and some States, including Western Australia, do not have comprehensive, whole-of-government infrastructure policies to provide a framework for infrastructure priorities and provision; and
- Infrastructure policies are often not integrated with economic development policies.

In some jurisdictions, notably Canada and Queensland, infrastructure policies are driven by economic, social and environmental development objectives and fully integrated with development policies. Further, in Canada, infrastructure policies and programs are closely co-ordinated between federal, provincial and local governments, as well as involving the private sector.

Such policy approaches provide robust frameworks for decision-making about what infrastructure is required and when, including undertaking cost-benefit assessments of options. They also provide transparent mechanisms for co-ordination of strategic infrastructure investment to facilitate major development in regional and remote areas.

Clearly, there is a need for improvements to infrastructure policy both nationally and within Western Australia.

6.5 Need to Manage Risk

Governments, proponents of major development projects and infrastructure investors face risks, which need to be better managed to:

- Protect taxpayers' funds from the effects of under-utilised or stranded infrastructure investments;
- Encourage project and infrastructure developers to invest; and
- Better recognise the changing nature of risk and return in key infrastructure investments.

Different approaches by governments to investment incentives and provision of infrastructure give rise to different levels of risk for different stakeholders. For example:

- The Commonwealth SIC process reduces risks to the Commonwealth in that it seeks to provide funds direct to project proponents for infrastructure and other purposes at a point when a project is very likely to proceed. For proponents that do not receive funds (e.g. when their project follows the funded project), risks may be increased, as they may need to negotiate with the proponent of the first project for access to infrastructure.
- The approach to infrastructure provision by several States, including Western Australia, reduces proponent risk by providing multi-user infrastructure that a number of projects can use. This approach tends to increase taxpayer risk, however, as the infrastructure may be fully paid for, but underutilised in the early part of its life. There is also the possibility of project or commodity risk resulting in "stranded" assets.
- Private sector infrastructure providers of regulated assets (e.g. gas pipelines) contend that current gas access arrangements in Australia do not take account of the changing nature of risks and returns inherent in new gas transportation contracts, and hence result in a disincentive for investment.
- The history of some PPP arrangements has demonstrated a shifting of risk from the private sector to the public sector, without a balancing shift in financial returns.

There is thus a need for a better appreciation of risk in decision-making on projects, infrastructure and regulation. Government policies need to appropriately apportion risk to maximise the welfare of the overall community.

6.6 Commonwealth-State Financial Relations

The current approach to Commonwealth-State financial relations demonstrably does not adequately account for the costs incurred by States in providing major economic infrastructure for development, particularly in remote regions. The Commonwealth Grants Commission, in its 2004 review, conceded that Western Australia has disabilities related to its requirement to service remote populations and regions – tacit agreement to the general proposition put by the State.

The Commonwealth Grants Commission has said that methodological issues are a major hurdle in assessing disabilities due to the need to provide such infrastructure. Western Australia has suggested approaches to overcoming this hurdle.

More generally, there are structural policy issues around Commonwealth-State financial relations that need to be reviewed to provide greater incentives for States such as Western Australia and Queensland to support major economic development.

7 Conclusions: Opportunities for Government

While Australia, and the individual States and Territories that comprise the nation, remains generally competitive for major economic development, several substantial deficiencies have been identified in this report. In addition, there is a need for “world best practice” approaches to sustain a competitive investment climate.

Current approaches to investment attraction, development facilitation and provision of infrastructure in Australia are not working as efficiently or effectively as they should, principally due to a lack of co-ordination between Commonwealth, State and local governments.

During the past two years, Commonwealth and State agencies responsible for attracting inward investment have started to work more closely and in a more co-ordinated way. Commonwealth and State approvals processes are also more closely co-ordinated than previously. There remains room for improvement, however, through adoption of whole-of-government approaches and greater co-operation and co-ordination between all tiers of government.

In particular, infrastructure policies and investment incentives schemes remain substantially unco-ordinated. In some jurisdictions, these policies are deficient. At best, this situation is confusing for project proponents. At worst, it could mean that proponents look elsewhere to make their investment, resulting in substantial opportunities forgone.

7.1 Investment Climate

The investment policy climate in Australia is very good by most measures. However, Australia is competing for investment with a number of developing countries that are able to offer lower costs that may balance out less competitive factors (e.g. greater sovereign risk). Australia therefore needs to continue to improve its climate for investment, particularly so as to attract footloose industries.

In 2002, the Australian Government, through Invest Australia, produced a report *Global Returns: the national strategic framework for attracting foreign direct investment*. The framework is designed to provide direction for a strategic, targeted and co-ordinated approach to attracting foreign direct investment (FDI) into Australia. It recognises the strong partnerships that are needed with States and Territories and the private sector to implement the framework effectively. To this end, a National Investment Advisory Board has been established to co-ordinate investment attraction activities between jurisdictions.

Recommendations

1. State and Commonwealth governments should continue to work together to implement the provisions of *Global Returns*. In particular:
 - Ensuring that the National Investment Advisory Board (NIAB) is effective in its co-ordination role;
 - Closely co-ordinating international representation and marketing;
 - The intergovernmental National Investment Research Group (NIRG) to co-ordinate a whole-of-government approach to investment-related research and analysis;

- Implementation of mechanisms for gaining advice from the private sector and partnerships in investment attraction activities; and
 - Involving local government in investment facilitation.
2. Governments should continue to work together to improve the overall investment climate through co-ordinated policy initiatives. This will require:
- Receipt of feedback from the NIAB, NIRG and private sector on policy deficiencies in addition to advice on investment attraction;
 - Bureaucratic and political commitment at all levels of government to analyse and act on identified issues;
 - Greater transparency of processes, decision-making, project support, infrastructure policy; and
 - The Western Australian Government to focus on whole-of-government efficient investment attraction and approvals processes.

7.2 Infrastructure Policies

Neither the Commonwealth nor Western Australia have comprehensive policies on infrastructure, although they do have policies on certain infrastructure elements (e.g. roads). This is a major policy gap, particularly if trade-off decisions need to be made on infrastructure spending, and if the two governments are to work together in providing infrastructure.

The Commonwealth has an Employment and Infrastructure Committee of Cabinet and has recently announced the Energy White Paper and AusLink road funding initiative, but its activities fall short of a coherent infrastructure policy.

The Government of Western Australia has announced that it will undertake a comprehensive State Infrastructure Study to audit the infrastructure that already exists in Western Australia and identify the longer term infrastructure needs for industry and community development. The Study will be the first stage in the development of a co-ordinated State Infrastructure Strategy to provide a whole-of-government approach to identifying specific priorities for the allocation of resources to infrastructure projects over the long-term.

The Western Australian Government has also developed a Strategic Planning Framework for the Western Australian Public Sector – within a sustainability framework – that includes the goal: “To develop a strong economy that delivers more jobs, more opportunities and greater wealth to Western Australians by creating the conditions required for investment and growth”. Strategic outcomes include “greater economic infrastructure that facilitates new development”.

In the past, high levels of State debt relative to revenue have inhibited public investment in infrastructure in Western Australia and some other States. More recently, levels of State debt have fallen to a level where governments have more room to make infrastructure investment decisions before threatening AAA credit ratings. That said, demands for infrastructure are increasing and governments need frameworks and mechanisms for assessing infrastructure needs and priorities.

Recommendations

3. The Commonwealth should develop a whole-of-government infrastructure policy to provide a framework for Commonwealth involvement in infrastructure provision in close co-operation with State and local governments, particularly in the development of strategic infrastructure to support major development of national significance.
4. The State Government, in consultation with local government should expedite development of a comprehensive, whole-of-government State Infrastructure Strategy with a key objective of state economic development within a sustainable development framework. Key elements of this policy should include:
 - Integration of the provision of all classes of social and economic infrastructure in support of development;
 - An economic development focus to all infrastructure planning;
 - Policies for direct government involvement;
 - Mechanisms to identify opportunities for private sector and involvement of GBEs in infrastructure provision, and facilitation of such involvement;
 - Mechanisms to assess relative costs and benefits of infrastructure on a case-by-case basis;
 - An integrated view of infrastructure, including “hard” infrastructure (e.g. energy, roads, ports, community facilities), “soft” infrastructure (e.g. research, training), and both traditional and new economy infrastructure (e.g. innovation, skills development); and
 - Cabinet-level and cross-agency co-ordination of infrastructure planning, including redefined roles for existing infrastructure co-ordination bodies.

7.3 Private Sector Involvement

A goal of governments should be to maximise private sector provision of infrastructure in order to reduce the cost and finance burdens on governments, reduce risks and maximise efficiency of both delivery and operation.

Recommendations

5. Within revised infrastructure policies, Commonwealth, State and local governments should develop further ways in which to encourage private sector involvement in major economic infrastructure, either through direct provision by proponents, provision by third party providers, or through appropriate PPP arrangements. Governments should actively seek to extend private sector infrastructure provision to resource development projects through:
 - Better appreciation of, and approaches to management of risk to both providers and governments;
 - Taxation regimes conducive to investment in high capital cost, long life assets;
 - Revision of regulation of infrastructure assets to provide long-term benefits to customers and the economy; and
 - Western Australian Government undertaking systematic performance reviews of strategic infrastructure provision (however provided) to assess long-term economic benefits/costs of different mechanisms and cases.

7.4 Decision-making

Governments need more comprehensive, nationally consistent approaches to decision-making in order to have rigorous and transparent approaches to assessment of costs and benefits, and to better manage risk. While the Department of Treasury and Finance (DTF) and the Department of Industry and Resources (DoIR) currently have a mechanism under development for consistent assessment of costs and benefits of major projects, an approach for assessing costs and benefits of all classes of infrastructure is required in Western Australia.

Recommendations

6. Western Australia should include – within the State Strategic Planning Framework and its new infrastructure strategy – a mechanism to assess the costs and benefits of infrastructure on a project-by-project basis.
7. Western Australia and the Commonwealth (and other jurisdictions) should agree on a common project assessment methodology that examines regional, State and national economic costs and benefits.

7.5 Commonwealth-State Financial Relations

The current approach to Commonwealth-State financial relations does not adequately account for the costs incurred by States in providing major economic infrastructure for development. This creates a disincentive for States and Territories to invest in major projects that result in national economic benefit but that result in marginal or negative financial impact on the State.

Recommendations

8. The Commonwealth Grants Commission to seek to resolve methodological issues for assessment of disabilities arising from provision of major economic infrastructure by States:
 - The Western Australian Government should work with States and Territories with similar concerns to put forward alternative methodologies.
9. The Commonwealth should undertake a review of Commonwealth-State financial relations to achieve a framework that provides incentives to States to support economic development of national significance.

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Appendices: Country and State Case Studies

The following case studies document the approaches of a number of other countries and Australian States to investment attraction policies and incentives, and provision of infrastructure.

Jurisdictions examined are:

- Trinidad and Tobago
- Singapore
- Qatar
- Malaysia
- Canada
- The United Kingdom
- Queensland
- New Zealand

Appendix I examines case studies of PPPs in practice, both within Australia and other countries. It also draws lessons from these experiences.

A Trinidad and Tobago

A.1 Introduction

Trinidad and Tobago (TnT) is a particularly relevant example for Western Australia, as it has very similar gas-based development aspirations. TnT is competing directly with Western Australia for investment in the gas processing and direct reduced iron sector, although TnT's location makes it suitable to different markets.

Trinidad and Tobago are the southernmost islands of the Caribbean archipelago. TnT achieved independence from Britain in 1962 followed by republican status in 1976.

TnT is seeking to attract investments to utilise the country's resources and create jobs. The CIA World Fact Book¹⁴ states that "Trinidad and Tobago has earned a reputation as an excellent investment site for international businesses".

A.2 Industry Development Incentives

Investment incentives are co-ordinated through the Investment Facilitation Department of the Tourism and Industrial Development Company of Trinidad and Tobago Limited (TIDCO).¹⁵

TIDCO operates a website informing companies of the advantages of investing in TnT. In addition, TIDCO produces a *Guide to Investing in Trinidad and Tobago*, which is updated each year.

Investment incentives advertised by TIDCO are grouped under the following headings: regulations, concessions, fiscal incentives, hotel development, special classes, free zones, construction, exporters, loss relief and non-tax incentives.

Regulations incorporate such features as concessions from import duty, exemptions from corporation tax, training subsidies, export allowances and other government reform to encourage investment.

Free zones enable companies, who export the majority of their goods and services, to become eligible for exemptions from various taxes and customs duty.

A.4 Infrastructure

TnT's continuing infrastructure expansion focuses on its objective to become an international centre for trade and transport. International air and sea links are well established, and served by a skilled and experienced workforce. TnT is investing heavily in infrastructure for the future, with much of this development focused on Trinidad (the larger of the two islands).

¹⁴ The World Factbook, Central Intelligence Agency, USA 2003
[<http://www.cia.gov/cia/publications/factbook/geos/td.html>].

¹⁵ Source: Tourism and Industrial Development Company of Trinidad and Tobago Limited (TIDCO) – Investment Division. Port of Spain, Trinidad and Tobago [<http://www.investtnt.com/archives/index-1.htm>].

A.4.1 Airports and Air Services

TnT has two airports: Piarco in Trinidad, and Crown Point in Tobago. Both can handle wide-bodied aircraft.

The country has its own national airline, BWIA International Airways. It is the Caribbean's largest airline. The domestic airline, Air Caribbean, serves Tobago, Miami, Guyana and several other Caribbean Islands daily.

A.4.2 Sea

Vessel arrivals in Trinidad have increased dramatically in Port of Spain, Chaguaramas and at Point Lisas. In Tobago, the port of Scarborough has seen a marked increase in cruise ship business.

Port of Spain's port has a sheltered harbour with modern equipment and storage facilities, low rates, and capacity to handle bulk, container shipping, and cruise ships. Port Point Lisas is a fully developed industrial port. It specialises in handling petrochemical products, iron, steel and containerised and general cargo.

A.4.3 Roads

Ambitious road building and improvement schemes continue apace to facilitate the country's increasing ability to attract business. Modern highways link Trinidad's major towns and cities, and there are plans to extend the island's North Coast road and encourage access to its isolated beaches, forests and developing eco-tourism business.

A.4.4 Communications

Telecommunications services are provided by Telecommunications Services of Trinidad and Tobago Limited (TSTT). The company is a private/public partnership between Cable and Wireless of the UK and the government of TnT.

A.5 Operating Costs

The following table outlines the electricity, water and wages rates in TnT. Electricity rates are somewhat higher than in Western Australia, while wage rates in this developing country are a lot lower. Such wage rates help to reduce construction costs to below developed country costs.

ELECTRICITY CHARGES		
CUSTOMER	ENERGY CHARGE	DEMAND CHARGE
Domestic	TT\$0.15 per KWH	None
Commercial	TT\$0.165 per KWH	None
Industrial	D1 TT\$0.1675-0.006 per KWH D2 TT\$0.152 per KWH D3 TT\$0.069 per KWH	TT\$21.75 per KVA TT\$21.75 per KVA TT\$26.08 per KVA
Industrial (V. large)	TT\$0.0614 per KWH	TT\$23.60 per KVA

WATER RATES		
INDUSTRIAL	METERED	UNMETERED
Commercial	TT\$3.50 p.c.m./month (min \$35/month)	TT\$474/month
Agricultural	TT\$3.50 p.c.m./month (min \$35/month) TT\$2.25 p.c.m./month (min \$20/month)	TT\$474/month 15% of ATV month (min \$105/month)

WAGE RATES		
INDUSTRY	TYPE OF WORKER	MINIMUM WAGES PER HOUR
Building	Carpenter/Mason	TT\$14.77 = US\$2.45
	Welder	TT\$13.12 = US\$2.20
	Mechanic	TT\$13.30 = US\$2.20
Furniture	Upholsterer/Machinist	TT\$9.37 = US\$1.50
Hotel/Restaurant	Chef	TT\$9.52 = US\$1.50
Electricity	Electrician	TT\$15.35 = US\$2.50
Plumbing	Plumber	TT\$9.16 = US\$1.50

A.6 Taxation

The principal taxes in TnT are income tax, corporation tax, business levy, various petroleum taxes, VAT, withholding tax, and customs and excise duties. Many of the investment and industry development incentives mentioned above incorporate some form of tax advantage. For example, local construction is provided with a range of tax incentives and the Income Tax Act provides for several special classes of company which reduces their effective tax rate to 20 per cent from the statutory rate of 35 per cent. In addition, the Income Tax Act also allows companies to carry-forward tax losses without limitations.

A.7 Investment Opportunities

Investment opportunities are discussed by TIDCO in the following groups:

- Food and Beverage;
- Metal Processing;
- Leisure Marine;
- Chemicals, Pharmaceuticals and Plastics;
- Information Technology; and
- Printing and Packaging.

Although not listed above, energy, tourism and agriculture are also key sectors of the TnT economy.

In each case, the industry is described and the investment opportunities and prospective markets highlighted. This is followed by a list of the advantages of investing in TnT in this particular industry.

For example, the advantages of investing in the metal industry in TnT are listed by TIDCO as:

- Metal processing “cluster” established in Trinidad with both upstream and downstream;
- Success of existing foreign investors in the sector;
- Good track record in exporting metal products;
- Most developed industrial structure in the Caribbean;
- Main iron and steel supplier to Caricom area;
- Low unit costs;
 - cost efficient raw materials;
 - cost efficient labour;
 - cost efficient power supplies;
- Access to Free Zone and other tax incentives;
- Excellent geographical location in relation to major markets and shipping routes;
- Potential for developing downstream industries; and
- Excellent cost effective location for outsourcing production.

A.8 Industrial Estates

Industrial estates and “free zones”, have been set up to attract foreign investment and export trade. Free zones are special export zones where companies are subject to large tax concessions. Eligible companies must not supply more than 20 per cent of good produced to the market in TnT.

A good example of an industrial estate is Point Lisas – a specialist bulk port for servicing industrial clients. The Point Lisas Industrial Estate is the hub of Trinidad’s natural gas industry, with over 7.6 million tonnes of gas-based commodities exported from here each year.

A.8.1 Foreign Companies Operating in Trinidad and Tobago

A selection of foreign companies operating in TnT is shown in the table below.

COUNTRY	COMPANY
France	Total Exploration Inc
Germany	Ferrostaal Methanol Production
Finland	Helm Methanol Production
Spain	Nestle
The Netherlands	Shell Chemicals and Services
Venezuela	Acedo Mendoza-Fincor
Canada	Cometra Energy Limited, Methanex Corporation
United Kingdom	British Gas, Shell Chemicals, Unilever PLC
Taiwan	Kwojeng Trading
Japan	Fujitsu, Toyota
Australia	BHP Billiton
India	Berger Paints Ltd
USA	Alcoa, Colgate-Palmolive, Duke Energy, Exxon Mobil, Chevron Texaco

A.9 A Profile of the Natural Gas Sector in Trinidad and Tobago

The CIA World Factbook regards TnT's natural gas sector as its leading economic performer in the past four years.

A US Department of State Background Note¹⁶ on TnT provides an excellent summary of recent industrial development.

The petrochemical sector, including methanol, ammonia, urea, and natural gas liquids, has continued to grow and has experienced a new burst of activity with the resumption of full-scale production of all existing facilities. Natural gas production continues to expand and should meet the needs of the many industrial plants coming on stream in the next 3 years. The major development in 2003 was the completion of Train III at the Atlantic liquefied natural gas (LNG) plant. A fourth train is currently under construction. Trinidad and Tobago is the 5th largest exporter of liquefied natural gas in the world. The expansion of Atlantic LNG over the next 4 years could create the largest-single sustained phase of economic growth in Trinidad and Tobago. It has become the leading exporter of LNG to the United States, and now supplies some 65% of U.S. LNG imports. Trinidad and Tobago is experiencing a transition from an oil-based economy to a natural gas based economy. In 2002, production of natural gas averaged 1,826 million cubic feet per day (mmcf/d) representing an increase of 14.4% over output in 2001. Atlantic LNG consumes 47% of total natural gas production. As a whole the energy sector set a record growth rate of 9.5% in 2003. In 2002 the petrochemical sector accounted for 20.2% of central government revenue.

A.9.1 The National Gas Company

Established in August 1975 by the Government of TnT, The National Gas Company of Trinidad and Tobago Limited (NGC) plays a leading role in the development of the country's natural gas-based industry.

The NGC is responsible for natural gas-based industrial development. This includes:

- Promoting TnT locally and abroad as a prime location for investment in gas-based industries;
- Monitoring and guiding major natural gas-based projects;
- Advising the government on an appropriate regime of incentives to stimulate the development of natural gas-based downstream industries;
- Evaluating proposals for natural gas-based projects in the energy sector;
- Applying a regime of incentives to encourage and develop downstream industries in the gas-based and petrochemical sub-sectors;
- Marketing, transmission and distribution of natural gas for the domestic market;
- Market development activities, including project facilitation and investment promotion, project planning and market research;
- Port, marine and industrial site/infrastructural development; and
- Offshore gas compression activities, which provide the country with its most cost-effective supply of natural gas for power generation.

¹⁶ Source: US Department of State. (2003) Background Note: Trinidad and Tobago [<http://www.state.gov/r/pa/ei/bgn/1897.htm>].

A.9.2 Developing the Industry

Through its utilisation of surplus revenues earned from the oil industry, TnT took the initiative in 1975 to develop several major gas-based projects.¹⁷ The initiative comprised:

- The establishment of industrial infrastructure, including a world-class industrial estate and deep-water harbour and related facilities at Point Lisas;
- The construction of an onshore and offshore gas transmission pipeline network; and
- The development and construction of petrochemical, iron and steel and power plants that utilise natural gas as feedstock and/or as fuel.

In tandem with these developments was the creation of two state enterprises: NGC, to transport and market all the natural gas produced in the country; and later, in 1979, the National Energy Corporation (NEC), to undertake project and infrastructure development. With NGC acting as compressor, aggregator and merchant of natural gas and NEC as the market developer, by 1992 the industry had progressed to the point where Point Lisas and its environs, were host to several petrochemical plants, an iron and steel mill and a gas processing facility.

In May 1992, the operations of NGC and NEC were merged to undertake the second phase of shaping and developing the natural gas industry. However, the new approach envisaged the state playing the role of facilitator for private sector-led capital investment.

A.9.3 The Downstream Sector

Current Landscape

In the period 1992-2002, the downstream petroleum and minerals sector has experienced growth in ammonia and methanol, natural gas liquids (NGLs), direct reduced iron (DRI) and hot briquetted iron (HBI), power generation and liquefied natural gas (LNG).

By the year 2002, Trinidad and Tobago's natural gas utilisation had increased from approximately 400 million standard cubic feet per day (MMscf/d) in 1992 to over 1,500 MMscf/d to the existing natural gas-based plants which now comprise:

- 1 LNG plant – 450 MMscfd;
- Ammonia plants – 3,660 million tonnes per annum (mtp/a);
- 5 Methanol plants – 2,960 mtp/a;
- 3 Iron and steel mills – 2.36 mtp/a;
- 1 HBI facility – 500,000 tp/a;
- 1 Urea plant – 550,000 tp/a;
- 4 Power generation plants – 1400 MW; and
- 1 Liquids recovery/processing plant – 1.4 Billion cubic feet per day (BCF/d) and NGL output of 33,500 bp/d.

¹⁷ Source: The National Gas Company of Trinidad and Tobago Limited (NGC) [<http://www.ngc.co.tt>].

A.9.4 Expansion in Natural Gas Utilisation

LNG

Two additional LNG trains are under construction at Point Fortin in south Trinidad. By 2003, LNG production would be expanded to 9.6 million tonnes (1,350 MMscf/d), virtually all of which will be exported to markets in Spain and the East Coast of the USA.

Ammonia

The country's newest ammonia plant with a capacity of 1,850 tp/d is under construction. It is expected that the plant will be commissioned during the second quarter of 2002, consolidating the country's position as the No. 1 exporter in the world, with production capacity of over 4.5 million tp/a.

Methanol

Currently, construction work on two new methanol plants at Point Lisas is on stream. The country is the No. 1 exporter of methanol in the world, and upon completion of these new plants, methanol capacity will more than double, with an incremental 10,400 tp/d of production.

A.9.5 Existing Infrastructure

Gas Transmission and Distribution Network

There is an installed natural gas pipeline network owned, maintained and operated by NGC. Currently, the network can handle volumes of 1.4 Bfc/d.

Industrial Sites

TnT has two large scale industrial estates: Point Lisas and La Brea.

Point Lisas Industrial Estate

The Point Lisas Industrial Estate is the hub of Trinidad's natural gas industry. Currently, over 7.6 million tonnes per annum of gas-based commodities are exported from Port Point Lisas.

Point Lisas is located midway down the west coast of Trinidad. The industrial estate was established in the mid 1970's, when the Point Lisas Industrial Port Development Corporation Limited (PLIPDECO) acquired 600 ha of sugar cane land. The industrial estate now comprises 1200 ha of land and numerous sites for industrial development.

PLIPDECO¹⁸ was established in 1966. As landlord of the industrial estate, PLIPDECO has supervised the growth of industrial activities, starting with the manufacture of steel products and expanding into petrochemicals and then various processing, logistical and distribution companies. The three core activities of PLIPDECO are marine services, cargo handling and industrial real estate management.

¹⁸ Source: Point Lisas Industrial Port Development Corporation Limited (PLIPDECO) Trinidad, West Indies [<http://www.plipdeco.com/>].

The government of TnT is the major shareholder of PLIPDECO with 51 per cent, with the other 49 per cent owned by private shareholders, including banks, insurance companies and institutional investors.

Point Lisas Industrial Estate is considered the largest and most successful petrochemical and industrial park in the Caribbean region. The estate is now home to over 100 international and national tenants, including all the country's petrochemical plants. The estate also has other tenants including iron and steel, manufacturers, and services and contract companies (providing support services to the petrochemical plants).

Infrastructure

The Point Lisas Industrial Estate has over US \$8 billion invested in plant and infrastructure and generates employment for over 6,000 people and the activities of the estate also generates further spin-off of indirect employment.

Port Point Lisas was originally developed as a port to serve the estate's industrial clients, providing facilities for loading anhydrous ammonia, methanol and urea, as well as loading direct reduced iron and discharging bulk iron ore. More recently it has expanded to be able to handle containers and general cargoes.

The estate is fully serviced, with infrastructure including NGC gas transmission lines, which transports natural gas from the gas fields off the east coast of Trinidad to the Phoenix Park Gas Limited (PPGPL) for processing and distribution to the Petrochemical Companies.

The generating company, POWERGEN, supplies the estate with 634 MW of electrical power with back up from the national grid. WASA, the Water and Sewage Authority recently spent \$120 million in upgrading the water supply system to service the estate and a desalination water treatment plant with the capacity of 12 million gallons of water a day is currently under construction. The estate also has fibre optics telecommunications communication.

La Brea Industrial Estate

The La Brea Industrial Estate, and its accompanying natural deep-water harbour at Brighton, was developed by NGC/NEC as an alternative industrial site to Point Lisas. At present, La Brea offers dock and deep draught harbour facilities, site and utilities for land-based industries, bio-remediation and offshore logistical support.

A.9.6 The Way Forward

NGC sees as its priority in the long-term, value maximisation as key to its natural gas-based industrialisation efforts. Moreover, NGC believes that continued investment in physical, social and economic infrastructure will create an investment environment that is suitable for high technology process operations that are world-class and maximise value creation.

Another key strategy will be based on NGC's success at diversifying away from primary products to other products and new technologies. These could include downstreaming in areas such as gas-to-liquids (GTLs), methanol-to-olefins (MTOs), ethylene cracking and aluminium smelting where greater value creation in terms of spin-off industries and job creation are likely to occur for the benefit of the citizens of TnT.

B Singapore

B.1 Introduction

Singapore is situated at the southern tip of the Malayan Peninsula. Strategically located along the major shipping and air routes of Asia, it is the major nerve centre for trade and investments in the region.

Singapore has an excellent infrastructure with state of the art communication facilities and road transport system. It operates busy and efficient air and seaports and is a free port with no customs and excise duties on most items.

Singapore is also one of the leading international financial centres. Offshore investors are well served by representatives of most major international banks, financial institutions, investment management companies, accounting and legal firms.

B.2 Investment Incentives

The Singapore Government attracts foreign investment with generous tax and financial incentives. Singapore has been successful in attracting numerous regional holding companies, corporate headquarters, business and service centres, group finance and treasury centres as well as investments in high tech industries, media and communications, shipping and financial services. In addition, it has attracted many large scale industrial plants.

Investment incentives include loans, grants and tax concessions.

Tax concessions include:

- Concessionary tax arrangements for non-residents;
- Double taxation relief;
- No capital gains tax; and
- Property tax relief.

Singapore also provides investment incentives through provision of serviced industrial parks. Due to the small land area of Singapore, these parks are often located in neighbouring countries in combined management and ownership with the residing country. The following section details Singapore's approach to industrial parks.

B.3 Singapore's Industrial Park Approach: Jurong Island and Batamindo Industrial Park

B.3.1 Jurong Island

The economic development board of Singapore is responsible for all activities pertaining to economic development, planning of industries and promotion of export. A separate organisation, JTC, is a state owned corporation and a leading provider of industrial space solutions. JTC developed the industrial park, Jurong Island, by amalgamating and reclaiming seven islands off the south-western shores of Singapore.¹⁹

¹⁹ Source: [<http://www.jurongisland.com.sg>]

In 2001, Jurong Island hosted 72 companies investing close to S\$22 billion in oil refining, petrochemical manufacturing and specialty chemical manufacturing and supporting facilities.

Jurong Island is fast developing into a self-sufficient petrochemical complex with infrastructure and key support facilities. The recently installed chemicals logistics park is a prime example. It commenced in September 2003, to assist manufacturers to ship their chemical products from Jurong Island. Other infrastructure facilities include: sewerage treatment; electricity and gas supply; information and communication services; chemical process technology centre; fire safety; efficient public transport system and road network; and an amenity centre.

It is predicted by 2010, Jurong Island will be able to accommodate 150 companies with a total estimated fixed asset investment of S\$40 billion. Recent companies to open facilities on the Island include, Akzo Nobel's Surface Chemistry business (March, 2004) and China Aviation Oil's 500,000 cubic metre oil terminal with oil storage company, Horizon (March, 2004).

B.3.2 Batamindo Industrial Park

Singapore is also developing industrial parks in several other areas of South East Asia. SembCorp Park Management (SPM) has undertaken planning, marketing and management of these industrial parks since 1990.

SPM is a Singapore based company managing four integrated industrial parks in Asia. They include Batamindo Industrial Park and Bintan Industrial Estate in Indonesia; Vietnam Singapore Industrial Park in Vietnam; and Wuxi-Singapore Industrial Park in China.

Batamindo Industrial Park (BIP) is a good example of an integrated industrial park. Located on the Indonesian island of Batam, approximately 20 km from Singapore, it spans over 320 hectares and is staffed by over 85,500 workers. BIP commenced operations in 1991 in co-operation with the Singapore and Indonesian governments.

The vast amounts of infrastructure developed at BIP enable it to be continuously self-sufficient and independent. Electricity requirements are met by three on-site power houses with a total capacity of 108MW and additional standby capacity of 30MW. Furthermore, two large fresh water reservoirs, located next to the park, enable water treatment of up to 14,500 cubic metres of water per day. Other facilities include: telecommunications; waste-water treatment; workers dormitories; executive housing; essential amenities; and security and protection.

C Qatar

C.1 Introduction

The state of Qatar lies midway along the western coast of the Arabian Gulf, strategically located on the peninsula in the Persian Gulf. Qatar is bordered by Saudi Arabia on one side and the United Arab Emirates on the other. The country comprises a peninsula of 11,437 square kilometres and several islands. The most important of these islands are Hawar, Ha-lul, Jinan and Shra'ouh. The capital of Qatar, Doha, is situated on the eastern coast of the main peninsular.

The economy of Qatar is largely dominated by oil and natural gas, which accounts for approximately 70 per cent of export income. Investments in oil and gas fields reached, in recent years, approximately QR26 billion, of which US\$1 billion are of foreign origin. Qatar has the largest single concentration of non-oil associated gas in the world.

Being a peninsula, Qatar has longer shorelines to accommodate ports and more maritime access routes to the world, which makes it more competitive as a centre for international investment.

C.2 Investment Incentives

Qatar offers an attractive investment climate in the oil and gas sectors. Its advantages include: strategic geographical location; appropriate infrastructure; diversified financial incentives; welcoming treatment of investors; and its enormous reserves of natural resources. Qatar has been developing over the past decade as a dynamic base for major industrial projects.

Companies that invest in Qatar's industries enjoy exemptions from taxes on income, electricity, water, and power facilities. Common practice has excluded foreigners from owning property or investing in privatised public services, but foreign investors have been allowed to own up to a 25 per cent stake in steel, fertilisers, and petrochemical industries. Under more recent legislation, foreign investors can own up to 100 per cent of a company in areas such as agriculture, industry, health, education and tourism. The new law also exempts foreign companies from paying taxes for a period of ten years, and allows the importation of equipment and materials that are not readily available within the country tariff-free.²⁰

The government of Qatar places the provision of infrastructure, including roads, utilities, ports and communications, high in its list of priorities. The provision of infrastructure is designed to bring about economic diversification, attract foreign investment and help increase the sources of national income.

Customs charges and bureaucratic or procedural restrictions are minimal or non-existent in regard to all transactions including repatriation of foreign capital; and legislation is in place to provide incentives and facilities that could help raise the profit margins of investments.

²⁰ Source: Arab Datanet [<http://www.arabdatanet.com>].

Qatar has a comprehensive investment attraction regime.²¹ Concessions received by foreign investors include:

- Freedom to import and repatriate funds; and
- Freedom to transfer profits and assets.

Some more general incentives for investment include:

- The right to import the materials and equipment required for the establishment, operation or expansion of projects;
- Ten-year exemption from income tax effective from the date of commercial commissioning of projects;
- Duty-free imports of equipment and machinery required for projects; and
- Duty-free imports of raw and semi-manufactured materials needed for industrial projects and not available locally.

Other incentives include:

- Fully equipped industrial estate;
- Long-term loans with competitive interest rates for small and medium scale industrial projects from Qatar Industrial Development Bank; and
- Flexible regulations and procedures to import workforce for industrial and other investments.

C.3 Qatar's Industrial Parks

Ras Laffan Industrial City (RLC)²² is a 106 km² industrial city located on Qatar's huge North Gas Field, on the Arabian Gulf and approximately 80 km north of the capital city of Doha. RLC is operated by the state-owned Qatar Petroleum, and is one of the world's fastest growing industrial export locations.

The RLC was developed as a result of a 1990 strategic plan to utilise Qatar's natural gas reserves. It was designed to accommodate a large number of gas-based industries including gas liquefaction, processing and export, petrochemicals, refining of condensate. RLC currently accommodates three joint ventures: Qatar Liquefied Gas Company LTD; Ras Laffan Liquefied Natural Gas Company LTD; and Ras Laffan Power & Water Company. Companies involved with these joint ventures are detailed in the table below.

JOINT VENTURES IN RAS LAFFAN INDUSTRIAL CITY		
QATAR LIQUEFIED GAS COMPANY	RAS LAFFAN LIQUEFIED NATURAL GAS COMPANY	RAS LAFFAN POWER & WATER COMPANY
Qatar Petroleum	Qatar Petroleum	Qatar Electricity & Water Company
Exxon Mobil	Exxon Mobil	Gulf Investment Corporation
Total Finaelf	Itochu Corp	AES Ras Laffan Holding
Mitsui	Nissho Iwai	
Marubein	Kogas	

Source: Ras Laffan website: [<http://www.qp.com.qa/rlcflash.nsf/rlcprofile.html>].

²¹ Source: State of Qatar, Ministry of Foreign Affairs [<http://english.mofa.gov.qa/details.cfm?id=16>].

²² Source: Ras Laffan website: [<http://www.qp.com.qa/rlcflash.nsf/rlcprofile.html>].

A substantial amount of infrastructure has been developed to attract projects to RLC. The RLC is home to the world's largest LNG port. Other common facilities include: desalination and cooling seawater systems; berthing facilities; pipe racks for GTL transfers; export storage tanks (on reclaimed land); roads; sewerage; surface drainage; telecom services; non-hazardous waste disposal; and landfill facilities.

These extensive facilities are the results of significant funding, ultimately for the government, but via government-owned companies. Funding for the port construction (between 1991 and 1996) was US\$830 million and land infrastructure cost US\$30 million. There has also been funding provided within the investments in the joint ventures (for example, there was a US\$4,000 million investment in Qatargas between 1993 and 1996 and US\$3,000 million in RasGas between 1995 and 1999).

There are future projects being developed. Qatar Petroleum and Qatar Shell GTL Ltd recently signed a Heads of Agreement for the construction of the world's largest Gas to Liquids plant in Ras Laffan. It will produce 1.6 billion cubic feet-per-day of gas. Memoranda of Understanding have also been signed with international energy corporations and states for the construction of future industries in RLC, including additional LNG plants, ammonia/urea production, methanol, and the direct pipeline export of gas to neighbouring countries. An emphasis of future economic development is to diversify the economy through further downstream processing as well as development of SMEs to service the petroleum and other sectors.

Qatar has plans to expand its industrial parks. This includes a new Qatar Science and Technology Park. An emphasis of future economic development is to diversify the economy through further downstream processing as well as development of SMEs to service the petroleum and other sectors.

D Malaysia

Malaysia has a comprehensive, whole-of-government approach to attraction of manufacturing investment. The approach is co-ordinated by the Malaysian Industrial Development Authority (MIDA), with participation from all relevant agencies, including the Ministry of International Trade and Industry and Ministries of Finance, Environment and Human Resources. MIDA's role includes:

- Promoting investment in manufacturing and related service sectors;
- Undertaking planning for industrial development in Malaysia;
- Recommending policies for industrial development;
- Assisting companies to develop and operate projects – in particular through co-operation with other federal and state agencies; and
- Evaluation of applications for specific approvals and incentives.

Malaysian programs to attract investment include incentives, training assistance, intellectual property protection and infrastructure support.

Incentives are mostly taxation-based and are tailored to meet Malaysia's manufacturing aspirations. They include:

- Partial exemption from (company) income tax for five years for new investors granted "Pioneer Status" (100 per cent exemption for investment in designated priority areas);
- Investment tax allowance (essentially accelerated depreciation) on machinery and equipment for five years (100 per cent in designated areas);
- Specific incentives for projects of national importance, high technology companies, and small and medium-sized enterprises (SMEs); and
- Incentives for production of machinery, equipment and automotive components.

Infrastructure support is in the form of developed industrial land, electricity supply tailored to high technology industries, roads and ports.

Malaysia has more than 200 industrial estates or larger parks developed and operated by State Economic Development Corporations, Regional Development Authorities, port authorities and municipalities. Private developers are also developing industrial parks.

Free Industrial Zones are areas established especially for manufacturing companies that produce or assemble products mainly for export. Operations in these zones enjoy minimal import and export formalities, and duty-free import of raw materials.

At Kulim High Technology Park, a ring formation electricity system ensures a stable, uninterrupted power supply to meet the strict tolerances required by high technology operations.

Malaysia's ports are, for the most part, multi-user facilities. The Government has adopted a deliberate policy with regard to ports being supply-driven: that is, capacity is installed before it is required to ensure that there is no congestion as demand grows.

A network of major dual carriageway highways and freeways provide for efficient truck transport to and from the major manufacturing zones and ports.

E Canada

E.1 Country Overview

The Canadian Federal Government's role in infrastructure development has reflected the importance of infrastructure for its contribution to long-term economic growth and quality of life of Canadians. The building of railways, canals, ports, the TransCanada Highway, the St. Lawrence Seaway and airports has been central to federal nation-building. The provision and maintenance of quality public infrastructure is viewed as one of the most important responsibilities of government.

For example, the Canada Strategic Infrastructure Fund (CSIF) emphasises partnerships with any combination of municipal, provincial, territorial governments, as well as the private sector. Each partnership is governed by specifically tailored arrangements. Investments are directed to large scale projects of national and regional significance.

In addition to the CSIF, the federal government has made a commitment to infrastructure research with the aim of improving knowledge about infrastructure. The Register of Infrastructure Research, established in 2003, raises awareness of existing infrastructure-related research undertaken in the government of Canada. The research register includes details on the various types of research and lists them under the following headings: Borders; Climate Change; Connectivity and Telecommunications; Culture; Tourism and Recreation; Economics; Energy; Financing; General; Governance; Health; Housing; Impacts; International; Management Systems; Natural and Environment; Protection; Public Transit and Local Roads; Rural and Northern; State of Infrastructure; Sustainable Urban Growth; Technical; Trade Corridors and Transportation; and Water and Wastewater.

E.2 Canada Infrastructure Fund

The CSIF announced in Budget 2001 provided \$2 billion to respond to strategic infrastructure needs across the country. Investments are directed to large scale projects of major national and regional significance and are made in areas that are vital to sustaining economic growth and supporting an enhanced quality of life. The Fund emphasises partnerships with municipal, provincial, territorial governments, as well as the private sector, and each partnership is governed by specifically tailored agreements.

The CSIF is designed to support projects in areas such as:

- Water quality and access;
- Trade corridors;
- Broadband connectivity;
- Sustainable urban growth; and
- Northern infrastructure.

Announcements to date include the Vancouver Convention and Exhibition Centre, the Red River Floodway, transit in the Greater Toronto Area, broadband in Newfoundland, the A-30 by-pass in Montréal, and the St. John's and Halifax Harbour Clean-ups. Major highway projects have also been initiated in British Columbia, Saskatchewan, Quebec, New Brunswick and Nova Scotia.

An additional \$2 billion provided for the CSIF through Budget 2003 will build on the successes of the 2001 funds. The existing CSIF program parameters will be adjusted to better address the infrastructure needs of the country, as well as government of Canada priorities. Provisions have also been built in to increase the Fund's flexibility to meet the particular needs of northern, rural and remote communities, and First Nations.

Several key projects of strategic national importance will be identified as priorities for funding under the new parameters. A maximum of 10 per cent, or \$200 million, of Budget 2003 CSIF funding will be set aside for these national projects, which are defined as projects of national importance that require the government of Canada to take on a leadership role. They include trans-provincial or trans-territorial projects or more localised but critical projects where federal funding is appropriate.

While the CSIF is urban in focus, to ensure overall equity, funding will be dedicated to projects that benefit rural areas and municipalities with a population of under 250,000 people. This allows the government of Canada to continue its partnerships with municipalities that, with provinces and territories, has produced almost 3,000 infrastructure projects since 2000 with a total investment of over \$5 billion.

E.2.1 Leveraging Greater Public Benefits

The CSIF establishes a framework to ensure that maximum public benefits are realised from infrastructure investments. Where possible, projects should be complemented by supportive policies such as, climate change plans and best practices in areas such, as infrastructure investments and asset life-cycle management.

E.3 Infrastructure Research

Strengthening the existing knowledge-base related to infrastructure, including both the creation and transfer of knowledge, will lead to innovative and more effective policy and decision making on infrastructure investments. In this spirit, Infrastructure Canada will support infrastructure research, feasibility studies on specific complex project proposals, and will work to generate and disseminate knowledge.²³

E.4 Canadian Investment Attraction Packages

Incentives for Investment

The major incentives listed by the Canadian Government "Invest in Canada" website are the "low costs, a great business environment, access to North American markets, and a superior work force".²⁴

²³ Source: Infrastructure Canada [http://www.infrastructure.gc.ca/news-nouvelles/ic/20030722ottawa_e.shtml].

²⁴ Source: [<http://206.191.10.220/english/View.asp?t=1&x=256>].

Incentives for investment are provided at both a national and provincial level.

National incentives for investment are provided by specific industry programs and presented under the following categories:

- Scientific Research and Experimental Development Program (SR&ED);
- Industrial Research Assistance Program;
- Technology Partnerships Canada;
- BDC Venture Capital;
- Natural Sciences and Engineering Research Council of Canada;
- Precarn (supports research and development in intelligence systems);
- Program for Export Market Development; and
- Film Tax Credit Programs.

For example, the SR&ED program is a federal tax incentive program to encourage Canadian businesses to conduct research and development in Canada. Businesses involved in research and development can apply for tax credits applicable to expenditures such as wages, materials and equipment.

The Canadian tax advantage centres on its provision of lower corporate tax rates for medium and large businesses when compared with the US. In addition there is a greater access to capital, via a reduction in capital gains tax, and a tax credit for research and development.

The Canadian Government structure is similar to Australia, as they have a federal state under which there are 13 largely self-governing provinces (10) and territories (3). The provinces have power over subject assigned exclusively to them, including direct taxation in the province for provincial purposes. This provides provinces and territories a broader revenue base than Australian States and Territories.

Aside from the overall investment incentives provided by the federal government, the substantial powers of the provinces result in comparatively different investment environments from one province to another. For example, New Brunswick provides a customised approach towards new investors, whereas The Northwest Territories focuses more on tax credits.

F United Kingdom

The approach of the United Kingdom (UK) to attracting new investment, especially from overseas, to develop new infrastructure or to set up new industrial or commercial activities can be summarised as follows:

- Ensuring adequate supporting infrastructure, such as road, rail, water, energy and telecommunications;
- Facilitating suitable workforce at competitive wage rates;
- Implementing a flexible and stable planning environment; and
- Providing taxation, grant and subsidy conditions which make the chosen location competitive compared with others which the investor may be investigating.

The drivers of the approach of the UK are quite different to those facing Western Australia, but the UK's experience is helpful when considering how to facilitate Western Australia's infrastructure and economic development. The relevant characteristics of the UK were:

- The discovery of North Sea oil and gas accelerated (through the "Dutch Disease"²⁵ process) the decline of traditional heavy engineering, coal mining and manufacturing from the 1970's onwards;
- As a result, significant proportions of the population needed retraining and redeploying to different activities, and therefore new industries needed to be developed and attracted to the UK;
- There are many under-developed areas with rural populations who have experienced high levels of unemployment;
- The UK has led the world in development of competition in infrastructure provision, PPPs, mechanisms for encouraging foreign direct investments and retraining processes; and finally
- As the UK hosts the most international finance centre in the world, practices there inform and lead the provision of capital for major projects.

There are many respects in which the UK is obviously very different from Western Australia. A few are:

- It is much smaller geographically, with much greater density of population in most parts;
- It has very well established and historically-rooted infrastructure which is hard to change fundamentally (and is often centuries old);
- It exists close to the European trading block with a population of 300-500 million;
- There are strong historic links to the US;
- Planning processes are extremely well entrenched; and
- The European Commission dictates and enforces standards across numerous areas, as well as providing finance and support for developing regions and industries.

²⁵ "Dutch disease" occurs when the exploitation of natural resources raises the value of a nation's currency, making manufactured goods less competitive with those of other nations, increasing imports and decreasing exports. The phenomenon was first observed in the Netherlands in the 1960s, when large reserves of natural gas were first exploited.

The latter aspect, of course, can be and often is compared with the relationship which exists between the Australian States and the Commonwealth Government.

Three UK geographic case studies which have faced, and responded to, the challenge of attracting infrastructure and new industries are:

- Wales; and
- The area around Cambridge in East Anglia.

All three have been successful in developing high-technology and service industries, in areas which were previously dependent on coal mining or agriculture. In doing this they have been assisted by large numbers of government and European schemes to attract investment. In all three cases, government agencies have assisted the process considerably.

Two aspects of national UK Government initiatives have been helpful:

- The Private Finance Initiative and subsequent development of PPPs; and
- The “New Deal” – which has focused on developing a skilled workforce.

F.1 Wales

Wales is one of the poorer areas in the UK. It has an older-than-average population, higher levels of unemployment, lower educational attainment and lower incomes per capita than the average of the UK. It has been hit hard by rural decline (and reductions in agricultural subsidies), by the decline of the coal industry and heavy engineering. GDP per capita has lagged many other regions, performing worse than the Midlands or Yorkshire, but better than the North-East.

F.1.1 Attempts to Introduce New Investment

The following description of how Wales has attempted to attract new industries following the decline of coal mining (in the 1970's) and heavy engineering is based heavily on material provided by the Welsh Development Agency.

Businesses investing in Wales can access a wide range of financial incentives. Incentives are provided through a number of bodies, including the Welsh Assembly Government, the UK National Government and the European Commission. Since Wales is categorised as an Objective One Status region within the European Union, it offers the highest possible levels of financial assistance and resources available. Regional Selective Assistance is the main UK Government grant available for investment in manufacturing and assembly industries. It applies to specific areas of the UK, including a number in Wales, which have traditionally suffered high levels of unemployment.

A specialist finance agency, Finance Wales, has been set up to assist SMEs. Finance Wales provides funding and management expertise. The funding is undertaken on a commercial basis and may take the form of a loan, an investment in return for equity or mezzanine finance, involving a mixture of debt and equity.

Taxation

The UK is one of the most profitable places in Europe for foreign investors, due to its favourable company tax regime. The current rate of corporate taxation is 30 per cent and additional benefits include double tax treaties, no withholding tax on dividends, no exchange controls and no restrictions on remitting profits overseas.

Past Successes

In 1978, Ford began building a factory for manufacturing engines in South Wales. Today, the Ford Bridgend Engine Plant employs more than 1,400 people and produces around 2,850 engines a day for a number of models including the Fiesta, Focus and all of Jaguar's V8 cars.

Many blue chip names as well as newer, Internet-based companies have set up offices in the capital, Cardiff, drawn by low costs, a well educated workforce and by the availability of high quality office space.

Specific Agencies and Services

The **Source Wales** programme assists Wales-based enterprises to win more business. The service is proactive in identifying potential sources of new orders and gives Welsh companies the backing they need to win those orders. During 2000, Source Wales helped Welsh-based firms win UKP37 million of new business.

The Welsh Development office has a number of specialist teams whose role is to provide business support and intelligence in a range of sectors. These teams include:

Technology and Innovation Service - enhances links between industry and academic institutions, matching investors with developers of new products and processes.

Enterprise Development Team - has a broad remit to nurture a culture of enterprise and the development of an enterprise economy.

Media Technology Team - encourages the widest possible use of Wales' advanced information and communication technology.

@Wales Digital Media Initiative - @wales champions new media and e-commerce enterprises and assists new and small ventures by providing technical support and access to funding.

F.2 The Cambridge Region and Its Plans

The **Cambridgeshire Structure Plan** provides the strategic planning framework for economic growth in the Cambridge area. Key policy areas are concerned with dispersal of growth to the north and east of the county; protecting the unique environment of Cambridge; restricting the development of firms without an essential need for a Cambridge location; and encouraging development that needs a location in or close to Cambridge. The plan is reviewed regularly.

The **Cambridge Local Plan** sets out integrated policies covering land use, employment, housing and the environment to 2001. The vision for Cambridge includes: “a City where economic development is sustainable in terms of its environmental, social and transport impacts”; and “a City with both national and sub-regional roles”. The plan sets out detailed economic and employment policies for the City with the emphasis on managing growth while supporting those firms and organisations that have a genuine requirement for a Cambridge location.

Business and Science Parks

The development of Cambridge as the hub of a vibrant and rapidly-growing local region has been based on the development of a major “science park” and an associated business park.

The **Cambridge Business Park** is located to the north east of Cambridge. The development was established in the mid 1980’s and comprises six prominent headquarter style buildings totalling over 9,290 sq m (100,000 sq ft).

Established by Trinity College in 1970, **Cambridge Science Park** is the UK’s oldest and most prestigious science park. Now home to 66 hi-tech companies and 5,000 personnel, Cambridge Science Park continues to attract new businesses, from small start-ups and spin-outs to subsidiaries of multinational corporations.

History of the Cambridge Science Park

The land where the Cambridge Science Park is located, on the north-eastern edge of the City of Cambridge, has belonged to Trinity College since its foundation by King Henry VIII in 1546. It was farm land until World War II when it was requisitioned by the US Army and was used to prepare vehicles and tanks for the D-Day landings in Europe. After the war, the site lay largely derelict and increasingly threatened by planning blight until the decision to develop it was taken in 1970.

The development was a response to a report by the Mott Committee, a special Cambridge University Committee set up under the Chairmanship of Sir Nevill Mott (then Cavendish Professor of Experimental Physics) to respond to the Labour government following its election in 1964. Whitehall had urged UK universities to expand their contact with industry with the objective of technology transfer. The Mott Committee Report published in 1969, recommended an expansion of “science-based industry” close to Cambridge to take maximum advantage of the concentration of scientific expertise, equipment and libraries and to increase feedback from industry into the Cambridge scientific community.

Trinity College was impressed with the importance of these ideas. The College had a long tradition of scientific research and innovation from Sir Isaac Newton onwards and since it had a piece of land available, it decided to apply for planning permission to develop it as a science park in October 1971. The first company, Laser-Scan, moved onto the site in Autumn 1973 following clearance and landscaping of the derelict area, conversion of the old gravel pit dug for wartime concrete standings into a lake and construction of the first stretch of road.

The growth of the Cambridge Science Park was slow in the first five years. The science park concept was an unfamiliar one and companies were mainly attracted to it by a desire to be close to the University's scientific research. Early on, UK subsidiaries of multinational companies started to locate there (LKB Biochrom from Sweden and US laser specialists Coherent were the first two of these) and the number of companies slowly grew to 25 by the end of the 1970's.

By the early 1980's, a mini-cluster of technologies and people had developed and this, plus the attractions of Cambridge as a centre for research, began to draw in more companies. A period of strong growth followed and the Trinity Centre was opened in 1984 to provide a meeting place, meal facilities and conference rooms for the increasing number of people working at the park. More starter units and the Cambridge Innovation Centre were built to expand the range of accommodation available and a squash court was opened in 1986.

During the 1980's, several venture capital companies opened offices on the park, including the regional office of 3i, the UK's leading venture capital company. In the second half of the decade, University academics began to bring companies to the park, encouraged by its success and also because of the breaking in the mid-1980's of BTG's monopoly of intellectual property originating in UK universities.

The Cambridge Science Park also began to accommodate spin-outs from existing tenant companies such as Cambridge Consultants, and saw the first collaborative venture formed by park companies – Qudos, which was founded by the University's Microelectronics Laboratory (which was then located at the park), Prelude Technology Investments and Cambridge Consultants.

The 1990's saw many changes in the Cambridge hi-tech and science park scene. The cluster of hi-tech companies in the Cambridge area grew to some 1200 companies employing around 35,000 people and demand for space increased. Incubators for start-ups were established elsewhere in Cambridge and the supply of venture capital in the UK and from locally established venture funds had increased dramatically.

Fast growing internet and telecoms-related companies and the growth and success of a number of companies which had been at the Park for some years, altered the pattern of space occupation. However towards the end of the 1990's the life sciences sector started to grow and become the dominant technology sector on the Park.

There were now fewer but larger, better funded and more successful companies at the park and more of them were launched onto the UK Stock Exchange. A biotech venture capital fund, Merlin Ventures, opened an office on the Park. However, the origins of companies arriving were much the same as in the past: a mixture of spin-outs, developing new ventures from the Cambridge area and elsewhere in the UK, and UK subsidiaries of multinational companies. By December 1999, there were 64 companies at the Park employing some 4,000 people.

Recently a joint venture between Trinity College and another Cambridge College – Trinity Hall (which owns the adjacent land) – will complete the remaining 22.5 acres of brown field development land adjacent to the Park. Five bespoke buildings of between 29,000 sq ft of 36,000 sq ft have been designed, built and pre-let.

In September 2000, the Q.ton forum opened, accommodating a new conference centre, restaurant and bar. A new fitness centre also opened – the Q.ton Revolution. In 2001, a 115 place child care nursery was built providing a valuable resource for parents on the Park. Other benefits also brought onto the Park included five broadband services, a park-wide CCTV system and bus service. Since 2002, the creation of new clusters has begun on the Cambridge Science Park, specifically in the areas of photonics, nanotechnology and materials science. Cambridge University's Centre of Molecular Materials for Photonics and Electronics (CMMPE) has now located at the Park.

G Queensland

G.1 Gladstone State Development Area

Gladstone and Calliope are adjacent localities 550 kilometres north of Brisbane with a population of 47,000 and Australia's fourth-busiest port. The Gladstone region continues to accommodate significant industry development with total planned investment estimated at some \$9 billion over the next three to five years.

A continued focus for the Queensland Government is the development, management and promotion of the Gladstone State Development Area (GSDA) now comprising 21,000 hectares of land specifically allocated for large scale industrial development. Gladstone and Queensland face similar infrastructure issues to Western Australia (refer to box below).

In recent years there has been several major industrial projects committed, including the Comalco Alumina Refinery, the first alumina refinery to be established in Australia since 1985, and Aldoga Aluminium Smelter.

Infrastructure for the Future²⁶

**Statement by the Gladstone Economic and Industry Development Board,
September 2003**

The future development of global large-scale industries will be dependent on the availability and competitiveness of infrastructure to support development. Development of the Gladstone area as a site for major industry will occur in an optimal manner if common user infrastructure can be provided. For this to be effective, infrastructure provision needs to be based on optimum outcomes in terms of costs and benefits, rather than provided on a project-by-project basis.

In some cases, this will require a strategic investment in the infrastructure required for an initial project, to provide additional capacity so that it and later projects can benefit from the economies of scale that result.

Representatives from key regional infrastructure providers have estimated that approximately \$170 million will be required to finance the level and type of infrastructure to accommodate those industries investigating Gladstone as an investment location.

In July 2002, the Queensland Government modelled the overall employment effects of these projects. It estimated direct employment would be 3,300 in late 2003, rising to 6,090 in late 2004 as many projects are in construction phases. As they become operational, the direct workforce would be 2,500 to 3,500, with an indirect workforce of 2,000 to 2,500 people.

²⁶ Gladstone Economic and Industry Development Board Newsletter, September 2003.

Invest Australia has provided assistance on a project-by-project basis, some of which has been for common-user infrastructure. The State Government has initiated several responses including a housing action plan and a training strategy. The infrastructure developments identified in these documents include upgrading roads; new dwellings for public housing stock; funding for recreational facilities; and additional health, police and library services.

G.2 Queensland State Infrastructure Plan²⁷

The State Infrastructure Plan (SIP), released in November 2001, was developed to provide strategic guidance for the next five years of economic infrastructure planning by all areas of government and the private sector. The aim of the Plan is to provide a framework for planning and providing infrastructure and to ensure that Queensland has high quality, globally competitive infrastructure to support business and industry.

Annual Implementation Plans record progress and set out projects and programs for the coming year.

The State Infrastructure Plan – Strategic Directions 2001 Strategic Directions 2001 was prepared by:

- Analysing the policy and institutional issues associated with the delivery of each infrastructure class and identifying key State-wide strategies necessary to improve efficiency of delivery;
- Analysing each region to identify potential economic development opportunities and the critical infrastructure necessary to allow the region to fully realise its development potential.

G.2.1 Rationale for an Infrastructure Plan

The Queensland Department of State Development and Innovation (SDI) says that the State Infrastructure Plan was developed to respond to the challenging environment now facing governments in strategically planning for economic infrastructure. This environment is characterised by:

- Increasing importance of cost effective and efficient infrastructure in improving business efficiency, international competitiveness, employment, regional development and investment;
- Increasing significance of new economy infrastructure (e.g. innovation and technology) as well as the continued importance of traditional infrastructure to an economy's development;
- The trend towards infrastructure being provided by government owned corporations on a full commercial basis, rather than directly by the government;
- Increasing involvement of the private sector in financing and delivery of infrastructure.

SDI says that this environment makes it more difficult for governments to direct the provision of infrastructure. A new approach was needed to enable the government to provide strategic direction to the many players now involved in infrastructure provision, in support of the government's overall policy objectives for the economy.

²⁷ Information from the Queensland Department of State Development and Innovation [<http://www.sd.qld.gov.au/>].

The Plan was developed on the premise that strategically planned infrastructure can be a catalyst for economic development. It provides directions for developing the critical or catalytic infrastructure required to maximise the growth potential of the State and its regions.

G.2.2 A Strategic, Whole-of-Government Approach

The Plan seeks to bring an economic development focus on all infrastructure planning by:

- Establishing strategic economic development objectives for all public and private sector infrastructure planning;
- Co-ordinating and integrating infrastructure provision to support economic development;
- Establishing economic infrastructure priorities for the State Budget;
- Providing a mechanism for identifying private sector investment opportunities in infrastructure provision;
- Providing greater confidence for businesses to expand and invest in new developments.

G.2.3 Scope of the Plan

The Plan deals not only with traditional infrastructure (e.g. water, transport and energy) but also infrastructure for the new economy (e.g. telecommunications, innovation and technology, and skills development).

G.2.4 An Integrated View of Infrastructure

The Plan recognises that the fabric of infrastructure has become much broader and more complex than “hard” infrastructure. “Soft” infrastructure such as, skills, business networks and research programs will be as critical to the future success of the State’s industries as low cost power and efficient transport networks. Innovation and technology infrastructure is recognised as an important class of economic infrastructure in its own right.

The Plan provides a framework for identifying and addressing the emerging infrastructure needs of Queensland businesses participating in the “new economy”. It addresses the development of telecommunications, skills and education, and innovation and technology infrastructure throughout the State.

G.2.5 Private Sector Partnerships

The Plan provides for partnerships with the private sector as a way of achieving improved and lower-cost method of providing and delivering public sector works, services and infrastructure projects.

The Plan says that significant private sector involvement in the provision of public infrastructure should be encouraged in infrastructure projects where it can be shown that the State will achieve better value for money through a relationship contract with the private sector for project delivery and/or service, compared with the option of delivering the project and/or service entirely at the public sector’s cost and risk.

G.2.6 Implementation of the Plan

A CEOs’ Committee comprising the Directors-General of the infrastructure and economic development departments manages implementation of the Plan.

The annual Implementation Plans detail specific infrastructure initiatives (public, private and partnership arrangements) that have been committed in each financial year.

Implementation Plans also incorporate an indicative forward program of possible infrastructure projects that may support the State's development, but which require further research and development.

G.3 The Queensland Investment Incentives Scheme

The Queensland Investment Incentives Scheme (QIIS) is a discretionary program that provides targeted financial support, if and when required, to influence the location of important projects and the attraction of leading companies to the State.

The objectives of QIIS are to:

- Positively influence the location of major projects and strategic investments in favour of Queensland;
- Assist projects where there is a demonstrated net economic benefit to the State;
- Create long-term sustainable jobs in emerging growth sectors of the economy; and
- Attract catalyst projects to Queensland to drive further industry development.

To be eligible, a company or project must:

- Promote the competitive base of the State economy;
- Provide a significant net economic benefit to the State;
- Demonstrate commercial viability in the absence of incentives;
- Demonstrate a need by the government to provide support to overcome a short-term impediment to the company or project's development in Queensland; and
- Demonstrate no significant detriment to, and/or substitution for, existing businesses in Queensland.

Short-term financial incentives may include:

- Refunds of part of payroll and land taxes directly related to the project, incurred and paid by the proponent over the early years of operation;
- Refunds in part or in full Queensland Stamp Duty incurred and paid by the proponent and relating directly to the project; and
- Establishment grants to offset part of any establishment, relocation or training costs associated with the project that is incurred and paid by the company.

In the context of major project economics, such incentives are likely to be only marginally beneficial. The scheme does, however, provide a framework for assessment of incentive measures and a precedent for assessment of one-off infrastructure assistance applications.

G.4 Case Study: Comalco Alumina Refinery

Construction began in early 2002. Stage 1 capacity will be 1.4 million tonnes per annum of alumina (an intermediate good in the development of aluminium), while further expansions could increase capacity to 4 million tonnes per annum. The first alumina shipments will occur in 2005.

Capital cost for Stage 1 is \$1.4 billion. The workforce during construction will peak at 2,300 and there will be an ongoing workforce of 400. With most of the workforce based locally²⁸ and significant local investment,²⁹ Comalco estimates that the project will indirectly generate an additional 2,500 jobs throughout Queensland during construction and an extra 700 jobs once in operation.

Economic infrastructure being developed includes wharf facilities; conveyors for transporting alumina and bauxite; pipelines for caustic soda and sea water; a residue storage dam and an associated slurry pipeline and return sea water pipeline and power transmission line; a rail loop to deliver coal; infrastructure for water and electricity provision; and upgrading and realigning nearby roads. Comalco has got involved in additional infrastructure – for example, via Bechtel, signing leases to assist the construction of 100 homes.

The Commonwealth Government granted Comalco an interest-free \$71 million, 20-year loan on the condition that \$53 million go towards energy efficiency and capturing greenhouse gases. It also contributed funds to developing common-user energy infrastructure and a minerals industry foundation for a total contribution of \$137 million.

The Queensland Government pledged \$150 million funding for common user infrastructure: 2 wharves, 2 conveyors and one caustic tank; a rail loop and coal unloading facilities; a fibre optic telecommunications cable and telephone connections; a road loop to the site; a haul road for heavy equipment during construction; and heavy lift barge unloading facilities.

There appeared to be close co-ordination between the Queensland and Commonwealth governments in structuring the two complementary packages. This contrasts with the poor Burrup Peninsula experience.

G.5 Case Study: Aldoga Aluminium Smelter

The new Aldoga Aluminium Smelter is under construction in the Gladstone State Development Area. When the first stage is fully operational by 2006, it will produce 420,000 tonnes of aluminium per year, primarily for export. The annual export value of production will be \$1.5 billion at today's world aluminium prices, and is planned to have a life of 30 years.

There will be up to 2,200 people employed during construction, with an estimated 3,300 jobs created in related activities. Once it is operational, there will be 900 jobs in the smelter, which is estimated to generate more than 5,000 extra jobs in Gladstone and Central Queensland. The Gladstone Port will be the primary loading and unloading port for raw materials and finished aluminium product.

The Aldoga project will utilise existing infrastructure. To date, it has not received any direct infrastructure assistance or other forms of support from government.

²⁸ In 2002, 67 per cent of the construction workforce was local.

²⁹ In 2002, more than \$100 million was spent in the Gladstone region.

H New Zealand

H.1 Introduction

Although New Zealand does not have major resource developments to service, its experience with taxpayer-supported infrastructure developments over the last few decades is relevant to this report.

As in Australia, the government in New Zealand undertook many major infrastructure developments, in the decades of the 1960's, 1970's and 1980's. During these decades the Government undertook or supported development of a number of large projects, many of which turned out to be economic failures.

Among the more significant projects of the 1960's to early 1980's were several major electricity projects (including the complex Tongariro scheme) and a mainline railway electrification project. It also supported major private sector projects including an aluminium smelter, a methanol plant, an ammonia/urea plant, a steelworks, and a major gas pipeline. In large part these developments were initiated and supported because they were seen to be essential for economic growth, and some were driven by concerns about rising energy prices. The nature of taxpayer support depended on the project, and included direct finance, guarantees, take or pay contracts, and provision of cheap electricity.

With hindsight, most of the projects were economic failures. For example, an ex-post study showed that the Tongariro scheme had a net present value of minus \$2.9 billion. The railway electrification, though used, also had a negative return and some of the other projects were saved only by extra government financial support. Unravelling the government's exposure to these projects cost many billions of dollars and retarded economic growth for several years in the late 1980's.

The lessons from this New Zealand experience are that:

- Investments in infrastructure should be subjected to independent and robust cost benefit analyses, on a case by case basis;
- Long-term projections should not be based on a simple extrapolation of short-term trends (in that case energy prices following the first oil shock);
- Risks should be carefully allocated to the parties best placed to manage them, and should not automatically fall back on the taxpayer; and
- There should be questioning of pressure for public sector support of projects that the private sector is not prepared to undertake by itself.

H.2 Current Policies in New Zealand

The mistakes of the think big era still influence New Zealand attitudes and policies. The government is generally not a direct provider of infrastructure provision other than roads and social infrastructure (schools, hospitals, etc). Instead, it relies on the commercial incentives faced by former government entities that have now been privatised and others that have been corporatised.

However, the government has recently responded to specific infrastructure deficiencies with a new urban transport program for Auckland and with the takeover and planned \$200 million upgrade of the rail network.

H.3 Recent Reports

The New Zealand Government recently released four consultants' reports³⁰ on infrastructure:

Infrastructure stocktake – PricewaterhouseCoopers

Linkages between infrastructure and economic growth – Pinnacle Research

Sustainable infrastructure: a policy framework – New Zealand Institute of Economic Research

Sustainable development and infrastructure – Maarama Consulting et al

The first two are the most relevant to discussions on infrastructure and economic development in Australia.

H.4 Infrastructure Stocktake

The Infrastructure Stocktake found that New Zealand's infrastructure is in reasonable condition with the exception of roads in Auckland, deferred maintenance of the rail network, water supply in particular areas, and aspects of electricity supply. It also found that regulatory uncertainty is affecting investment decisions, particularly in energy. Other issues identified by the stocktake included:

- Questions about the ability of infrastructure networks to sustain catastrophic failure (implicitly from earthquakes or terrorism) – especially gas and electricity transmission, telecommunications links, and Auckland water (much of which is piped some distance);
- The structure of pricing, especially for roads and water, and the question of whether external costs and benefits should be allowed for (especially if other competing countries to not allow for them);
- The scope for demand management, especially water, electricity and urban roads; and
- Environmental legislation (the Resource Management Act) which affects the responsiveness of infrastructure operators to changing demands – with problems including inconsistent decisions under the Act, slow processes and the dominance of local impact tests over national benefits.

H.5 Linkages to Economic Growth

The report on linkages between infrastructure and economic growth was largely an international literature survey, as relevant to Australia as to New Zealand. It struck a cautious note. For example:

³⁰ Available at [<http://www.med.govt.nz/latest>].

- Sturm et al, and Ahn and Hemmings, conclude “public capital probably enhances economic growth, but the magnitude of the effect is highly uncertain...decisions on public capital spending should be based on cost benefit analysis for each individual project, rather than based on the alleged growth enhancing effects of public investment”.
- Ford and Poret test an earlier hypothesis (Aschauer) that a US economic slowdown was caused by a slowdown in infrastructure investment, and find that a longer term analysis implied reverse causation.
- Kessides finds that infrastructure contributes to economic growth, through supply and demand channels by reducing costs of production, contributing to the diversification of economy and providing access to the application of modern technology – but infrastructure does not create economic potential – appropriate conditions need to exist.
- A number of recent World Bank papers confirmed the conclusions that the link between infrastructure investment and economic growth is “at best ambiguous”, that the direction of causality is unclear, and that physical infrastructure investment is a form of complementary capital that supports productive private investment.
- Several other World Bank reports stress the importance of the efficiency of infrastructure utilisation. There may be an optimal level of infrastructure which maximises economic growth rates. Inadequate infrastructure (as in some developing countries) retards economic growth; if infrastructure levels are too high they divert investment away from other productive uses to the point where income growth is reduced.

The linkages study also reports a survey of 50 relatively large businesses in New Zealand. It found that the main constraints they faced were not infrastructure but transport (largely for non-infrastructure reasons) and supply of skilled labour.

I Public-Private Partnerships in Practice

This Appendix provides case studies of recent experience with public-private partnerships (PPPs) in several countries and Australian States. A common characteristic of PPPs around the world is that they are used to provide high-use infrastructure, with multiple users, generally in urban environments. There are few examples of successful PPPs in providing “frontier” infrastructure, such as that to support resources projects, due to the potential low returns in the short-term and higher risks.

I.1 United Kingdom

The Public Finance Initiative (PFI) in 1992 represented a watershed in private sector involvement in public infrastructure in the UK.³¹ The PFI policy encouraged public sector authorities to consider contracting with the private sector for major capital assets and the services they provide as a combined package.

There are currently over 400 PFI contracts in force with a value of over £100 billion. A further 300 projects worth about £16 billion are in the pipeline. This includes 26 hospitals and renewing and refurbishing 450 schools. The London Underground is also the subject of a major PPP. Other examples are:

- Construction of the Skye Bridge;
- Construction and operation of a new prison;
- Highways Authority: Design, build, finance and operate four roads;
- Complete the upgrade of the A74 and M74 motorways and to maintain and operate the road;
- To design, construct and finance a new 400 in-patient bed hospital, maintain the facility and provide a range of non-clinical support services;
- Construction of the Channel Tunnel Rail Link.

Studies by the London School of Economics found that PPPs achieved an average saving of some 17 per cent, compared with the cost that would have been incurred under a traditional public sector approach – although this result was sensitive to the valuation of risk and its attribution.

I.2 The Netherlands

Current projects that are being developed as PPPs include:

- The Rotterdam port redevelopment;
- The Utrecht Centrum Project;
- The Delft urban quarter redevelopment;

³¹ Previously the Ryrie Rules governing private funding required privately funded solutions to be shown to be more cost-effective than publicly funded alternatives and also decreed that privately funded projects would require compensating reduction in the provision for public funding. While ostensibly introduced to promote private funding, they were generally seen as restrictive and providing no incentive for public agencies to seek privately funded solutions.

- The Delfland wastewater purification plant;
- A number of road projects;
- A metroshuttle in Rotterdam;
- Several high speed rail lines; and
- School construction.

I.3 Ireland

PPPs are seen as an important element in the National Development Plan 2000-06 that has the objective of provision of investment in public infrastructure to support the continued economic growth of the country.

One of the first major projects being developed as a PPP is Dublin's Metro.

I.4 South Africa

One of the first PPP schemes was the 30-year Nelspruit water concession for the provision of water and sanitation services. Recent PPP projects that have reached or are about to reach financial closure include the Inkosi Albert Luthuli Hospital in KwaZulu-Natal, fleet management for the Northern Cape Department of Transport and the Chapman's Peak Drive scenic route in Western Cape.

There are currently over 40 PPP deals in development, including schools, hospitals, toll roads, eco-tourism resorts, a high-speed train, state forest projects and office buildings.

I.5 Canada

PPPs have been particularly prevalent in the roads sector. Examples of Canadian PPPs include:

- The Confederation Bridge linking Prince Edward Island to New Brunswick involving a DBFO with transfer of the asset back to the federal government after 35 years;
- Operation of Canada's civil air navigation system; and
- Around 30 schools in Nova Scotia;

A major example is Highway 407, a PPP that has gone through several phases and no longer relies on funding from government. Originally, Canadian Highways International Corporation was awarded the contract to build and operate the first 69 kilometres segment that included a totally electronic tolling segment. In 1999, the electronic toll road became the largest PPP in Canada when the Province of Ontario sold it to a consortium called 407 International Inc. for \$3.2 billion. The consortium has a 99 year lease on the land and owns the road and all related structures. When the lease expires, the assets will be transferred back to government. Estimated savings for the project were 17 per cent and it contributed some \$1 billion to the General Revenue Fund for use in other areas. The Highway 407 extensions opened four months ahead of schedule in August 2001.

I.6 United States

Recent examples of PPPs in the United States are:

- A western loop road around Richmond, Virginia, that the Department of Transportation originally projected would take 36 months and \$283 million to complete was undertaken as a PPP under the State's Public-Private Partnership Act with savings of \$47 million and opening to traffic seven months earlier than expected;
- A PPP for the wastewater treatment facilities in the city of Indianapolis that led to a reduction in the operations and maintenance budget from \$30 million to \$17 million, with the savings put into a Sewer Sanitary Fund to improve the system;
- Construction of housing for Defense Department personnel at Lackland Air Force Base in Texas, providing excellent amenities at a cost saving of \$12 million; and
- Redevelopment of Washington D.C.'s Union Station.

I.7 Argentina

In 1992, a 30-year concession was awarded for water and sanitation services in Buenos Aires leading to a tariff reduction of 26.9 per cent in the short term.

I.8 Victoria

PPP projects in Victoria, some more successful than others, include:

- The \$1.8 billion Melbourne CityLink project involving a 34 year concession to build, own and operate a privately owned toll road connecting three of Melbourne's public freeways. It has proved highly successful – the government would not have been able to finance the toll road (so without the PPP it would not have been built). It has proved popular, and the risk transfer mechanism worked – when major rectification was required for a leaky tunnel, none of the risk came back to the government – the costs were fully borne by the developer, its constructor and their insurance companies. The financial attractiveness of this project was enhanced by the availability of Commonwealth tax concessions on infrastructure bonds – now modified and reduced due to concerns about negative impact on government revenues.
- The franchising in 1999 of metropolitan rail and tram passenger businesses for 10 to 15 years. This has worked better than the previous public sector operation – reliability and punctuality have improved, passenger numbers are growing at twice the previous rate, and a major program of vehicle refurbishment and replacement – which under government operation would have been scaled back or deferred – is underway. However over-enthusiastic bidding and other problems have meant that some of the risks have come back to the Victorian Government, increased subsidies have been negotiated, and financial savings are proving to be lower than expected.
- The construction and provision of prisons and prison services – although one was judged to be poorly managed, has reverted to the government. In one sense this was a success – the PPP contract proved to be robust enough to provide the basis for dismissing an operator whose performance fell short of what was set out in the contract.
- Water industry BOOT schemes, including the Castlemaine sewerage treatment project, the Ararat/Stawell water treatment plant and a water treatment plant in Ballarat.

I.9 New South Wales

Current prospective projects include the delivery of schools and certain related services in northwest Sydney, the Cross-City Tunnel and the Western Sydney Orbital. Further projects identified as potential candidates for PPP include new courthouse facilities, and a large number of water and sewerage infrastructure projects.

The contribution of private sector funding to infrastructure provision has been about 7 per cent of the State's capital budget over the last ten years.

Other projects include:

- A number of Sydney Olympic venues;
- Other tollway projects, including the Sydney Harbour Tunnel, the M4, M5, M2 and Eastern Distributor;
- The Port Macquarie Hospital and the Hawkesbury Hospital;
- The Prospect, Macarthur and Illawarra wastewater treatment plants and the Blue Mountains sewerage tunnel;
- Several social housing projects and property developments; and
- The Junee prison complex.

I.10 Western Australia

The government of Western Australia has published a policy paper on PPP in Western Australia.³² It sets out the approach of the government, which can be characterised as careful and conservative.

Although the term "Public Private Partnerships" is relatively new, governments in Western Australia have for many years been working with the private sector to deliver infrastructure and associated services. Examples include:

- Mining companies that have joined with government to create entirely new communities in remote locations;
- Property developers which have provided community facilities in new residential developments, ahead of the arrival of government infrastructure; and
- The engagement of private designers, builders and facilities managers for the construction and operation of government buildings.

The paper says that in recent years, the concept of PPPs has been extended to embrace new and innovative ways of working with the private sector to improve the delivery of infrastructure and ancillary services to the community.

This means using the joint skills of the public and private sectors to:

- Potentially create new infrastructure which is of a standard beyond that which could be delivered by the public sector alone;
- Support the infrastructure with guaranteed services to ensure its continued usefulness, efficiency and longevity;

³² Partnerships for Growth: Policies and Guidelines for Public Private Partnerships in Western Australia, Government of Western Australia, December 2002.

- Take advantage of innovative ideas and technology which have traditionally been fostered in commercial environments, for the benefit of users of public infrastructure;
- More effectively manage the risks that naturally come with very large and complex infrastructure projects;
- Generate synergies through the alignment of design, construction, maintenance and operation phases by forming consortia to get;
- Better value for money for the taxpayer's dollar; and
- When and how PPPs should apply.

The paper says that Western Australia's outlays for infrastructure are demand driven:

The Western Australian Government will continue its approach of commencing projects when they are justified by a demand or emerging need, which can be clearly demonstrated through a business case. It is the Government's view that bringing forward projects simply because there exists the possibility of a private funding source is unlikely to lead to a successful partnership arrangement. Successful partnerships between the public and private sectors do rely on the creation of a business opportunity, which in turn relies largely on the existence of sufficient consumer demand.

A proposed partnership arrangement must be affordable and not compromise the Government's financial targets. Therefore, Government will only proceed with a project if it is capable of being resourced through public sources, consistent with the debt management policy. This level of commitment is important, as it signals that a need for infrastructure and ancillary services has been identified and that a business case for the proposal has been established and approved by Government, which in turn gives private sector proponents the confidence that a project will go ahead.

I.10.1 Forms of Infrastructure

Some forms of infrastructure are more suited to PPP arrangements than others, the paper says. It identifies the following forms of infrastructure as best suited to PPPs:

- Transport – road, rail and maritime;
- General purpose accommodation, such as offices;
- Health facilities;
- Justice facilities (a PPP is being used to construct a new courts complex);
- Schools and training facilities; and
- Support and seed infrastructure for industry.

However, the paper says that a flexible approach is also important, and that the Government may consider PPPs in less conventional areas as opportunities arise.

I.11 Risk Management of PPPs

Traditional public sector provision of infrastructure (i.e. public sector planning, private sector design and build, public sector operation) exposes governments to a number of risks which it does not always manage well, as shown by cost blowouts. Public servants may lack the commercial and negotiating skills to manage risks and do not face strong bottom-line incentives. Politics may sometimes impede astute or tough risk management. Others may see government as having "deep pockets". PPPs offer a way around this problem, while still preserving government control over the final output of the project.

The optimal allocation and management of risk is fundamental to the success or otherwise of PPPs. Risks should be identified, assessed, allocated, mitigated, and monitored to identify new risks. Risk categories include:

- Site e.g. property rights, approvals, EIS;
- Design/construction/commissioning;
- Asset ownership risk (e.g. loss, obsolescence);
- Financial e.g. the private party's financial structure and strength, performance guarantees or bonds;
- Operating;
- Market (variations in demand or price for the service:
 - In the case of infrastructure provided for resources projects, market risk may ride on commodity prices and exchange rates);
- Network/interface;
- Industrial relations;
- Government policy; and
- *Force majeure*, acts of God and civil/military disturbances.

PPPs should ideally allocate risks to the party best placed to manage them, in order to reduce costs:

- Government generally frees itself of asset based and operating risks (i.e. all but the last three or four in the above list), assigning them to the private party through the PPP contract;
- Government normally retains risks related to policy change (“sovereign risk”), or agree to compensate for policy changes, because the private party cannot manage these risks;
- Risks such as “latent defects” in existing structures, and site contamination, which are difficult to identify or assess, may be subject to a risk sharing mechanism (e.g. where the private party carries the risk up to a certain threshold). The same applies to uninsurable *force majeure* events; and
- Government may agree that the private party should not bear risks relating to network interfaces outside its control, and to industrial relations outside its own operations.

Private parties may mitigate their risks through subcontracting, insurance, financial instruments and/or diversification.

If too little risk is transferred to the private sector, there is little opportunity to secure efficiencies and innovations, and thus little (or even negative) value for money relative to public provision.

On the other hand, if too much risk is transferred to the private party (i.e. risks that the contractor is not well-placed to manage), overall value for money will not be maximised (and may be lower than the public sector alternative). This is because the private party incurs excessively high costs in attempting to mitigate the risks. In this case, the scope of the project is too wide.

I.12 Other Issues with PPPs

I.12.1 Only Some Projects Suit PPPs

Not all projects are suitable for PPPs. The project attributes that suit the PPP approach are scale (e.g. a minimum of \$10 million), duration (long-term), service focus, opportunity for risk transfer, and market capability (of designers, builders, financiers and operators). Infrastructure for major projects has the characteristics of scale and duration, but risks and low early returns militate against private participation.

I.12.2 Early Problems

In the early application of PPPs, notably in the UK, results were mixed. Common problems were inappropriate risk allocation, difficulties with specifications and lack of contract management skills in the public sector. These problems have usually been overcome with experience, and Australia has been able to learn from it. Australian PPP frameworks are broadly based on those of the UK.

An example of unsuccessful PPP projects is a series of Mexico toll roads. The PPP was poorly designed and executed – the concession period was too short, as a consequence the tolls were too high to attract traffic, and the public sector started building parallel free roads. The toll road project ultimately required a government bailout of some \$2.7 billion, illustrating just how carefully the PPP should be designed.

I.12.3 Government Borrowing Costs

It is sometimes suggested that governments should continue with traditional public sector provision of infrastructure, and if necessary increase their debt to do it, because government can borrow at a lower interest rate than any private sector borrower. This argument is largely fallacious because the reason for the low interest rate is that lenders do not consider that there is any risk of default. It is the government's power of taxation which explains lenders' judgement that there is no risk of default and hence underlies its lower borrowing costs. The risks (which in the private sector are reflected in the higher interest rate) are still there, but born by the taxpayer (e.g. in bailing out unsuccessful public enterprises). Thus when comparing the costs of financing a project through traditional government provision versus a PPP approach, it is the project risk that is relevant rather than the government's general cost of borrowing.

J Steering Committee and Consultation Team

The membership of the Technology and Industry Advisory Council (TIAC) Steering Committee for this project is listed below:

Dr Brian Hewitt	Project Chair
Ms Sharon Brown	TIAC Member
Mr Rob Meecham	TIAC Member
Mr Tim Ungar	TIAC Member
Mr Roger Dean	Department of Industry and Resources
Mr Anthony Kannis	Department of Treasury and Finance

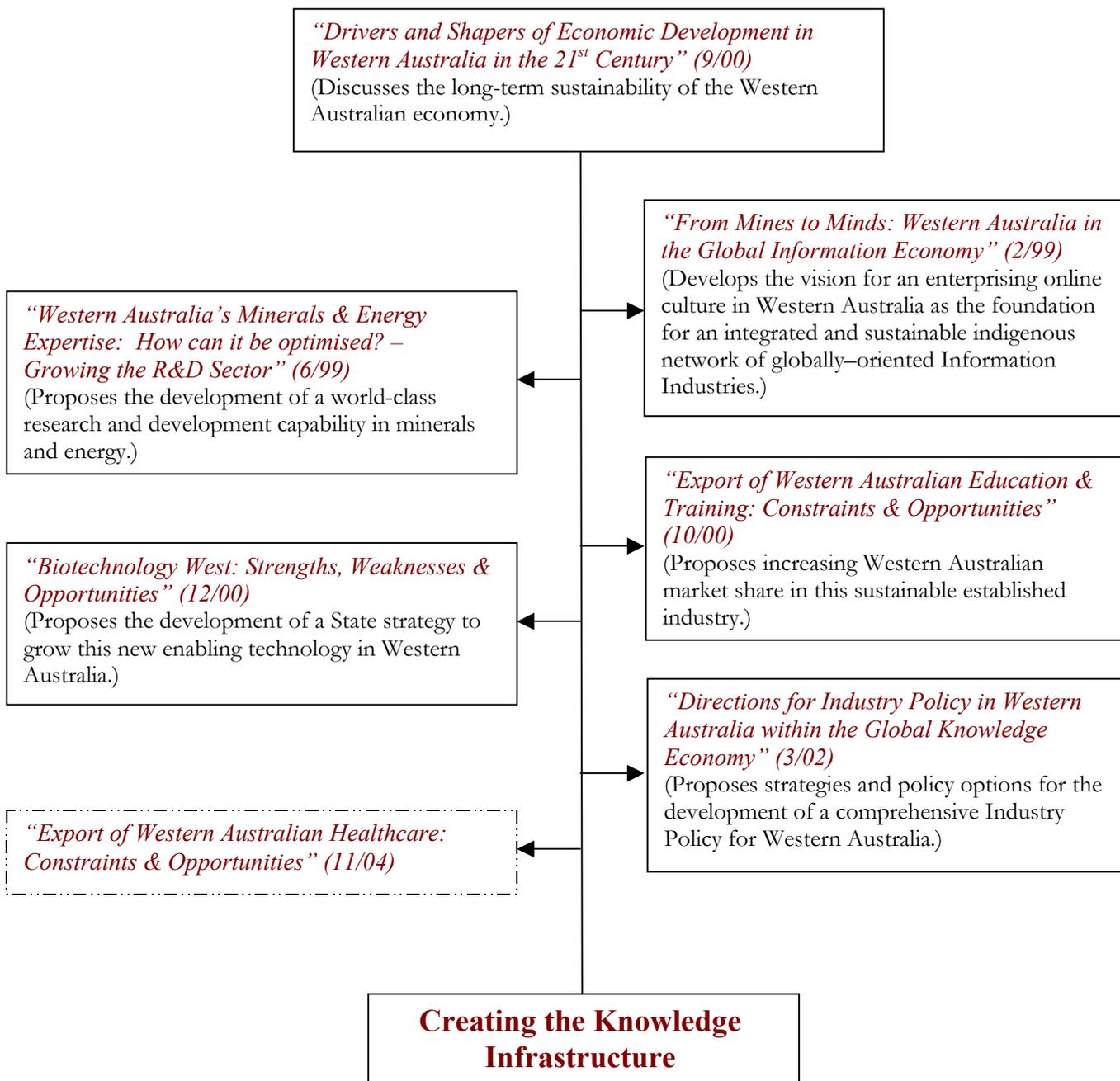
The Steering Committee was assisted in its task by ACIL Tasman Pty Ltd:

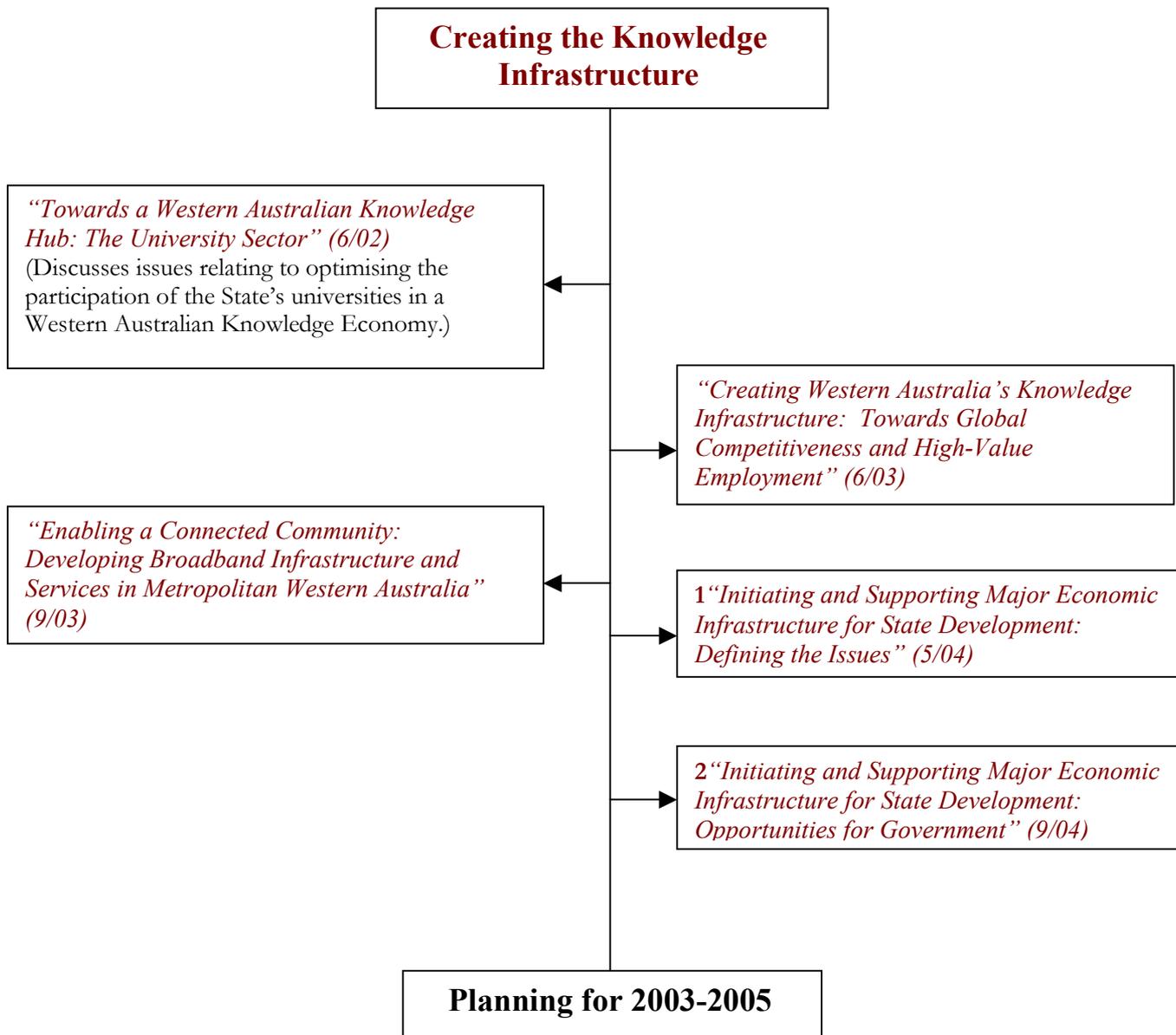
Mr Ian Satchwell
Dr Brian Martin
Mr Nick Morris
Mr David Greig
Ms Meg Fricke

TIAC Executive Staff:

Mr Earl White	Executive Officer
Ms Deanna Fleming	Senior Policy Adviser
Ms Shelley Rush	Executive Assistant

K Towards a Western Australian Knowledge Economy 1999-Present





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—————	Completed Reports
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L Western Australian Technology and Industry Advisory Council

Background

The Western Australian Technology and Industry Advisory Council (TIAC) was created by legislation in 1987 (*Technology Development Amendment Act - No. 32 of 1987*) and was continued under Section 20 of the *Industry and Technology Development Act 1998*.

TIAC was preceded by the Technology Review Group 1978-83, and the Science, Industry and Technology Council (SITCO) 1983-87.

Council is made up of representatives from various sectors of the State's economy who, in terms of the relevant Act, use their varied background and experience to provide independent policy advice to the Minister so as to make a significant contribution to the development of strategies relating to the State's economic development.

Members of the Council are appointed by the Minister, under Section 22 of the *Industry and Technology Development Act 1998* so as to be representative of the interests of the people of the State.

TIAC reports through the Minister to Parliament under Section 26(1) and Section 26(2) of the *Industry and Technology Act 1998*.

TIAC reports under the *Financial Administration and Audit Act 1985* through the Department of Industry and Resources under Section 26(3) of the *Industry and Technology Development Act 1998*.

Objectives of the Industry and Technology Development Act 1998

The objectives of the *Industry and Technology Development Act 1998* under Section 3 are to:

- (a) Promote and foster the growth and development of industry, trade, science, technology and research in the State;
- (b) Improve the efficiency of State industry and its ability to compete internationally;
- (c) Encourage the establishment of new industry in the State;
- (d) Encourage the broadening of the industrial base of the State; and
- (e) Promote an environment which supports the development of industry, science and technology and the emergence of internationally competitive industries in the State.

Functions of the Western Australian Technology and Industry Advisory Council

The Council, under Section 21 of the Act is required to:

- (a) Provide advice to the Minister, at the initiative of the Council or at the request of the Minister, on any matter relating to the objects of the *Industry and Technology Development Act 1998*; and
- (b) Carry out, collaborate in or produce research, studies or investigations on any matter relating to the objects of this Act, including matters relating to the:
 - (i) role of industry, science and technology in the policies of government;
 - (ii) social and economic impact of industrial and technological change;
 - (iii) employment and training needs and opportunities relating to industrial, scientific and technological activities in the State;
 - (iv) adequacy of, priorities among and co-ordination of, scientific, industrial and technological activities in the State;
 - (v) methods of stimulating desirable industrial and technological advances in the State;
 - (vi) application of industrial, scientific and technological advances to the services of the government; and
 - (vii) promotion of public awareness and understanding of development in industry, science and technology.

The Ministerial advice takes the form of reports and discussion papers which undergo a public consultation phase before submission to the Minister.

Participation on State Advisory and Funding Committees and Councils

Council has accepted invitations for representation and participated in:

- (a) The Federal Government's Commonwealth, State and Territory Advisory Council on Innovation;
- (b) The Federal Government's Innovation Festival Committee;
- (c) The Ministerial Education Export Advisory Committee;
- (d) The Information and Communication Technologies Strategic Advisory Group to the Department of Education and Training; and
- (e) The Centres of Excellence State Funding Advisory Committee of the Office of Science and Innovation.

Promotion and Public Awareness Raising Activities

Council's promotional and public awareness raising programs consist of two main types:

- (a) The 2020 Breakfast Seminars, commenced in 1990, are short, economic development focused, information dissemination events.
- (b) TIAC's Internet website, to promote and increase the public awareness of its reports and encourage school students to participate in TIAC's virtual Science and Technology Forum. This activity is managed in conjunction with the Science Teachers' Association (STAWA) Talent Search Organisation.

Financial Provisions

The expenses of Council are provided for under Section 15 of the *Industry and Technology Development Act 1998* via the Western Australian Industry and Technology Development Account.

Present Membership

Mr John Thompson

TIAC Chairman

Managing Director SSL & Minerals Australasia
SGS Australia Pty Ltd

Ms Catherine Moore

Global Services Centre Manager
Corporate IT Services
Rio Tinto

Ms Sharon Brown

Strategic Business Manager
AlphaWest

Ms Wendy Newman

Principal Consultant
Quintessence Consultancy

Dr Brian Hewitt

Company Director

Mr Graeme Rowley AM

Executive Director Operations
Fortescue Metals Group Limited

Dr Jim Limerick

Director General
Department of Industry and Resources

Ms Vivienne Snowden

Principal Consultant and Director
Snowden Mining Industry Consultants

Ms Stephanie Mayman

Secretary
UnionsWA

Professor Lance Twomey

Vice Chancellor
Curtin University of Technology

Mr Rob Meecham

Director of the Business Development Unit
Challenger TAFE

Mr Tim Ungar

Chairman
TSA - Telecommunications Group



PUBLIC COMMENT REPLY SHEET

TO: THE EXECUTIVE OFFICER
WESTERN AUSTRALIAN TECHNOLOGY AND INDUSTRY
ADVISORY COUNCIL

SUITE 3 ENTERPRISE UNIT 2
11 BRODIE HALL DRIVE
TECHNOLOGY PARK
BENTLEY WA 6102

TEL NO: (08) 9470 3666

FAX NO: (08) 9470 3558

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Comments on the Report entitled:

**INITIATING AND SUPPORTING MAJOR ECONOMIC INFRASTRUCTURE
FOR STATE DEVELOPMENT: OPPORTUNITIES FOR GOVERNMENT**

Closing Date: Tuesday, 19 October 2004

(Please tear out and return with your comments.)