



AUSTRALIAN CONSTRUCTORS ASSOCIATION

**SUBMISSION TO THE HOUSE OF
REPRESENTATIVES STANDING
COMMITTEE ON PRIMARY INDUSTRIES
AND REGIONAL SERVICES**

***INQUIRY INTO INFRASTRUCTURE AND
THE DEVELOPMENT OF AUSTRALIA'S
REGIONAL AREAS***

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PREFACE

This submission is by the Australian Constructors Association (ACA), the peak body representing Australian construction contractors.

The ACA is dedicated to making the construction industry more efficient, more competitive and better able to contribute to the development of Australia through positive leadership, open communication and a commitment to infrastructure. The Association requires the highest standards of skill, integrity and responsibility of its member companies and is committed to ensuring that major contractors take a leading role in the development of Government policy concerning construction industry issues.

The Association was formed in early 1994 and has a membership of eighteen of the largest construction contracting firms in Australia. ACA member companies have a combined annual revenue in excess of \$15 billion and collectively employ more than 49 000 people in their Australian and international operations. A list of member companies is provided in Appendix 3.

Association members are involved in a range of infrastructure and non-infrastructure related activities. Infrastructure related activities include the construction of power stations, transmission lines and towers, gas and water pipelines, sewerage treatment plants, transport infrastructure including roads and bridges, communication facilities and hospitals. Non-infrastructure related activities include construction of chemical, petro-chemical and hydro-carbon plants as well as contract mining, residential and commercial construction including shopping centres.

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EXECUTIVE SUMMARY

There is considerable evidence of inadequate provision of public infrastructure in regional Australia. The ACA believes that the private sector can play a significant role in reducing the gap between the current level of infrastructure service provision in regions and the level that is needed.

The private sector can assist in all aspects of public infrastructure provision in regions, including construction, maintenance, operation and ownership. However, there are several impediments to increased private sector involvement, including:

- the business tax system, including the Infrastructure Borrowings Tax Offset scheme and Section 51AD and Division 16D of the *Income Tax Assessment Act*;
- infrastructure pricing and regulation;
- third party access arrangements;
- misconceptions about private sector provision of public infrastructure held by the public;
- the existence of externalities; and
- lack of coordination between governments and excessive red tape.

INFRASTRUCTURE INVESTMENT IS DECLINING

There is a strong perception in the community that the state of regional infrastructure is in decline. There is evidence to support this view.

Capital expenditure by Government, including expenditure on public infrastructure, has declined dramatically in recent years — from 7 per cent of GDP in the mid 1980s to 4 per cent of GDP in 1998. The investment decline has been much more pronounced at the state and local government levels — the level at which most investment in public regional infrastructure is made.

A recent survey of more than 600 regional firms in New South Wales, Victoria and Queensland conducted by the Australian Industry Group (Ai Group) found that a large proportion of businesses operating in regional areas are dissatisfied with the adequacy of infrastructure. Airports, road and rail, stood out as particular areas of inadequacy. Other infrastructure services considered inadequate in regional areas include telecommunications, gas, education and training services.

The Ai Group's survey finding that our regions are suffering from under-investment in infrastructure is supported by research undertaken by many private and Government organisations (see, for example, submissions to EPAC's 1995 Private Infrastructure Task Force). Work undertaken by Commonwealth Bureau of Transport and Communications Economics (BTCE 1997) found there is a substantial backlog of national non-metropolitan road projects.

Considerable amounts of infrastructure investment are required in both metropolitan and non-metropolitan areas. However, infrastructure development is often more likely to occur in urban regions.

Infrastructure development is more likely to occur in urban regions because metropolitan infrastructure projects often generate higher cost benefit ratios than their regional counterparts. Even though Governments recognise that all projects with a cost-benefit ratio of one or more warrant funding, budget and borrowing constraints mean that projects with higher cost benefit ratios go ahead first. The scarcity of funds leaves economically justified infrastructure projects in regional Australia unfunded.

The investment backlog in the regions grows to the detriment of the regional communities and the nation as a whole. Increased investment in regional infrastructure can lead to higher productivity and more viable regional economies. It can also help maintain or even expand regional population levels and industry output and take pressure off ever expanding metropolitan areas.

THE PRIVATE SECTOR HAS AN IMPORTANT ROLE TO PLAY

The private sector can play an important role in reducing deficiencies in regional infrastructure. Involvement of private sector infrastructure providers can lead to provision of more infrastructure services, improved service quality, greater flexibility, reduced construction and maintenance costs over the life of the infrastructure and lower prices for infrastructure services. Often the drain on Government revenues is also lessened.

IMPEDIMENTS TO PRIVATE SECTOR INVOLVEMENT REMAIN

While the private sector can play an important role in reducing deficiencies in infrastructure investment, impediments to increased private sector involvement in infrastructure remain.

Tax impediments

The business tax system is the largest impediment to private sector investment in infrastructure. It creates distortions that adversely affect the rate of return on infrastructure investment compared with returns on other investments.

Lack of capital expenditure write-offs

A key distortion is created by the inadequacy, or even unavailability, of capital expenditure write-offs. Typically, infrastructure investments involve long construction periods, generate large negative cash flows, have long lives and are undertaken by consortia of private sector companies. Current business taxation arrangements do not make allowance for this. They do not permit losses generated in early years to be offset against the tax assessable income of companies that make up the shareholders in the consortia. In the absence of assessable income from other sources these costs must be carried forward — often for long periods. This creates a major deterrent to private investment in infrastructure.

This distortion could be removed if carried forward losses were indexed to reflect the risks faced and a real market rate of interest. Under current taxation arrangements businesses can only deduct the nominal rather than real value of these losses from assessable income. The tax system's failure to recognise the imputed (opportunity) costs associated with equity financed investment compounds this problem and leads to substantial inefficiency costs for the economy as a whole.

These deficiencies in the tax system raise the user cost of capital for infrastructure projects. This higher cost means that the public will have to pay more than is necessary for infrastructure services. It also means that marginal infrastructure projects may not proceed at all. This can have important implications for regional infrastructure investments, as many of these investments are likely to have lower benefit cost ratios and lower net present values than their metropolitan counterparts.

Moving from the current system of business tax to a cash flow or expenditure tax would overcome problems associated with a lack of full capital expenditure write-off provisions.

Cash flow taxation produces no disincentives for business to invest because the tax falls on pure profits or economic rents. The ACA understands that a move to a cash flow system is off the agenda at this stage in the tax reform process. Nevertheless, the current income tax system should aim to mimic the characteristics of a neutral cash flow or expenditure tax as close as possible.

Accelerated depreciation

The accelerated depreciation provisions currently available to business go some way towards mitigating the failure of the *Income Tax Assessment Act* to permit indexation and allow a deduction for the imputed interest costs of equity financing.

The ACA is concerned that the Review of Business Taxation Committee's second Discussion Paper, *Building on a Strong Foundation*, put forward the option of removing accelerated depreciation provisions. The ACA strongly opposes this option.

There is a high risk that investment in infrastructure will decline further if accelerated depreciation tax concessions are removed. Should the Government decide to remove accelerated depreciation provisions, the ACA recommends that Government should first review the Taxation Commissioner's effective lives schedule for depreciation to ensure that asset lives reflect economic lives.

Infrastructure bonds

The ACA believes that the Treasurer's decision to terminate the previous Infrastructure Bond program in September 1996 was premature. Many of the teething problems with the program had been overcome by that time. The Infrastructure Borrowings Tax Offset (IBTO) scheme, is a very poor substitute for the Infrastructure Bond program. There are a number of aspects of the IBTO scheme which limit its effectiveness:

- A short-sighted focus on annual revenue loss led the setting of an inappropriately low annual rebate cap of \$75 million per annum.
- The selection process is not transparent or independent of political influence. Investors tend to plan projects on the assumption that their application will not be successful. As a result, the scheme does not make marginal projects viable. Rather, it provides a windfall gain to projects that would have gone ahead in any case.
- Its coverage is limited in the longer term to land transport infrastructure — rather than infrastructure generally.

- IBTOs are much less attractive to lending institutions than the previous Infrastructure Bonds scheme.

At a minimum the IBTO scheme should be extended to cover all infrastructure, the cap should be raised to a more realistic level and the selection criteria and process should be made more transparent. However, the ACA strongly urges that the Government consider more fundamental change. An infrastructure voucher system would be a more effective scheme for overcoming disincentives to invest than the current or even a revised IBTO scheme.

An infrastructure voucher scheme would see developers of an eligible infrastructure project issued with a voucher equal to the tax benefit associated with deducting the project's annual interest costs. The voucher would be issued by an independent statutory authority on an annual basis. The Australian Taxation Office on receipt of the voucher would pay a refund equal to its face value. Work commissioned by the ACA suggests that a voucher scheme costing Government \$200 million annually would support \$5.56 billion in infrastructure development per annum.

Section 51AD and Division 16D of the *Income Tax Assessment Act*

Section 51AD and Division 16D of the *Income Tax Assessment Act* impede investment in infrastructure. These provisions remove tax benefits to investors providing property to tax exempt entities such as governments. They were implemented in a period before private provision of public infrastructure was generally contemplated.

The provisions, particularly Section 51AD, are having a detrimental impact on the private provision of public infrastructure under Build Operate Transfer (BOT) type arrangements in all regions around Australia. They have already prevented a number of infrastructure projects from going ahead. In some cases it can take longer to finalise rulings than it does to construct the infrastructure project. The long delays add considerable uncertainty and cost to potential investors.

The economic environment for the provision of infrastructure has changed considerably since the introduction of Section 51AD and Division 16D. These provisions should be removed as they are no longer appropriate measures to prevent tax avoidance and can jeopardise joint public-private sector infrastructure ventures.

If the private sector is to play a larger role in the provision of infrastructure services for government, it is critical that these impediments be removed. If these provisions are to remain the Government should clarify by legislative amendment that risk sharing infrastructure

ventures such as BOT type arrangements are outside of the scope of Section 51AD and Division 16D.

Impediments due to public misperceptions

The private sector has proven itself to be capable of operating effectively in all aspects of infrastructure service provision — including construction, maintenance, operation and ownership. However, there is still a public perception that infrastructure services provided by public utilities are cheaper and superior in quality. In most cases the adverse attitude to private provision appears to have no rational basis.

The ACA believes that Government can assist the industry to educate consumers of the benefits of private provision of public infrastructure. It can begin by informing consumers of improvements in infrastructure service provision and real price reductions that are due to greater private sector involvement.

Pricing and price regulation

In the past, inappropriate infrastructure pricing by public utilities has distorted investment decisions. Public infrastructure providers that already compete, or potentially compete, with private sector infrastructure providers should be encouraged to adopt transparent pricing practices that mimic competitive market outcomes as closely as possible.

Governments should actively monitor their GBEs activities to ensure that their operations and pricing is undertaken in a competitively neutral manner.

Regulation of infrastructure prices has also stifled investment by creating uncertainty. Regulation of prices for infrastructure services should be as light-handed as possible, be based on efficient pricing principles and provide certainty to investors.

The ACA is concerned that there is a detrimental impact on all forms of infrastructure investment where the private sector has to wait for ex-post decisions by the Australian Competition and Consumer Commission and state and territory regulatory authorities.

Impediments created by third party access arrangements

Third party access to essential infrastructure services can improve the supply of infrastructure and related services. However, Australia's move to implement third party access regimes has been unacceptably slow. The complexity of the issues and processes means the finalisation of declaration and certification decisions on access to rail and airport infrastructure can take years not months. Appeals can be very time consuming and costly.

The slow pace of third party access processes increases uncertainty for the parties involved. It also increases uncertainty for other potential investors in similar infrastructure. As a result investment decisions go on hold and some potential investors may be deterred altogether.

Governments must fast-track decision-making processes associated with third party access to infrastructure services. This may mean that more resources have to be made available to the National Competition Council, the Australian Competition and Consumer Commission and the Australian Competition Tribunal. Setting a legislative deadline of, say, six months for the Australian Competition Tribunal to hear and reach its decision on appeals would help.

Impediments due to externalities

Infrastructure investment in regional areas can result in clear social gains by helping to build up or maintain viable communities. By maintaining or increasing regional populations regional investment can also take pressure off metropolitan infrastructure. However, infrastructure providers cannot always capture sufficient of these benefits to make a regional project viable from their perspective even though, from a public perspective, the social and economic benefits are greater than social and economic costs.

To achieve economic and social objectives for regional Australia, Governments may need to provide subsidies to regional infrastructure projects if they are to proceed. These subsidies could take the form of explicit Community Service Obligation (CSO) payments from Government to private sector companies to provide them with a commercial incentive to provide services that do not provide adequate returns.

Impediments due to a tiered system of government

Measures are required to further reduce red tape and simplify the interaction between the three levels of Government.

Cooperative strategic planning for infrastructure provision by governments at all levels would facilitate the role of infrastructure providers. Mechanisms to fast-track planning and other regulatory requirements, such as those put in place as part of the Victorian Government's regional assistance measures and the Commonwealth Government's Invest Australia programs could be expanded.

To take advantage of economies of scale, certain infrastructure investments such as in electricity and gas utilities, or educational and health facilities, often need large populations which are not found within a local government's jurisdiction. In some regions investment in

such infrastructure may not be viable for the private or the public sector without amalgamation or cooperation of local governments.

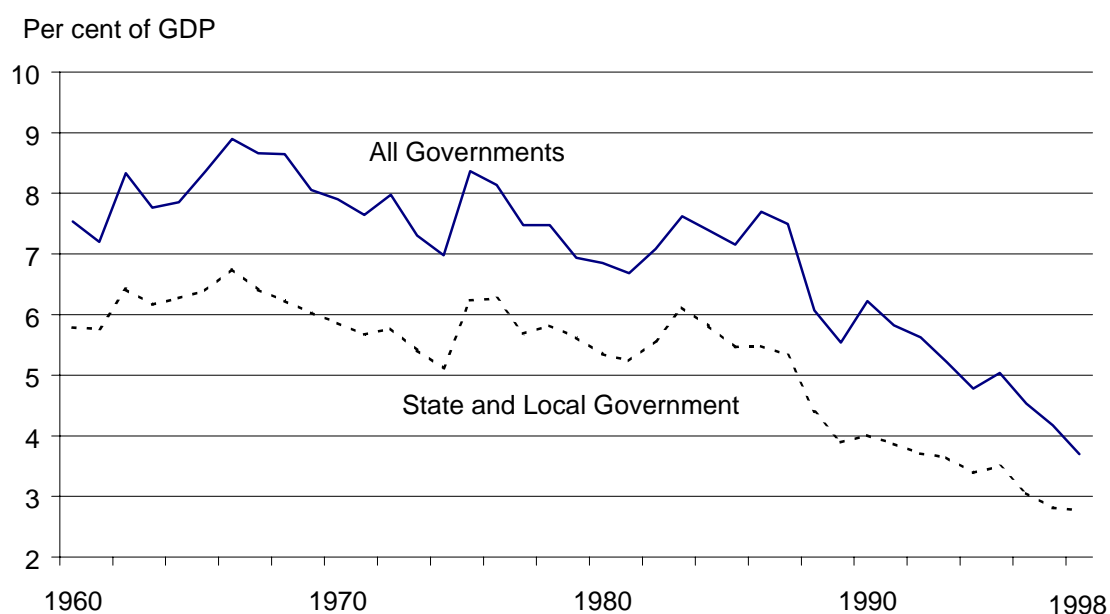
Further amalgamation of small local councils or improved cooperation among these councils must occur as a priority.

1. THE ADEQUACY OF REGIONAL INFRASTRUCTURE INVESTMENT

There is much concern that regional infrastructure investment is inadequate. There is considerable evidence to support the view that infrastructure development in regions is low and declining.

ABS data suggests that public infrastructure formation in Australia is declining. Public fixed capital formation in Australia has declined from 9 per cent of GDP in the mid-60s to below 4 per cent in 1998. The decline has been particularly pronounced since the mid 1980s (Figure 1). Much of this investment relates to infrastructure. The investment decline has been particularly noticeable at the state and local government levels where it has fallen from nearly 6 per cent of GDP in 1960 to 2.75 per cent of GDP in 1998. According to National Committee of Audit (1996), the decline is particularly apparent in roads, but also in the energy and water sectors.

Figure 1: Trends in public fixed capital formation: 1960 to 1998



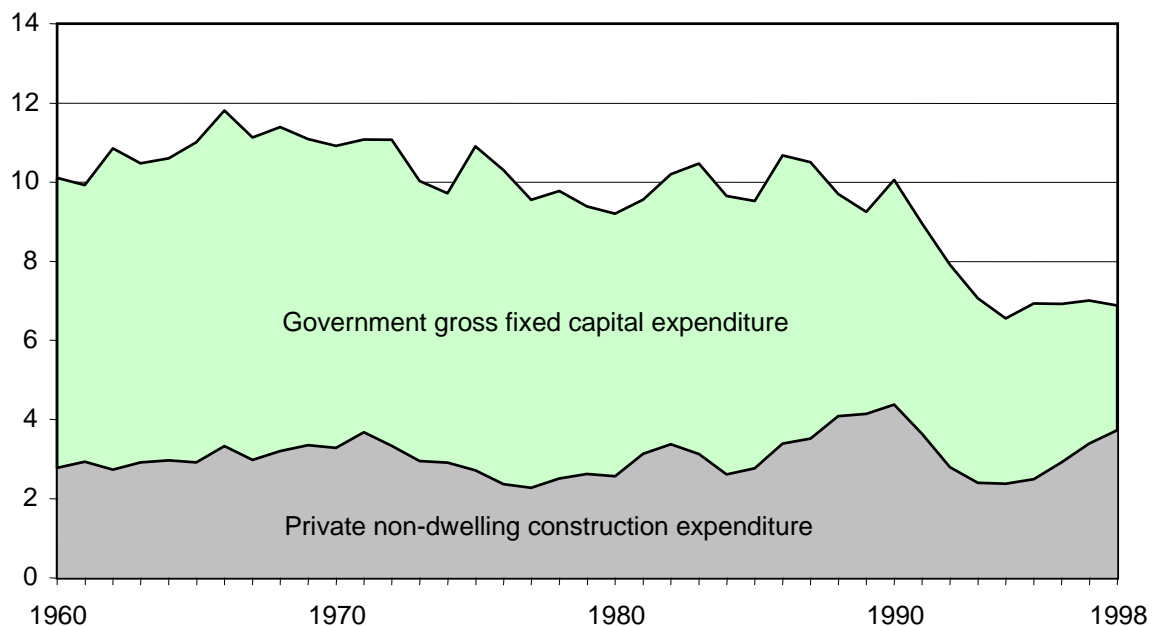
Source: Tasman estimates based on ABS Catalogue 5206.

When considered in isolation, these data are not necessarily indicative of deficient investment. For example, to varying degrees Australian Governments have passed responsibility for investment in some forms of public infrastructure to the private sector. However, there is no evidence to indicate that the growth in private sector investment in infrastructure has offset the decline in government investment in infrastructure. As shown in

Figure 2, Private non-dwelling construction expenditure — which covers many areas of private capital formation including infrastructure — has not fully offset the decline in government Gross Fixed Capital Expenditure

Figure 2: Trends in Government and Private Expenditure: 1960 to 1998

Per cent of GDP



Source: Derived from Australian National Accounts data.

The view that infrastructure investment is deficient is also backed up by opinions from a wide range of organisations and interests. Many opinions on the inadequacy of infrastructure investment were expressed to the EPAC Private Infrastructure Task Force in 1995. For example:

- the Business Council of Australia stated that much of Australia's existing infrastructure stock was of limited value or wrongly located;
- BHP referred to sectoral deficiency in roads, aviation and ports;
- The Australian Council for Infrastructure Development (ACID) referred to compelling anecdotal evidence on inadequate infrastructure, stating that much of the capital stock was run down, that network bottlenecks existed, and that poor maintenance of rail track had affected rail efficiency; and
- Professor Neutze pointed out that leaking sewers were a large source of environmental pollution, while others pointed to air pollution and poor quality water as consequences of inadequate investment.

There is a strong perception in the community that services offered in regional areas, such as health, education, and banking, are often inferior to those offered in urban areas, and have been declining. This is often associated with a lack of related infrastructure. In particular, lack of appropriate infrastructure can make it difficult to retain qualified staff. Submissions to the Senate inquiry on the sale of Telstra noted the lack of communications infrastructure compared to that available in major urban areas.

However, roads are one infrastructure sector where under investment is a major concern in both metropolitan and regional areas. Analysis undertaken by Cox and Meyrick (1997) into the social and economic costs of Australia's roads finds that costs — road accidents and road damage — are substantial in both rural and urban areas. However, they find that once congestion costs (which are an indicator of under supply) are included in cost benefit ratios there is a stronger case for undertaking investments on metropolitan roads.

Similarly, a report prepared for the Australian Automobile Association after standardising 170 cost benefit studies of proposed investments on Australia's urban and rural roads found that the highest cost benefit ratios were associated with urban national arterial roads (ACG 1993). Ratios ranged from a low of 1.9 for rural local roads to a high of 7 for urban national arterial roads.

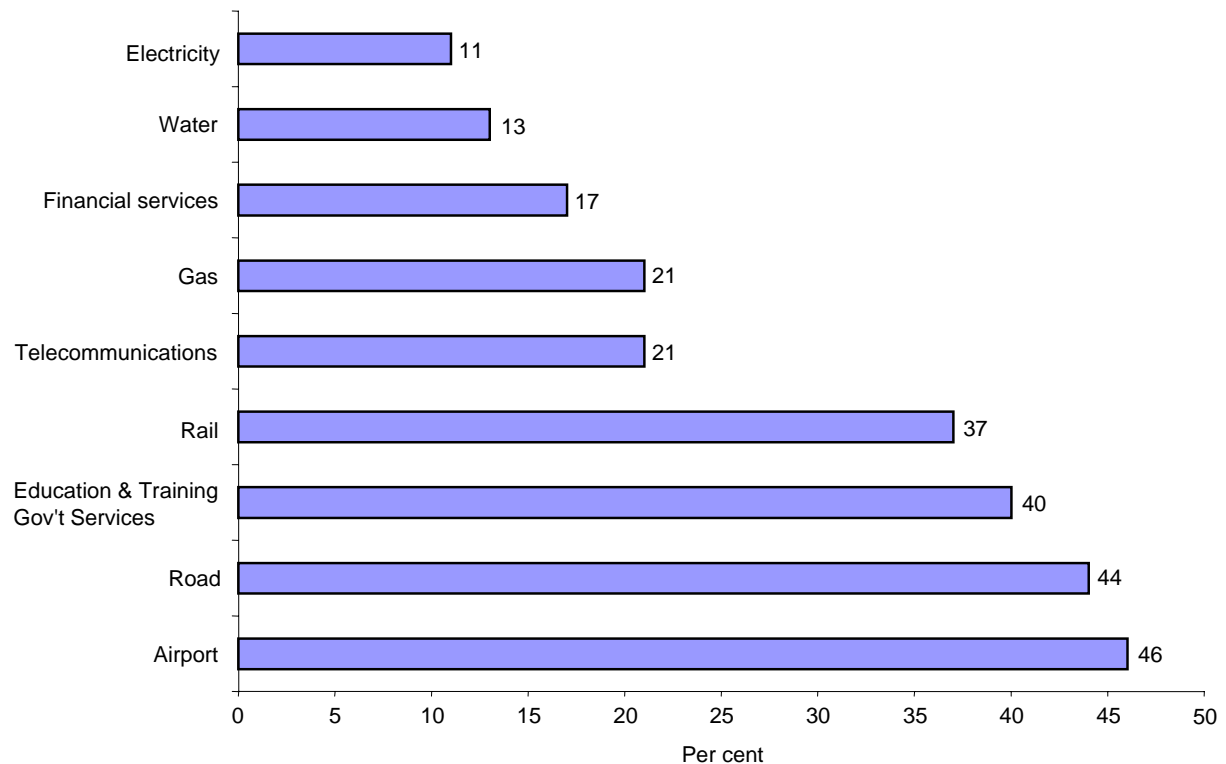
Investment is justifiable for any project with a cost benefit ratio of one or more. Governments, when faced with a budget constraint, invest in projects with the highest cost benefit ratios first. Evidence suggests that metropolitan infrastructure projects often have the highest cost benefit ratios. This leaves economically justified infrastructure projects in regional Australia unfunded.

THE AUSTRALIAN INDUSTRY GROUP REGIONAL SURVEY

A recent survey of regional firms in NSW, Victoria and Queensland, supports the view that regional infrastructure is inadequate (Ai Group 1999). The responses covered 600 firms with combined turnover of about \$28 billion, employing 65,000 people and contributing 10 per cent of national industrial output. The survey included questions on the adequacy of regional infrastructure. Responding firms indicated that improved infrastructure was desirable to promote investment in the region, and to diversify the industry base.

Figure 3 shows the aggregate results for all regions, by type of infrastructure. Appendix 2 provides a break-down of these aggregate results by region, by state, and by type of infrastructure.

Figure 3: **Inadequacy of regional infrastructure**
(proportion of all respondents indicating inadequacy)



Source: Tasman estimates based on Ai Group (1999).

A significant proportion of responding firms reported that their region's transport infrastructure was inadequate:

- 46 six per cent of responding firms reported that airport infrastructure in their regions was inadequate;
- 44 per cent thought road infrastructure inadequate; and
- 37 per cent regarded rail infrastructure as inadequate.

There were marked differences among regions. In the Wide Bay/Darling Downs region and in Central & Western Queensland, 60 to 70 per cent of respondents regarded airport infrastructure as inadequate, and about 67 per cent in North Queensland considered road infrastructure inadequate. In the Geelong region, 68 per cent thought road infrastructure inadequate, and in the Ballarat region 60 per cent of respondents deemed rail infrastructure inadequate.

Inadequacy of telecommunications and financial services was typically of less concern than transport. Overall, 21 per cent of respondents indicated telecommunications infrastructure was inadequate. The main areas of dissatisfaction were North Queensland, the Hunter and Albury Wodonga, where over 30 per cent of respondents thought there were inadequacies.

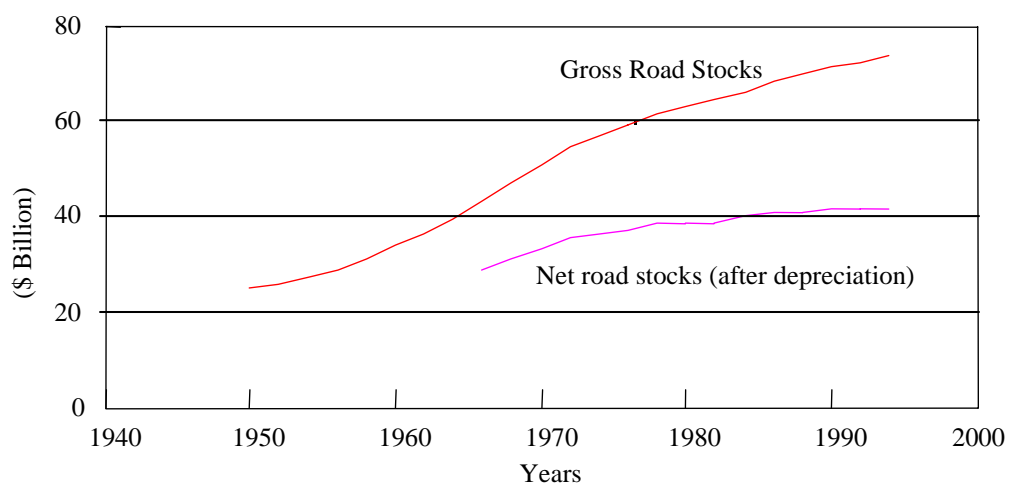
Around 11 per cent of respondents regarded electricity infrastructure as inadequate and about 21 per cent regarded gas infrastructure as inadequate. About 13 per cent thought water infrastructure was deficient. However, in all three utilities there was wide variation among regions. Electricity, water and gas services were of more concern in Queensland. For example, in both the Central & Western Queensland and Wide Bay/Darling Downs regions, almost 40 per cent considered water infrastructure inadequate, and 34 per cent in North Queensland. In North Queensland also, 40 per cent thought electricity and gas infrastructure were deficient. Around 30 per cent of respondents considered gas infrastructure inadequate in Ballarat, Bendigo, and Gippsland. However, these responses for Victoria could reflect the Longford gas disaster, which occurred shortly before the survey was conducted.

Overall, 44 per cent of respondents stated education and training services were inadequate. Nowhere was the level below 30 per cent. Highest dissatisfaction was apparent in Queensland, where close to 50 per cent on average registered an opinion of ‘inadequate’. While the survey questions related to education and training services, it is expected that responses would also reflect perceptions about associated infrastructure.

ROADS

Data on Australia’s road stock supports the Ai Group survey findings on the inadequacy of the regional road network. There has been virtually no increase in net road stocks since about 1980 (Figure 4). This is a result of the historical slow down in road investments and the depreciation of the road stock. Cox (1997) estimates that recent investments in roads have only balanced the depreciation of the existing road network by a similar magnitude.

Figure 4: **Road stocks**



Source: Cox (1997).

Bureau of Transport and Communications Economics (BTCE) (1997a) studies have indicated that major investments are warranted by 2020 (in the sense of benefits being greater than costs) for the non-urban sections of the National Highway System. Around \$8.5 billion is required for widening and town bypasses, and \$8 billion for maintenance. Around \$12.7 billion was found to be warranted for a number of other rural roads of national significance — \$6.6 billion for capacity improvements and bypasses and \$6 billion for maintenance.

Of the total \$29.5 billion investment required on non-urban sections of the National Highway System, the BTCE estimated that investment of over \$4.2 billion was warranted immediately to remove the existing backlog on non-urban roads for the National Highway system and a range of other roads of national significance.

The Australian Local Government Association's Transport Inquiry (ALGA 1998) indicated that local councils will face sharply increasing demand for road funding in around 10 years if the condition of infrastructure is to be maintained at present standards. The ALGA submission to the Vaile Inquiry (ALGA 1997a) emphasised that insufficient funding was being allocated to local roads. Expenditure needed for local roads in 1995–96 was estimated at \$3.1 billion or nearly 50 per cent more than was then allocated. The 1995–96 funding levels represented only 60 per cent of the funding needed to minimise Council costs over the life of their roads.

RAIL

BTCE (1994, p 57) studies found \$3.4 billion warranted for rail infrastructure investment over the ensuing 20 years, and a further \$3.5 billion warranted for maintenance (p. 63). The projects analysed yielded benefit cost ratios in excess of one, with a considerable number ranging to levels around 3 and 4.

The ALGA (1997b) also refers to deficiencies in rail infrastructure.

The ability of the rail transport sector to be competitive has been constrained in recent times by lack of investment. This has been compounded by the need for 'lumpy' as opposed to incremental investment in order to achieve significant productivity gains. This militates against government commitment.

WATER

The Environmental Management Industry Association of Australia (EMIAA) argues that Australia's water, stormwater and wastewater (WSW) infrastructure has been historically starved of capital and innovation. The EMIAA estimates that over \$10 billion worth of WSW

projects will need to be offered for private tender over the next 5 to 10 years in Australia (AFR 1998).

Irrigation systems are also in need of further investment. In its report on water resources and wastewater disposal, the Industry Commission refers to the need for spending on run-down irrigation systems (IC 1992). The Murray-Darling Basin Commission in a submission to the IC inquiry estimated a need for investment of \$600 million over the next 15 years.

NURSING HOMES

In 1993, Professor Robert Gregory found that there was a capital crisis in the nursing home industry — the quality of the capital stock was running down and a significant proportion required replacement or upgrading. In the past there have been financial disincentives for private investment in nursing home buildings. This is because nursing homes could not obtain extra income as a result of that investment. Also, the number of nursing homes was closely regulated so that there were minimal vacancies regardless of the quality of nursing home buildings.

Recently, the Commonwealth Government has introduced accommodation payments by residents as well as new building standards to raise the standard of nursing home buildings to community expectations. Around 20 per cent of nursing homes currently do not meet the new requirements and must be substantially upgraded. Funding from the Commonwealth Government and residents is expected to fall well short of the industry's capital funding requirements (HESTA 1997). If the industry cannot fund the shortfall itself (eg from profits, debt, equity, or fund raising), the capital stock will become run down and below community expectations.

2. THE BENEFITS FROM INVESTMENT IN REGIONAL INFRASTRUCTURE

Investment in regional infrastructure can yield potentially substantial benefits that flow to regional communities and the national economy.

Investment in regional infrastructure can lead to an increase in regional income and employment during the construction phase and over the life of the investment. Regional input-output multiplier analysis for Queensland (reported in Appendix 1) shows that an increase in the output of the non-residential building and construction industry can have a positive impact on regional output and employment which is substantially greater than the initial increase in the regional construction industry's output. For example, input-output multipliers indicate that a \$10 million infrastructure project in the Mackay region undertaken by the local non-residential building construction industry would in total (ie directly and indirectly) generate \$14 million of output and 160 jobs in the regional economy during the construction phase.

However, the regional multiplier analysis, which is summarised in Table 1 below also shows that an identical increase in regional construction output can have differential impacts across regions. The variation reflects different regions' level of self sufficiency — the greater a region's reliance on inputs from other regions the lower the direct and indirect impact on regional output and employment.

Table 1: **Increase in output and employment for every \$1 million increase in output by the non-residential construction industry for selected Queensland regions**

<i>Region</i>	<i>Initial effect</i>	<i>Total Output multiplier</i>	<i>Total Employment multiplier</i>
	\$m	\$m	Number
Output			
Wide Bay and Burnett	1	1.39	16
Northern Queensland	1	1.71	16
Mackay	1	1.58	16
Darling Downs	1	1.56	20

In the longer term, investment in regional infrastructure can lead to higher productivity and a more viable regional economy. It can also help maintain or even expand regional population levels, employment and industry output. Investments in infrastructure with cost benefit ratios

of one or more (ie benefits exceed costs) are capable of lowering the economy's cost structure and improve the well being of the general community. For example, the Commonwealth Department of Transport and Regional Development reports that four regional infrastructure projects facilitated by the Infrastructure Borrowings Tax Offset (IBTO) transitional arrangements will have positive short and long-term impacts on regional economies.¹ For example the Department reports that:

- the \$10 million Port Stephens Waste Facility is estimated to employ 50 people in the development phase, and ultimately provide 12 full-time positions;
- the \$45 million Parkeston Power Station will employ 50 people in the construction phase;
- the \$300 million Redbank Power Station is expected to employ 200 people on site, 1000 off-site, 50 people directly, and several hundred indirectly on completion. The project will inject \$10 million annually into the local economy; and
- the \$150 million Oakey Power Station will employ 100 during construction, and has been heralded as the “forerunner of a major new industry based on the untapped potential wealth of the Surat Basin coal deposits”.

Several macro-economic studies have shown that public infrastructure development leads to substantial increases in private sector productivity through spillover and new growth or productivity effects. For example, Otto and Voss (1996) estimate that a 10 per cent increase in gross road stock would increase private sector output by 1.6 per cent.

Infrastructure services play a vital role in determining the competitiveness of regions. This is because they are integral to the production and cost structures of most industries. Indeed, infrastructure services are a prerequisite to attracting investment to a region. Investors tend to expect that infrastructure services such as roads, rail, water, waste water, telecommunication, gas and electricity are in place and adequate. Without these adequate infrastructure services and facilities, it is difficult for a region to attract industries and generate regional growth.

Roads in particular are an important means for outlying areas to access and communicate with regional centres. For example, the Geraldton Mid-West Development Authority submitted to the 1993 Industry Commission Inquiry into Regional Industry Adjustment that:

Roads are an important means for the inland areas to access, interact and communicate with the regional service centre of Geraldton... The lack of a sealed road network is contributing to the decline of rural communities. (IC 1993b, 230)

¹ The Infrastructure Borrowings Tax Offset scheme is discussed in more detail in section 4.

Social infrastructure is also important. Investors and new residents also expect adequate education, health and public transport infrastructure. The Northern Rivers Board informed the IC that:

The existence of a regional university campus provides considerable benefits to business and commerce. In turn, these sectors can make a positive contribution to ensuring continued growth (IC 1993b, p231).

Evidence of very high returns from public infrastructure development in both regional and urban areas was provided to the Economic Planning and Advisory Committee (EPAC) Private Infrastructure Task Force (EPAC 1995). EPAC identified governments' restrictive budgets and political constraints as one reason for the backlog of investments with apparent high returns. Higher than average rates of return for infrastructure investments, as opposed to other investments, indicate that infrastructure investment is below the optimum level, and that expansion would be in the social interest.

3. THE ROLE OF THE PRIVATE SECTOR

There are many reasons why infrastructure investment in regional areas is deficient. Government provided infrastructure may be deficient because of budget restrictions, limited availability of capital, incorrect economic assessments, inappropriate pricing, or for distributional reasons.

Arguably the most important impediment to investment in public infrastructure has been the constraint on public sector budgets and borrowings at all levels of government. This situation is not likely to change in the short-term. Regional investment has been affected because state and local governments have considerable difficulty in raising taxes or borrowing funds. Infrastructure such as transport, water, electricity, gas and telecommunications have traditionally been the preserve of Government and until recently there has been limited acceptance of private sector involvement in these areas.

BENEFITS OF PRIVATE SECTOR PARTICIPATION

The private sector can fill, or help to fill the gap, by investing in economically justifiable projects, particularly those yielding the highest social benefits. The EPAC Task Force concluded:

In the short term and in the presence of a budget constraint, private financing may be the only way of ensuring that good projects proceed in a timely fashion..... the benefits to the community from early access to privately owned facilities may outweigh any potential cost savings from public sector delivery at a later date. (EPAC 1995, p35)

Governments faced with budget constraints have an incentive to opt for lower up-front costs and higher maintenance even though this may not produce the most efficient outcome in the long run (EPAC 1995, 42). Also, governments may seek political gain by having more projects under way at any one time to create an illusion of more spending, so-called 'drip-feeding'. Private sector constructors and investors have an interest in earlier completion, as in the case of the third runway at Sydney airport and the M5 Motorway.

The private sector's role in regional infrastructure is two pronged in that it can:

- reduce whole of life construction and maintenance costs; and
- invest directly in regional areas.

Private sector investment in metropolitan areas can facilitate regional investment by freeing up government funds so that they may be redirected to regions. Private financing of

infrastructure in both regional and metropolitan areas also can free up public funds for use in sectors where government provision may be more efficient.

Apart from increasing the total level of investment in infrastructure, private investment can facilitate regional development by providing infrastructure earlier than would otherwise be the case. For example, the M2 freeway in Sydney would not have been built for another 20 years under public finance (Sandrejko 1994).

Some of the evidence of the efficiency gains from private sector involvement in infrastructure provision are considered in more detail below.

PRIVATE INVOLVEMENT — BRINGS EFFICIENCY GAINS FOR REGIONAL INFRASTRUCTURE

The private sector is generally perceived as being more efficient than the public sector. In particular, private ownership can yield the benefits of capital market disciplines, greater autonomy and flexibility.

Private involvement can also introduce greater competition into infrastructure provision and construction. According to the World Bank:

Much of the experience with direct competition in infrastructure is relatively new, but the results validate the benefits of competition. (EPAC, 1995a, 69)

The ALGA (1997b) considered that private sector competition in rail would result in a more multi-modal approach, and, along with increased commercialism in the public sector, result in lower freight rates, improved transit times, 24 hour operations, scheduling flexibility, innovation in data processing and communications, and improved reliability.

The private sector through its networks, and research and development programs etc has a greater ability to keep up with the latest technology and innovations than government infrastructure providers. In addition, competition induced through competitive tendering processes and contracting also helps to ensure that infrastructure is constructed and maintained at least whole of life cost. The Noosa Council's recent experience in tendering out its wastewater services highlights these benefits. The Council after a tendering process invited a private company to construct new plant. The Council and the regional community will now enjoy the latest 'environmentally friendly' technology and save \$2 million on the building costs of its new plant, with an ongoing saving on running costs of \$1 million each year (Willett 1999).

If the full benefits associated with competitive tendering processes and contracting out are to be realised, it is important that tendering processes award contracts to firms offering the best

value for money over the life of the investment, rather than simply least cost in the short term.

A BTCE (1997b) study on the net benefits from private involvement in road infrastructure states that Australian Governments could reduce costs by contracting out more roadwork to the private sector. Maintenance costs could be reduced by 15 per cent or more in many cases. These gains came from improved efficiency, particularly the more flexible use of labour. Private contractors constructing public roads had saved costs through suggested design improvements. BTCE evidence on the benefits of private investment in roads was somewhat limited, but indicated that roads were built with fewer delays and at lower cost. As outlined in Table 2, the BTCE estimated that the net benefits to the community from a (Build Own Operate Transfer) BOOT-type arrangement can potentially be 50 per cent higher than a base case where the government contracts out the construction but undertakes the maintenance itself. The BTCE concluded:

The Australian evidence for BOOT projects, such as it is, generally supports the proposition that increased private involvement in road provision reduces construction costs (p13).

Table 2: BTCE estimates of benefits and costs of hypothetical highway project under alternative arrangements for private sector involvement (\$ million)

<i>Scenario:</i>	<i>Present value of ^a:</i>			
	<i>Construction costs</i>	<i>Maintenance costs</i>	<i>Benefits^b</i>	<i>Net benefits^c</i>
1. Base case (construction contracted out but not maintenance) ^d	118.9	3.9	1,005.4	882.6
2. Construction and maintenance contracted out separately	118.9	3.2	1,005.4	883.3
3. Design, construct and maintain contract	107.0	3.0	1,005.4	895.4
4. Shadow tolling arrangement	111.3	3.6	1,103.4	988.5
5. BOOT-type arrangement, with project brought forward:				
(a) 5 years	179.2	5.8	1,392.3	1,207.3
(b) 8 years	238.6	7.7	1,600.9	1,354.6

Note: The highway is publicly owned in all scenarios except for the BOOT-type arrangement (scenario 5). The numerical differences across scenarios omit certain effects of increased private involvement.

a Measured as of the year before commencement of construction in the base case.

b Benefits from savings in operating cost or travel time, or from improved road safety.

c Net benefits = benefits – (construction costs + maintenance costs). Numbers shown may not exactly satisfy this equation due to rounding. Note the deadweight losses — or costs to society — associated with raising funds via taxation or tolls are not included on the calculation.

d Maintenance assigned to government in-house team without competitive tendering.

Source: BTCE 1997b.

The EPAC Task Force expressed similar views on the efficiency of private infrastructure investment and argued:

...private ownership through BOOT-type projects can yield efficiencies in areas like construction, operation and maintenance. This potential reflects the private sector's generally stronger incentive to contain costs and also the benefits from bundling the finance, construction and operation elements of infrastructure supply. Because the returns to a project rely heavily on its successful operation, bundling provides a strong performance guarantee on the quality of design and construction. (EPAC 1995 p. 38)

Also the Australian Council of Infrastructure Development (AusCID) informed the Task Force that:

there is a significant incremental benefit achieved through the profitability or equity return driven motivation of private ownership....the NSW experience to date has seen project delivery on a time and cost basis that exceeded expectations based on a traditional design and construct tendering approach. This argument is not peculiar to roads — the same view could be substantiated by an evaluation of the water treatment plants completed in NSW. (EPAC, p39)

Baulderstone Hornibrook argued (EPAC, p40) that benefits come from bundling construction and operation in all types of infrastructure including roads, pointing to the trade-off between construction costs and ongoing maintenance costs.

4. IMPEDIMENTS TO PRIVATE SECTOR PARTICIPATION

For the private sector to correct the infrastructure deficiency, governments must act to remove existing impediments to increased private sector involvement and price infrastructure efficiently.

The current Federal government strategy for infrastructure investment goes some way towards meeting these ends. This strategy purports to identify the social benefits to the whole community flowing from particular projects promoted by the private sector, and to remove impediments. A strategic investment coordinator (currently Mr Bob Mansfield) advises the Employment and Infrastructure Committee of Cabinet about strategic projects that may warrant incentives. He also has the responsibility of ensuring that speedy approvals are given to specific nation building investment proposals, by facilitating their passage through the regulatory processes. This involves a whole of government approach as opposed to a narrower portfolio analysis of projects (DOTARD 1998).

More emphasis on such arrangements at state and local levels would assist private sector participation.

TAXATION — ALLOWABLE DEDUCTIONS AND LOSS WRITE-OFFS

The tax system is often considered the largest and most obstinate impediment to private sector investment in infrastructure. The business tax system creates distortions that adversely affect the rate of return on infrastructure investment compared with that on other investments. The main reason for this is inadequacy, or even unavailability, of capital write-offs.

Typically, infrastructure investments involve long construction periods and the assets have long lives. To raise the necessary funds to undertake large infrastructure investments private sector companies often form consortia. Current business taxation arrangements do not adequately reflect these special characteristics and create a potential for under investment in infrastructure — including in regional infrastructure. For example, investments in new infrastructure projects generate large negative cash flows including interest costs on borrowed funds. Current taxation provisions do not permit these losses to be offset against the tax assessable income of companies, which make up the shareholders in the consortia. In the absence of assessable income from other sources these costs must be carried forward as losses. These losses can continue even when the investment moves from the construction

phase to the service phase as revenues in the early years may not be sufficient to offset interest and depreciation expenses.

Typically, the loss making construction period is also the period of highest risk for the investor — risk includes delays in the construction process and unexpected cost changes. Risks can also be high in the “ramp up” period as there can be considerable uncertainty about the level of demand build up.

Under current taxation arrangements businesses can only deduct from assessable income the nominal (rather than real) value of losses carried forward. Similarly, lenders pay tax on nominal interest earned by lending funds to finance infrastructure projects. This situation leads to a higher cost for a completed infrastructure project and a loss in productive efficiency for the economy as a whole.

The business tax system’s treatment of equity financed investment compounds this problem. The tax system currently follows the example set by financial accounting in refusing to treat (imputed) interest on equity financed capital as a legitimate cost of investment. This leads to substantial inefficiency costs for the economy as a whole. While this situation is not peculiar to infrastructure investments, the long period of up front losses commonly associated with infrastructure investments exacerbates the problem.

Depreciable capital assets, as inputs into infrastructure suppliers’ production processes and as inputs into the supply of infrastructure services, are also treated unfairly by the current system of business taxation. As with losses carried forward, only the nominal value (rather than the full capital cost) of these valid business expenses is recognised for depreciation purposes. In addition the current arrangements for depreciation are based on physical lives rather than economic lives of assets.

These deficiencies in the tax system raise the user cost of capital for infrastructure projects. As a consequence, infrastructure projects will be completed at a significantly higher cost. This higher cost means that the public will have to pay a higher price for the services provided by the infrastructure project. It also means that marginal infrastructure projects may not proceed at all. This can have important implications for those regional infrastructure investments that are justifiable on economic or equity grounds but have relatively lower benefit cost ratios.

How can these problems be overcome?

The Government could implement a number of tax reforms which would fully or partly overcome the impediments to infrastructure investment created by the tax system’s provisions for allowable deductions and loss write-offs. These reforms fall into two

categories: first best policy options which involve a radical change in the current system: and second best options which involve reforms to treat the symptoms rather than the disease.

A first best approach

Moving from the current system of business tax to a cash flow or expenditure tax would overcome the problems identified above. Cash flow taxation produces no disincentives for business to invest because the tax falls on pure profits or economic rents.

The ACA understands that a move to a cash flow system is off the agenda at this stage in the tax reform process. Nevertheless, the current income tax system should, as close as possible, aim to mimic the characteristics of a cash flow tax.

Indexing the current tax system for inflation would be an important move to a more neutral tax systems. We strongly recommend that the carried forward losses should be indexed to reflect the risks faced and a real (inflation adjusted) market rate of interest. Similarly, financiers of infrastructure projects should only pay tax on real rather than nominal interest earned.

The ACA acknowledges that inflation is low at the moment, however, there can be no certainty that this low inflation situation will remain. In addition, the current low rate of inflation means that the current time frame is ideal for implementing an indexed tax system as any revenue loss to the Treasury from the reform would be small. However, in the longer term the benefits for infrastructure and the economy as a whole will be substantial.

Allowing the imputed interest or opportunity cost of equity financing to be deducted as a valid cost of investment would also be an important step towards a more neutral tax system.

Moving to a cash flow or expenditure tax would have a positive impact on infrastructure investment. If this is not acceptable the government should consider indexation of expenses and interest income as well as allowing a deduction for the imputed interest associated with equity financing.

Second best approaches to reform

Allowing infrastructure consortia's losses to be offset against stakeholders' parent company income would be an important but piecemeal tax reform. Permitting parent companies to write off consortia's losses would help resolve many of the disincentives currently faced by investors. (The logic of such a reform was identified as long ago as 1975 by the Asprey Taxation Review Committee.)

Accelerated depreciation

The accelerated depreciation provisions in the *Income Tax Assessment Act* go some way to mitigating the legislation's failure to allow indexation and deductions for the imputed interest costs of equity financing. Accelerated depreciation essentially reduces the user cost of capital for projects, as it helps to negate the increase in the user cost of capital that is associated with the current distortions in the tax base.

The Review of Business Taxation in its second Discussion Paper *Building on a Strong Foundation* put forward the option of removing accelerated depreciation provisions. The ACA in its submission to the Review argued:

... There is a high risk that removing accelerated depreciation tax concessions, as part of a package designed to reduce the nominal rate of company tax to 30 per cent, would have the highly undesirable effect of threatening future private investment in infrastructure. On its own, such an action would add one more substantial barrier to infrastructure investment (ACA 1999).

Given the impediments to infrastructure investment arising from Australia's business tax system, there are grounds to consider widening the coverage of accelerated depreciation rather than removing it, as suggested by the Review of Business Taxation Committee. Removing accelerated depreciation could have the undesirable effect of threatening future private investment in infrastructure.

Should the Government accept the Review Committee's option and remove accelerated depreciation provisions, the ACA recommends that the Taxation Commissioner's effective lives schedule for depreciation should be reviewed. The review, which should be undertaken before accelerated depreciation is removed, should ensure that asset lives are more reflective of economic life rather than the physical lives which are currently mirrored in the Taxation Commissioners estimates of asset lives.

Infrastructure bonds

The Infrastructure Bond (IB) program, which was terminated in February 1997, aimed to reduce the disincentive to investment in infrastructure by making interest paid on the bonds non-assessable for lenders and non-deductible for infrastructure developers who borrowed the funds. The IB program essentially reduced the interest costs of borrowers. Subject to certain conditions the IB program was available for any privately infrastructure project.

Infrastructure Bonds were highly successful in reducing borrowing costs and consequently reduced the user cost of capital for infrastructure projects. Infrastructure Bonds led to an increase in private sector investment in infrastructure projects. These projects brought benefits to the wider community through increased economic activity. Infrastructure Bonds

also created a new class of investment for Australia's superannuation funds, which improved the nation's ability to save (Brouwer 1996). Unfortunately, loopholes in the infrastructure bond legislative provisions led to aggressive tax minimisation arrangements by some businesses. These tax minimisation arrangements were a major factor in the Treasurer's decision to terminate the scheme. Another factor behind the Treasurer's decision was that the scheme was becoming a large cost to revenue.

The ACA believes that the Treasurer's decision to terminate the scheme was premature. The IB program was working effectively at the date of its termination. Investors and financial markets had become familiar with the program and the cost of financing infrastructure via the bonds had reduced to about 60 per cent of the cost of more conventional borrowings. Changes to the scheme had also been implemented to remove the potential for aggressive tax minimisation. The revenue costs of the scheme while higher than expected by the Treasurer could have been over come by putting in place mechanisms to ensure that the IB program revenue cap of \$150 million in 1996-97 and \$200 million in 1997-98 was enforced.

It is also important to realise that the direct revenue cost to government is, in the main, only a timing issue. This point was highlighted by The Development Allowance Authority which considered that the scheme was:

... a very tax effective investment incentive. As a rule of thumb, \$1 billion in infrastructure investment only incurs a cost to revenue of between \$10 million and \$20 million per annum in the short term. In the long run most of this short term cost to revenue is recouped as projects earn income and pay more tax than would otherwise be the case (DAA 1996b).

Moreover, any initial negative impact on tax revenues will be more than offset by the growth in national productivity and, thus, GDP. GDP includes wages and salaries and business profits, which are major components of the Commonwealth Government's tax base.

The IBTO, which replaced the IB program, gives eligible infrastructure financiers a tax rebate on interest received from infrastructure providers on the condition that providers forgo the tax deduction otherwise available on that interest. The arrangement effectively reduces eligible infrastructure borrowing costs for eligible projects. The IBTO like the previous Infrastructure Bond program changes the timing of tax payments and the party liable to pay the tax. Box 1 uses a simple hypothetical example of taxation payments by an infrastructure provider and an investor/lender to illustrate the negligible cost of the Infrastructure Borrowings Tax Offset Scheme to nominal taxation revenue.

Box 1: Hypothetical example of the tax implications of the Infrastructure Borrowing Tax Offsets Scheme

<i>Infrastructure provider</i>		<i>Investor/lender</i>	
<i>Interest paid</i>		<i>Interest income</i>	
	<i>\$ million</i>		<i>\$ million</i>
Year 1	40	Year 1	40
Year 2	40	Year 2	40
Year 3	40	Year 3	40
Year 4	0	Year 4	0
Year 5	0	Year 5	0
<i>Project revenue</i>			
	<i>\$ million</i>		
Year 1	0		
Year 2	0		
Year 3	0		
Year 4	80		
Year 5	100		
<i>Taxable income — no infrastructure borrowing offset</i>			
	<i>\$ million</i>		<i>\$ million</i>
Year 1	-40	Year 1	40
Year 2	-40	Year 2	40
Year 3	-40	Year 3	40
Year 4	0	Year 4	0
Year 5	60	Year 5	0
<i>Tax paid — no infrastructure borrowing offset — assume 36 per cent tax rate</i>			
	<i>\$ million</i>		<i>\$ million</i>
Year 1	0	Year 1	14.4
Year 2	0	Year 2	14.4
Year 3	0	Year 3	14.4
Year 4	0	Year 4	0
Year 5	21.6	Year 5	0
Total tax paid	21.6		43.2
Total tax paid by both parties			\$64.8 million
<i>Taxable income — with infrastructure borrowing offset</i>			
	<i>\$ million</i>		<i>\$ million</i>
Year 1	0	Year 1	0
Year 2	0	Year 2	0
Year 3	0	Year 3	0
Year 4	80	Year 4	0
Year 5	100	Year 5	0
<i>Tax paid — with infrastructure borrowing offset — assume 36% tax rate</i>			
	<i>\$ million</i>		<i>\$ million</i>
Year 1	0	Year 1	0
Year 2	0	Year 2	0
Year 3	0	Year 3	0
Year 4	28.8	Year 4	0
Year 5	36	Year 5	0
Total tax paid	64.8		0
Total tax paid by both parties			\$64.8 million

The analysis presented in Box 1 assumes that the infrastructure provider and the investor/lender are both subject to the same marginal tax rate. In this situation the timing of the tax payments and the party liable to pay the tax changes but the total nominal amount of tax paid remains the same with and without the Infrastructure Borrowings Tax Offsets Scheme. However, if the marginal tax rates of the two taxpayers are different then the nominal value of total tax collected will vary. This will affect total tax collected.

However, the IBTO scheme, is a very poor substitute for the IB program. In fact the Australian Council for Infrastructure Development (AusCID 1998) has described the scheme as ‘totally inadequate to the task of catalysing private sector investment in public infrastructure’.

A number of aspects of the IBTO scheme limit its role. In particular:

- the annual rebate cap of \$75 million per annum substantially limits the number of projects that can benefit from the scheme. In contrast, the 30 infrastructure projects which applied for the scheme’s first round of tax offsets, were valued at nearly \$17 billion (DOTARD 1998). This cap is particularly low when it is considered that the scheme, like its predecessor, has only a small negative impact on government revenues. Importantly, in the longer term there is a potential for tax revenue to increase as the infrastructure investments themselves generate positive spillovers for national growth and productivity and consequently tax revenues. The ACA understands that Government would prefer to cap annual rebates to provide budget certainty. However, the cap should not be set with a short-sighted focus on short term revenue loss. Rather, it should be set to recognise the long term nature of investment in infrastructure;
- the scheme is, in the longer term, to be restricted to land transport infrastructure — rather than infrastructure generally. This restriction means that the IBTO arrangements can only have a limited impact on the infrastructure shortfall which covers a wider range of sectors than land transport. The ACA agrees that land transport is an important category of infrastructure. However, in some regions investment in other types of infrastructure is relatively more important. The ACA would prefer that the objectives of the scheme were amended to focus on a particular economic or social outcome, for example investment in particular classes of infrastructure or particular regions;
- the scheme, unlike the IB program, is not as attractive to lending institutions (see section 4.3);
- the complexity of the application and decision making process increases costs and uncertainty for infrastructure providers. The high degree of uncertainty means that investors tend to plan projects on the assumption that their application will not be

successful. As a result, the scheme does not make marginal projects viable. Rather, it provides a windfall gain to projects that would have gone ahead in any case; and

- draft determinations by the Taxation Commissioner on the operations of the IBTO may lead to outcomes not intended by the legislation and will further increase uncertainty.

Box 2: Impact of changes to infrastructure tax concessions

The ACA in conjunction with the Australian Council for Infrastructure Development and the Australian Gas Association surveyed 58 non-metropolitan infrastructure projects in 1997 to gain a better understanding of the impact of the move from the infrastructure bond program to the Infrastructure Borrowings Tax Offset scheme on regional infrastructure.

The study received 24 useable responses, of these 68 per cent were involved in power generation or pipeline infrastructure. The majority of respondents believed their projects were eligible for the infrastructure bonds concession and two thirds of respondents had applied or had planned to apply for an infrastructure bond certificate. One respondent reported that their project had actually been issued with a certificate.

By contrast, only 30 per cent of respondents believed that their project would be eligible for tax relief under the Infrastructure Borrowings Tax Offset arrangements. The major reason for this view was a perception that the projects fell outside of the scope of the tax offset arrangements.

Some 60 private cent of respondents indicated that changes to the infrastructure tax concession since September 1996 had impacted on project financing, half of these reported a significant impact. Approximately 70 per cent of respondents indicated the changes had decreased the net present value of projects — one quarter of respondents reported that the change in the net present value was significant.

The majority of respondents reported that the increase in project cost flowing from the changes in infrastructure tax concessions would be absorbed by the project's owner/developer. However, around 40 per cent of respondents reported that the price to customers would need to increase as a result of the changes. Twenty per cent of respondents indicated that the price increase would be more than 2 per cent.

Respondents reported that the changes to the program had had no impact on the scale and scope of projects and in most cases no impact on timing — although a number of respondents reported the changes had caused significant delays. However, it should be borne in mind that the study response rate was only 42 per cent. As no non-respondent bias analysis was conducted, there can be no certainty that this result carries across all 58 regional projects. The reduction in projects net present

values will certainly impact on investors' decisions to proceed with viable but marginal regional investments.

There is evidence to suggest that the downgrading and replacement of the Infrastructure Bond program with the more limited IBTO has had a negative impact on potential regional investment projects — in terms of lower net present values and projected higher prices for customers. At the margin the changes to the program can be expected to have had a negative impact on decisions to invest in more marginal infrastructure projects in regional areas (see Box 2).

The Infrastructure Borrowings Tax Offset scheme has many limitations which severely limit its effectiveness in removing impediments to invest in infrastructure. At a minimum the IBTO scheme should be extended to cover all infrastructure, the cap should be raised to a more realistic level and the selection criteria and process should be made more transparent.

The ACA believes that if the government is not prepared to reinstate the IB program then an infrastructure voucher system would be a more effective scheme for overcoming disincentives to invest than the current IBTO scheme.

The ACA has outlined the operation of an infrastructure voucher system in its recent submission to the Review of Business Taxation (ACA 1999). In essence the system would operate as follows. Each year the Government would issue a certain total value of infrastructure vouchers to an independent statutory authority. The authority would be charged with determining eligible infrastructure projects on the basis of legislative guidelines and issue vouchers equal to the tax benefits that would be associated with deducting the project's annual interest costs. This voucher would be used to obtain a tax refund equal to their face value. The process would be repeated annually up to a predetermined date at which time the project is forecast as becoming profitable.

The advantages of the voucher scheme are that:

- annual budgetary costs are controllable and could be varied from year to year to meet government's requirements;
- vouchers could be issued to infrastructure projects in any sector so long as the project complied with the legislative guidelines;
- benefits would not accrue disproportionately to high-income investors;
- it involves low transactions and administrative costs; and
- improved certainty as the rules would be clear and the process transparent.

Work commissioned by the ACA suggests that a voucher scheme costing Government \$200 million annually would support \$5.56 billion in infrastructure development per annum.

The Treasurer's decision to terminate the IB program scheme was premature, as the teething problems with the scheme had been addressed and the scheme was working effectively.

The ACA accepts that the Government is now unlikely to revise the IB program and urges that the Infrastructure Borrowings Tax Offset scheme be replaced with a new scheme — an infrastructure voucher system. A voucher system has considerable advantages over the Tax Offset scheme and addresses the tax avoidance and revenue cost shortcomings of the earlier IB program.

TAX EXEMPT ENTITY PROVISIONS

Section 51AD and Division 16D of the *Income Tax Assessment Act* are also major impediments to infrastructure investment. These provisions remove tax benefits to investors providing property to tax exempt entities such as governments. The Ralph Committee notes Section 51AD is severe in its application:

... because it disallows completely deductions relating to the property, while all the income remains taxable. It applies to arrangements which have features of both operating and finance leases (RBT 1999, p. 222).

The provisions were implemented in a period before private provision of public infrastructure was generally contemplated and were aimed at preventing tax abuse via a form of leveraged leasing used by State Governments in the 1980s. The provisions, particularly Section 51AD are having a detrimental impact on the private provision of public infrastructure under Build Operate Transfer (BOT) type arrangements in all regions around Australia. This form of public infrastructure provision, which essentially shares the risk between the private and public sectors, was not envisaged at the time Section 51AD and Division 16D were introduced.

In deciding whether the provisions apply, it is necessary to determine whether control of a property rests with a tax-exempt entity. This can require detailed examination of complex financial arrangements by the Taxation Commissioner — infrastructure investments are effectively put on hold while this assessment takes place. These investigations are costly for Governments and the potential investors. The Taxation Commissioner has issued various guidelines and rulings on Section 51AD and Division 16D. However, in many cases previous rulings provide little guidance or certainty for future investors. In addition, the time taken by the Tax Office to issue a ruling on these provision can be inordinately long. This increases

uncertainty and costs. The long time frames taken by the Tax Office rulings can also jeopardise investments if lenders withdraw funding commitments.

Section 51AD of the Tax Act increases regulatory risk and frustrates private sector proponents. The provisions affect the required rate of return on infrastructure investments, and can reduce or remove any incentive for private sector participation.

The economic environment for the provision of infrastructure has changed considerably since the introduction of Section 51AD and Division 16D. These provisions are no longer appropriate measures to prevent tax avoidance and can jeopardise joint public-private sector infrastructure ventures. If the private sector is to play a larger role in the provision of infrastructure services for government, it is critical that these impediments be removed. If these provisions are to remain in place, the Government should clarify by legislative amendment that risk sharing infrastructure ventures, such as BOT type arrangements, are outside of the scope of Section 51AD and Division 16D.

CAPITAL AVAILABILITY

Reserve Bank data indicate solid growth in the Australian financial market in recent years, and a capacity in the market to cope with substantial changes in the domestic and international environment. Private sector issuance has increased rapidly from a low base, as has the demand for private bonds. This private bond market is expected to grow further, encouraged by the Government's stated intention to preserve a liquid bond market.

Growth in Australia's financial market has been accompanied by developments which provide more scope for capital raising for infrastructure projects. These include:

- the increased willingness of banks to lend for infrastructure and to increase the terms of their loans;
- the emergence of new investment funds targeting infrastructure;
- the appearance of inflation indexed bonds, and
- public listing of infrastructure projects (the M2 motorway project) and infrastructure trusts, albeit assisted by the (now terminated) infrastructure bonds scheme.

However, there are still some concerns about the Australian market's capacity to supply funds for private financing of infrastructure, particularly given the number of impending privatisations. DOTARD (1998) refers to \$70 billion to \$100 billion required for infrastructure projects over the next 5 to 10 years, including the financing of privatised assets, as having the potential to create high risk for financial institutions. Funds originating

offshore have boosted finance sources for recent high infrastructure investments (particularly privatisations), but there is some doubt about the continued availability of these funds.

These concerns are aggravated by the termination of the Infrastructure Bond program and its replacement with the more limited IBTO arrangements. Superannuation funds with large resources, appear to find infrastructure lending insufficiently liquid, unless in the form of infrastructure bonds which can be traded. Conservative fund managers are less attracted to the IBTO scheme which only offers tax rebates. In part this is due to the way funds are managed — superannuation funds investment portfolios are generally managed to ensure that the nominal tax payable is offset by tax credits on fully franked dividends. As a consequence, the tax offset arrangements are of limited value.

The move from Infrastructure Bonds to IBTOs has also impacted badly on the pricing of IBTO investments by banks. This is because the IBTOs create a permanent reduction in the amount of tax paid by the investing banks. As a consequence banks are less able to pay franked dividends to shareholders. The value that a banks shareholders place on tax credits will have implications for how the bank prices its IBTO funds for infrastructure owners. If shareholders value tax credits in the range of 50 per cent to 70 per cent of their face value then a bank which distributes all tax credits generated to pay a fully franked dividend will fully value the loss of credits associated with a IBTO investment. In these circumstances the bank will be unable to provide any real reduction in the pre-tax cost of infrastructure financing. Capital is available but at an unacceptably high cost.

IBTOs in the hands of foreign banks could lead to reductions in the pre-tax cost of infrastructure financing as these banks are generally not faced with the same pressure to provide franked dividends to shareholders. However, the tax offset is not always available to foreign banks as selection criteria restrict the tax offset to lenders that have been resident in Australia for a full income year.

Australia's capital market has experienced solid growth in recent years and has displayed a capacity to cope with substantial changes in the domestic and international environment. The now defunct infrastructure bonds program helped to facilitate this flexibility and growth. However, the IBTO scheme which replaced the program is considerably less effective in reducing the real pre tax cost of infrastructure financing. Capital is available for infrastructure financing but at a cost which reduces the attractiveness of the investment.

PRICING

Efficient pricing of infrastructure services is important for both public and private providers to determine efficient investment levels. Efficient pricing involves finding pricing structures that will cover the economic costs of supply, encourage maximum use of existing assets, and signal to users the cost associated with supplying additional units (BIE 1995). Prices based on marginal costs will provide an indication of the optimum level of investment for planning purposes and will make best use of the actual investment in place. Where short-run marginal costs do not permit cost recovery, a system of differential prices (for example Ramsay and multi-part pricing) reflecting the elasticities of demand of different users may be possible.

Historically, governments have not priced infrastructure to reflect costs. Government Business Enterprises (GBEs) had limited control over prices and in some cases Governments used GBEs to meet broader social and political objectives. While this situation is changing, efficient pricing has not always been a central feature of infrastructure reforms and for some infrastructure services efficient pricing remains the exception rather than the rule, particularly in local government.

Impediments to efficient pricing

Cost recovery

Infrastructure providers cannot always recover costs with marginal cost pricing. In the case of new private sector road investments, for example, the cost of carrying extra traffic is negligible, and marginal costs would not permit adequate returns. Alternative pricing approaches which would recover costs may not be practical or politically acceptable.

Agreement needs to be reached on prices to allow fair returns in the long run. The private sector may require a subsidy to overcome the problem of deficits in the early years of operation, or alternatively should be allowed to charge prices above marginal cost.

For some infrastructure the scope for cost recovery is reduced by under pricing of competing infrastructure services. This is a major problem for privately provided roads where there can be a strong incentive for traffic that is faced with the payment of a toll to divert to alternative routes which are not priced.

In other instances, government sector enterprises and local councils charge prices below costs for political reasons, or are not required to generate economic rates of return. Under these circumstances private sector participation will be deterred.

If private sector investment is to fill the gap in the provision of public infrastructure, particularly in regional areas, there needs to be a mechanism by which Government can compensate the investor for the inability to recoup adequate revenues in the early stages of the project. Replacing the IBTO with an Infrastructure voucher scheme would be an important step in this regard. However, other pricing arrangements may also be required for some forms of investment. For example, in the case of roads this could include community service obligation payments to subsidise tolls, rental payments or tolls with minimum rental guarantees.

Public infrastructure providers which are potentially competing with private sector infrastructure providers should be encouraged to adopt transparent pricing practices which as closely as possible mimic competitive market outcomes. Governments should monitor their GBEs activities to ensure that their operations and pricing are undertaken in a competitively neutral manner which provides them with no advantage which is driven by their ownership rather than their place in the market.

Price regulation

The nature of infrastructure means that, in some instances, some form of monopoly regulation cannot be avoided. However, it is important that the regulation is as light handed as possible. Typically light handed regulation is transparent, performance oriented, market based and regulates ends not means. Light handed regulation should also be subject to regular review to assess whether there is a continued need for the regulation and whether the benefits of the regulation outweigh the costs.

Regulation can relate to the final goods and services prices and also to third party access to essential services supplied by monopoly infrastructure providers. If infrastructure investment is to proceed at optimum levels, it is crucial that there be a high degree of certainty about the type and level of prices that are to be established. As the EPAC Task Force points out in relation to the price of access to other infrastructure services (1995, p95):

the absence of clear policies on infrastructure access and pricing increases the ex ante risk of private investment in infrastructure. If the private sector has to wait for ex post decisions of the National Competition Council and the Australian Competition and Consumer Commission, there will be detrimental effects on all forms of infrastructure investment.

The issue of third party access to infrastructure is discussed in more detail in section 4.5 below.

Putting in place market structures that encourage competitive disciplines would help ensure efficient pricing outcomes. However, as many infrastructure sectors involve some degree of natural monopoly the market operations may require some form of

light-handed regulation such as prices oversight. Clear guidelines need to be established on pricing of access to essential services.

REGULATION OF THIRD PARTY ACCESS TO INFRASTRUCTURE SERVICES

The agreement by Australian Governments to implement a National Competition Policy in April 1995 has created the potential for legislated third party access to essential facilities such as rail, gas water and airport services. Access regimes are an important element in introducing competition into infrastructure markets which were previously under monopoly control.

However, access regimes are only one of many regulatory tools and are not always the most appropriate way of introducing the efficient provision of infrastructure services. The report of the Hilmer Committee which underpins Australia's shift to legislated third party access recognised this and noted it was '... conscious of the need to carefully limit the circumstances in which one business is required by law to makes its facilities available to another' (Hilmer et al 1993, p.248).

The potential for an infrastructure service to be subject to an access mandate can undermine an entrepreneur's willingness to invest in the project. It is important Australia's move to third party access to infrastructure services does not unduly increase uncertainty in the market for infrastructure. It is also important that potential investments which rely on gaining access to established so called 'essential' infrastructure services can quickly reach agreement on their right to access and the price of that access.

Under Australia's National Competition Policy third party access may be gained via:

1. terms set out in undertakings by the infrastructure provider,
2. by compulsory negotiation with infrastructure providers of declared essential services, or in default of agreement by arbitration,
3. or through the provisions of state regimes which have been certified as providing effective access.

The legislation also makes provision for appeal of decisions to the Australian Competition Tribunal. A number of the third party access recommendations made by the National Competition Council (NCC) have been subject to appeal.

We realise that due process takes time. Stability and predictability in regulation and the law are particularly important for large long term investments. However, the current process for

access is unduly long. It takes considerable time for initial decision-making by regulators in all three processes, and appeals against the decisions are very time consuming and costly. For example:

- The NSW Minerals Council applied to the NCC for the declaration of rail infrastructure services in the Hunter Valley on 3 April 1997. The New South Wales Premier did not accept the NCC's recommendation to declare the service. The declaration of the service is now the subject of an appeal to the Australian Competition Tribunal. At this stage, more than two years after the Mineral Council's initial application, the final decision on access has not been resolved. There is no certainty that the matter will be resolved in the short term as a date for the hearing by the Tribunal has yet to be fixed;
- In November 1996 the Australian Cargo Terminal Operations Pty Ltd requested that the NCC recommend that the service provided by the use of an area owned by the Federal Airports Commission at Sydney International Airport be declared. The Commonwealth Government accepted the Council's recommendation to declare the service. However, the Federal Airport Commission appealed the decision to the Australian Competition Tribunal. The Tribunal heard the case in December 1998. However by April 1999, nearly two and half years after the original application to the NCC, the Tribunal had released no decision. Our investigations indicate that no date has been set for the release of the Tribunal's decision; and
- The New South Wales Government applied to the NCC to certify the NSW Regime for third party access to NSW rail services in June 1997. In November 1998, the NCC outlined a number of changes to the Regime that would be required before it could be certified as effective. The NSW Government is yet to Gazette the amended Regime so that it can be returned to the NCC for assessment after which the NCC will send its recommendation to the Commonwealth Treasurer.

The slow pace of the third party access processes not only increases uncertainty for the parties associated with process but also increases uncertainty for other potential investors in similar infrastructure. As a result investment decisions go on hold, and some potential investors may be deterred altogether.

Third party access to essential infrastructure can be an important tool for improving the supply of infrastructure services. However, if uncertainty is to be reduced the decision processes associated with implementing Australia's third party access regimes need to speed up.

This may mean that more resources have to be made available to the National Competition Council, the Australian Competition and Consumer Commission and the Australian Competition Tribunal.

Setting a legislative deadline of six months for the Australian Competition Tribunal to hear and reach its decision on appeals would also help reduce the uncertainty.

POLITICAL AND PUBLIC PERCEPTIONS

Governments have historically tended to inhibit private provision of transport, communications, water/sewerage, power, and education and health infrastructure as well as a range of local government services. This has often been based on concerns about monopoly power, the overall importance of these sectors in the economy and their distributional impact. In many instances these reasons are no longer convincing. Economies of scale are not as significant as before, partly due to technological change. Also regulatory bodies have gained considerable experience in protecting the public interest. The private sector has shown itself to be capable of operating effectively in all of the above infrastructure areas.

Nonetheless, there is a perception in the community that infrastructure services can be provided more cheaply and more reliably by the public sector. Voter concerns and reservations have influenced governments with narrow majorities in their attitudes to private provision.

The adverse attitude to private provision appears to, in most cases, have no rational basis. However, consumers may perceive the private sector as higher cost is because they do not distinguish between private sector involvement and Government reform programs. Often price increases and reductions in gold-plated quality of infrastructure services is due to Commonwealth, state and territory government structural reform of public utilities to make them more efficient and commercial (eg pricing reform, imposition of rate of return targets, vertical and horizontal separations).

The private sector faces a huge task if it is to allay the public's concern. Educating governments and the public about the benefits of private sector involvement in the provision of infrastructure would help overcome attitudinal problems that work against a greater private sector contribution in urban and regional areas.

The ACA believes that Government can play a role in educating consumers of the benefits of private provision of public infrastructure. It can begin by informing consumers about lower real prices and quality improvements due to contracting out or private ownership.

OTHER IMPEDIMENTS

Externalities

Infrastructure investment in regions would result in clear social gains by helping to build up or maintain viable communities. By maintaining or increasing regional populations, regional investment can also take pressure off metropolitan infrastructure.

Infrastructure providers cannot always capture enough of these benefits to make a regional project viable from their perspective even though, from a public perspective, the social and economic benefits are greater than social and economic costs. That is not to say that the private sector is not interested in being involved in infrastructure provision which is warranted on social rather than commercial grounds. However, in these instances private sector involvement may require government assistance through, for example, Community Service Obligations (CSO) payments. The plight of some regional areas provides cogent argument for increased infrastructure investment, given the direct and indirect benefits that follow.

In other cases adverse distributional effects can lead to public opposition to projects which have high cost benefit ratios. In this situation governments should also be willing to consider some form of compensation for those who lose out. This is particularly important in situations where it is not possible for private developers to do so because project benefits are not fully internalised by the developer.

Investment in regions can be limited if project appraisals fail to take into account all the benefits of projects. Due weight should be given to positive externalities arising from investments. In some cases Government's will need to provide subsidies, including Community Service Obligation payments to regional infrastructure projects if they are to proceed.

Tiers of government

Rules and regulations imposed by three different levels of government can result in an administrative nightmare for infrastructure providers. These include, for example, planning approvals, health and environmental regulations, and complex tendering processes. Every level of government can be involved, particularly in the project development phase of a major infrastructure investment. This leads to poor infrastructure planning and consequent costs to providers and the community. At the local government level, the number of local councils hampers negotiations.

The regulatory entanglements faced by infrastructure providers as a result of multiple tiers of government are highlighted by the following comment on water provision:

As well as being accountable to their government shareholders, water providers are subject to pricing controls set either by their State Treasury departments, or a separate pricing regulator such as the Independent Pricing and Regulatory Tribunal in NSW.

There are also licence regulators which set standards for licence renewal; State and federal health department regulations to protect public health; water allocation is the responsibility of State departments of land and natural resources; and environmental impact is managed either by arms length environmental authorities or by environment departments.

This maze of regulatory agencies reflects the critical nature of water provision, but also means a headache for the private companies required to negotiate it (AFR 1998).

Comments to the Industry Commission's Impediments to Regional Industry Adjustment (IRIA) inquiry also highlighted this lack of coordination among various levels of government (IC 1993b).

Infrastructure exhibiting scale economies such as certain investments in electricity and gas utilities or educational and health facilities often need large populations to take advantage of economies of scale. Investment in such infrastructure may not be viable in some areas without amalgamation or cooperation of local governments.

The legal and financial complexities of BOOT type arrangements mean that transaction costs can be high for local governments contemplating private sector provision of infrastructure. The trend towards local government amalgamations and cooperation should make BOOT schemes more feasible for regional infrastructure. The EPAC Infrastructure Task Force recommended that state governments assist local governments in developing expertise in involving private sector in infrastructure provision.

Measures are required to further reduce red tape. Cooperative strategic planning for infrastructure provision by governments at all levels would facilitate the role of developers. Mechanisms to fast-track planning and other regulatory requirements, such as those put in place as part of the Victorian Government's regional assistance measures and the Commonwealth Government's Invest Australia programs could be expanded. Amalgamation of councils or improved cooperation among councils should be a priority.

APPENDIX 1 RESULTS FROM THE QUEENSLAND INPUT-OUTPUT ANALYSIS OF REGIONAL INFRASTRUCTURE DEVELOPMENT

This appendix explains input-output tables and the regional input-output multipliers reported in the submission. The tables used in this study are based on the Queensland Government Statistician's regional input-output tables.

What is an input-output table?

An input-output table is an accounting framework in which the relationships between industries, households, governments and the traded sector are described. Input-output tables provide detailed information about the supply and use of products in an economy. They allow us to gain a better understanding of the use of intermediate inputs; labour and capital used by an industry as well as the relative importance of industry relationships.

Figure A1.1 presents a pictorial representation of an input-output table. Quadrant 1A in Figure A1.1 shows sales of domestically-produced goods from one industry to another. Quadrant 2A shows sales of domestically produced goods from an industry to the household sector, government, investors and the export market. Quadrants 1B and 2B are similar to Quadrants 1A and 2A, except they depict sales of imported goods. Quadrants 3 and 4 shows the labour, capital and other costs of each industry including returns to land.

Some useful aggregates can be calculated from the input-output tables. For example, when data in the rows of Quadrants 1A and 2A are totalled they equal total domestic production or sales. Likewise, the column sums of Quadrants 1A, 1B and 3 equal total industry costs. The sales of each input-output industry will equal its costs by definition.

Input-output multipliers

Input-output multipliers are calculated from an input-output table by using matrix algebra on the intermediate usage matrix. For detail on the calculation of input-output multipliers see Australian Bureau of Statistics (1996).

Input-output multipliers can be calculated for a range of variables. These multipliers allow us to determine the direct and indirect effects of an expansion in a particular industry, in this instance the non-residential building and construction industry.

Figure A1.1: Structure of an input-output table

		To	Intermediate demand					Use of intermediate inputs (subtotal)	Final demand				Final demand (subtotal)	Total supply (grand total)
			Agriculture	Mining	Manufacturing	Construction	Services		Household	Government	Investment	Export markets		
From														
Intermediate inputs	Agriculture Mining Manufacturing Construction Services	QUADRANT 1A USE OF INTERMEDIATE INPUTS — domestically produced goods						QUADRANT 2A FINAL DEMAND — domestically produced goods				Total domestic demand	Total domestic production	
	Agriculture Mining Manufacturing Construction Services	QUADRANT 1B USE OF INTERMEDIATE INPUTS — imported goods						QUADRANT 2B FINAL DEMAND — imported goods				Total import demand	Total imports	
Intermediate inputs (subtotal)														
Primary inputs	Wages, salaries & supplements Gross operating surplus Indirect taxes (net)	QUADRANT 3 PRIMARY INPUTS TO PRODUCTION						QUADRANT 4 PRIMARY INPUTS TO FINAL DEMAND						
Domestic production		Total industry costs						Total demands						

However, as with any economic analysis, a number of simplifying assumptions underlies analysis based on input-output databases. These assumptions include:

- constant returns to scale;
- no substitution between inputs;
- the economy is in equilibrium at given prices; and
- no capacity constraints arising from an increase in demand.

The assumptions mean that the multipliers describe average effects. Multipliers can not take into account economies of scale or the impact of a change in demand when there is no excess capacity. Thus, multiplier analysis provides indicative upper ranges of the impact of a change in output on an economy.

The multipliers reported in this appendix relate to the output and employment effects associated with a major construction project being undertaken within regional Queensland. For simplicity the output multipliers have been expressed in terms of an increase in output of one million dollars and the employment multipliers represent the increase in employment expected to be generated by the \$1 million of additional output.

Table A1.2 presents the output multipliers for the non-residential building and construction industry in four Queensland regions. (The results of the four regions selected for inclusion in

the table are indicative of those in all regions in Queensland and throughout Australia.) The first column of the table indicates that the multipliers are calculated by assuming an initial \$1 million expansion in the industry's output. The second column shows the initial effect on each regional industry's output, by definition, the initial effect on output is equal to the increase in demand.

The non-residential building and construction industry will require additional inputs from other industries in order to increase output by \$1 million. These first round effects are shown in column 3 of Table A1.2. For example, a \$1 million increase in demand for the outputs of the non-residential building and construction industry in the Wide Bay-Burnett region leads to a first round increase in regional demand for construction inputs of \$260,000.

Table A1.2: Increase in output and for every \$1 million increase in demand by the non-residential construction industry by selected region

<i>Region</i>	<i>Increase in demand</i>	<i>Initial effect</i>	<i>First round multiplier</i>	<i>Industrial support multiplier</i>	<i>Total multiplier</i>
	\$m	\$m	\$m	\$m	\$m
Output					
Wide Bay and Burnett	1	1	0.26	0.12	1.39
Northern Queensland	1	1	0.39	0.32	1.71
Mackay	1	1	0.35	0.22	1.58
Darling Downs	1	1	0.35	0.21	1.56

However this is not the end of the story. In order for the supplying industries to produce these inputs they in turn will require more inputs. This process continues until all the effects arising from the initial increase in demand are included in the industrial support multiplier. The fourth column presents the indirect effects of the expansion in industry output (excluding the first round effect). In the case of the Wide Bay Burnett Region, the multipliers indicate that to produce the extra \$260,000 of regional output necessary to allow the non-residential construction industry to expand its output by \$1 million, the supplying industries also increase their demand which ultimately induces a further increase in the regional economy's output of \$120,000.

When all of these effects are added together, we obtain what is known as the total simple input-output multipliers in the final column of the table. For example, Table A1.2 shows that in the Wide Bay and Burnett region, a \$1 million increase in output for the non-residential building construction industry directly and indirectly generates \$1.39 million of output in the regional economy.

The regional analysis reported in Table A1.2 illustrates that an identical increase in regional output can have differential impacts across regions. For example, our analysis indicates that the direct and indirect effects of the hypothetical \$1 million increase in construction output would be greater in Northern Queensland than in the other three Queensland regions examined. The variation across regions reflects the different regions' level of self sufficiency. Our results indicate that the non-residential building and construction industry in North Queensland has a greater reliance on regional suppliers than its counterparts in the other three regions examined. Hence the \$1 million increase in construction output in the other regions examined had a higher level of leakage to the wider economy.

Table A1.3 presents the employment multipliers associated with a \$1 million increase in output in each region's non-residential building and construction industry. The results indicate that the employment impact of a \$1 million increase in construction activity will also have a differential effect across regions. The initial employment effect in the non-residential building and construction industry itself ranges from ten employees per \$1 million increase in construction output in Mackay to 14 employees for the same increase in the value of construction output in the Darling Downs. The multiplier analysis reported in Table A1.3 also indicates that the overall impact of increased construction activity on employment in the regions also shows some variation with the direct and indirect of the employment effect in the Darling Downs being considerably higher than in the three other regions examined.

Table A1.3: Non-residential building and construction industry employment multipliers (full-time equivalents)

<i>Region</i>	<i>Increase in demand</i> \$m	<i>Initial effect</i> No.	<i>Total multiplier</i> No.
Wide Bay and Burnett	1	11	16
Northern Queensland	1	11	16
Mackay	1	10	16
Darling Downs	1	14	20

APPENDIX 2 Ai GROUP REGIONAL SURVEY RESPONSES

The Australian Industry Group undertook a survey of their regional members in January 1999. In all 612 regional firms responded. These respondents had a turnover of \$28 billion, representing about 10 per cent of all manufacturing activity in Australia. The survey covered a range of questions relating to regional issues. The Australian Industry Group gave Tasman Asia Pacific access to the raw survey data. The results for the following two questions have been included in this submission.

Q21 Do you think the following infrastructure are adequate for the region?

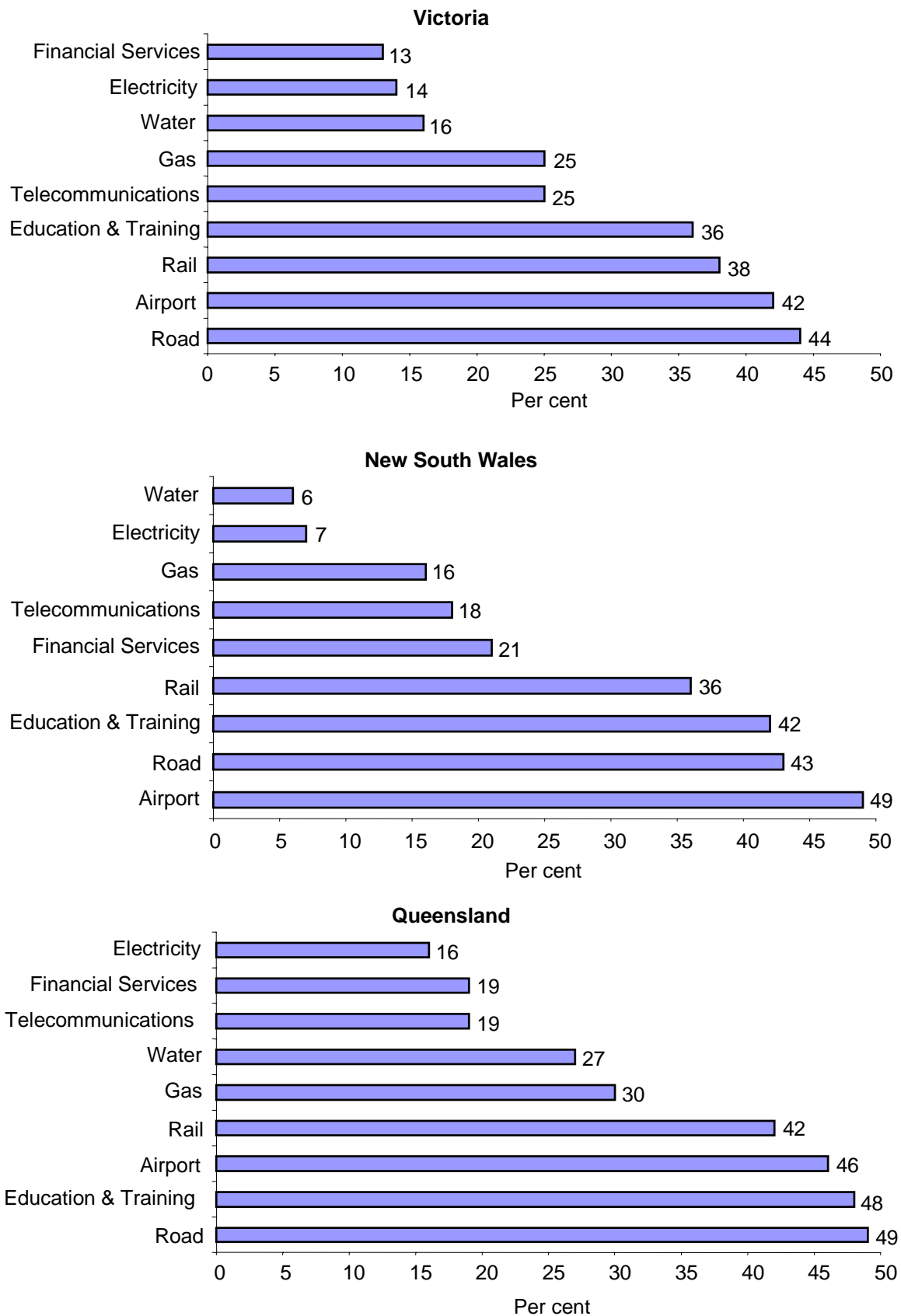
Transport Infrastructure:	Road Infrastructure	Inadequate	Adequate
	Rail Infrastructure	Inadequate	Adequate
	Airport Infrastructure	Inadequate	Adequate
Utilities:	Electricity Infrastructure	Inadequate	Adequate
	Water Infrastructure	Inadequate	Adequate
	Gas Infrastructure	Inadequate	Adequate
	Telecommunications Infrastructure	Inadequate	Adequate
Financial Services (ie Banking)		Inadequate	Adequate

Q22 Do you think government services are adequate in the following areas?

Education & Training initiatives	Inadequate	Adequate
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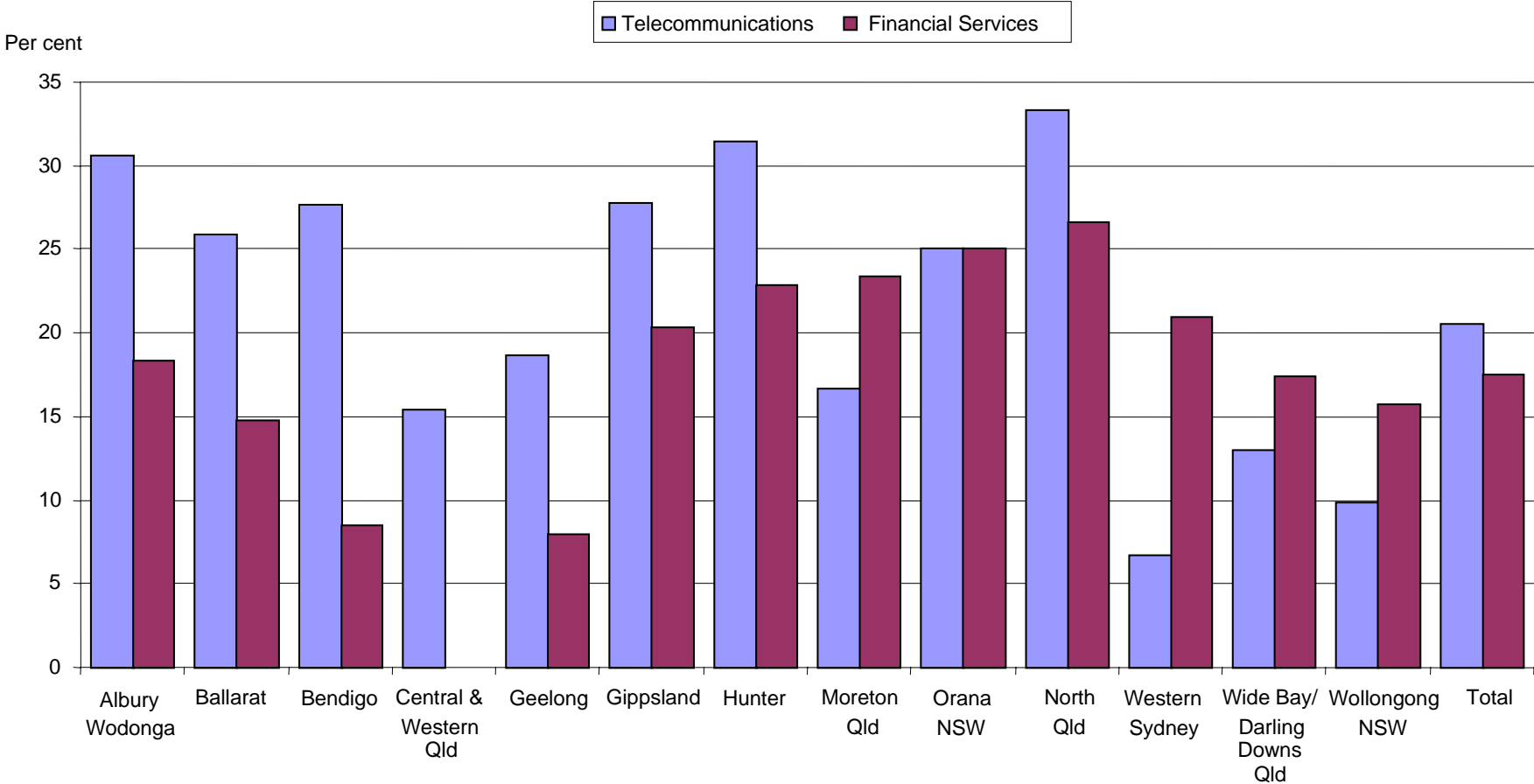
The following figures report firms' responses by state, by region and by type of infrastructure.

Figure A2.1: Inadequacy of Infrastructure by State and Type



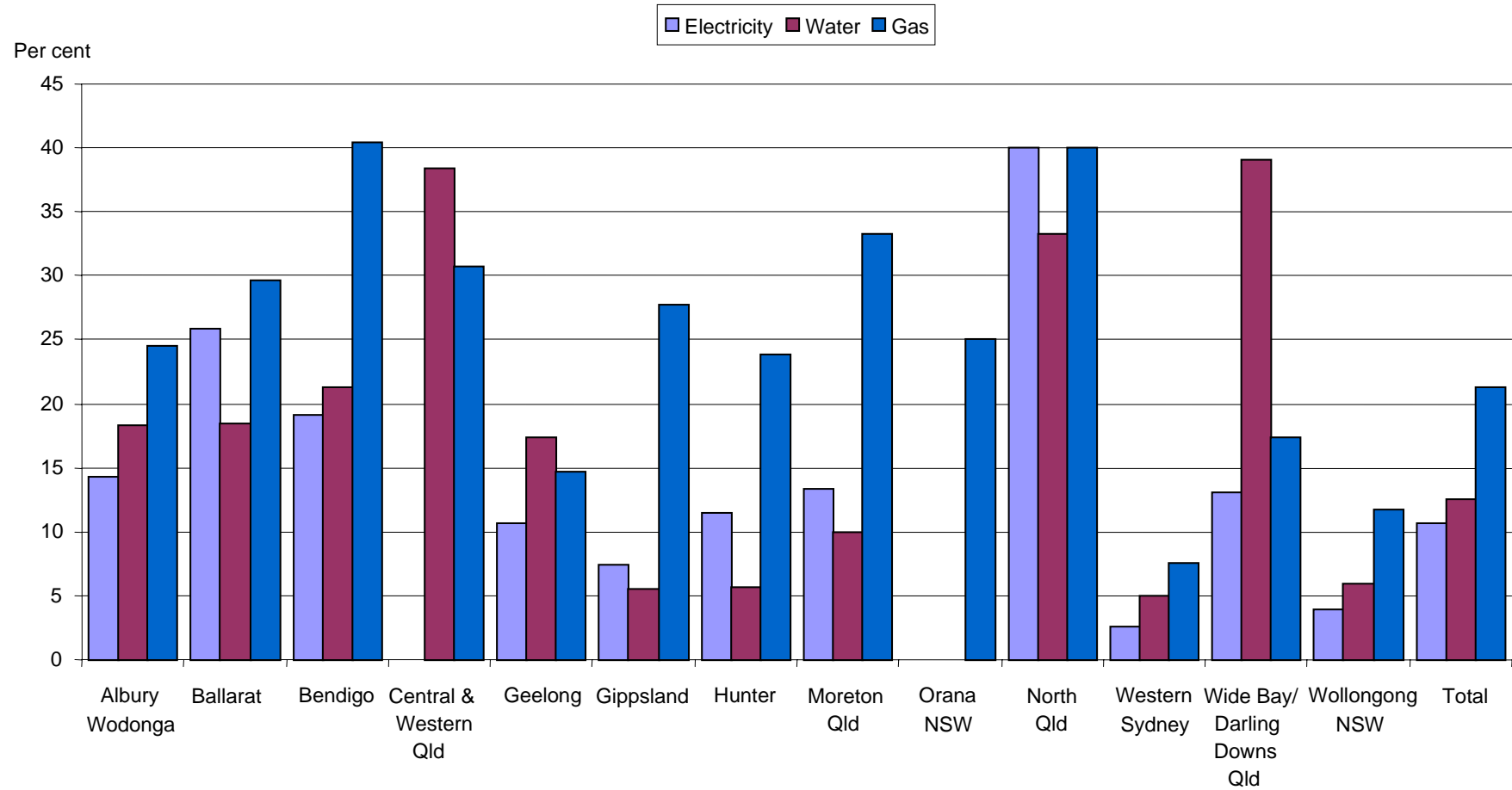
Source: Tasman Asia Pacific estimates based on Ai Group (1999).

Figure A2.2: Telecommunication and Financial Services Inadequacy of Infrastructure



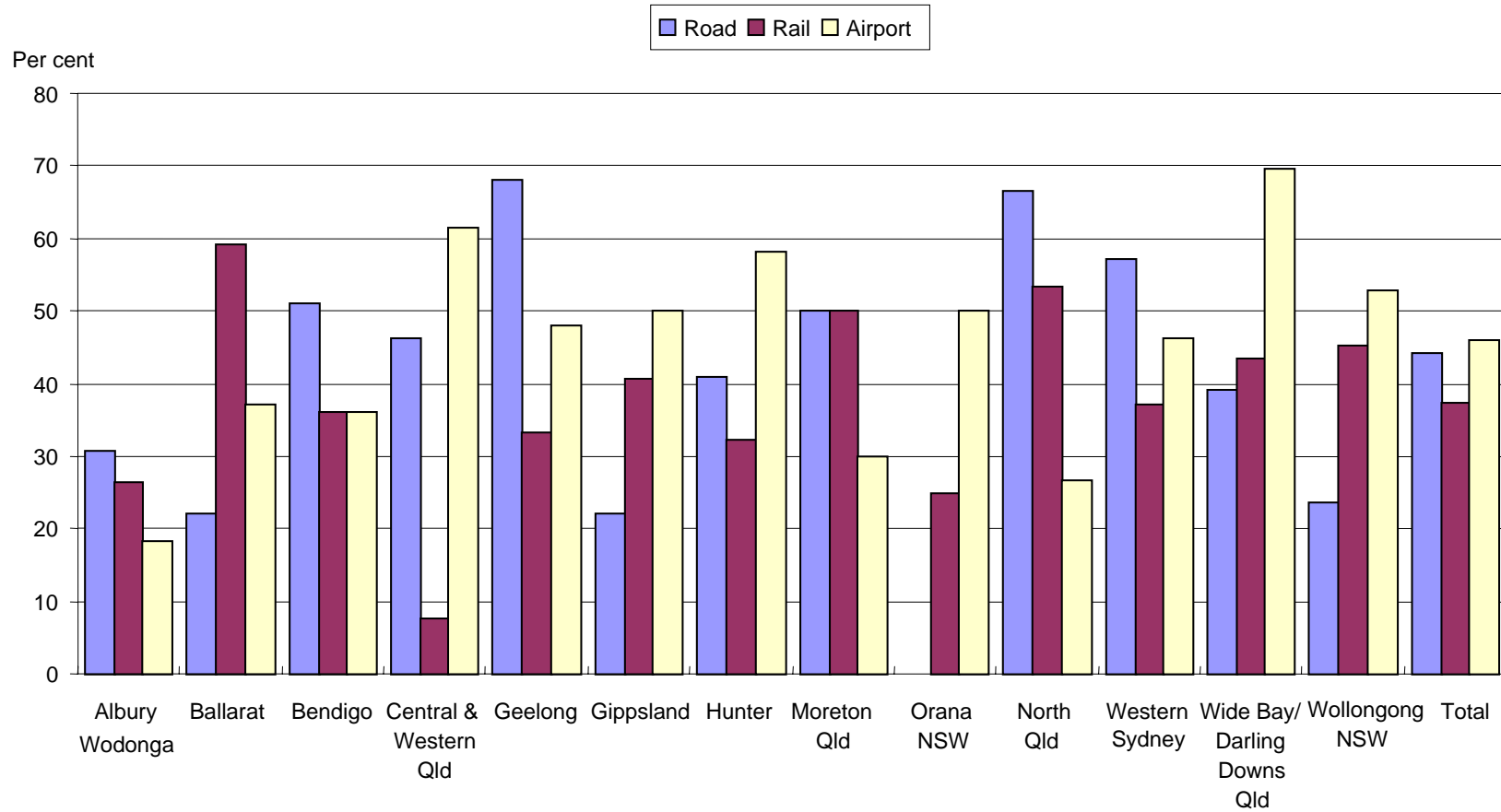
Source: Tasman Asia Pacific estimates based on Ai Group (1999).

Figure A2.3: Utilities Inadequacy of Infrastructure



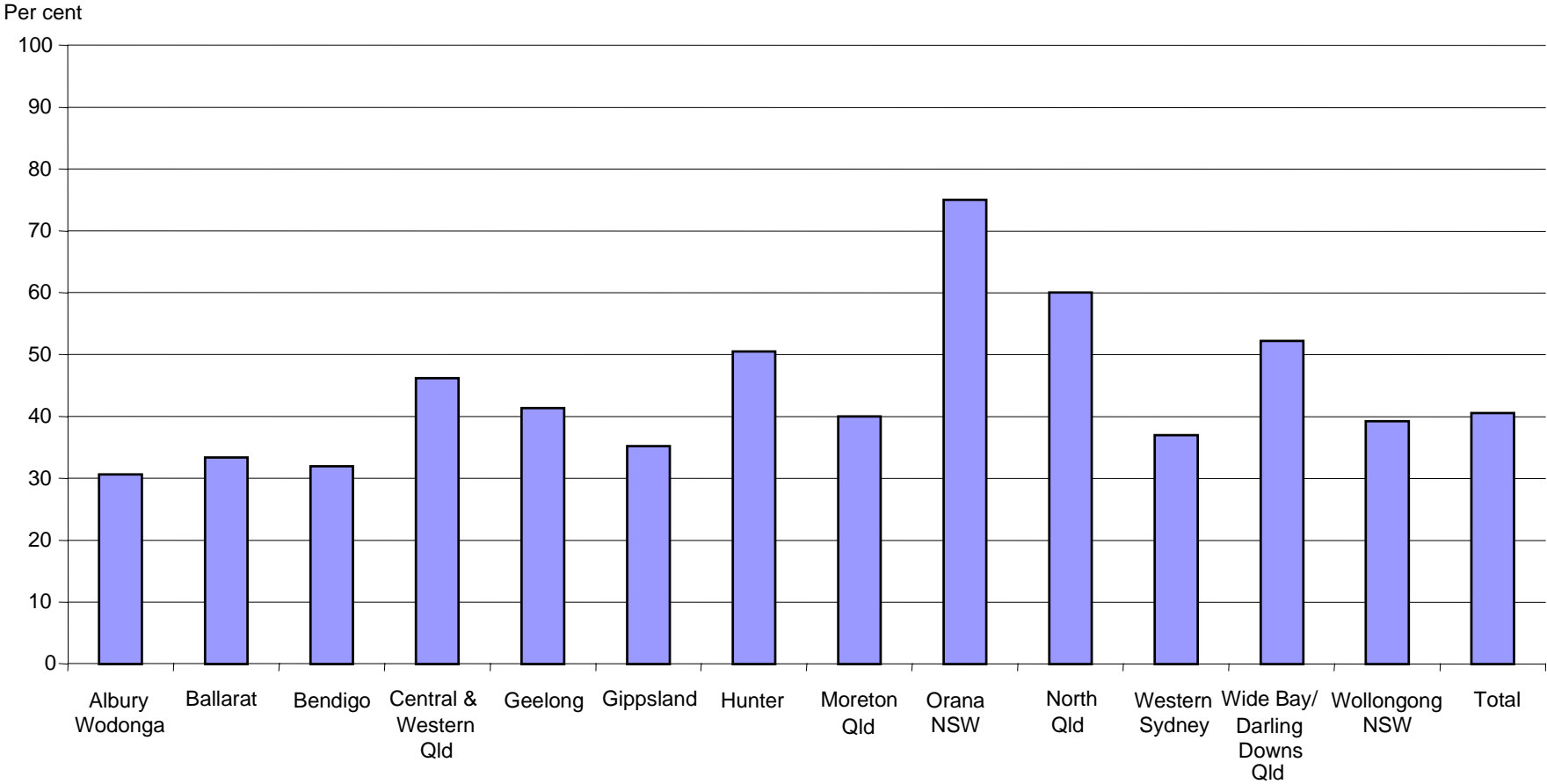
Source: Tasman Asia Pacific estimates based on Ai Group (1999).

Figure A2.4: Transport Inadequacy of Infrastructure



Source: Tasman Asia Pacific estimates based on Ai Group (1999).

Figure A2.5: Education and Training Inadequacy of Infrastructure



Source: Tasman Asia Pacific estimates based on Ai Group (1999).

APPENDIX 3 ACA MEMBER COMPANIES

ABB Engineering Construction Pty Limited

Abigroup Contractors Pty Ltd

Barclay Mowlem Construction Limited

Boulderstone Hornibrook Group

Civil & Civic Pty Ltd

Clough Limited

Concrete Constructions Group Pty Ltd

Eltin Limited

Henry Walker Group Limited

John Holland Group Pty Ltd

Leighton Holdings Limited

Leighton Contractors Pty Limited

Macmahon Holdings Limited

Multiplex Constructions Pty Ltd

Roche Bros Pty Limited

Thiess Contractors Pty Limited

Transfield Holdings Pty Limited

United Construction Group Limited

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ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
ACID	Australian Council for Infrastructure Development
ACT	Australian Competition Tribunal
Ai Group	Australian Industry Group
ALGA	Australian Local Government Association
APCC	Australian Procurement and Construction Council
BOOT	Build, Own, Operate Transfer
BOT	Build, Operate Transfer
BTCE	Bureau of Transport and Communications Economics
CSO	Community Service Obligations
DOLAC	Department of Labour Advisory Committee
DOTARD	Department of Transport and Regional Development
EMIAA	Environmental Management Industry Association of Australia
EPAC	Economic Planning and Advisory Committee
GBE	Government Business Enterprise
IBTO	Infrastructure Borrowings Tax Offset
IC	Industry Commission
NCC	National Competition Council