

9 May 1999

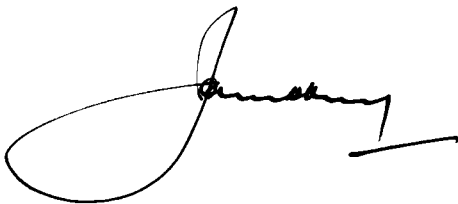
Committee Secretary
House of Representatives Standing Committee
on Primary Industries and Regional Services
Parliament House
Canberra ACT 2600

**RE: Submission to the Inquiry into Infrastructure and the Development of Australia's
Regional Areas.**

Please find enclosed a copy of the Institution's submission to the Committee's Inquiry into infrastructure and regional development. The Institution represents over 67,000 professional engineers, engineering technologists and engineering associates.

If required, Institution representatives would be pleased to meet with the Committee to provide more detail on the issues raised in its submission.

Yours sincerely

A handwritten signature in black ink, appearing to read 'John Kemp', with a large, stylized initial 'J' and a horizontal line extending to the right.

John Kemp AM, FIEAust, CPEng
Chief Executive
Institution of Engineers, Australia

**THE INSTITUTION OF ENGINEERS,
AUSTRALIA**

**Submission to the Inquiry into
Infrastructure and the Development of
Australia's Regional Areas.**

**House of Representatives Standing
Committee on Primary Industries and
Regional Services**

April 1999

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RECOMMENDATIONS

- 1) All Australian governments should promote and underwrite a National Infrastructure Advisory Council, with expertise from the public and the private sectors, to facilitate the efficient and equitable provision of national infrastructure by both public and private sector stakeholders
- 2) The Council of Australian Governments should as a matter of urgency, commission the National Infrastructure Advisory Council to undertake a national review of the existing and likely requirement for public and private investment in infrastructure

NOTE: Attached is collected information on local, state and federal government capital and recurrent expenditure on infrastructure. This information was collected by the Institution, and in the research to collate the material it was clear that existing information is quite fragmented and has not been systematically analysed to provide an overall picture of the health of Australia's infrastructure.

- 3) Appropriate peak bodies and all levels of government work together to define the necessary conditions to establish group training schemes for graduate engineering training in regional Australia. This could draw on the experience of the scheme underway in the Hunter Valley, entitled Hunternet Group Training Scheme.
- 4) The Department of Education, Training and Youth Affairs commission case studies of Australian companies which have taken the initiative, particularly in regional areas, and worked with private providers and universities to design courses which can be taken as part of work practice.

- 5) Triggers should be identified where technical advice should be required for development, awarding and management of contracts. These could include:
 - when there are public health and safety implications
 - when the contract involves a large amount of financial risk
 - when the contract involves the development of new technology and innovative systems
 - where there is significant information asymmetry present

- 6) Technical requirements should be incorporated into Dept of Finance and Administration's existing contract development guidelines

Introduction

In undertaking this Parliamentary Inquiry into infrastructure and the development of Australia's regional areas the Committee should fully consider the changes in public policy which have occurred over the past ten years. These policy changes have seen fundamental changes to the engineering workforce in Australia, and have resulted in the move of infrastructure services and skills from the public to the private sector.

Infrastructure has an important part to play in assisting both the community and industries in regional Australia. There is increasing anecdotal evidence that as a result of infrastructure decline in regional Australia that industry in regional areas is suffering with flow on effects to employment, economic growth and community life. For example IEAust has held recent meeting with Australian Business who have reported that they are increasingly getting expressions of concern from their regional managers that declines in IT and roads are causing problems for individual firms transporting their goods. In NSW Government spent \$29 million repairing damage to roads caused by salinity and high water tables.

Engineers have a significant role in designing, building and maintaining Australia's infrastructure. The Institution of Engineers, has over 67,000 members which is approximately 76% of all qualified engineers in Australia. Unlike many of its counterparts overseas it represents all professional engineers, engineering technologists and engineering associates in all branches of engineering in this country. As such it is one

of the few engineering bodies able to speak with one voice for the engineering workforce.

An example of the massive changes that have occurred in recent times can be found by examining the Institution's membership statistics. In the past between 70-80% of IEAust members were in the public sector, however in 1998, only 26% of the Institution's members were in the public sector, and indications are that that figure will continue to fall, at least in the short term.

In 1995 the Institution, in observing this trend, undertook a major study to ascertain the implications of privatisation, contracting out and corporatisation on engineering innovation, design capability and human resource requirements. The inquiry sought to better understand both positive and negative impacts of the changes occurring in the provision of Australia's infrastructure and the associated utilities. Further, the inquiry sought to determine how best to maintain the increased productivity and efficiency gains which were being achieved, without detriment to the technology skills and infrastructure needs of Australia.

The report, "Engineering the Transition to Competitive Utilities" was issued in 1996 and found that there were major concerns in the following areas:

- Long term planning in infrastructure
- Training requirements
- Access to engineering expertise within public sectors contractors
- Research capability
- Innovation, and
- The need for better informed consumers.

The Institution believes that these factors have implications for infrastructure and the development of Australia's regional areas.

Factors that would enhance development in infrastructure areas:

- 1) Long term Planning in Infrastructure
- 2) Skills Development
- 3) Access to technical expertise within government contractors

1) Long Term Planning in Infrastructure.

The Institution of Engineers considers that the efficient development and maintenance of appropriate infrastructure is vital to Australia's ability to compete as a major exporting nation and to maintain its high quality of life.

Decline in the state of roads, rail, telecommunications, electricity and water supply all negatively impact on the ability of industry to survive and on regional communities to remain together.

Whilst in recent times there has been much debate on how best to finance infrastructure there has been very little discussion on the importance of planning for infrastructure. Planning is a process which identifies and assesses and compares opportunities. Appropriate planning precedes, or should precede the decision making process and is critical to the quality of the decision making process.

Currently Australia does not have a systematic approach to planning which is capable of determining what new infrastructure projects should be undertaken, nor what maintenance funding should be allocated within a financial year.

Appropriate and detailed information will improve decision-making processes which relate to the planning, provision, funding, financing, co-ordination and management of infrastructure.

The Institution of Engineers believes that planning of and for infrastructure is a much neglected aspect of the current debate on infrastructure and that it is vital it be given more attention particularly in terms of determining the needs of regional Australia.

Why Infrastructure is important

If Australia is to continue to become an exporting nation, a goal vital to its ability to remain an economically sovereign nation, it must ensure that it has the port, road, air, rail, telecommunications, computing, energy production and distribution, water supply and waste management systems, which are capable of supporting such an objective.

Australia's high quality of life including its high standard of infrastructure has been in large part responsible for attracting Regional Headquarters of multi-national companies to Australia. Tourism, one of the largest growing services sectors in Australia also benefits from the attraction to tourists of travelling in a country with clean drinking water,

fresh air and efficient transport systems. The attention being paid to eco-tourism is a reminder of the care needed to be taken of Australia's natural resources when establishing and maintaining infrastructure.

The challenge for policy makers will be to ensure that growth in our urban cities is planned, developed and managed and to ensure that regional and country areas are not forgotten, and adequate infrastructure provided to help them develop and address their particular environmental problems.

In terms of investment there have been a number of studies which demonstrate that public investment "crowds in" private investment, ie. stimulates private capital expenditure rather than excludes it. Sicklin argues that "the positive relationship between private and public investment means that public infrastructure reduces costs in the private sector and increases private sector profitability." Planning should also help achieve the optimum contribution of both the public and private sectors in provision of infrastructure.

Why Planning is important

In recent times many reports have highlighted the importance of long term strategic planning. The Business Council of Australia has called for the adoption by government of long-term and consistent plans for infrastructure investment, including "a systematic approach to the development and maintenance of the nation's infrastructure".

The Federal government has also acknowledged the importance of planning. Prior to the 1993 election the Coalition in a Headland speech it stated that they would establish a National Infrastructure Advisory Council. In part this was to address the fact that acting alone the private sector and each level of government cannot hope to avoid duplication, fragmentation and the mis-allocation of resources.

Information is vital to the process of planning. However as yet there are no formal processes whereby information can be collected, let alone decisions for priorities determined.

Dr Vince FitzGerald has commented at a seminar entitled, "Investing in Infrastructure", that the important issues of how to assess, meet and finance increased infrastructure investment requirements have received inadequate attention to date. He argues that Australia, "requires a systematic evaluation of infrastructure requirements in terms of their

contribution to economic growth, using a consistent assessment framework and consistent assumptions across the public sector, in the interest of ensuring that scarce resources are allocated with major weight given to where net economic growth impact will be greatest....."

The Institution believes that we need a planning process for infrastructure focused on identifying and assessing the opportunities in infrastructure which will enhance our productive capacity and regional development. The process must be able to comprehend the potential interactions between disparate infrastructure programs and projects, and thereby help to achieve the maximum overall benefit from our national investment. Such processes need to involve the private sector where most of the relevant skills reside, Government where most of the regulatory power resides, and the community, which is a significant stakeholder in the whole process.

The Institution has on two occasions brought together industry, university, professional and industry associations to discuss the issue of long term planning and infrastructure. There is widespread support for the NIAC. Two brochures have been enclosed which outline the Terms of Reference and a Suggested Work Program for the NIAC.

Specific Recommendations:

1) All Australian governments should promote and underwrite a National Infrastructure Advisory Council, with expertise from the public and the private sectors, to facilitate the efficient and equitable provision of national infrastructure by both public and private sector stakeholders

2) The Council of Australian Governments should as a matter of urgency, commission the National Infrastructure Advisory Council to undertake a national review of the existing and likely requirement for public and private investment in infrastructure

NOTE: Attached is collected information on local, state and federal government capital and recurrent expenditure on infrastructure. This information was collected by the Institution, and in the research to collate the material it was clear that existing information is quite fragmented and has not been systematically analysed to provide an overall picture of the health of Australia's infrastructure.

2) Skills Development

For engineers who, as a profession, were in the past trained in the large utilities and government instrumentalities recent public policy have meant substantial changes. As these organisations have been downsized, privatised and increasingly moved to contracting out their technical works, the opportunities for training will need to move to the private sector. How ready the private sector will be to put the required resources to train is still to be determined.

Training our engineering graduates will ensure that Australia stays on track to develop new technology firms thereby remaining both domestically and internationally competitive, and to ensure that its regional and urban infrastructure remain viable.

Until recently Australians took infrastructure for granted. However in recent times Sydneysiders have been unable to drink water straight from the tap, the Queensland Government has been apologising in advance for the likely electricity black outs in the forth coming winter, and there has been an explosion at Esso's Longford gas plant.

There have of course been positive outcomes from policies such as privatisation and contracting out, but there have also been outcomes that need monitoring, and training engineering graduates it would seem is one of them. Never before has the private sector had to take the major responsibility for training Australia's technologists and engineers. They will need to provide those opportunities from now on.

Training is by and large a long term solution to meet the changing skills needs of industry. If training opportunities are not being provided to an appropriate extent, then more detailed forward planning should be done to anticipate skills shortages. A recent IEAust study of the rail sector found that 56 per cent of rail companies predict a shortfall in skilled engineers within 5 to 10 years.

In the past the public sector deliberately trained more engineers than it needed in order to have the required numbers, knowing that there would be slippage to the private sector. A survey of consulting firms undertaken as part of the Institution's study, found that the main barrier to training were (not surprisingly) the costs and the time taken off the job by the trainers. Contracting out is having a major impact on training. In some sectors, such as mining and roads the percentage of work being undertaken by contract is significant. 33% in mining and 61% on national and state roads. Companies working under contract have to be ready to operate from day one of the contract. Contractors don't see training as part of their role, and with such high percentages of work

being done under contract, the implications are clear. Less opportunities for graduates.

It is well established in the training economics literature that training rates vary positively with the number of employees within an enterprise. A 1997 report of the Small Business Research Program within the Department of Industry, Science and Tourism found that the larger the firm, the more it spent on training. Only 1 in 10 micro firms, ie. those employing less than 5 people, undertake training at all . In contrast, about 80% of enterprises employing more than 100 persons undertake some formal training of employees.

The smaller, medium sized industries may find it more difficult to provide training. They work on very tight margins, often in situations of rapid development.

The training SMEs undertake will more often than not, be limited to what is needed to assist in achieving commercial and short-term outcomes.

We need to understand more clearly the linkages between investments in training and economic growth. It is vital that Australia as a major player in the global technology market, guard against undervaluing our substantial intellectual resources.

Recent figures from the report High Road or Low Road? (ABF:1997) indicate that Australian employment growth has generally been faster in industries which have spent less time training their employees, while employment loss has taken place in the more training-intensive industries.

They conclude that "...the Australian economy is broadly characterised by faster employment growth in:

- lower skilled broad occupational groups;
- lower wage industries;
- industries with a lower measured propensity to innovate
- industries with a lower commitment to training."

The Institution thinks that such a scenario is not sustainable in the long run. Australia is a small economy and governments in this country and other countries of similar size have always recognised the need to ensure that market failures are not allowed to obscure the fundamental benefits of allowing a free market to operate wherever it is reasonable.

While it is true that individuals and the professions themselves will have to take an increasing responsibility for their own development and for the development of the profession over the next few years, it is also true that there are steps that governments must be taking if they wish to assert any vision for the country as a whole and to provide a framework on which desirable growth can occur. It is vital that government be willing to contribute to what is an absolutely essential investment for our future.

So how do we address this emerging training shortage? It would seem that it is strategic partnerships that will assist in providing the training opportunities. This new environment will require the development of new partnerships between universities, industry, state and federal governments, private education providers and the profession itself.

There are some good examples of partnerships which already exist in regional Australia - the Hunter Net Group Training Scheme is one. It has 29 member companies ranging in size from 10-150 employees who collectively employ more than 14000 people. They decided to establish their own training scheme because industry itself identified a shortage of skilled labour and saw there were insufficient resources in small companies to provide broad training opportunities. The NSW Government provided adequate resources to fund a secretariat to coordinate activities. In 1999 this scheme will be extended to cover professional engineers.

Specific Recommendations

- 4) Appropriate peak bodies and all levels of government work together to define the necessary conditions to establish group training schemes for graduate engineering training in regional Australia. This could draw on the experience of the scheme underway in the Hunter Valley, entitled Hunternet Group Training Scheme.
- 5) The Department of Education, Training and Youth Affairs commission case studies of Australian companies which have taken the initiative, particularly in regional areas, and worked with private providers and universities to design courses which can be taken as part of work practice.

3) Access to technical expertise by government contractors

The IEAust believes that access to technical expertise is important for

APS officers involved in the contracting process particularly where contracts contain specialists elements. (Note: Technical should be interpreted here in its broadest sense, to cover expert areas such as legal, accounting, quarantine etc, as well as the more obvious interpretation of information technology and engineering, etc)

In addressing the issues to-day it is important to remember that Australia is at the leading edge of reforms in contracting and privatisation, for example the Jobs Network is one of the largest government outsourcings in the world, and Australia has the one of the largest number of private prisons in the world. There are obvious implications for regional Australia as many government contracts

At a seminar held by the IEAust into this issue late last year, the Australian Quarantine and Inspection Service stated that they have outsourced many of its core functions including private animal quarantine stations, export veterinary inspections, dairy export auditing, third party QA auditing for quarantine and export procedures and organic export certifications.

In legal terms there is a growing body of evidence that government cannot operate as a normal commercial body, and will be subject to greater accountability and transparency than industry. The nature of the relationship between ministers and public servants is changing with major implications for the liability of those awarding contracts highlight the risks and costs of not having access to both internal and external specialist advice as a result of out-sourcing, contracting out, declassification of specialist positions etc,

In the areas address professional ethics, duty of care advice and political expediency issues it needs to be identified how the move from in-house to outsourced advice has changed risk management strategies.

Specific Recommendations:

6) Triggers should be identified where technical advice should be required for development, awarding and management of contracts. These could include:

- when there are public health and safety implications
- when the contract involves a large amount of financial risk

- when the contract involves the development of new technology and innovative systems
 - where there is significant information asymmetry present
- 6) Technical requirements should be incorporated into Dept of Finance and Administration's