ENGINEERS
AUSTRALIA

TasWater Ownership

Legislative Council Select Committee submission

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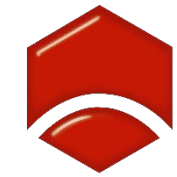

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About Engineers Australia

The Institution of Engineers Australia (Engineers Australia) is the not-for-profit professional association for engineers. Established in 1919, Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

Engineers Australia is the trusted voice of the profession. We are the global home for engineering professionals renowned as leaders in shaping a sustainable world.

Introduction

The Tasmanian economy and population is expected to grow over the next 15 years, but at a lower rate than Australia as a whole. The population is projected to reach 560,000 people in 2031, an increase of nine per cent on 2011 population levels.[1] Although this demand is modest in comparison to the rest of Australia, Tasmania will still require infrastructure that will meet the demand of this growth.

The quality of Australia's infrastructure is a key indicator of the nation's economic, social and environmental health. Quality infrastructure enables productivity growth, which in turn improves living standards. In its 2016 Tasmania Infrastructure Investment Update,[2] Engineers Australia reports that both Tasmania's long-term average GDP and population growth are below the national averages.

There is a heavy reliance on government funded projects within the Tasmanian engineering profession. A survey conducted by Engineers Australia indicated that 80 per cent of respondents were at least partially reliant on these projects for their workload.[3] Of these responses, 59 per cent were heavily dependent on government-funded projects with accounted for 80 per cent or more of their work.

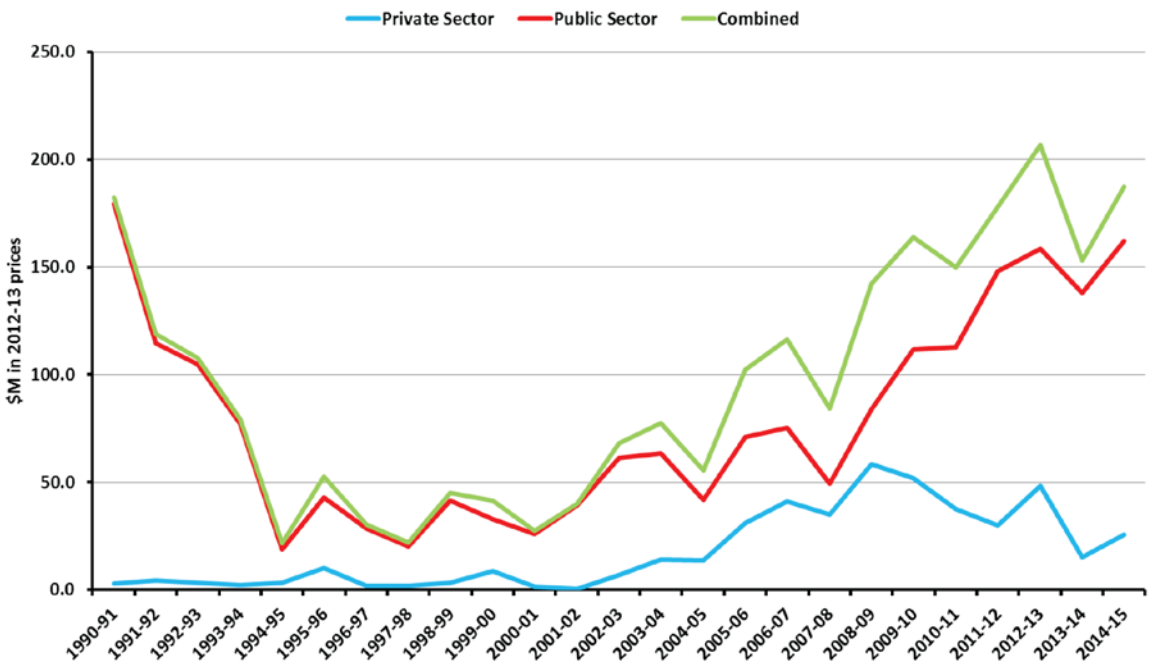
Figure 1 shows the trends in private and public sector engineering construction in constant 2012/13 prices. This includes investment in the following areas:

Water storage and supply
- Dams, weirs, reservoirs
- Embankments for water diversion
- Water pipes, mains and treatment plants
- Prevention and erosion
- Aqueducts and water conduits
- Systems conveying water to residences, commercial and industrial establishments

Sewerage and drainage
- Sanitary and storm sewers
- Sewerage treatment plants
- Stormwater drains and drainage systems

[1] Infrastructure Australia, Infrastructure Australia Audit, May 2015, www.infrastructureaustralia.gov.au
[2] Engineers Australia, Tasmania Infrastructure Investment Update 2016, https://www.engineersaustralia.org.au/sites/default/files/content-files/2016-12/infrastructure_investment_update_2016_-_tas.pdf
[3] Engineers Australia, Tasmania Engineering Profession Workforce Development Plan 2016-19, https://www.engineersaustralia.org.au/sites/default/files/resources/Public%20Affairs/Tasmanian%20Workforce%20Development%20Plan%20-%20Engineers%20Australia.pdf

Figure 1: Trends in private and public sector engineering construction on water, sewerage and drainage facilities in Tasmania, 1990-91 to 2014-15



The most prominent feature in this Figure is the spikes in investment. 'Boom/bust' cycles of infrastructure procurement and delivery can create acute demand spikes across specific locations or engineering specialisations. Tasmania has experienced a three-year downturn in job vacancies. During this time, many engineers have been lost to the profession and, most probably, to the state.

The substantial growth in investment since 2008-09 is most probably primarily due to Tasmania Irrigation's programme of works which is also included in these investment figures.

The technical capability of Tasmania's engineering organisations must not fall at a time when the government policies are directed at significant population and industry growth, especially in the areas of tourism, international education, agriculture and aquaculture. Highly developed engineering capabilities and workforce skills are more important than ever.

This submission addresses the areas that Engineers Australia considers important in the discussion regarding ownership of TasWater. It is clear that TasWater has an important role to play in Tasmania in term of delivering essential services to customers, but it is also a crucial component in enabling productivity growth, which in turn improves living standards through the construction and maintenance of quality infrastructure. Engineers Australia calls that policy would recognise these connections during the ownership deliberations, in particular policies relating to infrastructure development, procurement and skilled workforce.

Principles of infrastructure development

Engineers Australia is strongly committed to the view that infrastructure is the essential enabler of productivity growth and is vital to preserve and improve Tasmania's standard of living. This connection depends on infrastructure being fit for purpose, the flow of infrastructure services moving ahead of population growth and economic growth and utilising the best available technology to manage existing infrastructure assets and to develop new ones.

Any ownership arrangement of TasWater should recognise that the organisation's core business is to supply and maintain key infrastructure to maintain public health. As such Engineers Australia believes that the ownership arrangement should adhere to the principles of infrastructure development.

These principles are:

- Infrastructure must be managed to advance socio-economic goals, not political ones
- Infrastructure planning without land use planning is not sensible
- Infrastructure planning is not optional – it is an integral role of government
- The private sector is a key player, which means infrastructure is not the exclusive preserve of governments
- Infrastructure must be managed sustainably and over its full expected life
- Infrastructure governance must be rigorous and be removed from political agenda
- ICT-enabled infrastructure delivers more value for money, especially in a coordinated system
- Short-term acquisition practices should be discarded in favour of whole of life considerations.

Infrastructure planning and the institutional frameworks in which it occurs are especially important. Planning is too often short term, reactive and piecemeal. For too long political involvement with technical aspects of infrastructure planning has led to sub-optimal outcomes and higher than necessary costs.

To avoid this legacy issue governments, both state and local, should prepare and publish long-term plans. These plans should interrelate rather than work in isolation and determine how planning will interconnect each region, town and city to each other.

Engineers Australia has long argued that infrastructure investment, planning and project selection should be de-politicised in favour of politically neutral approaches favouring the overall community.

The successful delivery of new, fit-for-purpose infrastructure has the potential to support a more productive economy as well as a more equitable community.

The 2010 Tasmanian Infrastructure Report Card noted that in 2009 reforms of the water and sewerage sector would improve services, provided the funding materialised. Looking at Figure 1, construction by the public sector on water, sewerage and draining facilities has improved with strong growth from 2009-10. Much of the water construction is related to water quality or supply upgrades, or to irrigation schemes throughout Tasmania.

Procurement

Engineering expertise can make a substantial contribution to improving procurement through two main mechanisms. The first is the application of technical skill and domain knowledge to procurements that are engineering intensive. Using engineering expertise will result in government being a more informed buyer of these engineering intensive procurements, thus increasing the likelihood of better value for money.

The second contribution is the application of engineering practices/approaches, and organisational techniques, such as project management, to procurement more broadly. This can deliver more logical, measured, and justifiable activities and systems that can improve the procurement cycle, procurement systems and the alignment between the procurement and multi-level governmental objectives.

Procurement practises at TasWater under any ownership arrangement must support industry policy by providing local build, technical assessment, design and research and development opportunities, and whole of life sustainment.

It should be noted as well that build and construction components of procurement should not be overlooked. Ensuring that procurement systems and whole of life cycle costs are covered for the construction of water and sewerage assets should be factored into government thinking.

Tasmania has an extremely capable engineering workforce, however, if industry is to support major infrastructure investment plans it is critical that it is closely involved in the engineering intensive design and build phase. This will enable development of the skills and experience required to maintain, operate and upgrade assets throughout their lives and provide for local enterprises to innovate and be part of the supply chain.

Governments can do well in engaging early with local manufacturers and suppliers to foster long term strategies that support the state government's initiatives to increase its capacity to garner contracts. The ability to enable this needs to be considered as part of the ownership discussions. This is not just for the current programme of large capital works projects, by the future, potentially smaller capital works projects and maintenance programmes.

Tasmania's long-term infrastructure plan, including TasWater's plan, should be supported by a more comprehensive industry policy, particularly in engineering construction. This policy should recognise the critical role of engineering in boosting economic growth, innovation and productivity. This would be especially important for regional areas of the state where some of Tasmania's engineering contractors and suppliers are established.

Ensuring that industry has the capacity to meet future demands both in terms of output of materials as well as engineering workforce will assist in showing the capacity of the state to meet future needs.

Engineers Australia recommends that the ownership of TasWater encourages the involvement of engineering expertise during the procurement process for engineering technical projects.

We also recommend that procurement practises reflect the need to develop the pipeline of engineers, as outlined in the next section, for both TasWater and its contractors.

Skilled workforce

Engineers design, build, operate, maintain and use infrastructure. Their specialised skills and engagement in almost every sector of the economy gives engineers a special insight to the capacity, adequacy and innovative potential of infrastructure. Engineers are committee to sustainability principles that drive change towards a sustainable world, and effective infrastructure is an important vehicle to achieve this.

To be able to make informed decisions, specialised workforce skills and experience need to be engaged throughout the entire asset life-cycle. The development of high-tech skills is an essential public good that also benefits the broader community.

In the civil construction sector, a sector summary prepared by industry in conjunction with the Tasmanian Department of State Growth examined opportunities and limitation for the State's engineering profession.[4] This summary raised concerns regarding the retention of a skilled workforce throughout periods of high and low demand, an issue that is mirrored at the national level.

The Tasmanian environment in which engineers operate is under pressure. A survey of businesses that use engineers was undertaken as part of the research to inform the Tasmanian Engineering Workforce Development Plan 2016-19. This revealed that in the last three years 50 per cent of those business have contracted and 90 per cent have changed their business model.

The Plan reports that the greatest issues and challenges for the engineering profession in Tasmania are:

- It is an international market – the Tasmanian profession is competing, collaborating and supplying services to an international field
- Supply chains are deeply integrated - both a broadening and deepening of the skill set of an engineer is required to play specialist roles within a supply chain
- The para-professional is coming – a 'design thinking', business savvy quality focussed para-professional is an emerging occupation
- Job numbers are declining in areas of future industry growth – the cyclic nature of the demand for work of engineers means graduates have to hit the ground running and that demand for work has peaks and troughs as major projects are initiated and completed
- Career pathways need work – there is a need to open the entry points to the profession and support an integrated career structure through to management roles
- It is still a male dominated workforce – only eight per cent of Tasmania's engineering workforce is female
- Keep growing connections between industry and education – there are gaps in education pathways and emerging skill requirements that need to be resolved.

Engineers undertake professional formation following the completion of essential courses. It typically takes about nine years to complete education and professional formation and so qualify to be fully competent, practicing engineers.

Ownership and the condensation of TasWater's capital works program needs to consider the availability of engineers in the state, both at TasWater and its contractors. It the recent Engineering

[4] Department of State Growth (TAS), Sector Summary 2014, www.stategrowth.tas.gov.au/-data/assets/pdf_file/0011/89579/Building_construction.pdf

Vacancies Report January – June 2017,[5] it was reported that Tasmania has seen an increase in job vacancies with civil engineering occupations being the majority of these. This follows a three-year decline. While this is good news for Tasmania, it must be remembered that the state is in competition with NSW and Victoria for civil engineering occupations, of which there were 896 and 500 vacancies, respectively, over the same period.

The challenge for Tasmania now lies in attracting experienced engineers to the state while building its own pipeline.

The Chartered credential elevates engineers to the pinnacle of engineering through practical demonstration of competency and ethics. Chartered engineers exhibit high internationally benchmarked standards of expertise, professionalism and safety.

TasWater are supporting their graduate engineers through the inclusion of the Chartered framework into their Graduate program. Our understanding is that the company is also looking to extend these capabilities into the learning and development framework for their remaining staff, and potentially looking to develop a leadership program. This could include competencies outlined in Engineers Australia's Engineering Executive credential.

Engineers Australia has long advocated for the registration of engineers to reduce risks to public health, safety and welfare as well as legislative efficiency and cutting red tape. The use of the title 'engineer' Is unrestricted and in the absence of regulation for engineering, anyone can purport to provide engineering services without appropriate competencies and with disregard for standards. For this reason, the National Engineering Register (NER was introduced by Engineers Australia in 2015 and is recommended as the mechanism for introducing a co-regulatory model of registration for engineers.

The register is accessible to both members and non-members of Engineers Australia. It provides professional recognition and public trust of engineers in Australia because all registrants on the NER meet the standard of professionalism expected of any professional.

Engineers Australia recommends that a broader discussion regarding the registration of engineers in Tasmania is undertaken to ensure the safety of the Tasmanian community, especially as government is the largest procurer of engineering services in the state and there is a need to attract engineers to Tasmania.

We also recommend that the ownership of TasWater enhances the support of the organisation with respect to the ongoing development of its engineers and actively supports their progression through the Chartered program.

[5] Engineers Australia, Engineering Vacancies Report January 2017 – June 2017, August 2017, https://www.engineersaustralia.org.au/sites/default/files/resources/Public%20Affairs/Engineering%20Vacancies%20Report%20June%202017.pdf

Conclusion

Investment in infrastructure is higher than the levels seen when the 2010 Engineers Australia Infrastructure Report Card was released, but they have been inconsistent. Although Tasmania has recorded modest growth compared to the Australian average, the state's infrastructure assets have still been under pressure. In 2010, Tasmanian's infrastructure assets were rated as adequate with major changes required to enable infrastructure to be fit for its current and future purposes.

Engineers Australia believes that if the current budget provisions are not consistent, and if the invested numbers are put off to future estimate years, Tasmania is at risk of having its infrastructure assets slips from a just adequate state, to a poor or inadequate state in the near future. As the main contributor to infrastructure construction, the public sector needs to lead the way through infrastructure investment to promote productivity growth and improve the standards of living for Tasmanians.

Any discussion regarding the ownership of TasWater needs to ensure that long-term planning of infrastructure expenditure in both capital and maintenance is undertaken and that investment is consistent and not delayed to future years. It is also important that this plan is part of a broader, whole-of-government long-term infrastructure investment plan as to decrease the inconsistent investment and to allow for greater workforce planning and to build the capacity and capability of Tasmania's engineering profession.

Procurement practices need to capitalise on the skills and knowledge of engineering professional to make more informed procurement decisions. The need to achieve best value from procurement does not mean simply getting something for the cheapest possible price. It involves considering the whole-of-life, financial and non-financial costs and benefits that accrue to all relevant stakeholders. It also means ensuring that what is being procured is actually needed, that it will actually meet the requirements.

Fundamental to all of this, however, is a long pipeline of engineers.

Engineers design, build, operate and maintain infrastructure. Their specialised skills and engagement throughout the pipeline gives engineers a special insight into the capacity, adequacy and innovative potential that can be delivered into the water and sewerage sector.

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