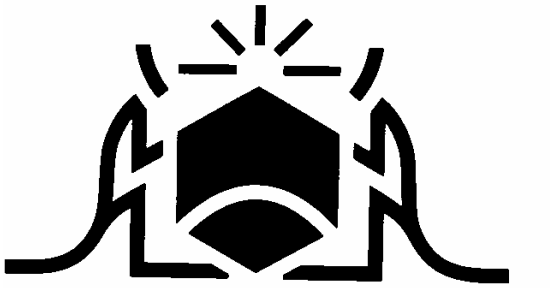
Submission to the Inquiry into Employment in the Environment Sector House of Representatives Standing Committee on Environment and Heritage



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Introduction

Employment in the environment sector represents a potential area of growth for the Australian economy. Employment has already been generated in a number of areas from water management, waste reduction and maintenance of biodiversity. According to industry analysis by Environmental Business Australia and Environment Australia, the sector has major potential for growth.

The Institution of Engineer's Australia (IEAust) is the peak engineering body in Australia, with over 69,000 members. Engineering makes an important contribution to employment in the environment sector. Increasingly engineers across a number of sectors are being employed in projects involving sustainable management of resources and the environment. These include: renewable energy, water treatment, salinity management and environment reporting.

Despite the potential for employment growth, there are impediments to further employment growth in the environment sector, including the lack of investment by business and government in this area and the Federal government's refusal to ratify an international agreement on greenhouse gas emissions.

Without further recognition of the significant environmental problems facing Australia, and the potential for investment that the industry has, employment growth will not reach its potential.

This submission will consider the five terms of reference of the inquiry in terms of overall employment in the environment sector and how they are relevant to the membership of the IEAust.

The current contribution of environmental goods and services to employment in Australia

According to figures released by Environment Business Australia, the environment industry is worth $16.7 billion to the national economy, which is approximately 2.6% of GDP. There are over 5,600 companies involved in the provision of environmental goods and services and they employ more than 146,000 people in Australia.[1] In 1998-99, $727 million of environmental sector expenditure was on R&D, which involved the employment of 7,300 people.[2]

Environmental engineering is the main field of expertise through which engineers contribute to environment sector growth. Within the environmental engineering field, the main areas of focus include: environmental protection, risk assessment, policy formulation, waste management, water treatment and natural resource management. Figures compiled by the Australian Council of Engineering Deans state that there are currently 1,047 engineers employed in the environmental engineering field.[3] Environmental engineering consulting contributed $150m to the economy in 1997.[4]

Overall, it is difficult to gauge the number of engineers employed in the environment sector because a number of them come from different engineering fields. For example

engineers working in the areas of natural resources management and salinity management may have civil engineering qualifications, while others may have electrical engineering qualifications.

The future potential growth, including barriers and opportunities for growth, of environmental goods and services and impact on employment

Opportunities for Growth

In order to meet the increasing demand for goods and services, the environment sector should become a key priority for Federal and State Government investment. OECD figures state that the world environment market is worth nearly $500 billion annually. It is also estimated that the global energy technology market was worth $7 billion as of July 2001, and will grow to $82 billion by 2010. [5]

With the growing emphasis on greenhouse gas emission reduction through the international agreements on climate change, the international market is set to expand, particularly given the signing of the Kyoto protocol by Indian, China and Russia. There is also a range of related environmental issues such as sustainable management of water supplies, land clearing and waste management.

A report on sustainable development by the Australian Conservation Foundation, *Natural Advantage*, claims that if Australia were to capture 2% of the world pollution control market, it would create 150,000 new jobs.[6]

The level of investment in the environment sector can be reflected in the number of exports. The following table outlines the number of environmental exports for 1999-2000 by each State and Territory.

Export of Environmental Goods by State, 1999-2000 ($m)

	Pollution Management	**Cleaner Technologies**	**Resource Management**	**Total $M**	**Share %**
ACT	1.1	0	0	1.1	0.1
NSW	260	6.3	24.7	291	22.4
NT	16.4	0.3	0	16.7	1.3
QLD	114.0	9	3.4	126.4	9.7
SA	89.7	2.2	2.1	94	7.2
TAS	0.9	0	0.1	1.0	0.1
VIC	409.3	2.9	15.2	427.4	32.9
WA	99.9	0.8	6.7	107.4	8.3
Re exports	226.8	2.1	4	232.9	18
Total	1218.1	23.6	56.2	1297.9	100

Taken from *A Strategic Audit of Victorian Industry p43, 2001.* [7]

This table demonstrates some States, particularly New South Wales, Victoria and Queensland are investing capital in environmental goods and services. What is also clear is that pollution management is a major source of exports for Australia.

The environment market has grown from $7.1 billion in 1997 to approximately $8.3 billion in 2002.[8] These figures indicate areas of growth.

Individual areas such as renewable energy and pollution control have the potential for significant growth. The Federal Government's *Renewable Energy Action Agenda* estimates that the industry has the potential to grow to about $4 billion in the next 10 years. In New South Wales the sustainable energy sector is growing at a rate of 25% per annum.[9] Overall, the environment industry in Australia is predicted to grow at about 3.1% per annum over the period to 2007.[10]

Federal and State Governments are already investing in new technologies and management of the environment. This is mainly through environment related CRCs and State government authorities such as the Sustainable Energy Development Authority (SEDA) in NSW, the Sustainable Energy Authority (SEA) in Victoria the Sustainable Energy Innovation Fund in Queensland and the Sustainable Energy Development Office in Western Australia. The areas of investment for these bodies include: photovoltaics, geothermal, wind, cogeneration and biomass.

Other States and Territories have established incentive programs and grants to encourage investment in the environment industry. South Australia has formed an environment industry cluster to attract investment capital for areas such as environment protection. The ACT has established rebate programs for the use solar hot water systems.

State and Federal Governments are also investing in environment protection through key areas such as salinity management, water resources management, protection of biodiversity and pollution control.
These trends indicate that employment in the environmental sector in Australia has considerable potential for growth, and should be encouraged to continue.

Barriers to growth

In comparison with other nations, investment in the environment sector within Australia is limited. Between 1991-99, R&D investment in Australia's environment industry only grew by 0.2%. Other developed nations recorded a much stronger growth rate over the same period. Canada recorded a 10.3% increase, Ireland 13.7% and Italy 12.2%.[11]
Overall, imports of environmental goods in Australia reached $5.4 billion in 1999-2000. [12]

Currently the Federal government is not providing adequate funding for the environment sector. The Federal Government has suspended funding for the START R&D grants that are designed to specifically assist SMEs. AusIndustry, which runs the program, has stated that it will be not be assessing new applications until further notice.[13] Although AusIndustry has stated the program will continue, the IEAust

believes that more funding is required to ensure that the R&D START program is not suspended in the future.

The reduction of funding for the Australian Greenhouse Office in the Federal Budget, is another factor that is contributing to the lack of investment in the environment sector. The Federal Budget for 2002-03 announced major funding reductions for the Australian Greenhouse Office. Programs such as the Renewable Energy Showcase and the Renewable Energy Commercialisation Fund have been cut. Both these programs provided important assistance to renewable industry development.

Each State and Territory have different regulations and standards regarding greenhouse gas emissions and sustainable development of markets. Employment growth in the environment sector could be assisted by the development of national standards for greenhouse emissions in industries such as energy and transport. National standards within these sectors will encourage employment growth because of increased need for expertise to monitor and apply standards.

Engineers play an important role in the development of energy, building and transport sectors. Different fields of engineering such as electrical, civil, water and environmental would benefit from national standards, because there would be an increasing need for specialisation in environment management.

Without increased investment in the environment sector, Australia risks losing valuable export potential. It also risks losing expertise of people employed within the environment sector.

Current status and future requirements for an appropriately skilled workforce

The growth of employment in environmental technologies, environment protection, environmental management and reporting, will require further development of environment sector skills base.

IEAust support the views of the Australian Conservation Foundation in its report called *Green Jobs*, where it recommends increasing funding for labour market programs, establishing a 'green jobs in industry' fund and an environmental traineeship program to focus on the major environmental management and protection growth areas.[14]

A survey of Cooperative Research Centres (CRCs) regarding the skills needs of emerging industries over the next 5-10 years revealed that skills gaps were anticipated at the graduate and post graduate level. The demand for workforce skills identified by the CRC Environment sub-group was predominantly at the professional level, through consulting services and environmental management.[15]

The growing demand for engineers with environmental skills is being reflected in the number of university courses that have an environment sector focus.

Universities such as Monash, Newcastle, Melbourne, University of Queensland and the University of New South Wales offer specific environmental engineering courses.

These courses contain components that analyse environmental legislation and the importance of sustainability. They also offer post-graduate research scholarships specifically aimed at the development of sustainable practice and new technologies. Overall there are 12 environmental engineering courses across Australia.
Other universities such as the University of Technology and Wollongong are offering an environmental component as part of their civil and mining engineering courses. La Trobe University has an Environmental Management course for engineers.[16]

There are also a number of engineers who work in the environment sector with civil and electrical engineering qualifications. For example, water engineers who work on sustainable management of water supplies and salinity control, often have civil engineering qualifications. Similarly engineers who work in the renewable energy sector have electrical engineering qualifications.

The IEAust believes that the environment sector requires many areas of specialisation and there will be an increasing need for education and training programs for engineers and other professionals for skills development, to cope with this growing industry.

Appropriate policy measure that could encourage the further development of the environmental goods and services sector

The IEAust believes that the ratification of a future international agreement on greenhouse gas emissions will contribute significantly to the employment growth in the environment sector.

Ratification will provide Australia with major potential trading benefits such as international investment in the environment sector and the development of export markets for environmental technologies and management services.

Without ratification of an agreement on greenhouse gas emissions, Australia may not be considered for international investment in environment technology development. For instance Japanese renewable energy companies have stated that they will not invest in Australia's renewable energy market unless ratification occurs.

The failure to ratify an international agreement on greenhouse emissions may affect investment by Australian companies. Business lobby groups such as the Australian Business Council has stated that the business community are looking to the Federal government for direction on greenhouse gas emissions, and will hold back investment decisions until an agreement is reached.

Another policy measure is the current R&D priority setting exercise being undertaken for a proportion of public spending on R&D. The IEAust believes that one of the priority areas should be the environmental technology field, and that this priority setting process could be expanded to grants to industry. For instance, higher tax concessions could be offered to areas of national importance, such as the environment sector.

The main area of growth in the environment sector is small to medium enterprises. (SMEs). SME's constitute 80% of the environment industry and they house a

significant proportion of the emerging technologies.[17] They often require government assistance through R&D programs, and working in industry/government clusters such as the CRC network.

The Federal government's *Environment Industry Action Agenda* suggests several methods of improving investment in the environment sector including:

- Incentives for R&D and innovation, such as tax deductions and R&D grants and loans;
- Incentives for physical investment; (investment in plant and equipment)
- Small firms and entrepreneurship assistance; such as the provision of finance; and
- Incentives to expand international business operations through exports, international investment and international collaboration.[18]

The IEAust believes that targeted R&D funding of SME's and other businesses working in the environment sector will contribute significantly to employment growth, providing opportunities to promote new products and innovations.

Information and reporting systems that would support the uptake of environmental goods and services to enhance overall business performance and development of the sector.

Increasingly, government agencies and private organisations are adopting environment assessment programs such as triple bottom line reporting and Environmental Management Systems (EMS).

Triple bottom line reporting requires an organisation to consider the social, environmental and economic impacts of their functions as part of their reporting system. This system has already been adopted by organisations such as Westpac and BP and has also been incorporated into some State government infrastructure planning programs. The IEAust encourages implementation of triple bottom line reporting by government and industry.

EMS involves the sustainable management of the assets of the organisation. In the water industry, several State and Territory government organisations are adopting EMS as part of their sustainable water management strategies. ACT Electricity and Water (ACTEW) has implemented an EMS and has integrated this system with its quality, health and safety management systems. Other State organisations such as the Hydro Electric Commission (HEC) in Tasmania and water companies in Victoria have EMS standards.[19]

The advent of these management and reporting systems has lead to an increase in the number of environment consultant companies. The purpose of these companies is to advise organisations on implementation of best practice sustainable management strategies. Environment consultants list Federal, State and local governments among their client base. The IEAust believes that the increase in environment management consulting will contribute to employment growth in the sector.

Conclusion

Employment in the Australian environment sector has significant growth potential. Increased investment in environment goods and services by government and industry will contribute to this growth. Investment in education and training will assist with skills development within the sector.

Engineering makes an important contribution to employment and education development within the environment sector. Engineers are employed in areas that relate to protection of the environment, management of waste and the development of new environmental technologies. The IEAust supports environment sector investment in goods and services and mechanisms for encouraging further investment such as R&D funding and ratification of an agreement on greenhouse gas emissions.

References

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[5] *The Business Case for Ratification of the Kyoto Protocol Consultation Draft*. Environment Business Australia 2002, p29.
[6] *Natural Advantage. A Blueprint for a Sustainable Australia*. 2002 p57
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[8] ibid
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