

# **Australia – Malaysia Free Trade Agreement Scoping Study**

**Submission to the Department of Foreign  
Affairs and Trade**



**ENGINEERS  
AUSTRALIA**

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## **1. Introduction**

Engineers Australia is the peak body for engineering practitioners in Australia and represents all disciplines and branches of engineering, including information technology. Engineers Australia has around 76,000 members Australia wide and is the largest and most diverse engineering association in Australia. All members of Engineers Australia are bound by a common commitment to promote engineering and facilitate its practice for the common good. Engineers Australia welcomes the invitation by the Department of Foreign Affairs and Trade (DFAT) to comment on the proposed free trade agreement (FTA) between Australia and Malaysia.

The closer economic links provided by a FTA would increase trade and investment between Australia and Malaysia and bring benefits to Australia generally. Malaysia is Australia's tenth largest merchandise trading partner and our third largest trading partner within ASEAN. Australia's exports of goods and services to Malaysia totalled A\$3.0 billion in 2003 compared to \$A2.4 billion in 1993-94. In 2003, Australia's services exports to Malaysia were valued at A\$912 million.

This submission focuses directly on professional engineers, trade in engineering services and impediments and barriers limiting the movement of professional engineers between Australia and Malaysia. It also outlines previous work of Engineers Australia to facilitate international trade in this area.

Engineers Australia believes that opportunities within the FTA to address barriers and strengthen existing mutual recognition agreements should be embraced and that commitments toward enhancing and supporting the cross-border supply of engineering services should also be sought.

DFAT should also keep in mind that engineering services are difficult to compartmentalise because of the impact of those services on all sectors of the community. Additionally, engineering involves a range of practitioners with differing levels of education and experience, including professional engineers, engineering technologists, engineering associates and tradespeople working together as a team. The delivery of engineering services also involves large and small companies, sole practitioners and employees in the public and private sectors. Section 2 outlines the diversity in engineering practice further.

Due to the diversity in engineering practice, it is impossible to fully outline the impact of negative barriers to trade in engineering services although section 3.5 attempts to identify them. Engineers Australia does however, believe that increased trade in engineering services to Malaysia would have a positive economic effect for Australia.

We look forward to liaising with you in the future regarding these issues.

## **2. What is engineering?**

Engineering is about applying science and technology to satisfy basic human needs. The role of engineering in developing and implementing new technologies places engineers in a central role in improving the living standards of the community, improving the standards of environmental care and generating wealth for Australia. While engineering has existed since man's earliest civilisations, the term engineer dates back to the Roman Empire, and derives from the Latin word "ingeniator", meaning ingenious person. The "ingeniator's job was to design and build roads, bridges and aqueducts and to solve technical problems quickly with a minimum of materials and equipment.

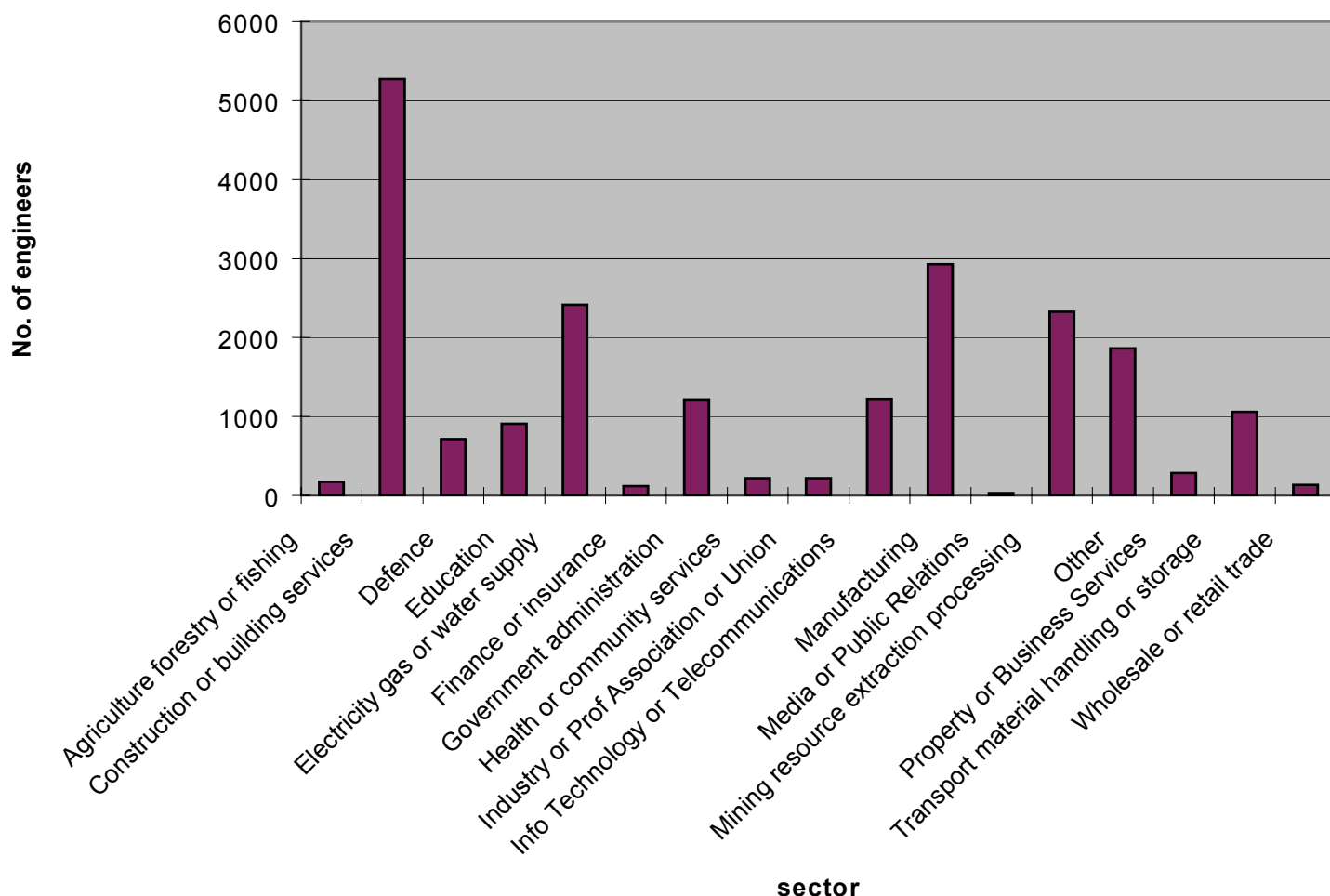
A professional engineer is a person who devises and implements technologies and systems. This requires grounding in mathematics and science as well as a lengthy period of practical training. The term engineer is often used incorrectly to describe those tradespeople who operate technologies, rather than those who design, implement and operate technology. The delivery of engineering services includes a range of practitioners, such as professional engineers, engineering technologists, engineering associates, and tradespeople. There are many areas of overlap between the different spheres of practice. Engineering is not an isolated profession, and crosses many boundaries. According to the 2001 census data the approximate number of engineers in the Australian workforce is 114,000.

The traditional focus of engineering activities has been in infrastructure – the fundamental facilities and systems that allow a modern society to function effectively. These include transportation, communication systems, energy and water supply, and waste removal. However, engineering impacts on many aspects of community life. For instance, the following lists only some of the areas in which professional engineers commonly practice:

Acoustics	Electronics	Naval architecture
Aeronautics	Engineering education	Nuclear
Agriculture	Engineering survey	Petroleum and gas
Arbitration	Environment	Pipelines
Automation and control	Fire safety	Process control
Biomedical	Food technology	Public health
Bridges and viaducts	Foundations and footings	Quality management
Building services	Fuels and energy	Railways
Building surveying	Geotechnics	Risk
Civil	Industrial	Roads and highways
Chemical	Local government	Software
Coastal and oceans	Maintenance	Space
Communications	Manufacturing	Structural
Computing	Materials	Telecommunications
Construction management	Metallurgy	Transportation
Dams	Military	Water resources
Electric power	Mining and tunnelling	

To provide DFAT with a better understanding of the widespread nature of engineering and export opportunities, Figure 1 outlines the major work sectors for professional engineers.

**Figure 1 – Work sectors for professional engineers**



### 3. Regulation issues

#### 3.1 Mutual recognition at a multilateral level

Higher levels of mobility and expansion in the international delivery of professional services are leading to increased numbers of professionals undertaking activities in countries other than the one in which they gained their initial qualifications and experience.

There has been a global flood of product standards and other consumer protection law. Not only are developments much faster in some countries than others, but the

substantive standards and rules adopted vary widely. These become effective barriers to global trade.

To facilitate access to employment opportunities in this global environment, many professional associations are entering or have entered into bilateral and multilateral agreements of cooperation and mutual recognition. The FTA negotiations provide an opportunity to strengthen these existing agreements which are outlined in section 3.3.

### **3.2 Mutual recognition between Australian States and the Australian regulatory system for engineering**

As a means to overcome issues of mobility of goods and services, a mutual recognition scheme for goods and occupations was introduced throughout Australia in 1992. Mutual recognition allows for persons practicing a profession in one State or Territory, if registered, to become registered in other States and Territories without the need to undergo further examination of professional qualifications.

This does not harmonise the differing regulatory requirements between States and Territories with respect to the various professions. Rather, it provides that those who are registered in one jurisdiction will not be excluded from practicing in another jurisdiction. This has gone some way to assisting the mobility of professionals and thereby reduce costs. However, mutual recognition only works where there are similar occupational registration systems. The variation between jurisdictions for registration of professional engineers in various areas of practice produces considerable anomalies and barriers to trade.

In the case of engineering services there is no one single regulatory regime in Australia governing the engineering profession and no national legislative restrictions on the use of the title “professional engineer”. Engineers do not need to be a member of a professional association in Australia in order to offer engineering services to the public.

In all States and Territories of Australia the principal regulatory instruments governing the practice of engineering in Australia include:

- self-regulation by Engineers Australia, the principal professional body for engineers in Australia [www.engineersaustralia.org.au](http://www.engineersaustralia.org.au);
- self and co-regulation by the National Professional Engineers Register operated by the National Engineering Registration Board for specific areas of practice [www.nerb.org.au](http://www.nerb.org.au); and
- government regulation in the State of Queensland by the Board of Professional Engineers, under the *Professional Engineers Act 2002* <http://www.bpeq.qld.gov.au>.

Other than in Queensland, the Engineering Profession operates under a self regulatory system and Engineers Australia offers grades of membership and Chartered Engineer titles, to identify those practitioners who have met certain competency levels. The National Engineering Registration Board oversees a national, voluntary, non-statutory

register that maintains standards similar to the grade of Chartered Professional Engineer but operates separately to membership of Engineers Australia. This register is called up in some pieces of State and Territory legislation to identify the competency of engineers in certain areas of practice, particularly in the building and construction industry.

There are no specific nationality, citizenship or residency requirements for registration by the National Engineering Registration Board or membership of Engineers Australia to practice as a professional engineer in Australia. However, applicants must demonstrate awareness of national and local standards, rules and practices; and be assessed as meeting the National Competency Standards for Professional Engineers.

An outline of these standards can be found at:

<http://www.ieaust.org.au/membership/general.html>

In Queensland, the Queensland Board of Professional Engineers must register a professional engineer before they can undertake engineering services. Individuals can be registered as professional engineers if they satisfy the Board that they are of good character and reputation and they hold a degree in engineering from an approved university; or a qualification in engineering which entitles them to be admitted to Engineers Australia, as a graduate member. Applicants must also have been engaged for five years or more in the engineering industry after obtaining their qualifications.

Other than in Queensland, there are State and Territory requirements for registration for some engineering activities. Most States and Territories in Australia have registration and/or licensing regime for engineering practitioners in the building and construction industry, with differing education and experience requirements.

Appendix A outlines further the Australian domestic regulatory environment for professional engineers

### **3.3 Mutual recognition between Australia and Malaysia at a multilateral level facilitated by professional associations**

Engineers Australia has been working with other international engineering organisations to facilitate trade in engineering services. Engineers Australia has four overseas Chapters in Hong Kong, Malaysia, Singapore and the United Kingdom. The Malaysian Chapter was founded on 23 May 1991 and currently has a membership of 564 engineers. Engineers Australia will also be meeting with the Institute of Engineers, Malaysia at a side meeting during the World Engineering Conference in Shanghai, China in November 2004. It is planned that the meeting will deal with issues related to the mutual recognition of engineering qualifications and registration between Australia and Malaysia and the potential of an FTA between Australia and Malaysia to move forward the mutual recognition of engineering services.

As a result of the work by Engineers Australia, accredited Australian qualifications and overseas engineering qualifications are recognised through formal agreements with engineering accreditation bodies in other countries. These agreements include the APEC Engineer Register, the Washington Accord, International Register of

Professional Engineers and the Bilateral framework to facilitate mobility for mutual recognition of registered/licensed engineers between Australia and Japan:

***APEC Engineer***

The APEC Human Resources Development Working Group Steering Committee for mutual recognition of professional engineers developed the initiative for the APEC Engineer Register over the period 1997 – 1998. The intent of the APEC Engineer Register is to recognise the equivalencies in the qualifications and experience of practising professional engineers in the participating economies and to facilitate trade in engineering services between those participating economies. It is anticipated that engineers entered on the APEC Engineer Register will be granted a high degree of mutual exemption from further assessment when practising in any of the participating economies: Australia, Canada, Hong Kong China, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Thailand and the United States.

An APEC Engineer is defined as a person who is recognised as a professional engineer within an APEC economy, and has satisfied an authorised body in that economy (for example Engineers Australia), operating in accordance with the criteria and procedures approved by the APEC Engineer Coordinating Committee, that they have:

- completed an accredited or recognised engineering program;
- been assessed within their own economy as eligible for independent practice;
- gained a minimum of seven years practical experience since graduation;
- spent at minimum of two years in responsible charge of significant engineering work; and
- maintained their continuing professional development at a satisfactory level.

All practitioners seeking registration, as APEC Engineers must also agree to be bound by the codes of professional conduct established and enforced by their home jurisdiction and by any other jurisdiction within which they are practising. Such codes normally include requirements that practitioners place the health, safety and welfare of the community above their responsibilities to clients and colleagues, practise only within their area of competence, and advise their clients when additional professional assistance becomes necessary in order to implement a program or project.

APEC Engineers must agree to be held individually accountable for their actions, both through requirements imposed by the licensing or registering body in the jurisdictions in which they work and through legal processes.

As required by the *APEC Engineer Framework*, the Council of Engineers Australia has convened an APEC Engineer Monitoring Committee, which includes representatives from leading stakeholders. The Committee is a sub-committee of the National Engineering Registration Board. The Committee monitors mechanisms for determining the eligibility of professional engineers practising in Australia to be placed on the APEC Engineer Register – Australia.



### ***Washington Accord***

The Washington Accord was signed in 1989. It is an agreement between the bodies responsible for accrediting professional engineering degree programs in each of the signatory countries. It recognises the substantial equivalence of programs accredited by those bodies, and recommends that graduates of accredited programs in any of the signatory countries be recognised by the other countries as having met the academic requirements for entry to the practice of engineering. The Washington Accord covers professional engineering undergraduate degrees. Engineering technology and postgraduate-level programs are not covered by the Accord. The signatory countries of the Washington Accord are: Australia, the United States, Canada, Hong Kong China, Ireland, New Zealand, South Africa, United Kingdom. Japan, Germany, Malaysia and Singapore are currently provisional members of the Accord.

The signatories have exchanged information on, and have examined, their respective processes, policies and procedures for granting accreditation to engineering academic programs, and have concluded that these are comparable. Through the Accord, the signatories recognise the substantial equivalence of such programs in satisfying the academic requirements for the practice of engineering at the professional level.

A *Provisional Signatory* has demonstrated that the accreditation system for which it has responsibility appears to be conceptually similar to those of the other signatories of the Washington Accord. By conferring provisional status, the signatories have indicated that they consider that the provisional signatory has the potential capability to reach full signatory status. Award of provisional status in no way implies any guarantee of the granting of full signatory status. Equivalence of the engineering programs concerned shall normally become effective from the date on which the new signatory was admitted to full signatory status.

### ***International Register of Professional Engineers***

The Register is governed by the Engineers' Mobility Forum, a grouping of international professional associations who enter into various types of mutual recognition agreements for membership. The following professional associations participate: Australia, Canada, Hong Kong China, Ireland, Japan, Korea, Malaysia, New Zealand, South Africa, United Kingdom and the United States.

Through this Agreement, the signatories aim to facilitate cross border practice by experienced engineers. The signatories have agreed to use their best endeavours to ensure that the bodies responsible for licensing engineers to practice in their own economies simplify as much as possible the requirements for those on the International Register. Some economies for example, the US and Canada have more complex licensing laws than others and all signatories have agreed to identify what local requirements will still remain to be met by engineers on the International Register who wish to practice in the signatory's economy, and to work towards minimising such requirements. Engineers with an accredited degree and who have gained a minimum of seven years practical experience since graduating and have spent at least two years in responsible charge of significant engineering work will be eligible to be entered on the International Register.

***Bilateral framework to facilitate mobility for mutual recognition of registered/licensed engineers between Australia and Japan***

A Bilateral Framework to facilitate mobility for mutual recognition of registered/licensed engineers between Australia and Japan was signed on 1 October 2003. The Framework is based on the pre-existing APEC Engineer Register and APEC Engineers registered in Australia are now in a position to take advantage of the framework agreement if they practice in disciplines for which both countries have similar definitions, such as Mechanical, Electrical and Chemical, as listed in the APEC Engineer Manual. The Framework's signatories include:

- The Ministry of Education, Culture, Sports, Science and Technology (MEXT), which has the power to grant use of the title *Professional Engineer* in Japan;
- The Institution of Professional Engineers, Japan (IPEJ), which is the designated examination and registration organisation in Japan and to register APEC Engineers in Japan.
- Engineers Australia which is authorised to maintain the National Professional Engineers Register in Australia and to register APEC Engineers in Australia.
- The National Engineering Registration Board in Australia, which is established to supervise the operation of National Engineering Registers.

The Bilateral Framework provides a high degree of confidence that an APEC Engineer registered in Japan would practise competently in Australia and vice versa. However, due to regulation difficulties in Japan, civil and building engineering work have been excluded from the Framework and the scope of mechanical and electrical engineering has been narrowed to exclude work related to civil and building infrastructure.

**3.4 Mutual recognition process for Australian professional engineers to practice in Malaysia and the Malaysian regulatory system for engineering**

The Institution of Engineers, Malaysia (IEM) is a professional learned society serving more than 15,000 members in Malaysia and overseas. It was formed in 1959 and was admitted a member of the Commonwealth Engineers Council in 1962. IEM is a qualifying body for professional engineers in Malaysia. A Corporate member of the IEM can apply to the Board of Engineers, Malaysia (BEM) (which is a registration body) for registration as a professional engineer enabling them to practice in Malaysia.

The BEM is a statutory body constituted under the *Engineers Act 1967 Malaysia* and reports to the Minister of Works. Vested with wide powers, the Minister may suspend the operation of the *Engineers Act 1967* in any part of Malaysia by notification in the gazette. The appointment of the Board Members and the Registrar is made by the Minister. The Minister also has the final say on any appeal from foreign engineers

who are not satisfied with the decision of the Board in rejecting their applications for temporary registration or renewal.

### ***Temporary Registration***

Foreign engineers may be temporarily licensed by the Board of Engineers only for specific projects, and must be sponsored by the Malaysian company carrying out the project. The license is only valid for the duration of a specific project. In general, a foreign engineer must be registered as a professional engineer in his or her home country, have a minimum of 10 years experience, and have a physical presence in Malaysia of at least 180 days in one calendar year. To obtain temporary licensing for a foreign engineer, the Malaysian company often must demonstrate to the Board that they cannot find a Malaysian engineer for the job. Foreign engineers are not allowed to operate independently of Malaysian partners, or serve as directors or shareholders of a consulting engineering company. A foreign engineering firm may establish a non-temporary commercial presence if all directors and shareholders are Malaysian. Foreign engineering companies may collaborate with a Malaysian firm, but the Malaysian company is expected to undertake the design work and is required to submit the plans.

### ***Full Registration***

Any candidate who applies for registration as a professional engineer in Malaysia must:

- Be registered as a Graduate Engineer with BEM;
- Have satisfied the 3 year training requirements of BEM;
- Have passed the Professional Assessment Examination (PAE) of BEM or be elected as a Corporate Member of the IEM; and
- Have been residing in Malaysia for a period of not less than six months immediately prior to the date of the application.

After graduation from a university course approved by BEM (Australian engineering degrees accredited by Engineers Australia are acceptable), an engineer needs to register with BEM as a graduate engineer before taking up employment as an engineer. BEM recognises the experience gained by an engineering graduate only after they have registered as a graduate engineer. As such, it is prudent for an engineering graduate to register as a graduate engineer at the very beginning of their engineering career.

After at least three years of practical experience, supervised by a professional engineer, the graduate engineer can apply to sit for the PAE. At least one year of the three years experience must have been obtained in Malaysia under the supervision of a registered professional engineer. However, under the *Engineers Act* the BEM can, on a case by case basis, exempt either wholly or partly the requirements as to the length of practical experience to be obtained in Malaysia provided that the total practical experience obtained is not less than three years.

After registering as a graduate engineer with the BEM, undertaking three years practical experience under the supervision of a registered engineer, having successfully passed the PAE exam and paying the registration fee, a graduate engineer may gain full registration as a professional engineer.

While the existence of a temporary registration system is a significant provision to increasing the ability of Australian engineers to practice in Malaysia, Engineers Australia rejects the need for professional engineers, with Australian engineering qualifications, registered in Australia, to take the PAE examinations in order to become registered in Malaysia. Engineers Australia believes that the NCEES examinations are currently acting as non-tariff barriers to the movement of Australian professional engineers.

Registration in Malaysia for Australian professional engineers should be based on having a recognised qualification and relevant years of experience. Given that this is the registration process for Malaysian engineers to gain registration in Australia, it is excessive to expect Australian engineers to sit examinations to gain registration in Malaysia. DFAT must address this barrier along with the six month residency requirement before an Australian engineer can become a candidate for registration in Malaysia, during the FTA negotiations if increased trade in engineering services between Australia and Malaysia is to be facilitated.

### **3.5 Hidden impediments to trade in engineering services**

The biggest barriers to trade for engineering services are non-tariff impediments. These vary from country to country and also from State and State and Territory to Territory. In no particular order of importance, these are:

- Non-recognition of Australian qualifications.
- Requirements relating to education and experience that differ from Australian standards.
- Non-recognition of Australian education standards.
- Mandatory requirement for membership of local professional associations.
- Registration requirements of individuals where registration is linked to residency requirements.
- Registration of firms, where directors are required to be registered engineers.
- Restrictive conditions on employment of expatriates, namely short and onerous visa conditions; restrictive work permit regulations; and limitation on the numbers as a percentage of workforce.
- Government procurement policies, that can be vague and generally opaque to Australian firms.
- Government assistance to local firms.
- Restrictions on the opening of branch offices.
- Restrictions on the formation of local subsidiaries.
- Restrictions on Australian equity in local firms and joint ventures.
- Restrictions on local equity and capital raising by Australian firms.

- Restrictions on the use of foreign capital in the host country.
- Restrictions on the repatriation of profits.
- Regulations setting out board and management composition.
- Limitations on the form of legal entity and use of firm name.
- Professional indemnity insurance requirements.
- Marketing/advertising restrictions.
- Restrictions on business activities of branches subsidiaries.
- Competitive conditions biased against foreign firms.
- Taxes and charges levied against Australian firms and their staff but not on local competitors.
- Pre-qualification requirements which are difficult for Australians to meet.
- Imposition of local content rules which favour local firms over foreign forms.
- Design quality specifications that are difficult for Australian firms to comply with, and non-recognition of Australian standards of design.
- Lack of protection or regard for Australian intellectual property.
- Dispute resolution mechanisms that favour local firms.
- Regulations for labour that impact on management hire and fire prerogatives.

As some of the regulation affecting engineers in Malaysia operate at a local or provincial level it is almost impossible to identify which of the barriers listed above are operating to restrict trade in engineering services. A commitment from Malaysia to identify non-tariff barriers would be beneficial in equipping Australian engineers with the tools needed to gain access to the Malaysian market and provide professional services.

#### **4. Recommendations and conclusions**

Engineers Australia believes that the APEC Engineer model should be used as best practice to facilitate the movement of professional engineers between Australia and Malaysia. While the Washington Accord has the potential to greatly strengthen mutual recognition of qualifications, between the two countries, the APEC Engineer Register has the potential to increase trade in engineering services beyond the opportunities presented by the other multilateral agreements outlined in section 3.3.

The Bilateral Framework to facilitate mobility for mutual recognition of registered/licensed engineers between Australia and Japan is based on the pre-existing APEC Engineer Register and APEC Engineers registered in Australia and Japan are now in a position to take advantage of the agreement. Engineers Australia believes that the Australian government must seriously consider the inclusion of the APEC Engineer Register into the FTA as a suitable assessment framework for the movement of professional engineers between Australia and Malaysia.

APEC's commitment to achieve its Bogor Goal of free trade in the APEC region by the year 2020 means that each APEC member country is committed to liberalise trade and investment. The APEC Engineer program is a reflection of this commitment.

While the Washington Accord operates at a professional association level, the APEC Engineer model was developed under the auspices of the APEC Human Resources Development Working Group. The register was an initiative of regulatory authorities, professional bodies and relevant ministries from APEC economies to remove barriers to professional mobility. The inclusion of national governments in some aspects of the APEC Engineer Register poses opportunities for other APEC initiatives supported at a national government level to strengthen the register.

These opportunities could include APEC initiatives such as the APEC Business Travel Card (BTC) which operates to cut through the red tape of business travel, and gives accredited business people pre-cleared entry to participating APEC economies (Australia and Malaysia are already participating). The use of APEC facilitated programs like the Business Travel Card have the ability to address issues limiting the trade of engineering services beyond problems associated with the mutual recognition of qualifications and registration.

Fast-tracked business travel and migration procedures between Australia and Malaysia will boost Australian involvement in the Malaysian market and open the way for higher levels of cross-border trade in engineering services within the two countries. Further cooperation and coordination between Australia and Malaysia on the BTC would have positive flow on effects for migration by providing enhanced opportunities to increase marketing and awareness of the BTC and visa processes generally.

To strengthen the multilateral agreements already in place to facilitate trade in engineering services, the FTA should include a provision supporting the Washington Accord as the mechanism for recognising equivalent engineering qualifications between Australia and Malaysia once Malaysia has become a full signatory to the Accord.

Agreement to the mechanisms of the Washington Accord within the FTA at the national government level, rather than by professional association to professional association, will strengthen the Accord. This would also lead to the consolidation of registration requirements between Australian States and Malaysia while streamlined recognition and migration processes would strengthen trade in engineering services between Australia and Malaysia.

Overall, given that multilateral agreements are already in place to facilitate trade in engineering services, Engineers Australia proposes that DFAT look for commitments from the Malaysian government to enhance these existing arrangements.

As outlined previously, Engineers Australia will be meeting with the Institute of Engineers, Malaysia at a side meeting during the World Engineering Conference in Shanghai, China in November 2004. Engineers Australia will continue to advise DFAT of our progress in the area of mutual recognition between Australia and Malaysia and the potential of a FTA between Australia and Malaysia as appropriate.

## **Appendix A**

### **Australian Domestic Regulatory Environment for Engineers**

#### **1. Overview**

There is no one single regulatory regime for the engineering profession in Australia. Because of this, there is a view in the community that the engineering profession is largely unregulated, but this is not the case as under the Constitution, regulation of professional services is a matter for States and Territory Governments. This results in a myriad of rules and regulations, standards and codes which operates as a barrier to best practice for the profession and places a limit on productivity.

There are many regulatory and quasi-regulatory regimes maintained by local, State and Territory governments that come into existence because of the absence of a comprehensive registration system for professional engineers. Various government agencies and departments keep their own lists of professional engineers for procurement, certification and employment purposes. These “registers” are largely anti-competitive in nature, as they are usually based on highly subjective and often biased or ill-informed judgement as to who is competent to practice as a professional engineer.

The introduction of the National Competition Policy and the Mutual Recognition Acts has caused governments to focus on deregulation and the removal of constraints to competition, unless it can be shown to be against the public interest to do so. Some governments have placed an increasing emphasis on the self-regulation of professionals through appropriate professional associations. However, there has been no consistent national approach to reforming the regulatory environment under which professional engineers operate, nor any move to consistency among the States and Territories.

The following provides an indication of the legislation under which engineers operate within Australia:

#### ***Victoria***

- *Building Act 1993* - requires building practitioners to be registered with a Statutory Authority (Building Practitioners Board). The Board uses the National Professional Engineers Register (NPER) (administered by IEAust) as the benchmark for the criteria for qualifications and experience required of professional engineers who work in the building sector in Victoria.

#### ***South Australia***

- *Development Act 1993* - requires certain types of building practitioners to be registered with a State Board. The Board uses NPER as the benchmark for the criteria for qualifications and experience required of professional engineers.

### ***NSW***

- *Environmental Planning and Assessment Act* - allows for a private certification of work previously undertaken by local councils relating to Building Act compliance, subdivision work and some other specified complying development. A scheme has been established that allows professional associations to register, monitor ongoing compliance with professional standards and discipline for accredited certifiers. The Institution of Engineers is an approved accrediting body, using NPER as the basis for a registration system, with specialised areas of practice.

### ***ACT***

- *Construction Practitioners Act 1998* - requires building certifiers to be registered with the Building, Electrical, and Plumbing Control (BEPCON) section of the Department of Urban Services. The regulations authorise registration on the National Professional Engineers Register (NPER) as sufficient for practitioners to act as Building Certifiers and as Plumbing Plan Certifiers.

### ***Queensland***

- *Professional Engineers Act* - provides that only registered professional engineers, and professional engineering companies offering services for fee or reward can undertake professional engineering work in Queensland. Registration is undertaken by a Statutory Authority.

### ***Tasmania***

- *Building Act* – requires registration of building practitioners and private certifiers. The Tasmanian Government has indicated that the Institution of Engineers (using NPER) will be considered an appropriate registering body.

### ***Northern Territory***

- *Building Act 1993* - allows for certification by private building practitioners, as authorised by a Government authority. The Authority uses NPER as the benchmark for the criteria for qualifications and experience required of professional engineers.

## **2. Regulation facilitated by Engineers Australia**

Engineers Australia has two streams for recognition of engineering practice:

- Engineers Australia membership in various grades; and
- Registration on a National Professional Engineers Register (NPER) and the National Engineering Technologist Register (NETR).



### **Engineers Australia membership**

- Divided by grade
- Requires capability assessment for initial membership allocation
- No requirement as to currency of practice to retain membership in certain grades
- Membership of a “College” will allow recognition of area of practice
- Obligation for ongoing professional development in some grades
- Requires payment of annual subscription
- Membership requirements set by a Council of elected professional engineers
- Members subject to a code of ethics
- Members subject to disciplinary action for breach of code
- Not used by government as an indicator of currency of practice
- Provides for international recognition of professional standing

### **National Registration**

- Divided by area of practice
- Requires competency assessment for initial registration
- Requires substantial current employment in area of practice for continued registration
- Mandates ongoing continuing professional development (subject to audit)
- Requires annual renewal of registration
- Registration system overseen by an independent and objective Board
- Registrants subject to a code of ethics
- Registrants subject to disciplinary action for a breach of the code
- Used by governments as an indicator of competency and currency of practice
- Provides for international recognition as of professional standing

Members wanting to become registered on the National Registers must undertake a competency-based assessment and, if successful, are entitled to chartered status with Engineers Australia.

## **2.1 Engineers Australia membership**

Engineers Australia has offered a self-regulatory scheme since 1919 which embraces all members of the engineering team, all disciplines of engineering and covers all parts of Australia.

### ***Membership grades***

Membership of Engineers Australia is offered in various grades. Membership denotes experience and recognition in the field and is means by which persons can determine the experience level of the practitioner. Engineers Australia represents the entire engineering team, including professional engineers, engineering technologists and engineering associates. Eligibility for a membership grade, other than student, is based on capability.

A brief description of the grades is as follows:

- Professional Engineer:
  - *Graduate* – a person who has recently attained the capability to practice in the professional engineer occupational category. This will usually be through the completion of an accredited four-year course of formal tertiary study and may be accompanied by relevant industrial experience.
  - *Member* – a person who is eligible for recognition as a graduate professional engineer and who has also attained the capability to practice as a responsible practitioner without supervision, through at least three years of relevant supervised post graduate experience.
  - *Senior Member* – a person who has been eligible for recognition as a member for at least five years and who has also demonstrated the capability to practice at the forefront of professional engineering, through significant higher education or professional achievements.
  - *Fellow* – a person who is considered eminent in the field of engineering, who has demonstrated their eligibility for recognition as a member and, in addition, is able to demonstrate that they have held a position of major responsibility in an engineering field for at least five years.
  
- Engineering technologist
  - *Graduate Engineering Technologist* – a person who has recently attained the capability to practice in the engineering technologist occupational category. This will usually be through completion of an accredited or recognised three-year course of formal tertiary study and may be accompanied by relevant industrial experience.
  - *Technologist Member* – is someone who is eligible for recognition as a graduate engineering technologist who has also attained the capability to practice as a responsible practitioner without supervision, through at least four years of relevant post-graduate experience.
  
- Engineering Associate – a person who will usually have completed a recognised two year course of formal tertiary study and may have post graduate experience.
  
- Student – a person enrolled in a four-year Engineers Australia accredited course in engineering, a three-year recognised engineering technology course, or a two-year Engineers Australia recognised course in engineering.

Professional engineers (other than graduates) are able to become members of a College of Engineers Australia. A College is a forum for mentoring, career advancement, continuing professional development and the advancement of the relevant engineering body of knowledge. Membership of a College provides personal accreditation for members, attesting to the qualifications and experience of the member within a particular engineering field. Engineers Australia currently has eight discipline related Colleges namely: Biomedical, Chemical, Civil, Electrical, Environmental, Mechanical, Structural and ITEE – Information, Telecommunications and Electronic Engineering

***Code of ethics and complaints handling.***

All members are bound by Engineers Australia's code of ethics. The first tenet of Engineers Australia's Code of Ethics obliges members to place the welfare, health and safety of the community before sectional or private interests. Other tenets of the Code bind members to act with honour, integrity and dignity, and to be aware of the social and environmental consequences of their actions. The most secure protection for the community lies in the fundamental requirement of the Code that registered persons must practice within the limits of their personal and professional competence, and in the assurance that they will be subject to effective disciplinary action if they fail to observe that constraint.

Engineers Australia has procedures for dealing with complaints about members and includes:

- receiving complaints concerning the conduct of members;
- members to respond to the complaint;
- investigating the substance of the complaint;
- determining the complaint and applying sanctions where appropriate; and
- dealing with appeals from such determination.

The sanctions that can be applied to a member include:

- expulsion from membership
- suspension from membership
- a fine not exceeding two hundred penalty units
- a reprimand
- an admonition
- an undertaking as to specific professional development
- an obligation to operate professionally under the supervision of an appropriate person for a specified time

The disciplinary procedures can be made available upon request.

***National Professional Engineers Register***

Engineers Australia is aware that self-regulation by the professions has been viewed with much cynicism by certain sectors of the government and the community over recent years. To overcome this, Engineers Australia, in conjunction with the Association of Consulting Engineers, Australia, (ACEA) and the Association of Professional Engineers, Scientists and Managers Australia, (APESMA) established the National Professional Engineers Register and the National Engineering Technologists Register.

ACEA represents the leading private sector consulting engineering firms in the commercial and business environment. APESMA represents and advises members in all matters concerning their employment. Engineers Australia is the representative body for engineering practitioners, whose main purpose is to advance the science and practice of engineering in all its branches. The collaboration of these associations represents the peak forum for engineering in Australia.

The idea behind the Registers was to provide an objective national registration system that defines standards for currency of practice that would have a greater degree of credibility than association membership alone.

To this end, NPER and NETR is separate and distinct from membership of Engineers Australia. The registration system is not “owned” by Engineers Australia, but rather by the profession and offers different benefits to membership. Before being included on a Register, practitioners undergo an objective test of their assertion as to competency. The Registers are managed by a Board that is independent to Engineers Australia, which provides a level of objectivity that overcomes the assertions of self-interest that can accompany registration based on membership of an association.

### ***What is NPER and NETR?***

NPER and NETR are simple, consistent national databases to which any person or organisation can refer when particular engineering and engineering related skills are required. NPER identifies those persons whose academic qualifications, cumulative and current experience and competencies, and commitment to ethical conduct and continuing professional development are of the standard considered appropriate by the profession for independent professional practice (in a range of specific areas).

The Registers have been designed to:

- provide a consistent national database of expertise;
- avoid inconsistent, ineffective, and anti-competitive local listings;
- facilitate access to reliable, affordable professional indemnity insurance;
- add value to professional practice, especially in relation to non-members;
- create an effective mechanism for community input to professional standards;
- align professional engineering standards in Australia to world best practice;
- accredit applicants from all States and Territories of Australia; and
- facilitate national and international practice for those listed on the Registers.

The Registers are maintained in the community interest, and at no cost to governments or other authorities, and are open to Engineers Australia members and non-members alike. Registration is administered independently from the membership functions of Engineers Australia. Registration activities are subject to review by an independent Board (the National Engineering Registration Board).

NPER is divided into areas of practice, to enable easy identification of the engineering field within which the competence of the practitioner has been assessed.

Registration in an area of practice on NPER is based solely on the demonstrated professional competence of the applicant. Every effort is made to provide an objective, fair and equitable system of assessment for applicants. Entry standards are an integral part of national and international recognition for professional engineers. Entry standards for NPER are used in several international forums, such as the Washington Accord and APEC to develop world best practice for defining a professional engineer.

Practitioners seeking renewal of registration must confirm that their involvement in continuing professional development over the previous three years, or the period throughout which they have been registered, has averaged at least 50 weighted hours per year. Compliance with this requirement is subject to periodic random audit. Continuing professional development activities must relate to the practitioner's area of practice.

Registration in an appropriate area of practice provides a reliable indicator of a practising professional engineer committed to maintaining the currency of their skills and knowledge and meeting established ethical standards.

### ***Registration standards***

A successful applicant:

- must be currently practising in a recognised area of practice
- possesses qualifications and has sufficient supervised experience for recognition to practice without supervision in a field of engineering
- may seek recognition in a specific area of practice required under government regulations
- will be subject to systematic audits in relation to currency and continuing professional development
- where available, may qualify for cover under a limitation of liability scheme
- can expect to achieve insurance premiums advantages in the future
- agrees to have his or her contact details made public on the register
- will be listed on NPER-Link, an Internet based searchable database of registered persons
- does not have to take up membership of any kind with Engineers Australia
- must abide by the Code of Ethics and the Disciplinary Regulations that underpin the registers
- qualifies for recognition under most statutory registers for professional engineers
- is recognised under reciprocal arrangements with most overseas professional institutions

The standards of currency inherent in NPER and NETR are the requirement that practitioners be engaged in their field of engineering for at least one full time year in any three-year period. Standards of competency are measured against a benchmark at the time of first registration and required to be progressively enhanced through continuing professional development thereafter. Engineers Australia reinforces these standards by sample auditing of compliance by registered persons.

### ***The National Engineering Registration Board***

The National Engineering Registration Board is responsible for the operation of NPER and NETR, ensuring that it is run efficiently and in the interests of the community. The Board has responsibility for monitoring the operation of both registers, and providing an avenue for dealing with complaints and appeals.

The Board has a guaranteed capacity for independent action separate to that of Engineers Australia. The Board is not subject to direction from the Council of Engineers Australia regarding any aspect of the administration of NPER and NETR, including assessment of applicants or appeals heard by the Board.

The role and composition of the Board is an integral part of acceptance of the Registers by government and the community. The primary role of the Board is to:

- be an objective gatekeeper of standards for current practice
- act as an appeal body for refusals to register
- oversee the management and operation of the registers
- oversee the disciplinary actions against registrants

A short history of the Board's representational structure may serve to illustrate how its objectivity is achieved:

- the Board was established in 1994 in conjunction with the launch of NPER
- at first the Board was mainly IEAust with one government (Queensland) nominee, one community based organisation, the Australian Council of Professions, APESMA, ACEA and Institution of Public Works Engineers, Australia
- later in 1994 and early 1995, WA, Tas and NT governments nominated representatives to the Board and a representative of Engineering Technologists and Engineering Associates was added
- in 1997, a representative of a second community based organisation was added to the Board
- in 1998 a NSW government nominee was added.