ASIA-PACIFIC ECONOMIC COOPERATION
HUMAN RESOURCES DEVELOPMENT WORKING GROUP

The APEC Engineer Manual

THE IDENTIFICATION OF SUBSTANTIAL EQUIVALENCE

APEC Engineer Coordinating Committee

July 2003

Version 3

ACKNOWLEDGEMENTS

The participation and contribution of Chairs and Members of the Steering Committee, Coordinating Committee, Task Group, and Expert Advisory Group and the following institutions and bodies of APEC member economies are gratefully acknowledged.

AUSTRALIA	Department of Education, Training and Youth Affairs (DETYA) The Institution of Engineers, Australia (IEAust)
CANADA	Canadian Council of Professional Engineers (CCPE)
CHINA	National Administration Board of Engineering Registration (Structural)
HONG KONG, CHINA	Education & Training Units, Works Bureau, the Government of Hong Kong Special Administrative Region Hong Kong Institution of Engineers (HKIE)
INDONESIA	Ministry of National Education Ministry of Manpower Badan Akreditasi Nasional (BAN) Construction Services Development Board (CSDB) Persatuan Insinyur Indonesia (PII)
JAPAN	Science and Technology Agency (STA) Ministry of Construction (MOC) Ministry of Education, Science, Sport and Culture Ministry of International Trade and Industry (MITI) Japan Consulting Engineers Association (JCEA) Japan Architectural Education and Information Center (JAEIC) Japan Civil Engineering Consultants Association Japan Federation of Architects & Building Engineers Associations Japan Federation of Engineering Societies National Graduate Institute for Policy Studies Nagoya University Osaka University
KOREA	Ministry of Construction and Transportation Ministry of Labor Ministry of Science and Technology Human Resources Development Service of Korea Korea Construction Engineers Association Korea Professional Engineers Association Korea Research Institute For Vocational Education Ministry of Commerce Industry & Energy Ministry of Education & Human Resources Development Ministry of Foreign Affairs & Trade Korean Society of Civil Engineering Korean Engineering Services Association
MALAYSIA	Board of Engineers, Malaysia The Institution of Engineers, Malaysia
NEW ZEALAND	Ministry of Economic Development The Institution of Professional Engineers, New Zealand
PAPUA NEW GUINEA	The Institution of Engineers, Papua New Guinea
PHILIPPINES	Professional Regulation Commission (PRC) Commission on Higher Education (CHED) Philippine Technological Council (PTC) Technical Panel for Engineering, Architecture and Maritime Education (TPEAME)
SINGAPORE	National University of Singapore
THAILAND	Ministry of University Affairs The Engineering Institute of Thailand under H.M the King's Patronage (E.I.T) National Science & Technology Development Agency
UNITED STATES OF AMERICA	United States Council for International Engineering Practice (USCIEP), with assistance from the National Council of Examiners for Engineering and Surveying (NCEES), the Accreditation Board for Engineering and Technology (ABET), and the National Society of Professional Engineering (NSPE).
VIET NAM	National Institute of Educational Development

Financial support for the project was provided by DETYA from the National Office of Overseas Skills Recognitin (NOOSR) Industry Development Programme and by the Australian Agency for International Development (AusAID) APEC Support Programme.

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GLOSSARY AND KEY TERMS

The following explanation of the usage of key terms may assist readers.

Accreditation (see also **Recognition**)	Quality assurance of graduate engineers by national professional bodies.
APEC Engineer	An APEC Engineer is assessed in his/her own jurisdiction as a professional engineer eligible for independent practice, who has gained a minimum of seven years experience since graduation, and has spent at least two years in responsible charge of significant engineering work. An APEC Engineer has also maintained their continuing professional development at a satisfactory level.
APEC Engineer Coordinating Committee	An international body comprising one voting member from each Monitoring Committee, and others, to develop and maintain an authoritative Register of APEC Engineers and to promote acceptance of the APEC Engineer.
Assessment/Evaluation	Generally these two words are used synonymously - there is no special distinction and when either is used they may refer to particular processes for reporting or comparison of achievement against criteria, standards, or a benchmark.
Benchmark	An agreed level by which others can be measured.
Certification/Registration/ License	Generally registration is the process of placing on a Register those who meet specified requirements within a jurisdiction. Certification can have a similar meaning or may refer to the issue of a certificate or license to those who have met specified requirements for registration.
Criteria/Standards	Generally, these two words are used synonymously to mean a specification of qualities required to be met.
Graduate Engineer	A person who has satisfactorily completed a higher education engineering program that is assessed as meeting required criteria in a discipline of engineering determined by a recognised professional engineering body or state authority.

Monitoring Committee	An independent authorised body established in participating APEC member economies to develop and maintain a Register of APEC Engineers.
Professional Engineer	A general descriptor used to identify engineers with capabilities to undertake independent professional engineering practice, recognised by a national professional engineering body or state authority. APEC member economies have specific nomenclatures and requirements.
Professional Engineer Body	A national non-government or independent organisation with membership comprising professional engineers.
Recognition (see also **Accreditation**)	1. Acceptance by an authority of demonstration of compliance with requirements. May be applied to courses or experience in the determination of equivalencies. 2. Quality assurance of graduate engineers by state authorities.

FOREWORD

At the APEC leaders' meeting in 1995 at Osaka, there was agreement to the need of facilitating the mobility of qualified persons among the member economies. Consistent with the Osaka Action Agenda, the meeting of 18 member economies of APEC HRD Ministers in Manila in January 1996, the acceleration and expansion of project initiatives on mutual recognition of skill qualifications was urged.

The APEC HRD Working Group, which met in Wellington, New Zealand in January 1996, agreed to an Australian initiation on the Project, focusing on professional engineering accreditation, recognition and development.

During the First Steering Committee Meeting held in May 1996 at Sydney, Australia, a consensus was reached to proceed with a comprehensive survey on professional institutions and societies, registration of professional engineers and engineering education and development. The results of the survey would form the framework for the best practices in professional engineering accreditation, recognition and development.

This Manual sets out the methodology for assessing the academic and professional experience of professional engineers against a standard established by the member economies for determining substantial equivalence for professional engineers.

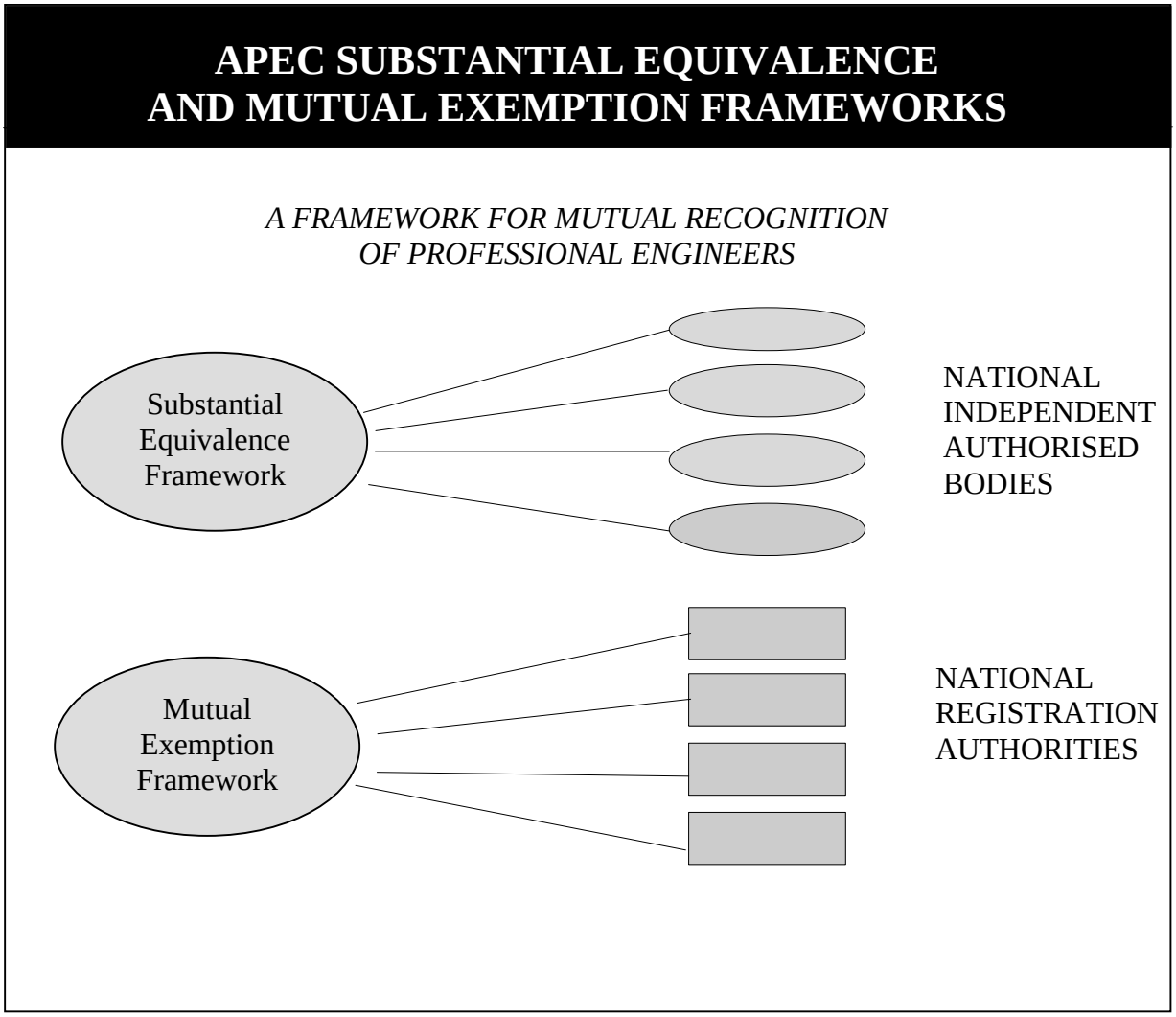
The initial operation of authorized APEC Engineers Registers by the eight founding members commenced on 1 November, 2000 and is based on the *APEC ENGINEER MANUAL: The Identification of Substantial Equivalence* of November, 2000.

This manual provides a practical framework to facilitate and improve mobility for professional engineers. This first revision includes some further refinement in the manual, which was agreed to at the Coordinating Committee Meeting held in 2001 at Kuala Lumpur. The second revision, which was agreed at the Coordinating Committee Meeting held in 2003 at Rotorua, New Zealand includes optional listing of disciplines, monitoring visits to be done on-line, followed by on-site monitoring visits if the need arises and a dispute resolution procedure whereby dissenting members are to submit a minority report if unanimous decision by the review team is not achieved.

I hope this revised Manual will further spur the mobility of engineers between member economies and encourage more economies in the region to participate, with the aim to promote mobility of engineers.

Ir. Dr. GUE, See-Sew
Chair, APEC Engineer Coordinating Committee
June 2003

THE APEC ENGINEER SCHEMATICS



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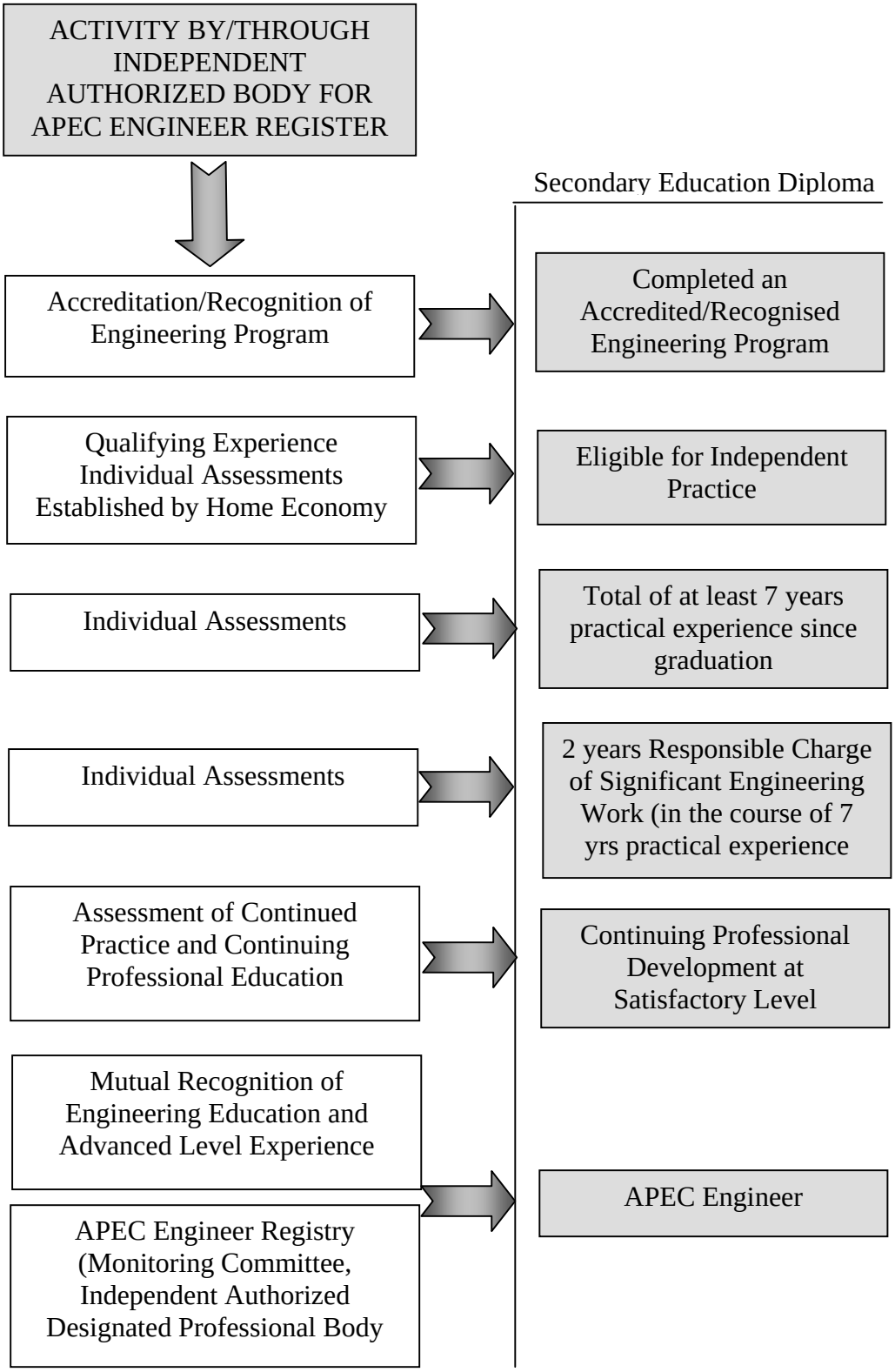

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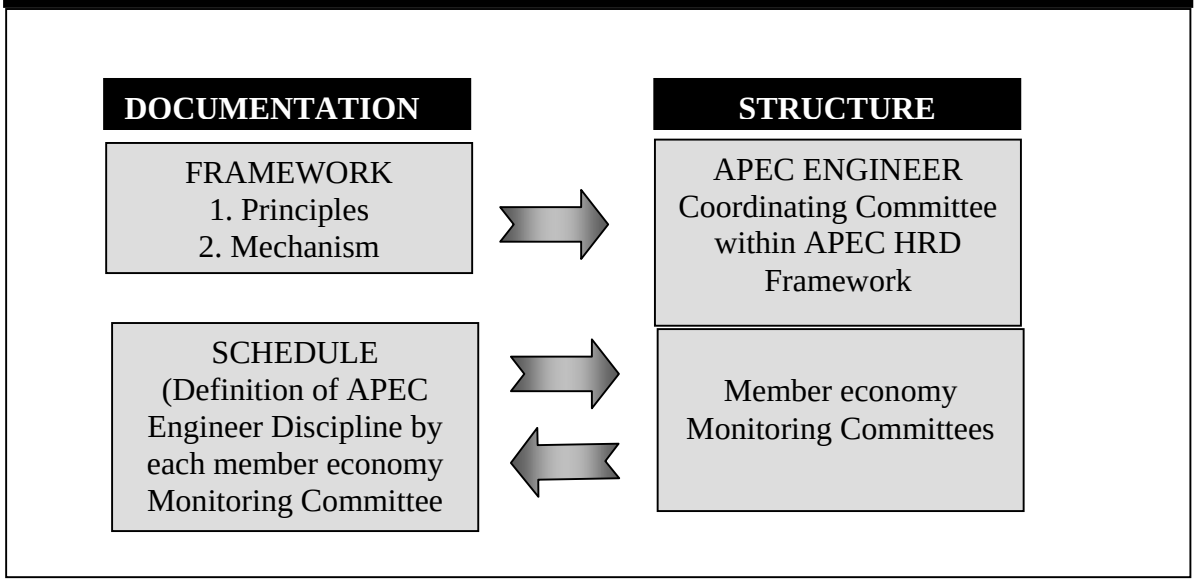
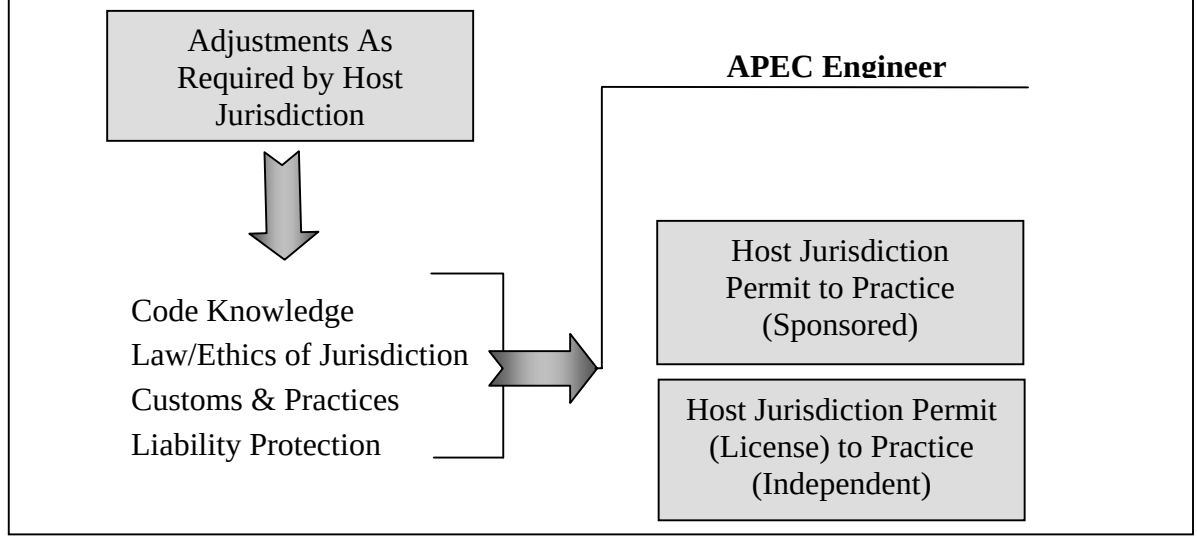


MUTUAL EQUIVALENCE FRAMEWORK



PART 1 APEC ENGINEER FRAMEWORK

1. Purpose

The APEC Engineer Manual provides overall guidance to participating APEC economies for the operation of APEC Engineer Registers. The Manual includes a description of the Framework as a whole, the particular requirements of the assessment system, the APEC Engineer Coordinating Committee Rules, and recommendations for mutual exemption for regulatory and licensing authorities.

Monitoring Committees of each participating economy develop an Assessment Statement that includes criteria and procedures for approval by the APEC Engineer Coordinating Committee. In accordance with the Framework, the eligibility of practitioners for designation as an APEC Engineer is determined by reference to five performance criteria, *which are to be considered as a package*. Some of these criteria are relatively objective in nature, while others will require the Monitoring Committee to exercise a measure of professional judgment, particularly in relation to exceptional candidates.

The participants to this Framework intend to facilitate practice by professional engineers by establishing a system of mutual recognition based on confidence in the integrity of the systems of assessment for professional practice within each economy, secured through continuing mutual monitoring, evaluation and verification of those systems.

2. APEC Engineers

An APEC Engineer is defined as a person who is recognised as a professional engineer within an APEC economy, and who has satisfied an authorised body in that economy, 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, or assessed recognised equivalent; and
- been assessed within their own economy as eligible for independent practice; and
- gained a minimum of seven years practical experience since graduation; and
- spent at least two years in responsible charge of significant engineering work; and
- maintained their continuing professional development at a satisfactory level.

In addition 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 practice; and 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.

Each practitioner included on the APEC Engineer Register may be identified with one or more recognised engineering disciplines, selected from a list approved by the Coordinating Committee, within which that practitioner has been assessed as being eligible for independent practice by the Monitoring Committee holding the Register. Appendix III refers.

Guidelines on the above criteria for APEC Engineers are at Appendix I to this Framework. The participants consider that other guidelines in this Manual should be observed in assessing candidates for designation as APEC Engineers. These guidelines have been attached as Appendix II to this Framework.

3. Monitoring Committees

This Framework is based on the concept that a Monitoring Committee will be established in each participating economy, to develop and maintain a Register of APEC Engineers in that economy. In most cases, while recognised as competent by, and possibly exercising some functions on behalf of, the authorities responsible for the registration and licensing of professional engineers in the economy concerned, the Monitoring Committee will be an independent authorised body, and will be able to certify the qualifications and experience of individual professional engineers directly or by reference to other competent bodies.

The specific responsibilities of Monitoring Committees for the development and maintenance of the APEC Engineer Register are given below at Section 5, Register of APEC Engineers, and the broader Terms of Reference are at Appendix IV to this Framework.

4. APEC Engineer Coordinating Committee

To ensure consistency in application of the agreed criteria, ultimate authority for conferring the title of APEC Engineer will remain with the APEC Engineer Coordinating Committee, which is to include one voting representative from each Monitoring Committee. That authority may be delegated from time to time by the APEC Engineer Coordinating Committee to an authorised Monitoring Committee in each participating economy.

The main role of the Coordinating Committee is to facilitate the maintenance and development of authoritative and reliable decentralised Registers of APEC Engineers, and to promote the acceptance of APEC Engineers in each participating economy as possessing general technical and professional competence that is substantially equivalent to that of professional engineers registered or licensed in that economy.

The Committee will also:

- develop, monitor, maintain and promote mutually acceptable standards and criteria for facilitating practice by APEC Engineers throughout the participating APEC economies;
- seek to gain a greater understanding of existing barriers to such practice and to develop and promote strategies to help governments and licensing authorities reduce those barriers and manage their processes in an effective and non-discriminatory manner;
- through the mechanisms available within APEC, encourage the relevant governments and licensing authorities to adopt and implement streamlined procedures for granting rights to practise to APEC Engineers;
- identify, and encourage the implementation of, best practice for the preparation and assessment of engineers intending to practise at the professional level; and
- continue mutual monitoring and information exchange by whatever means are considered most appropriate, including:

    - regular communication and sharing of information concerning assessment procedures, criteria, systems, manuals, publications and lists of recognised practitioners;

    - invitations to verify the operation of the procedures of other participants; and

- invitations to observe open meetings of any boards and/or commissions responsible for implementing key aspects of these procedures and relevant open meetings of the governing bodies of the participants.

- reporting on the use by engineers to monitor the performance of the Registers.

To maximise communication between APEC economies, the APEC Engineer Coordinating Committee will issue an open invitation for the appropriate bodies within non-participating APEC economies to nominate non-voting members to serve on the Committee.

These members will not be entitled to vote on any issue, nor to participate in the debate on the initial or continued authorisation of a Monitoring Committee to operate a Register of APEC Engineers within an economy.

The APEC Engineer Coordinating Committee Rules are at Part 3 of *The APEC Engineer Manual.*

5. Registers of APEC Engineers

The primary objective of each Monitoring Committee will be to develop and maintain a Register of APEC Engineers for practitioners based in the relevant economy.

Each Monitoring Committee seeking authorisation to operate a Register in their economy will prepare a statement setting out the criteria and procedures by which applicants for designation as APEC Engineers within that economy are proposed to be assessed. Each statement will be reviewed by the APEC Engineer Coordinating Committee in accordance with its published Rules and the guidelines attached as Appendix 1 to this Framework.

Following that review, authorisation will require support from two-thirds of the Monitoring Committees authorised to operate Registers. The statement of criteria and procedures supplied by each authorised Monitoring Committee will form an integral part of this Framework.

Once a Monitoring Committee has been authorised by the APEC Engineer Coordinating Committee to establish a Register of APEC Engineers within an economy, the Monitoring Committee will arrange to provide timely and accurate information on the status of any practitioner claiming to be listed on that Register to any person or organisation having a legitimate need for access to such information, to exchange relevant data with the other authorised Monitoring Committees, and, within their economy, to function as a single point of contact on all matters relating to APEC Engineers.

Each authorised Monitoring Committee must further undertake to:

- accept and promote the substantial equivalence of the competence of APEC Engineers registered by other authorised Monitoring Committees;
- make every reasonable effort to ensure that the bodies responsible for registering or licensing professional engineers to practise within their economy recognise that APEC Engineers have general technical and professional competence substantially equivalent to that of engineers already registered or licensed in that economy;
- ensure that all practitioners registered by them as APEC Engineers comply fully with the requirements specified in the APEC Engineer Framework, and that a substantial majority of these practitioners have demonstrated their compliance through the primary procedures and criteria set out in the Assessment Statement for that economy;
- ensure that practitioners applying for registration as an APEC Engineer are required to provide evidence that they have engaged in an appropriate level of recent continuing professional

development (the emerging norm for continuing professional development programs in APEC economies is an average of 50 weighted hours per year of formal and informal training broadly related to the area of practice); and

- ensure that practitioners registered by them as APEC Engineers apply from time to time for renewal of their registration, and, in so doing, provide evidence that they have engaged in an appropriate level of recent continuing professional development.

6. Mutual Exemption

The participants recognise that any agreement, which would confer exemption, in whole or in part, upon APEC Engineers from further assessment by the statutory bodies that control the right to practise in each economy, could be concluded only with the involvement and consent of those statutory bodies and the relevant governments. The APEC Engineer Coordinating Committee recommends that
(i) relevant governments pursue this within the broader APEC framework and that (ii) negotiation of agreements be consistent with the General Agreement on Trade in Services (GATS) Article VII.

The participants note that only complete or partial exemption from assessment mechanisms operating within the jurisdiction in which an APEC Engineer seeks to become licensed or registered is at issue, not exemption from the requirement to become licensed or registered in the economy concerned.

The participants note that licensing or registering authorities have statutory responsibility for protecting the health, safety and welfare of the community within their jurisdictions, and may require applicants for the right to independent practice to submit themselves to some form of supplemental assessment.

The participants consider that the objectives of such assessment should be restricted to providing the relevant authorities with a sufficient degree of confidence that the practitioners concerned:

- understand the general principles behind applicable codes of practice;
- have demonstrated a capacity to apply such principles safely and efficiently; and
- are familiar with other special requirements operating within the host jurisdiction.

The participants consider that, in the case of APEC Engineers, successful completion of an adaptation period of sponsored practice in the jurisdiction where they seek to become licensed or registered might be more effective than requiring them to undertake other kinds of supplemental assessment, and that APEC Engineers should be granted access to opportunities for such sponsored practice with minimum formality.

Mutual Exemption Framework Guidelines for Regulatory Authorities are at Part 4 of *The APEC Engineer Manual*

7. Establishment Provisions

Representatives of an APEC economy seeking to participate in the APEC Engineer will recommend to the appropriate authorities within that economy that a representative be nominated to participate as a non-voting member on the APEC Engineer Coordinating Committee.

Each Monitoring Committee established or identified through this process will proceed to prepare a draft Assessment Statement in accordance with this Manual, and will provide a copy of the draft Statement to the Secretariat established by the APEC Engineer Coordinating Committee and to all Monitoring Committees.

The Assessment Statement will be considered by the APEC Engineer Coordinating Committee as soon as practicable after the draft Assessment Statement has been received by the Secretariat and the relevant Monitoring Committees have had the opportunity to respond to any comments raised by other Monitoring Committees and submit amended Statements.

The draft Assessment Statement provided by each Monitoring Committee will then be reviewed in accordance with the approved Rules (see Part 3) and may, in order to ensure consistency and mutual confidence, be:

- approved as submitted; or
- with the consent of the proponent, approved with amendments; or
- referred back for further consideration, with suggestions for improvement.

Where approval has been granted, the Monitoring Committee involved will be provisionally authorised to develop and maintain a Register of APEC Engineers within their economy in accordance with their statement of criteria and procedures.

Their continued authorisation will be subject to periodic review in accordance with the approved Rules.

8. Rules

Appropriate Rules are established by the APEC Engineer Coordinating Committee to ensure that the work of the Committee can be undertaken in a satisfactory and expeditious manner. The adoption of, or amendment to, such Rules will proceed only through a positive vote by at least two-thirds of the Monitoring Committees in a General Meeting.

The APEC Engineer Coordinating Committee Rules are at Part 3 of *The APEC Engineer Manual*.

9. Administration

General Meetings of the APEC Engineer Coordinating Committee will be held at least once in each two year period to review the Rules, effect such amendments as may be considered necessary, consider the outcomes of any reviews undertaken of the criteria and procedures being implemented by authorised Monitoring Committees, and deal with applications for membership and/or authorisation. The administration of the APEC Engineer Coordinating Committee will be facilitated by a secretariat established and operated in accordance with the Rules.

10. Termination

The APEC Engineer Coordinating Committee will operate for so long as it is acceptable and desirable to participating economies. Any authorised Monitoring Committee wishing to surrender its authorisation and cease operation of an APEC Engineer Register within their economy must give at least twelve months notice to the secretariat. No such cessation of operation will, of itself, affect standing granted prior to that cessation by other economies to APEC Engineers on the basis of their listing on the terminated Register.

APPENDIX I: APEC Engineers: Guidelines on Criteria and Procedures

The purpose of these guidelines is to assist Monitoring Committees to develop a statement of criteria and procedures for submission to the APEC Engineer Coordinating Committee. In accordance with this Framework, the eligibility of practitioners for designation as an APEC Engineer is determined by reference to five performance criteria, which are to be considered as a package. Some of these criteria are relatively objective in nature, while others will require the Monitoring Committee to exercise a measure of professional judgment, particularly in relation to exceptional candidates. These notes represent the consensus view of the participants as to the benchmarks against which each criterion should be considered.

Completed an accredited or recognised engineering program, or assessed recognised equivalent

In order to be listed on an APEC Engineer Register, practitioners must demonstrate to the relevant Monitoring Committee a level of academic achievement at, or following, completion of formal education substantially equivalent to that associated with successful completion of:

- an engineering degree delivered and accredited in accordance with the best practice guidelines developed by the Federation of Engineering Institutions of South East Asia and the Pacific; or
- an engineering degree accredited by an organisation holding full membership of, and operating in accordance with the terms of, the Washington Accord; or
- the 1st Step Examination of the Professional Engineer Examination set by the Japan Consulting Engineers Association; or
- the combined Fundamentals of Engineering and Principles and Practices of Engineering examinations set by the United States National Council of Examiners in Engineering and Surveying; or
- an engineering program accredited by a body independent of the education provider, or an examination set by an authorised body within an economy, provided that the accreditation criteria and procedures, or the examination standards, as appropriate, have been submitted by one or more Monitoring Committees to, and endorsed by, the APEC Engineer Coordinating Committee.

These examples include four existing mechanisms, the outcomes of which are considered to fall within the band of acceptable standards for academic achievement. The final option is designed to be an open-ended mechanism, allowing alternative procedures and criteria to be submitted by a Monitoring Committee for evaluation by the Coordinating Committee. The list is therefore not intended to be definitive or comprehensive.

This approach does not restrict participation to economies in which engineering programs are accredited, or examinations set, by an independent professional body, and does not imply that acceptable academic achievement can be demonstrated only within the context of an engineering degree program.

Been assessed within their own jurisdiction as eligible for independent practice

The assessment may be undertaken by the Monitoring Committee, by a competent professional association, or by an authority with responsibility for registration or licensing of professional engineers within the relevant economy.

Gained a minimum of seven years practical experience since graduation

The exact definition of practical experience will be at the discretion of the Monitoring Committee concerned, but the work in question should be clearly relevant to the fields of engineering in which the applicant claims expertise. During the initial period, the candidate should have participated in a

range of roles and activities appropriate to these fields of engineering. However, their roles while they are in responsible charge of significant engineering work may be more focused**.**

Spent at least two years in responsible charge of significant engineering work

The definition of significant engineering work will vary between economies and disciplines. As a general guideline, the work should have required the exercise of independent engineering judgment, the projects or programs concerned should have been substantial in duration, cost, or complexity, and the applicant should have been personally accountable for their success or failure. In general, an applicant may be taken to have been in responsible charge of significant engineering work when they have:

- planned, designed, coordinated and executed a small project; or
- undertaken part of a larger project based on an understanding of the whole project; or
- undertaken novel, complex and/or multi-disciplinary work.

The specified period of two years may have been completed in the course of the seven years practical experience since graduation.

Maintained their continuing professional development at a satisfactory level

The nature and extent of the required participation in continuing professional development, and the manner in which compliance is audited, will remain at the discretion of the Monitoring Committee concerned, but should reflect emerging norms for such participation by professional engineers within the APEC economies.

Registered APEC Engineers must agree to the following.

- ***Codes of professional conduct.*** 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, practice only within their area of competence, and advise their clients when additional professional assistance becomes necessary in order to implement a program or project. Monitoring Committees are required to certify that at registration the candidate has signed a statement of compliance with such applicable professional codes.

- ***Accountability.*** APEC Engineers must also agree 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.

Appendix II: APEC Engineer: Assessment Statements

The APEC HRD Working Group *Discussion Paper, Framework for Best Practices in Professional Engineering Accreditation, Recognition and Development*, December 1997, defines in broad terms, the qualifications and experience required of a practitioner seeking registration as an APEC Engineer. The APEC HRD Working Group *Best Practices in Professional Engineering Accreditation, Recognition and Development Survey Report*, May 1997, outlines the practices currently used by eight member economies for the identification of professional engineers.

The preparation of an Assessment Statement for candidates seeking registration as an APEC Engineer will involve identification and nomination of the following elements by the Monitoring Committee in each participating economy:

1. One or more mechanisms for accrediting or recognising:

   - structured educational programs which qualify individuals to enter professional engineering practice, and/or

   - assessment instruments which provide an alternative or supplementary mechanism for individuals to demonstrate that they have reached an appropriate educational standard.

2. One or more mechanisms for assessing qualified individuals as being eligible for independent professional engineering practice, normally after those individuals have completed a period of supervised or monitored professional experience.

3. A statement describing how academic practitioners meet the APEC Engineer requirements.

4. A mechanism for confirming that independent engineering practitioners have:

   - gained a minimum of seven years practical experience since graduation, and
   - completed at least two years in responsible charge of significant engineering work, and
   - maintained a satisfactory level of continuing professional development, and
   - complied with, and are bound by, an appropriate code of conduct.

5. A mechanism for ensuring that registrants are audited at regular intervals to ensure that they have continued to comply with the conditions of registration.

   For each element, the Assessment Statement for each member economy may include:

   - mechanisms applicable to practitioners in all disciplines, and/or
   - mechanisms applicable to practitioners in specified disciplines, and/or
   - national, regional and provincial mechanisms, and/or
   - existing or superseded mechanisms.

   which are recognised by the Monitoring Committee as appropriate in assessing candidates for registration as APEC Engineers. The Monitoring Committee may attach restrictions to any or all mechanisms (for example, by requiring that assessment under a mechanism be accepted only in respect of candidates who completed the process by a specified date, or who gained a specified minimum period of practical experience in the relevant discipline or disciplines). All such restrictions must be clearly identified.

   Assessment Statements are intended to be dynamic documents, with necessary amendments being effected by the responsible Monitoring Committee from time to time and notified to the APEC Engineer Coordinating Committee.

Appendix III: APEC Engineers: Disciplines for Registration

Principles

For each practitioner included on the register of APEC Engineers, the Monitoring Committee may identify one or more recognised engineering disciplines, selected from a list approved by the Coordinating Committee, within which that practitioner has been assessed as being eligible for independent practice. At the time of publication the Coordinating Committee has approved the following disciplines:

- CIVIL
- STRUCTURAL
- GEOTECHNICAL
- ENVIRONMENTAL
- MECHANICAL
- ELECTRICAL
- INDUSTRIAL
- MINING
- CHEMICAL
- INFORMATION
- BIOENGINEERING
- AEROSPACE ENGINEERING
- BUILDING SERVICES ENGINEERING
- FIRE ENGINEERING
- PETROLEUM ENGINEERING

The fifteen specified engineering disciplines are those operating in participating economies at the time of publishing this Manual. The disciplines include subjects and areas of practice that cover a broad field. Economies have agreed to define the scope of each of these disciplines.

APEC Engineers will be expected to satisfy technical issues specific to the host jurisdiction. Economies have agreed to specify these technical issues, by discipline during the process of negotiation of mutual exemption agreements.

Not all economies license or register professional engineers by discipline for local practice. However, all economies have confirmed that they are prepared to identify the discipline in the context of which such engineers were originally assessed. Economies that wish to propose further disciplines be added to the above list should do so when they submit assessment statements for consideration by the Coordinating Committee.

The Coordinating Committee will continue to review the desirability of extending the above list of disciplines to meet emerging needs of governments, industry and the engineering professions within APEC member economies, and may, by unanimous resolution, add new disciplines to the list from time to time.

Professional Practice

Registration indicates maintained competence in one or more aspects of professional practice. The definition of an APEC Engineer recognises that the responsibilities of engineers often evolve during their career, reflecting an increasing emphasis on management roles, and causing practitioners to engage in continuing professional development activities relevant to those roles. In general terms, an APEC Engineer classified in any discipline may, having due regard to their current competence:

- accept direct or indirect responsibility for the planning, design, execution or review of some specialised technical aspects of engineering projects or programs; and/or
- accept ultimate responsibility, which may extend beyond a single discipline, for the technical integrity of engineering projects or programs; and/or
- engage in professional practice which, directly or indirectly, calls upon their engineering knowledge, skills, experience and judgment, and has a significant influence on the technical direction of engineering projects or programs; and/or
- engage in other professional activities, including, in particular, project management, which call on their engineering qualifications and experience, and which place demands upon their skills, knowledge and judgment which are comparable to those experienced in the above aspects of engineering practice.

Procedures

The Monitoring Committee established in each participating economy will prepare, and submit to the Coordinating Committee for review, an Assessment Statement covering at least one of the above engineering disciplines.

The subsequent responsibility of a Monitoring Committee will be to establish and maintain a Register of APEC Engineers which certifies the competence of practitioners in each discipline for which an Assessment Statement has been submitted to and approved by the Coordinating Committee, and to accept and promote the substantial equivalence in competence of all APEC Engineers registered in that discipline.

Members of the Coordinating Committee will abstain from voting on the initial or continuing acceptance of those elements of an assessment statement which relate only to a discipline that is not covered by the Monitoring Committee which they represent.

A Monitoring Committee may at any time submit a further Assessment Statement in respect of a recognised discipline in which that committee does not currently certify the competence of APEC Engineers.

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Appendix IV: APEC Engineer Monitoring Committees

Terms of Reference

Each Monitoring Committee:

- develops and maintains a Register of APEC Engineers in its own economy;
- functions as a single point of contact on all matters relating to APEC Engineers;
- accepts and promotes the substantial equivalence in competence of all APEC Engineers;
- advises bodies responsible for registering or licensing professional engineers accordingly;
- provides timely and accurate information on whether individuals are APEC Engineers;
- develops and maintains an assessment system to ensure that APEC Engineers have:
  - completed an accredited or recognised engineering program or assessed recognised equivalent;
  - been assessed within the economy as eligible for independent practice; and
  - gained a minimum of seven years practical experience since graduation; and
  - spent at least two years in responsible charge of significant engineering work; and
  - maintained their continuing professional development at a satisfactory level;
- where appropriate, authorises other bodies to carry out assessments against these criteria;
- ensures that a mechanism is available for individuals to appeal against adverse judgments;
- audits compliance by such authorised bodies with the conditions of authorisation;
- directly, or through authorised bodies:
  - audits continuing compliance by APEC Engineers with the conditions of registration; and
  - receives, investigates and resolves complaints against APEC Engineers; and
  - provides advice on professional conduct and professional practice;
- maintains and disseminates a list of persons whose APEC Engineer registration has been cancelled;
- submits statements to enable the Coordinating Committee to review the proposed system;
- publishes information on its assessment procedures, criteria, systems and performance;
- provides such other information as may be required by the Coordinating Committee;
- maintains records and documents in a form suitable for review by other economies;
- provides representatives to assist in reviewing other assessment systems; and
- participates in the other deliberations of the Coordinating Committee.

Membership

The structure and constitution of a Monitoring Committee will naturally reflect the particular circumstances of the economy within which it is established. In general terms, the committee should include representatives from government, industry, relevant professional associations, and higher education institutions delivering engineering programs, and should be recognised as competent by the authorities responsible for registration and licensing within the economy.

In some cases, an existing board or committee may already be undertaking many of the tasks implied in the above terms of reference, and can be nominated by the economy to undertake the role of the Monitoring Committee for that economy.

While decisions on the structure and constitution of the Monitoring Committee are ultimately reserved for the economy concerned, the committee will form an important part of the overall assessment system for that economy, and the statement on that system which will be provided to the Coordinating Committee must explain how the Monitoring Committee intends to gain access to the resources and expertise required to discharge the above Terms of Reference.

PART 2 APEC ENGINEER ASSESSMENT STATEMENT SUBMISSION GUIDE

Introduction

The APEC Engineer Assessment Statement facilitates the transparency of engineer recognition systems applied by each APEC Engineer Monitoring Committee. *The Guide is not prescriptive, but where appropriate, its use for submissions is encouraged*.

Objective

The Assessment Statement Submission Guide (the Guide) at Appendix I is to enable Monitoring Committees to present a reasonably consistent structure in all Assessment Statements. It is intended to be sufficiently broad to accommodate the different recognition practices for professional engineers of engineering disciplines identified by participating APEC member economies.

This structure is preferred for:

- convenient collation and consistent presentation of transparent registration information by the Monitoring Committee of each participating member economy;
- consideration of Assessment Statements by the APEC Engineer Coordinating Committee; and
- subsequent ease of access and understanding of all APEC Engineer Registers by participants.

Structure of Assessment Statements

APEC Engineer Assessment Statements for each participating economy provide fundamental information on the:

- organisation and administration of the APEC Engineer Register;
- identification of engineering disciplines for the APEC Engineer (see Part 1, Appendix III - Guide to APEC Engineer Disciplines for Registration);
- compliance of criteria used by participating economies with the APEC Engineer Substantial equivalence Framework criteria; and
- assessment processes and records of assessment for each APEC Engineer.

Supporting Documentation

Principal supporting documents may be attached to Assessment Statements.

Reference should be made to other relevant publications used in the assessment process. Where such reference is made a synopsis of the publication should be provided. Publications so referenced should be made available on request to members of the APEC Engineer Coordinating Committee and to participating APEC economies. A copy should be made available at meetings considering submissions for the conduct of an APEC Engineer Register.

Administration

The Guide is made available to the participating member economies through the contact representative of each Monitoring Committee.

A Flow Chart for the APEC Engineer Assessment Statement submission process is at Appendix II.

Contact representatives of participating economies are asked to

- coordinate Assessment Statement submissions in the format of Attachment I with the relevant engineering organisations in their economy, and with other organisations that are involved in the preparation of an APEC Engineer Register; and to

- forward the submissions direct to the contacts for other member economies participating in the APEC Engineer Register and a copy to the Secretariat of the APEC Engineer Coordinating Committee. See addresses below.

Outcomes from the APEC Engineer Coordinating Committee meetings will be advised to the contact representatives of economies participating in the APEC Engineer. Member economies working towards the development of Monitoring Committees and Assessment Statements will also be advised of Assessment Statements received for consideration and of the outcomes of meetings.

Liaison is encouraged directly between originators of Assessment Statements. Assistance may be obtained from the Secretariat and members of the APEC Engineer Coordinating Committee.

Submissions of Assessment Statements must be in English, preferably in electronic format.

Contacts

Secretariat
APEC Engineer Coordinating Committee

Appendices

Appendix I - APEC Engineer Register Assessment Statement
Appendix II - Assessment Statement Flow Chart

Appendix I: APEC Engineer Register (Member Economy) (Draft) Assessment Statement (Engineering Disciplines)

Introduction

The Monitoring Committee recognises the following bodies and mechanisms for the assessment of (discipline) engineers as eligible to be placed on the (member economy) APEC Engineer Register.

This Assessment Statement provides fundamental information on the overall assessment mechanism used for (discipline/s) engineering submitted for recognition as part of the APEC Engineer Register.

Approved Assessment Statements developed in accordance with this Guide may be sought directly from participating economies or through the APEC Engineer Coordinating Committee Secretariat.

PART A - THE MONITORING COMMITTEE

Chair
Members
Contact person, including contact details

A brief statement of current or recent appointments held by the Chair and members may be appropriate.

PART B - ASSESSMENT MECHANISMS

A brief description of each assessing body and mechanism is required with reference to specific documentation. Principal documents may be attached, other documents may be referenced and tabled at reviews, and be available on request.

The Assessment Statement may include:

- mechanisms applicable to practitioners in all disciplines;
- mechanisms applicable to practitioners in specified disciplines (and in particular for academic practitioners);
- national, regional and provincial mechanisms;
- superseded mechanisms.

Please include for each part of the Assessment Statement:

- Title of each assessment mechanism recognised by the Monitoring Committee;
- Name of each assessing body recognised by the Monitoring Committee;
- Principal person and contact person for each body; and
- Contact details

1. Accreditation or Recognition of Higher Engineering Education Programs

1a. Assessment Mechanisms

Details of current accreditation or recognition mechanisms to confirm and ensure the quality of (discipline/s) engineering education in universities or higher education institutions.

1b. Alternative Assessment Mechanisms

Details of current alternative mechanisms other than the above accreditation or recognition mechanism to confirm and ensure equivalence in education standard of other candidates.

1c. Superseded Assessment Mechanisms

Brief information on any superseded assessment mechanisms, and period of use, that were used for the assessment of higher education of more senior candidates for APEC Engineer Registration.

2. Assessment for independent practice

2a. Outline of Current Assessment Mechanism for Independent Practice in (Discipline/s) Engineering.

- Overview,
- Structure of application by candidate,
- Structure of applicant's report - where required,
- Continued professional development requirements,
- Structure of written or oral examination of candidate - where required,
- Structure of interview of candidate - where required,
- Approval conditions, for example compliance with code of conduct.

2b. Outline of Superseded Assessment Mechanism for Independent Engineering Practice in (Discipline/s) Engineering

Brief information on any superseded assessment mechanisms, and period of use, that were used for the assessment of independent practice by more senior candidates for APEC Engineer Registration.

3. Particular APEC engineer assessment items

3a. Seven Years Experience after Graduation in (Discipline/s) Engineering

- Overview
- Structure of applicant's report - where required
- Structure of written or oral examination of candidate- where required
- Structure of interview of candidate - where required

3b. Two Years Experience in Responsible Charge of Significant Engineering Work

- Overview
- Structure of applicant's report - where required
- Structure of written or oral examination of candidate - where required
- Structure of interview of candidate - where required

3c. Professional Development

State the body responsible for the professional development of (discipline) engineers and provide a brief statement of the policy, objectives, organisation, audit and management system for professional

development. State the periods of application of assessment mechanisms where changes have occurred.

3d. Compliance with Code of Conduct

State the engineer body responsible for the code of conduct, the code of conduct and the mechanism for assessing compliance with the code.

4. Audit of APEC engineers

State the engineer body recognised by the Monitoring Committee and the audit mechanism for the APEC Engineer registrants of the member economy.

PART C - ENGINEERING DISCIPLINES

Provide information on the scope of education programs and on the areas of practice for engineering disciplines nominated for registration.

PART D - ASSESSMENT DOCUMENTATION AND REPORTS

The following should be attached to the Assessment Statement

- Cover sheet
- Guide for Candidates and Assessors
- Application Form for Candidates (See example at Attachment 1)
- Assessment Report (See example at Attachment 2)
- Particular information on interpretations of the APEC Engineer Framework (See example at Attachment 3)

PART E - ATTACHMENTS AND REFERENCES

List of Other Attachments and References

ATTACHMENTS

Attachment 1	Monitoring Committee Summary of Assessment of Applicant for APEC Engineer Registration
Attachment 2	Example - Significant Engineering Work Application For APEC Engineer Registration
Attachment 3	Example - Career of Registered Engineer to be Recommended as APEC Engineer and Simulation for the Sampling of Significant Engineering Work
Attachment 4	Detailed Description of Two Years Experience in Responsible Charge of Significant Engineering Work
Attachment 5	Education Programs and Typical Management Skills

Appendix I - Attachment 1

MONITORING COMMITTEE SUMMARY OF ASSESSMENT OF APPLICANT FOR APEC ENGINEER REGISTRATION

Name of Applicant:

Qualification, and place and date obtained:

Registered Engineer Registration No.:

Registered Engineer Registration Date:

Registered Engineer's Discipline:

APEC Engineer Register Discipline:

Certified Compliance with APEC Engineer Criteria:

Completed an accredited or recognised engineering program, or assessed recognised equivalent	
Been assessed within their own economy as eligible for independent practice	
Gained a minimum of seven years practical experience since graduation	
Spent at least two years in responsible charge of significant engineering work	
Maintained their continuing professional development at a satisfactory level.	

Confirmed signature on statement of compliance with codes of ethics	

Signed

Officer delegated by
APEC Engineer Monitoring Committee

Appendix I - Attachment 2

EXAMPLE - SIGNIFICANT ENGINEERING WORK APPLICATION FOR APEC ENGINEER REGISTRATION (DRAFT)

(Reference: Tabled by Japan at Expert Advisory Group Meeting in Japan, July 1999)

Receipt No.:
Qualification:
Registered Engineer Registration No.:
Registered Engineer Registration Date:
Name of Registered Engineer's Discipline:
Name of Applicant:
Date of Birth:
Address:
Place of Employment:
Company Name:
Address:

I wish to be placed on the APEC Engineer Register and apply as described below in accordance with the provision that defines two years experience in responsible charge of significant engineering work.

1. Engineering Work Experience (Describe in a retrospective order, beginning with the most recent one.)

				Attestant's Column		
Work No.	Starting Date/ Ending Date (months)	Name of Organization/ Position/ Title	Name of Work	Signature	Relationship of Signor to Applicant	Tel/Fax

Note: The signor shall be, in principle, the contractor who employed the applicant. Otherwise, the signor shall be the representative of the organization under which the applicant executed his engineering work.

2. Detailed Description of Engineering Work
(Describe, in detail, each work listed in the preceding page.)

Work No.	Position in Engineering Work	Contents of Work (Describe the contents and significance of the work, the applicant's role, and the degree of the applicant's responsibility using about 50words.)

Note: Make a copy of this sheet when an extra sheet is needed.

I hereby swear that the above descriptions are true.

Date:

To APEC Engineer Monitoring Committee

Applicant's name: Signature:

Appendix I - Attachment 3

EXAMPLE - CAREER OF REGISTERED ENGINEER TO BE RECOMMENDED AS APEC ENGINEER AND SIMULATION FOR THE SAMPLING OF SIGNIFICANT ENGINEERING WORK

(Reference: Tabled by Japan at Expert Advisory Group Meeting in Japan, July 1999)

Examples of Registered Engineer	Mr. A Civil Engineering Consultant	
Age/Date of Birth	31 yrs/September 22, 1967	
Technical Discipline Optional Subject	Civil Engineering Urban and Rural City Planning	
Final Academic Background	Graduated from Department of Engineering, Engineering Faculty, University, in 1990	
Age	**Project Owner Classification**	**Project Name, Number of Months of Experience in Significant Engineering Work, and Summary**
25	Ward	Arterial road network improvement planning
26	PWRI	Study of methods for planning and adjusting buildings and road facilities Study of relationship between street image and landscape elements
27	Ministry City	Establishment of urban landscape improvement plan (6 months) (Serving as the coordinator among the localities who mutually have complex interests, Mr. A worked out a plan.) Establishment of integrated basic plan for built-up urban area redevelopment (6months) (Serving as the coordinator between the municipalities and localities, Mr. A worked out an integrated basic plan for built-up urban area redevelopment.)
28	Public Works Research Institute (PWRI) Ministry	Preparation of guideline for streetscape development (draft) (3 months) (Mr. A worked out a draft guideline on the basis of a new concept, i.e., streetscape.) Study of Policy for Environmental improvement in Urban and Regional Areas (2 months) (Mr. A studied the policy. by reviewing medieval roads and buildings along such roads from a new angle.)
29	Ministry Prefecture	Preparation of an environmental improvement plan (4 months) (Mr. A worked out a plan to improve highways of olden times from a new viewpoint by taking into consideration natural, historical and cultural resources in a regional area.) Preparation of an integrated "Historical Road" improvement and utilization plan
30	City	Preparation of plan for development of areas surrounding a new interchange (4 months) (Serving as the coordinator between the authorities concerned and the localities and working in tie-up with both parties, Mr. A worked out a plan.)
Sum of Experiences in Responsible Charge of Significant Engineering Work (Shaded)		25 months

Note: The shaded portion indicates engineering work presumed to be described in an application as chief engineer's experiences equivalent to "experiences in responsible charge of significant engineering work".

Appendix I - Attachment 4

EXAMPLE OF DETAILED DESCRIPTION OF TWO YEARS EXPERIENCE IN RESPONSIBLE CHARGE OF SIGNIFICANT ENGINEERING WORK

(Reference: Tabled by Japan at Expert Advisory Group Meeting in Japan, July 1999)

Concerning "Experiences in the execution of engineering work under complicated conditions, or engineering work requiring new concepts, or engineering work involving a plurality of different disciplines", the contents of more realistically presumed experiences are described below.

1. Experiences as chief or higher-position engineer (not in assisting engineer position) in charge of engineering work executed under complicated conditions

   Complicated conditions
   - The site is topologically complicated.
   - Other structures are located close to the planned structures.
   - There are strict safety and environmental requirements.
   - The construction schedule is tight.
   - There are many authorities concerned among which coordination is required.
   - Public relations are difficult.

2. Experiences as chief or higher-position engineer (engineer not in assisting position) in charge of engineering work requiring new concepts.

   - New concept
   - New technologies
   - New working methods
   - New solutions
   - New techniques

3. Experiences as chief or higher-position engineer (engineer not in assisting position) in charge of engineering work involving a plurality of different disciplines.

   - Engineering work requiring expertise covering various disciplines;

   - Engineering work in which a plurality of different disciplines is involved or engineering work requiring coordination among the engineers of different disciplines.

4. Experiences in engineering work equivalent to 1 through 3 above

Appendix I - Attachment 5

EDUCATION PROGRAMS AND TYPICAL MANAGEMENT SKILLS

The APEC Engineer recognises that the responsibilities undertaken by engineers often evolve during their career, reflecting an increasing emphasis on management roles as well as professional development based upon appropriate engineering education.

Education Programs

A balance of theoretical and applied content is expected in higher education programs to enable APEC Engineers to engage in an area of engineering practice upon graduation. The *Discussion Paper December 1997* proposed that all recognised programs cover the following principal and supplementary fields of study:

Principal Fields

- Mathematics & Physical Sciences
- Engineering Sciences
- Engineering Analysis and Design

Supplementary Fields

- Communication
- Management
- Ethics

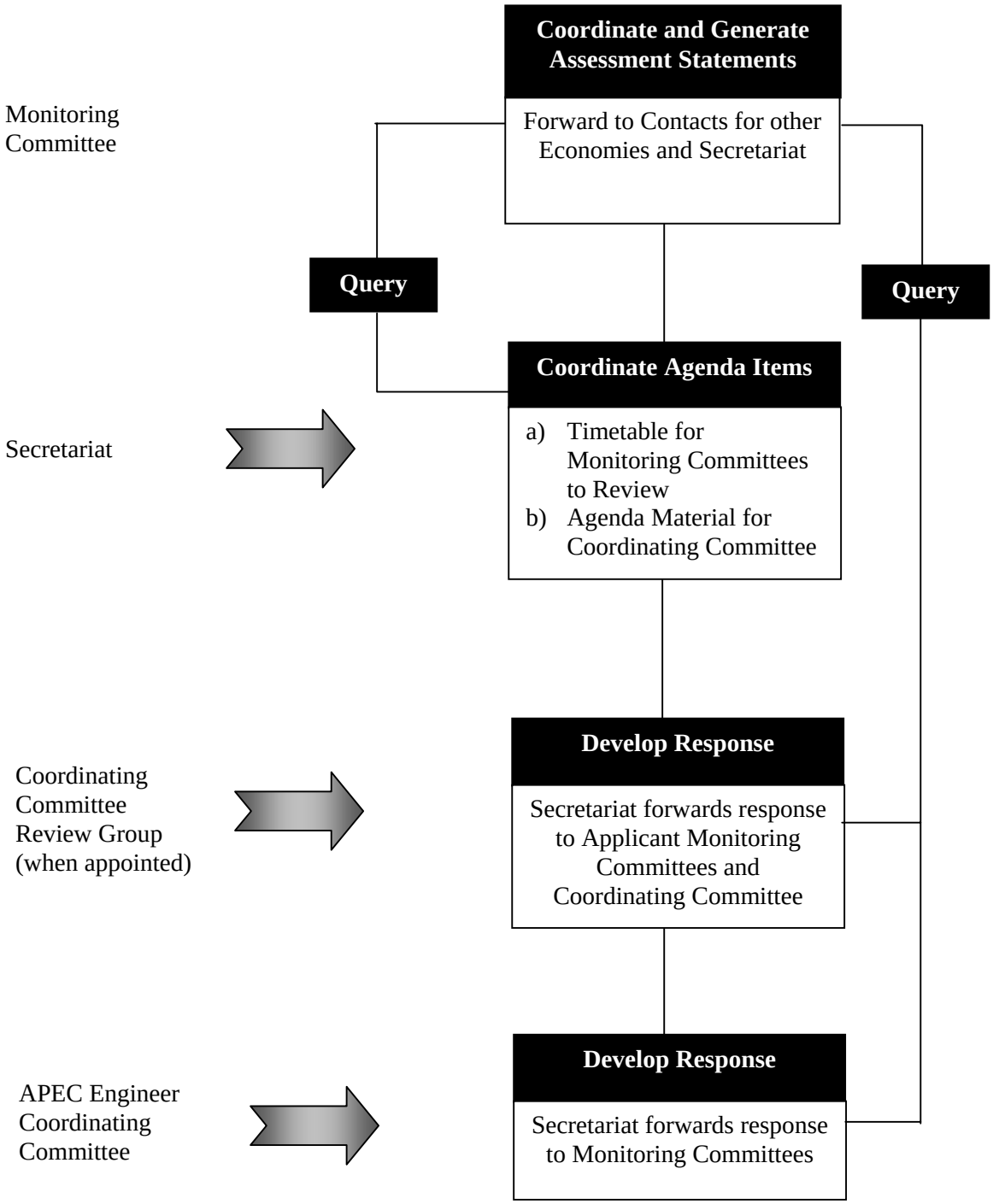
Typical Management Skills and Activities Applicable to Engineering Disciplines

Managerial skills and activities associated with experience in an engineering discipline and practiced in an engineering environment might typically include:

- General management
- Project management
- Quality assurance and total quality management
- Marketing of engineering products or services
- Financial or human resource management
- Design and delivery of training programs
- Policy development
- Regulation development

These activities will normally involve leadership, teamwork, oral and written communications, presentations, and interpersonal skills in the practice of all engineering disciplines.

Appendix II: Assessment Statement Flow Chart



PART 3 APEC ENGINEER COORDINATING COMMITTEE RULES

1. General

1.1 These Rules have been developed and will be applied in accordance with the provisions of the APEC Engineer Framework, and are intended to be read in conjunction with those provisions. Should the requirements of the Rules and those of the Framework be found to be inconsistent, the requirements of the Framework will prevail.

2. Review Procedures

2.1 The assessment system applied by each authorised Monitoring Committee in controlling entry to the Register of APEC Engineers in the economy for which that Committee is responsible will be subject to monitoring by representatives of other authorised Monitoring Committees at intervals of not more than six years. The secretariat will establish a schedule for the implementation of the associated reviews and reports, and authorised Monitoring Committees will make every reasonable effort to comply with that schedule.

Any authorised Monitoring Committee which effects a substantial change to its assessment processes is obliged to report such a change to the secretariat and thus to provide the other authorised Monitoring Committees with an opportunity to request that the scheduled monitoring exercise be brought forward.

2.2 Upon receipt of a written request from the secretariat, each authorised Monitoring Committee will nominate two representatives to take part in monitoring the assessment criteria and procedures of any other authorised Monitoring Committee, and undertake to meet the costs incurred by that representative. This clause shall not require any Monitoring Committee to provide more than one such representative in any calendar year.

2.3 Three representatives will be selected by the Coordinating Committee from the list of nominees to form the review team, which shall include at least one participant with experience in engineering education, and one from an industrial or professional background. The Committee shall take all reasonable steps to ensure that none of the individuals selected through this process has had any substantial prior involvement in, or commitment to, the assessment system being reviewed.

2.4 The Monitoring Committee subject to review will be advised by the secretariat of the proposed composition of the review team, and invited to show cause why any member of the team is not suitable. In the event that such an objection is lodged, the secretariat shall take such steps as appear necessary and appropriate to resolve the situation and shall, if unable to achieve consensus, consult the official representatives of all authorised Monitoring Committees before confirming the membership of the review team.

2.5 The Monitoring Committee subject to review will be given at least six months notice of the monitoring exercise, and will be invited to propose a suitable process, timetable and administrative support mechanism, for consideration by the review team.

The review will be carried out in two stages. The second stage will only be implemented in cases where the Monitoring Team is not satisfied that reasonable compliance has been demonstrated at the end of the first stage.

The first stage will be a paper (or desk top) review of a written portfolio of material supplied by the Monitoring Committee subject to review, consisting of evidence showing how the assessment statement is being adhered to, and case studies of evidence portfolios and assessor notes for marginal candidates.

The monitoring exercise will cover all aspects of the assessment process, including, where relevant, accreditation systems, examinations, graduate training schemes and professional interviews.

2.6 Discussions relating to a monitoring exercise undertaken in accordance with these Rules will be held in confidence. At the conclusion of each exercise, the review team will forward its report and recommendations to the secretariat as soon as reasonably practicable. A copy of the report will be furnished to each authorised Monitoring Committee through the secretariat.

2.7 The recommendations open to the review team will be as follows:

(a) that the APEC Engineer Coordinating Committee extend the authorisation of the Monitoring Committee to operate a Register of APEC Engineers within their economy for a period of six years; or

(b) that the APEC Engineer Coordinating Committee extend the authorisation of the Monitoring Committee to operate a Register of APEC Engineers within their economy for a period of not more than three years, subject to that Committee providing, within six months, a report that satisfies the APEC Engineer Coordinating Committee that all specific issues of concern identified by the review team have been or will be addressed; or

(c) that the APEC Engineer Coordinating Committee suspend the authorisation of the Monitoring Committee to operate a Register of APEC Engineers within their economy, and that urgent and specific assistance be offered by the APEC Engineer Coordinating Committee to help the Monitoring Committee to address the deficiencies identified by the review team.

The recommendation will require support from two-thirds of the review team members in order to be submitted to the Coordinating Committee. Members who do not support the recommendation may write a minority report explaining why they do not agree with the selected recommendation and identifying the recommendation that they believe to be more appropriate. The minority report will be submitted with the review team report tot eh Secretariat for consideration by the Coordinating Committee.

2.8 Any resolution for suspension or termination of authorisation will require support from two-thirds of the authorised Monitoring Committees. No such suspension or termination shall, of itself, affect the status of any practitioner who has gained recognition through listing on the relevant Register of APEC Engineers.

3. Appeals

3.1 Where an adverse recommendation has been made, and accepted by the APEC Engineer Coordinating Committee, the Monitoring Committee in question may request that a separate review be conducted within six months by an appeal panel which is established in the same manner as, but has no membership in common with, the original review team. The appeal panel will determine the procedures and criteria under which it operates. The full costs of any such appeal will be borne by the Monitoring Committee concerned and the right of appeal may be exercised only once. The outcomes of any appeal will be binding on all parties.

4. Authorisation to Operate an APEC Engineer Register

4.1 Applications for authorisation to operate an APEC Engineer Register within an economy must conform to the principles set out in *The APEC Engineer Manual* and to such guidelines as may be approved from time to time by the APEC Engineer Coordinating Committee

4.2 In applying for authorisation to operate a Register of APEC Engineers, a Monitoring Committee will be required to prepare and submit to the APEC Engineer Coordinating Committee a statement of the proposed assessment criteria and procedures, which will be subject to comprehensive review under procedures similar to those used in monitoring the performance of existing authorised Monitoring Committees.

4.3 Following that review, authorisation will require support from two-thirds of the authorised Monitoring Committees.

5. General Meetings

5.1 A general meeting shall be held at least once every two years at a time and place and in a mode selected by the Coordinating Committee following appropriate consultation with the members. The secretariat shall give the voting and non-voting members at least three months notice of a general meeting. Items for discussion at a general meeting should be submitted to the secretariat at least two months prior to the meeting, and the agenda and business papers should normally be distributed to the members at least one month prior to the meeting.

5.2 A general meeting shall be convened within three months of receipt by the secretariat of a request submitted in writing over the signatures of three or more voting members of the Coordinating Committee. Any such request must indicate clearly the matters which are to be resolved at the general meeting, and the agenda of the meeting shall be restricted to consideration and resolution of those matters.

5.3 The time and place of any general meeting held in the face-to-face mode shall, so far as practicable, be such as to minimise the overall travel costs for participants. Where convenient, the meeting should follow or precede a major international conference or similar event.

5.4 Each Monitoring Committee will arrange for at least one representative to attend the general meeting. At the meeting, each Monitoring Committee will have one vote, and a simple majority will suffice for a decision on any matter, unless otherwise specified in *The APEC Engineer Manual* or in these Rules.

5.5 No Monitoring Committee will be required to comply with a decision of a general meeting when compliance would require them to act in a manner which is contrary to their constitution, or, where relevant, beyond their statutory authority.

6. Voting

6.1 Monitoring Committees which are entitled to vote on any matter at a General Meeting of the Coordinating Committee may lodge that vote either through their designated representative attending that Meeting, or may authorise a proxy to vote on their behalf. Such authorisation may specify how the vote is to be exercised, or may give the proxy discretion to vote having regard to the debate at the meeting.

7. Changes to Rules

7.1 Any member of the Coordinating Committee may propose amendments to these Rules at any time. The adoption of such amendments will proceed only upon the basis of a positive vote by at least two-thirds of the Monitoring Committees which are entitled to vote at the next succeeding General Meeting, provided that the proposal in question has been received by the secretariat at least three calendar months prior to the meeting in question, and disseminated to all Monitoring Committees at least two months prior to that meeting.

8. Chair

8.1 At the conclusion of each general meeting, a Monitoring Committee will be appointed by the members to provide the Chair of the Coordinating Committee. The Chair shall hold office for a period which will be determined by the members, but which will not exceed two consecutive terms, each of two years duration.

9. Secretariat

9.1 At the conclusion of each general meeting, a Monitoring Committee will be appointed by the members to provide the secretariat, and will discharge that responsibility until the conclusion of the next succeeding general meeting. No Monitoring Committee may provide the secretariat for more that two consecutive terms, each of two years duration.

9.2 The Chair and the secretariat will normally come from different Monitoring Committees.

9.3 The secretariat will maintain a record of the deliberations and decisions at each general meeting will facilitate and record exchanges of information between the participants, and will advise participants and others as to the policies and procedures adopted by the APEC Engineer Coordinating Committee.

10. Reports

10.1 The APEC Engineer Coordinating Committee will maintain close linkages with the APEC Human Resources Development Working Group with regular reporting.

PART 4 MUTUAL EXEMPTION FRAMEWORK GUIDELINES FOR REGULATORY AUTHORITIES

Preamble

Statutory bodies and governments are encouraged by the APEC Engineer Coordinating Committee to have regard to the following guidelines so that exemptions are granted consistent with a Mutual Exemption Framework, based upon the APEC Engineer Framework.

A mutual exemption framework, which would confer exemption, in whole or in part, upon APEC Engineers from further assessment by the statutory bodies that controlled the right to practise in each participating economy, can be concluded only with the involvement and consent of those statutory bodies and the relevant governments.

Only complete or partial exemption of APEC Engineers from the assessment mechanisms operating in the host jurisdiction is at issue, not exemption from the requirement to become licensed or registered in the economy concerned.

Issues to be Considered

The various conditions that must be satisfied after substantial equivalence has been recognised and before the right to independent practice could be granted have been identified as:

- technical issues specific to the host jurisdiction
- legal and practice issues specific to the host jurisdiction
- responsibility, accountability, and liability

Language

Given the nature of communication in engineering practice, the relationship between engineers and their clients, and the widespread use within and between APEC economies of English as a common language for exchanging technical and professional information, there should be no need to require that APEC Engineers demonstrate any specific measure of fluency in an official language of the host economy. The capacity of practitioners to attract commissions from clients for independent practice will in any case be governed by their ability to communicate effectively with such clients.

Specific Technical, Legal and Practice Issues

The extent to which any additional assessment would be required depends on the kind of practice being contemplated.

- *Practice within a Sponsoring Organisation*

Where an APEC Engineer seeks a license only in order to practise within a sponsoring organisation, or through a formal relationship with engineers already licensed for independent practice, the Coordinating Committee considers that few, if any, issues should arise.

- *Independent Practice*

Where an APEC Engineer seeks licensing, conferring the right to independent practice, the forms of assessment that might be applied could include:

- submission of practice statement, and/or
- formal examination and/or interview, and/or
- adaptation period (not exceeding a negotiated limit), and /or
- exemption for very experienced engineers.

Assessment

In general, while accepting that statutory authorities are responsible for protecting the health, safety and welfare of the community, the Coordinating Committee has a strong preference for adopting the least intrusive forms of assessment compatible with that responsibility. The objectives of any supplemental assessment mechanisms should be to provide the relevant authorities with a satisfactory degree of confidence that the practitioners concerned:

- understand the general principles behind applicable codes of practice;
- have demonstrated a capacity to apply such principles safely and efficiently; and
- are aware of the special requirements operating within the host jurisdiction.

There are, at present, significant variations in the mechanisms through which these principles are applied in different APEC economies. The following actions are recommended by the APEC Engineer Coordinating Committee as being likely to reduce unnecessary barriers from the point of view of those applying for rights to practise:

- Assessment relating to specific technical, legal or practice issues should be implemented only at the point when APEC Engineers actually propose to engage in the relevant forms of practice, rather than at the point where a general right to practise is conferred.

- Where supplemental assessment is considered necessary, requiring APEC Engineers to complete an adaptation period of sponsored practice within the host jurisdiction would be preferable to requiring them to undertake further formal assessment.

- Where such adaptation periods have been specified, their duration should not normally exceed 12 months, which would have to be negotiated among the economies. The Monitoring Committee authorised to establish and maintain the Register of APEC Engineers within the host jurisdiction might often be well placed to monitor and assess the outcomes of the adaptation periods.

Responsibility, Accountability and Liability

The APEC Engineer Coordinating Committee considers that APEC Engineers should be held individually accountable for their actions, both through requirements imposed by each registering body and through legal processes, some of which may need to be negotiated amongst the participating economies.

Implementation

Many projects developed within APEC are based upon voluntary participation, and this is the preferred approach for implementing the APEC Engineer Register and the related Mutual Exemption Framework. Interested member economies have participated in developing and establishing the APEC Engineer and now seek to relate it to a Mutual Exemption Framework. Any other APEC member economy has the right to be represented on the APEC Engineer Coordinating Committee once a Monitoring Committee has been established which is prepared to operate in compliance with the APEC Engineer Framework and Rules and has the confidence of the relevant authorities within that economy. Such a Monitoring Committee may subsequently seek authorisation to establish and maintain an APEC Engineer Register.

The APEC Engineer Coordinating Committee recommends that a similar approach be adopted for the establishment of a Mutual Exemption Framework.

ANNEX 1 - LIST OF CHANGES TO DOCUMENT

The original version of *the APEC Engineer Manual* was published in November 2000. Since that time, two sets of changes have been incorporated into the document as listed below.

Changes resulting from the APEC Engineer Coordinating Committee Meeting held in 2001 at Kuala Lumpur:

- Revised forward
- Part 1, Section 5, page 10 second last bullet added "(the emerging norm for continuing professional development programs in APEC economies is an average of 50 weighted hours per year of formal and informal training broadly related to the area of practice)"
- Part 1, Section 6, page 10 first paragraph, last sentence changed to "The APEC Engineer Coordinating Committee recommends that (i) relevant governments pursue this within the broader APEC framework and that (ii) negotiation of agreements be consistent with the General Agreement on Trade in Services (GATS) Article VII."
- Part 1, Appendix II, added "3. A Statement describing how academic practitioners meet the APEC Engineer requirements."
- Part 1, Appendix III, added "Information" and "Bioengineering" and to the list of engineering disciplines and changed "The nine specified engineering…" to "The **eleven** specified engineering…"

In addition, various typos were corrected.

Changes resulting from the APEC Engineer Coordinating Committee Meeting held in 2003 in New Zealand:

- Revised acknowledgements for Korea
- Revised forward
- Part 1, Section 2, second last paragraph, "Each practitioner included on the APEC Engineer Register shall…" changed to "Each practitioner included on the APEC Engineer Register **may**…"
- Part 1, Appendix III, first paragraph, "…the Monitoring Committee shall identify…" changed to "…the Monitoring Committee **may** identify…"
- Part 1, Appendix III, added "Aerospace", "Building", "Fire", and "Petroleum" to the list of engineering disciplines and changed "The eleven specified engineering…" to "The **fifteen** specified engineering…"
- Part 3, Section 2.5, added paragraphs "The review will be carried out in two stages. The second stage will only be implemented in cases where the Monitoring Team is not satisfied that reasonable compliance has been demonstrated at the end of the first stage.
  The first stage will be a paper (or desk top) review of a written portfolio of material supplied by the Monitoring Committee subject to review, consisting of evidence showing how the assessment statement is being adhered to, and case studies of evidence portfolios and assessor notes for marginal candidates."
- Part 3, Section 2.7, added paragraph following part (c) "The recommendation will require support from two-thirds of the review team members in order to be submitted to the Coordinating Committee. Members who do not support the recommendation may write a minority report explaining why they do not agree with the selected recommendation and identifying the recommendation that they believe to be more appropriate. The minority report will be submitted with the review team report tot eh Secretariat for consideration by the Coordinating Committee."