International Trends in Engineering and the South Pacific

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The Global Context of Engineering

- Mobile profession – cross-border movement
- International competence standards
- Increasingly multi-national engineering companies
- Need for scale to afford engineering tools such as advanced software

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Implications for developing countries

- Retention of engineering skills increasingly difficult
- Hard to mount international quality engineering qualifications
- “Tied aid” does not support local skills

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Why did IPENZ become involved?

- WFEO Committee on Capacity Building – 2005
- South Pacific more important than Africa
- Need to follow good practice
- Programme led by participating nations, IPENZ in support
- Australian focus in SE Asia

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South Pacific Island Engineering Workshop – October 2007

- Fiji – Fiji Institution of Engineers
- Samoa – Institution of Professional Engineers Samoa
- Tonga
- Cook Islands
- Vanuatu

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Typical Issues

- Historic reliance on aid from developed nations (especially Australia and NZ) for infrastructure projects – brought good engineering standards with it
- Local capital increasing via tourism
- Capital from Asia increasing
- Engineering standards no longer intrinsically packaged with aid money

Typical Issues (continued)

- Cyclones, earthquakes, fire all lead to substantial structural damage
- Construction standards variable – poor materials
- Waste water treatment – lagoon pollution
- Water treatment variable
- Roading variable quality
- Electricity supply unreliable – diesel dominant
- Telecommunications improving

Capability, education and professional development

- Aid-funded projects are not always developing local capability or capacity.
- Construction capability is low (technical and trades), and poor supervision.
- Training of construction workers is inadequate and some practices are unsafe.
- Access to codes of practices and relevant standards is poor –knowledge of methods for handling new materials is lacking.
- The engineering workforce is ageing, difficult to attract young people into engineering education.

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Technical standards

- Materials quality and variability of materials an issue.
- Poor capability to test and quality assure materials
- Lack of a systematic building code which is practical for a number of nations.
- Cyclones, tsunami and earthquakes not dealt with well in design.
- Asset degradation due to harsh tropical conditions
- Much investment bypasses Australian or New Zealand technical standards.
- Access to technical standards is difficult.
- Some imported technology inappropriate for the service conditions.

Professional identity for engineers

- Qualification recognition, especially for those educated in Fiji and Papua New Guinea is an issue,
- Lack of a peer body for creating status and standing for engineers
- Lack of specialist engineers in some disciplines, especially those in high demand globally,
- Enforcement of disciplinary actions is difficult,
- Achievement of robust competence assessments is difficult.

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Suggestions for Improvement

- Development of a South Pacific Building Code, and regular updating of this document.
- Development of suitable compliance documents e.g. standards
- Development of means to ensure reliable and accurate construction materials testing in all nations
- Consistent restriction of professional engineering work to competent engineers.
- Internationally-benchmarked competence standards for to practice in South Pacific conditions.
- Benchmarking of Fijian and PNG qualifications.

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Suggestions for improvement (cont.)

- Creation of professional identity for engineers
- Improved access to professional development, perhaps facilitated by IPENZ.
- Competent regulators – competence developed by productive relationships with leading Building Consent Authorities in New Zealand.
- Improved engineering trades training throughout the South Pacific – IPENZ might act as an advocate for funding

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In summary

The Pacific island nations have a relatively unique problem caused by:

- Small populations – no economy of scale
- Wide geographic distribution
- Susceptibility to natural disaster
- The economic circumstances of the nations

South Pacific Engineers Association (SPEA)

Competence and standards:

- Technical standard setting
- Competence and qualification standard setting.
- Good engineering office practice guideline establishment.
- Competence assessment processing.
- Accrediting/qualification recognition actions.
- Disciplinary actions and complaints processing.

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South Pacific Engineers Association (SPEA) (cont.)

Professional development:

- Broker of professional development opportunities delivered locally.
- Networking opportunities for engineers.
- Mentoring of young engineers.
- Improved access to engineering knowledge, possibly including access to technical standards.

July 2008 Workshop

- Desire to involve Papua New Guinea – involvement of IEPNG
- Linkage to Engineers Australia desirable
- Initial focus on support of people and competence standards – SPEA and associated competence registers
- Need to establish a credible body before funding is sought for technical standards

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August 2009 Workshop

- Fiji, Tonga, Samoa, Papua New Guinea
- Finalised the “model” for the Association and prepared the Rules
- Agreed a means for meeting the costs
- Planned towards this launch.

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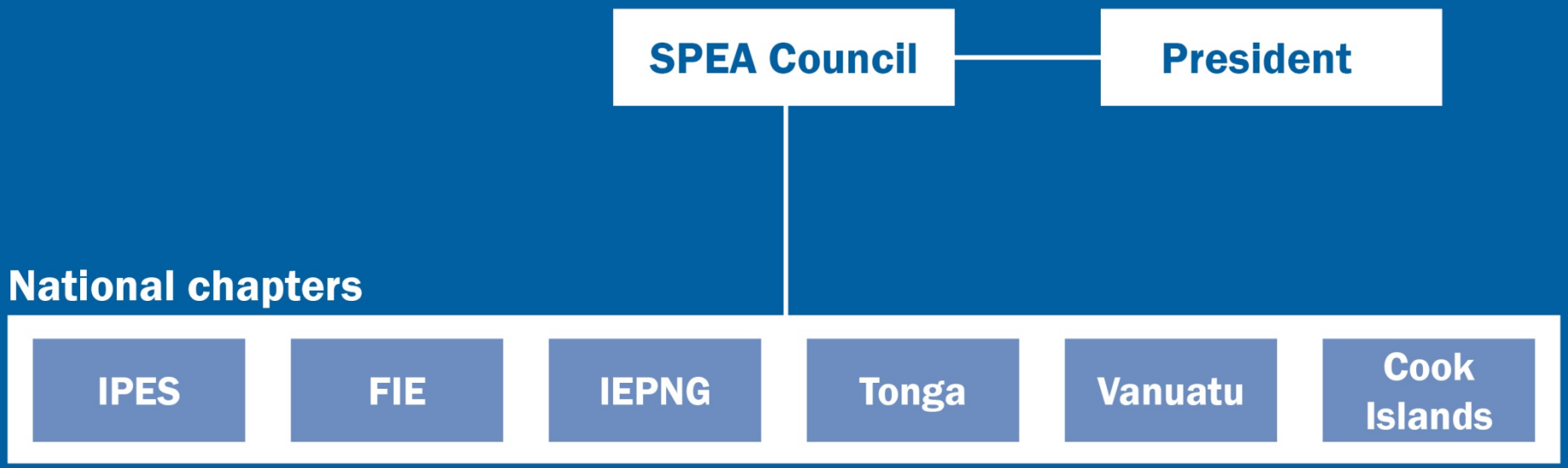
Governance



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Role of SPEA Council

- Governance
- Representation to key stakeholders in region
- Set overall work programme, including regional activities
- Manages interface with IPENZ National Office (IPENZ and Engineers Australia can be in attendance but not part of decision making)

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Role of IPENZ

- provides underpinning administration of SPEA itself
- Operates web site
- On request from SPEA Council or from a national chapter:
  - Can provides copies of publications, distribute newsletters etc.
  - Can provides assistance with short course development
  - Can train assessors, moderates assessment process
  - Can assist towards accreditation of local qualifications

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Desired outcomes

- Strengthened national bodies – more members, better standards
- Engineering recognised as a critical need and supported more by Governments
- Improved resilience of engineering systems in the region
- Benefits flowing on to the people of the region

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Closing Remarks

- SPEA is your Association
- Our congratulations to the six national chapters for their commitment
- IPENZ is committed to support SPEA

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