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President's Column

This is my first official column as president, inserted in our second newsletter since SPEA's official launching in March 2010. I must say that there is inevitable potential, in fact well overdue, for our new Association to become an effective arm of the Pacific Island Nations to improve and promote engineering-related developments for the betterment of our island countries. Since March, I see the positive unification of our registered chapters and the keenness shown by other potential chapter countries to join us. There is a Samoan saying that *more lights will catch more fish*. An old saying that was derived from a primitive method of fishing at night time in shallow waters, a subsistence way of living common in Pacific Islands. Thus, in order for SPEA to succeed and enhance more in its efforts to improve and promote sustainable development, we need more co-operation and sharing of common goals. We will develop a mission statement related to our newsletter name *Engineering Connections*, a statement like "sustainability must be made a natural gene for all engineering activities."

I applaud the message by His Excellency Ratu Epeli Nailatikau, President of Fiji, in his address at the launching of SPEA in March 2010. He hammered perfectly straight to the point of what engineers are in relation to their role in infrastructural development of society.

National Chapters

The Fiji Institution of Engineers (FIE), Institution of Engineers Papua New Guinea (IPENG),
Institution of Professional Engineers Samoa (IPES), Tonga, Vanuatu, Cook Islands

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“Good quality engineering is one of the primary means to resist the forces of nature. Well-engineered structures resist high winds so less rebuilding is needed. Well engineered transport systems suffer little damage and enable us at will, to move people and resources to places where they want to go or where they are most needed. Well-engineered water supply and sanitation systems are vital just for ordinary everyday living and these are critical issues in post forces-of-nature times of relieving human misery. Well-engineered power supply and telecommunications will also survive much better and will enable a quick recovery.”

His Excellency fully agrees and supports the new Association, *“The South Pacific Engineers Association gives the one thing our nations lack individually – size and the potential to grow. With its size, and we anticipate its greater ability to influence, it is easy to see that the Association has the potential to make a very real difference in our region”.*

He also believes in working closely with governments; *“The Association could also have an important role as an advisor to governments – we need the wisdom and expertise of engineers to ensure that our public financial capital is well applied, and to ensure that where we do receive aid, it is applied in the most valuable way”.*

Learning from the Fiji President’s address has made me more confident that government leaders have great respect for their engineers. One of my goals is to encourage all chapters of SPEA to work closely with their respective governments. It is a two-way street and a mutual relationship. Engineers are required by their ethics to advise the public through proper protocol.

To this day, only three months after the SPEA formation, I am pleased to say that SPEA is operational and is busy with its *Action Activities* and *Milestones* to be achieved.

I want to thank IPENZ for their positive support from the beginning when the idea of forming SPEA was initially conceived. IPENZ was indeed responsive and professionally committed to the idea when it was first initiated by the Samoa Chapter. I also want to thank FIE for the excellent hosting of the launch in March. My special thanks to the chapters, Engineers Australia and all the distinguished guests who attended and gave their support of this Association.

Development of Policy Papers

The SPEA Council have decided that it is important to develop policy papers on three issues. These are:

- the role of engineering in sustainable economic development in our region
- achieving infrastructure that is resilient to climatic or geohazard events
- the needs for engineering education in our region.

These are not to be long detailed papers, but give a high-level overview that is intended to assist policy makers and government officials to make wise choices. Drafts of each are on the SPEA website (www.spengineer.org) and are available for comment. The SPEA Council intends to approve the finalised versions after peer review at its meeting on 27–28 July 2010.

The third of these papers on engineering education is regarded as particularly important because of potential developments in engineering education in the region. In Suva, both the University of the South Pacific and Fiji National University are intending to expand their programmes, and in Samoa, the National University (NUS) is considering the programmes it should offer. Incidentally, the SPEA President recently met the Vice Chancellor (VC) and Deputy VC of NUS in Samoa, and offered them the opportunity to comment on this *Education Policy Paper*. They have shown interest and will submit their comments in due course as part of their long-term strategies. This is another element of SPEA's efforts; to allow the general stakeholders to participate and share opinions on the policy papers that SPEA plans to highlight as milestones of its mission. The SPEA policy paper sets out the types of graduates (professional engineer, engineering technologist, engineering technician) that SPEA considers are most needed in each of the major discipline areas (civil, electrical, mechanical, chemical/process), and the likely graduate numbers needed. SPEA would expect that governments would not want to fund programmes that do not have the support of the engineering profession.

Professional Development Courses

SPEA has identified three subjects in which it considers that professional development opportunities for engineers in our region would be most useful. These are:

- building and civil construction to withstand climatic and geohazard events
- road design, seawall construction and maintenance
- small-scale water and wastewater treatment.

Investigations are being carried out with the assistance of IPENZ in New Zealand to establish a viable means to offer professional development opportunities. As progress is made towards defining how short courses can be offered, further information will be given. Those readers with interests in such opportunities should inform their local chapter.

Relationships to SPPEEx and Engineers Without Borders

South Pacific Professional Engineering Excellence (SPPEEx) is an association which gathers engineers of South Pacific or Maori ethnicity who have completed engineering degrees in New Zealand. Engineers Without Borders is an international collective of national bodies who share the name and a common *modus operandi*. EWB has activities in several parts of New Zealand, and aims to bring the skills and expertise of New Zealand engineers to projects abroad.

When the SPEA Council meets in Auckland in late July 2010 it will hold discussions with both SPPEEx and EWB to establish how better to work together. At the very least, it would be helpful if activities undertaken by SPPEEx or EWB were always linked to the relevant SPEA chapter. How to accomplish this will probably be the key point of debate at the Council meeting.

Progress Towards New National Chapters

Engineers in the Cook Islands have made substantial progress towards formation of the Institution of Engineers Cook Islands. A detailed report will be made in a later newsletter. In both Tonga and Vanuatu progress is slower, but there are groups of engineers working to achieve the ultimate goal of national engineering bodies recognised as the SPEA national chapters.

Telling the World about SPEA

As SPEA develops, there is a story to tell the world. Through IPENZ, the World Federation of Engineering Organisations has been told about the development of SPEA. In the *World Engineering Report* being prepared and published by the United Nations Educational, Scientific and Cultural Organization (UNESCO), it is intended that there will be a section about engineering in the South Pacific. In the longer term, as SPEA develops, it may be able to participate directly in international activities.

Future Newsletters

SPEA newsletters are not just about SPEA – they can be about engineering activities in the region, so any one can submit a story about an interesting project. As an example, reproduced below is material from an Engineers Without Borders project in Tonga. We look forward to receiving any such material. Please email your story to pa-ce@ipenz.org.nz

Engineers Without Borders New Zealand Tonga Renewable Energies – Project 2009

Between 14-25 November 2009 a group of students and staff of the University of Canterbury travelled to northern Tonga to install a solar power system for Vava'u High School as part of an Engineers Without Borders New Zealand (EWBNZ) initiative. The team included six current and former students of the College of Engineering along with Professor Pat Bodger and Dr Stewart Hardie of the EPECentre, Russell Taylor of the EcoCARE Pacific Trust and Jim Palmer, registered electrician and member of Rotary International.

Power, along with water bills have been a significant burden to Vava'u High School. Lack of funds to pay for water and power has forced the school to close on occasion. Through the installation of solar panels at the school, EWBNZ and EcoCARE have helped to reduce this burden while providing a valuable learning experience for the young engineers involved.

This project has been running for a year and a half and came about as a collaborative effort between the Canterbury chapter of EWBNZ and EcoCARE Pacific Trust, a charity which focuses on Pacific Island development.

The solar system installed consisted of a 1,440 Watt solar photovoltaic array connected to the school's main switchboard using a grid-tied inverter, supplementing power drawn from the electricity grid. The system is estimated to save the school, which uses less electricity than an average New Zealand household, approximately \$2,000 per year. A combination of factors, including higher sunshine hours and electricity charges approximately three times that of what we experience in New Zealand made the system an economically viable option for the school. In addition to the economic benefit, the team hopes the system can be used as an educational resource for students as well as making a positive environmental impact. Almost all of Tonga's power is generated through the combustion of fossil fuels.

In addition to the solar installation, a range of other activities were carried out to assist the school with its electricity and water needs as well as the provision of general services. These activities included:

- *energy auditing*
- *water auditing*
- *repair and maintenance of several school computers*
- *repair of parts of the school's electrical grounding and lightning protection system*
- *the detection and repair of leaks around the school.*

Through the above activities and suggested energy- and water-saving activities, the school is expected to save a further \$4,000 per year. This equates to over one fifth of the school's spending in these areas.

In addition to these activities, analysis and scoping work was carried out for the design and installation of rainwater harvesting system for the school which may form part of an honours project in 2010. Such a system would have the potential to meet the entire school's water needs and provide savings of between ten and fifteen thousand dollars per year.

Overall the trip was extremely successful, exceeding expectations in terms of direct impact for the school and experience gained for the engineering students involved. EWB NZ hope to be able to offer further projects in the future to allow engineering students to gain valuable real-world project experience while assisting both our local communities and Pacific neighbours. A similar project has also just been completed by an EWB NZ group from the University of Auckland at a separate school in southern Tonga.

This project at Vava'u High School could not have been carried out without the kind support of many individuals, businesses and organisations including: NZAID, The University of Canterbury, Air New Zealand, UCSA, IET New Zealand, EPECentre, Mitton Instruments and a wide range of in-kind supporters.

For further information visit the EWB website at www.ewb.org.nz