



## THE FIJI INSTITUTION OF ENGINEERS

P O Box 851  
SUVA  
FIJI

President: Pratarp Singh  
Secretary/Treasurer:

Email: [fiefiji@connect.com.fj](mailto:fiefiji@connect.com.fj)  
Telephone: 310 0343  
Fax: 331 8618

Our Ref: AusAID.TR01

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The Manager  
Australian Agency for International Development (AusAID)  
c/- Australian High Commission  
P O Box 214  
**SUVA**

Attn: Ms Sarah Goulding

Dear Sarah

**DISASTER RESPONSE IN FIJI - AusAID/FIE CONTRACT AGREEMENT NO. 57886.  
TRAINING FOR CAPACITY BUILDING IN CLIMATE CHANGE AND DISASTER  
PREPAREDNESS, NEW WIND ENGINEERING STANDARD AS/NZS 1170.2 2011.  
TRAINING REPORT No. 01.**

This brief report presents the background and outcomes of the first training symposium, under the above contract, which was held on 02 and 03 June 2011 in Novotel House and Holiday Inn in Suva. The symposium was fully funded by the Commonwealth of Australia through its Suva office of AusAID.

Some 180 invited participants were the direct beneficiaries of the training. The participants were represented by the engineers, architects, disaster managers, donors, government employees, tertiary teaching institutions, banks, financial institutions, insurance industry, developers, planners, SOPAC and the World Bank. The main purpose of the training was to engage and capture the relevant interests at the national level.

**Day 1 was programmed for seven presentations followed by a Q&A.**

The Deputy Governor of the Reserve Bank of Fiji made a presentation on the role of infrastructure and the building and construction industries in the development of Fiji's economic success. The presentation focussed on the role of engineers and the National Building Code and the need for their interactions for a sound footing in achieving economic

growth and development. The presentation recommended appropriate codes and standards must be enforced and subscribed by all the relevant stakeholders.

Dr. Geoffrey Boughton, an expert from Perth, Australia, who was the Chairperson for the Tropical Cyclone Yasi Investigative Team made a presentation on the experiences, some lessons and cyclone induced wind damages from TC Yasi in the State of Queensland. Brief recommendations from TC Yasi to assist the local conditions were also made to the forum. A detailed presentation by Dr. Boughton which covered technical aspects of wind engineering was made during the technical session on Day 2.

Dr. John Holmes, an expert from Melbourne, Australia and Chairperson of the Wind Loads Subcommittee, AS/NZS 1170.2, 2011 made a presentation on the role of engineering in mitigation of damage from tropical cyclones. Dr. Holmes made emphasis on several issues but in particular the role of education; Codes and Standards; public shelters; risk modelling and insurance and cyclone damage mitigation for Fiji. A detailed presentation by Dr. Holmes on the new Wind Standard was made during the technical session on Day 2.

Madam Nazhat Shameem, a former high court judge in Fiji and consultant advisor for the F.I.E spoke on Corporate Responsibility, Law Reform and the Engineer. The profession of engineering, under the leadership of the F.I.E has proposed a Chartered Professional Engineers Act for Fiji. The proposal is very similar to the Chartered Professional Engineers Act New Zealand 2002. The F.I.E in consultation with Madam Shameem have drafted the proposed regulations. The presentation also made emphasis to corruption and corporate liability and the future reforms in the profession of engineering.

Mr. Neil Cunningham, Technical Manager, Australian Window Association and NATA Technical Assessor spoke on windows and glazing. The performance of windows and glazing under cyclonic winds is not as simple as one may think, in fact its quite complex. Windborne debris impact on these components and the issue of insurance indemnity vary from country to country. Lessons from TC Yasi were also presented. Once again a detailed presentation by Mr. Cunningham was made during the technical session on Day 2.

Mr. Lolesh Sharma, Chairperson of the Insurance Council of Fiji made a presentation which focussed on "financial cost to industry" from the aftermaths of Christchurch Earthquakes 1 & 2, Queensland Flood, TC Yasi, Japan Earthquake & Tsunami and USA Mid West Typhoons, some history on Fiji's tropical cyclones since 1985, feedback, recent developments in the industry and the way forward.

Dr. Paolo Bazzurro, a consultant for the World Bank made a presentation on a "first ever" study he undertook in partnership with SOPAC for 15 member island countries on building and infrastructure vulnerability study using satellite imagery. Dr. Bazzurro presented some very important cost estimates, although these are in DRAFT form. Once released in its final form, Dr. Bazzurro's study is expected to be widely used by local, regional and international bodies.

A very engaging discussion was held for about 90 minutes during the Q&A. In general, the discussion concentrated on the following and the outcomes were:

- Reliability of data captured by satellite imagery in Dr. Bazzurro's research. It was confirmed that the imagery data is very reliable.
- Powers of the local governments in land development, particularly setting of flood levels. Suggestion was made that the design rainfall intensity figure be researched.
- Qualifications of Assessors who are engaged to estimate losses after natural disasters were discussed. It was suggested that only qualified professionals in building and construction industries should be engaged for such services.
- Tendering and Contract awarding in the government ministries and private sector need to be transparent and free from corruption and bribery.
- Storm surge restrictions should be applied by Engineers, Architects, Planners, etc to the Town & Country Planning.
- Engineers and Architects need to regularly train themselves about new building and construction products as these are manufactured all over the globe with different standards.
- It is believed during the peak flood the proposed Waila City project area gets submerged under 7m of water.
- It was stated that a new Housing Act is being proposed for Fiji. The current National Building Code of Fiji is some 24 years old and is in urgent need of a revision.

**Day 2 was programmed for three technical presentations.**

Day 2 was very well attended by some 80 technically qualified participants. Attendees were from engineering, architectural, teaching and insurance backgrounds.

Dr. Holmes, Dr. Boughton and Mr. Cunningham were the speakers for the day. The following were discussed:

- Worked examples based on the new Wind Standard.
- Different types of failures during high wind speeds and examples from TC Yasi were used.
- Performance of roller shutter doors under high wind and the impact of windborne debris.
- Equipment and data reliability for recording local wind speeds.
- Glazing pane size and water ingress.
- Concession agreement with banks.
- Assessment methods after the disaster
- Durable building products and appropriate structural detailing.
- Greater attention paid to the design requirements of public shelters.
- Effects of storm surge/low pressure lifts (600 to 750mm) to be investigated and implemented, eg TC Yasi recorded 2 to 2.5m storm induced rise.

- Consider introducing AS 4055, AS 1288 and AS 2047 in the NBC.
- Revision of the NBC is necessary.
- Fiji takes up membership with Australia NZ Wind Society.

It was generally agreed that the Fiji Institution of Engineers, Insurance Council of Fiji, National Disaster Management Office, Banks, Architects, Local Governments, PWD, Reserve Bank of Fiji and Commerce Commission reconvene and advance matters on the basis of the above outcomes. Dr. Holmes, Dr. Boughton and Mr. Cunningham have offered their continuing support.

The F.I.E believe the symposium was a highly successful and a unique occasion, where senior officials and some dignitaries were given opportunity to gather and make contributions in the wind engineering specific area of disaster risk reduction and climate change adaptation.

The symposium not only met but over achieved the requirements of the F.I.E proposal to the AusAID and AusAID's Tasking Note 1.

The FIE extend their gratitude to the Commonwealth of Australia for supporting this first and a very successful training project. We look forward to our next training project and assure you that it will be equally good.

Yours sincerely  
The Fiji Institution of Engineers

A handwritten signature in black ink, appearing to read 'Pratarp Singh', with a long horizontal line extending from the end of the signature.

Pratarp Singh  
President