

**Melbourne University Summit on Indigenous Engineering**  
**18<sup>th</sup> and 19<sup>th</sup> June 2015**  
**STEM Working Group Pre-Summit Notes**

**Background**

- The STEM Working Group is one of four Groups established from the outcomes of the Pre-Summit Forum held in September 2014 in order to scope the summit and increase awareness of current activity in the Indigenous Engineering space.
- The STEM Working Group was challenged to focus on issues surrounding the low levels of Indigenous Secondary Students exiting Year 12 with insufficient proficiency in STEM subjects, particularly mathematics, to enable tertiary studies in the Engineering sector. Of particular immediate concern was/is the apparent failure to take up all of the many tertiary study scholarships (university) and cadetships (TAFE) on offer. This is suggestive of a shortage of eligible candidates.
- Amongst other things, the Summit will test that hypothesis.

**STEM Working Group**

The Summit Task Force appointed the following STEM Working Group;

- Convenor – Bill Lawson, a recently retired Professional Engineer with extensive experience in engineering, Indigenous affairs and disadvantaged young people.
- Professor Tom Cooper – QUT, Director of the YuMi Deadly Centre for mathematics
- Professor Marj Horne – Australian Catholic University; Victorian President of the Australian Association of Mathematics Teachers (AAMT)
- Dr Chris Mathews – Griffith University; Chairman, Aboriginal and Torres Strait Islander Mathematics Alliance (ATSIMA)
- Caty Morris – ATSIMA
- Lizzy Skinner – Engineers Without Borders
- Mark Symes – Australian Maritime College, University of Tasmania

The STEM Working Group has met 5 times to prepare for the Summit.

**Key Points for the Summit**

The following key points have been identified for discussion at the Summit's STEM Workshop;

1. Supply and Demand of Indigenous Tertiary Engineering Students
  - a. Supply
    - i. Shortage of supply of students with pre-requisites
    - ii. The challenge of mathematics?
  - b. Demand
    - i. Unfilled scholarships and cadetships
    - ii. RAP (and others?) as driver?
2. Short term solution of supply meeting demand
  - a. Finding the students?
  - b. Current activities and learnings by NFP's (6 identified) - part of the solution?

3. Longer term issues with teaching/learning maths to/by Indigenous students (to produce a sustainable supply of suitably qualified Indigenous Year 12 Leavers to achieve the Summit's long terms goal of parity) will require;
  - a. Need for Aboriginal and Torres Strait Islander (ATSI) inputs and leadership as core business
  - b. Need for appropriate cultural professional development for teachers
  - c. Sustainability for teachers and programs
4. Accessibility and desirability of both TAFE (para-professional) and University (professional) engineering studies commensurate with mathematical attainment at end of Year 12
5. Current activities
 

Two categories of current activities in this space have been identified to date;

  - a. NFP's – at least 6/see following
  - b. Major interventions
    - i. BHP Billiton Indigenous STEM project managed by CSIRO
    - ii. XE Project by Uni SA and ATSIMA

### **Significant Known Current Activities in this field**

Summit participants may wish to visit the following websites before the event;

1. NFP's – websites as follows
  - a. Australian Indigenous Engineering Summer School (AIESS); [www.engineeringaid.org](http://www.engineeringaid.org)
  - b. Australian Indigenous Mentoring Experience (AIME); [www.aimementoring.com](http://www.aimementoring.com)
  - c. Australian Indigenous Education Foundation (AIEF); [www.aief.com.au](http://www.aief.com.au)
  - d. Graham (Polly) Farmer Foundation; [www.pff.com.au](http://www.pff.com.au)
  - e. Aurora Project ; [www.auroraproject.com.au](http://www.auroraproject.com.au)
  - f. Beacon Foundation; [www.beaconfoundation.net](http://www.beaconfoundation.net)
2. BHPB/CSIRO Indigenous STEM Project; [www.csiro.au/en/Education/Programs/Indigenous-STEM](http://www.csiro.au/en/Education/Programs/Indigenous-STEM)
3. AAMT/University of SA 'Excellence and Equity in Mathematics' (xe) Project; [www.xe.edu.au](http://www.xe.edu.au)