



## FIRST WORLD SOFE WON BY NEW ZEALAND YOUNG ENGINEER

The International Speak Out For Engineering (SOFE) competition was created by the Young Members of IMechE to encourage young engineers to acquire high-level public speaking and presentation skills.

The first world final of SOFE was held this year in New Delhi, India between the winners of the eight international regions of the IMechE. It was won by Duncan Henderson of New Zealand (Oceania Region).

Duncan presented on spear gun development. After winning the award, he encouraged others to participate for the benefits it brings in terms of skill development and networking.



*Duncan Henderson presenting at the SOFE World Finals in New Delhi*

Duncan Henderson is from Wellington, New Zealand and the New Zealand Panel are proud of his success.

The SOFE competition worldwide involved 216 competitors delivering presentations to over 700 attendees in 40 heats across the eight international IMechE regions.

Raymond Hodgkinson, the Chair of the International IMechE Strategy Board and Head Judge of the SOFE panel, commented the standards of presentation of competitors were very high. They covered many areas of mechanical engineering including cardiovascular diagnostic modelling, bolting sequences and air pollution, as well as spear fishing.

Thanks are given to all competitors, Young Members and Panel members from the eight regions who provided support to the SOFE competition. Special thanks are given to Ankit Sharma, South Asia Regional Young Member Representative for their work in ensuring the success of the 2019 world SOFE event in New Delhi.

Speak Out for Engineering is open to all student members of IMechE and any Affiliate, Associate or Young Member of the Institution who has been professionally registered for ten years or less.

Competitors give a 20 minute oral presentation on a mechanical engineering related subject. Presentation slides, materials or props can be used. Judges award 90% of marks for presentation skills and 10% for technical content. 1st prize is £300 and certificate. 2nd prize is £200 and certificate.

*Editor*

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## CHAIRPERSON'S UPDATE

**Much has happened since the publication of the last News Bulletin in 2018.**

The Oceania Region Committee met in Melbourne in March to finalise the Business Plan for the next 5 years and to also discuss operational issues associated with the running of the Oceania Region. Among the highlights of the meeting, there are a number of SOFE events being organised for all Panels in Australia and New Zealand. I encourage those of you who are keen on improving your presentation skills to compete in one of these events around the country. There are prizes to be won at every level of competition from the State Heats to the Regional Final and then the World Finals which will be held somewhere in the world in early 2020. On that note, I am pleased to report that Duncan Henderson of Wellington, New Zealand won the inaugural World SOFE final held in India in April this year. This was one higher than our second placing (also a New Zealand presenter) in Christchurch at the 2018 competition. Oceania, home of the world's greatest presenters!

We also welcome Terry Love as the new News Bulletin Editor, replacing Nic Coulthard who stepped down from the role late last year. We would like to thank Nic for the wonderful job he has done in publishing the last few editions of the NB. Terry brings a wealth of experience in the publishing field and we look forward to his contributions in future Bulletins.

In February this year, the New Zealand Panel was officially established based in Auckland. Although we have been working with the New Zealand team for a number of years, we welcome the formal establishment of the Panel and look forward to continuing our collaboration with the Chair, Darren Sharpe and the rest of his newly elected team in promoting the IMechE in New Zealand.

The Australian Branch AGM was also held in Melbourne at the conclusion of the annual Oceania Committee face to face meeting. The AGM confirmed the acceptance of the previous year's accounts and the election of Office Bearers for 2019. The Office bearers will hold substantially dormant positions until the

Branch is officially dissolved. As mentioned in previous News Bulletins, the plan is to dissolve the Australian Branch sometime this year.

The Oceania Region has already been operating as a Region for close to two years. The revised structure has minimised duplication of efforts which has resulted in more efficient use of resources. The committee has maintained its commitment and ability to provide good service to its members without the need for the Australian Branch.

While the intention was to dissolve the Branch in 2018, major distractions at HQ resulted in the Regional Committee deciding to postpone the dissolution to 2019. I will be presenting the proposal to the ISB for agreement to the initiative and will then proceed to resolving any governance issues prior to presenting to the Trustee Board for formal ratification of the plan. HQ will then organise to obtain votes from the local membership for a mandate to dissolve the Branch. I will advise on more accurate timelines as and when I get to know it.

The Queensland Panel has also undergone some changes as Alfredo Mendez has stepped down as Panel Chair. We thank Alfredo for his work over the past few years and welcome the new Chair, Colin Sheldon to the Oceania Region Team. There has been a slight setback with the application by the IMechE to the BPEQ to be registered as an Assessor for the RPEQ qualification. A modified resubmission is required to comply with minor revised changes to the application documentation. Once again, I hope to complete the application by end of 2019 and will update you as and when I get information.

The results of both the Governance and Finance Review will be presented at the AGM in London in May. I will update you on that after I attend that meeting.

I attended both the International Strategy Board (ISB) and parts of the IYMC meeting in Delhi in April to discuss various issues associated with the International membership.

Highlights of the ISB meeting were:

- The ISB endorsed the separation of the Pakistan



SOFE ISB and IYMC in New Delhi



International Strategy Board Meeting in New Delhi

Group from the South Asian Region (SAR) and joined the Middle East Region (MER) due to political differences (even at IMechE level)

- The dissolution of the Australian Branch was endorsed by the ISB
- The ISB Chair advised the reason for the resignation of Alan Lau as International Vice Chair.
- Volunteers were requested from the Members of the ISB to join the Education and Skills Strategy Board (EESB), Qualifications and Membership Board (QMB) and the Professional Review Committee (PRC) to provide an International view
- An IT person has been co-opted to the Trustee Board to advise on IT matters.
- Both the Terms of Reference for the ISB and IYMC were reviewed and suggestions for change made.
- Suggestion was made to ensure that events organized by YMRs, Panels and Regions count towards CPD. Broadcast events of lectures using WebEx or Zoom (Single International Licence) around Regions.
- Suggestion was made to engage the local Region or Panel when presenting Heritage Awards to ensure that the potential award recipient has been researched and endorsed by the Region prior to the award being made.
- It appears that Oceania Region has established 'best practice' in this area as local Panels usually research a potential award recipient in detail prior to making a recommendation to the EHA Committee for the Award.

As you can see, there is a lot of work being done and a lot more still to be done. We need the assistance of volunteers who have the time and ability to assist the Panels in progressing their initiatives. It is also good for your CPD. Contact your local Panel Chair, and I am sure they will talk to you.

*Leslie Yeow*  
*Chair, Oceania Region*

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## AN UPDATE FROM THE HON TREASURER

**(Two hats – one job)**

As any regular reader of News Bulletin will know, the Oceania Region of the IMechE is currently undertaking an internal restructure.

The aim of the change is to achieve a flatter structure, one that is more inclusive, one that can communicate more directly, one that makes the best use of volunteers time; and to do all of that at less cost.

This is not smoke and mirrors but brought about by the removal of one significant 'level of management', the Australian Branch.

Henceforth, each of the Australian Branch Panel Chairpersons has a place on the Oceania Region Committee rather than the Branch Committee.

The cost saving comes about by the elimination of Australian Branch face to face meetings, which had a high travel and accommodation component, and numerous administration costs such as annual audits. Our estimate of the nett saving is in excess of \$10,000 per year. The trick will be to continue to obtain the same annual Grant from HQ and use the saved money on Oceania Region member events.

For your general information the HQ Grant to the Oceania Region in 2019 is £43,200 which converts to approximately A\$80,000. Exchange rate variation can be our friend, or it can hurt us.

My report to the recently held Annual General Meeting contained the assertion that "it is my view that the Region has sufficient funds for all of our intended 2019 programme". All we have to do now is make it happen.

Should any member who was unable to attend the AGM wish to receive a copy of the report please send your request to me by e-mail at [k.tushingham@bigpond.com](mailto:k.tushingham@bigpond.com)

*Ken Tushingham*  
*Hon Treasurer – Australian Branch*  
*Hon Treasurer – Oceania Region*



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# ENERGY GLOBE WORLD AWARD FOR RAIN WATER HARVESTING THROUGH BOREWELL RECHARGE

**Could this Indian rainwater harvesting approach for aquifer recharge be used in Australia and other developed countries?**

Groundwater is the world's most extracted raw material with withdrawal rates currently in the estimated range of 982 cu km /year. About 70% of groundwater withdrawn worldwide is used for agriculture.

The depletion of groundwater spells potential disaster for the global agricultural system and is already of crisis proportions in many areas of the world. In India, groundwater extraction surpasses the combined usage of both China and the USA and the challenges to reverse this trend are immense.

'Groundwater in northern India is being depleted at a rate of 19.2 gigatons per year' said Matthew Rodell, chief of the Hydrological Sciences Laboratory at NASA's Goddard Space Flight Center. He warned it is unsustainable because it is a loss of water each year equivalent to almost a third of the capacity of one of India's largest reservoirs, the Indira Sagar in Madhya Pradesh.

There are multiple reasons for this high rate of groundwater depletion. Overuse of water and indiscriminate boring of ever deeper wells has resulted in drying of the underground water resources held in aquifers.

A crisis situation has resulted from the combination of increased temperatures and erratic rainfall due to climate change; the widespread move to water hungry cash crops, such as sugar cane, cotton and rice; corporate greed and a lack of real action by the Government.

Prior to the introduction of borewell technology to India by UNICEF in the 1970's the agricultural land relied on open wells and rain-fed crops. Now, a recent report by the Indian Central Water Commission indicates groundwater irrigation accounts for over 60 percent of the area irrigated by upwards of 30 million groundwater extraction points in the form of borewells.

## Green Revolution and Farmer Suicide

The Green Revolution, starting in the 1960s, funded first by Government interventions and second by corporate investment, encouraged farmers to change cropping patterns to monocrops, become reliant on fertilisers and pesticides, and for the farmers to commit to much higher levels of irrigation. The resulting overuse of borewells emptied the local aquifers leaving farmers and their families unable to grow food and, in many cases, unable to pay off the debts incurred while expecting substantial profits from the now failing green revolution.

Debt amongst farmers spiralled and ~15 million abandoned their land. Desperation led to farmer suicide, migration into poverty in the slums of cities, and predation of young girls. Many more problems will follow as temperatures rise and water shortages increase. Farmer suicide is a matter of national shame - 12,000

**This farmer - Mr Poshetti, lost 90% of his mango trees during drought and his bore well was totally dried up**



**After successful bore well recharge by SRDS, his orchard was regenerated**

**Rapid effects of Bore Well Recharge of Aquifers**

plus per year - many of these directly due to debt from lack of water for cultivating their crops.

## Sankalpa Rural Development Society

Sankalpa Rural Development Society (SRDS) has taken up the challenge to change the above situation. An NGO working in Karnataka since 2008, SRDS focuses on water conservation via a multi-pronged approach with borewell recharge from land or rooftops. Their work aligns with the United Nations Sustainable Development Goal of clean accessible water for all.

As a young man, Sikandar Meeranaik (now CEO of SRDS) saw the devastating effects of drought and the resultant lack of water in his own small village and his family farm. Sikandar vowed to find a solution. Combining the methods of others with his own approaches, he developed several innovative highly-effective low-cost strategies to significantly increase the rate of recharge to aquifers.

## SRDS is Energy Globe World Award Winner 2019

This February, Sikandar and SRDS were awarded the prestigious *Energy Globe World Award for Water*. The herculean status of the Award means it is often seen as the sustainability equivalent of a Nobel prize.



Energy Globe World Award for Water presented to SRDS in Yazd, Iran in 2019

The IMechE Oceania Region was represented at the Energy Globe award ceremony in Iran by the News Bulletin Editor, Dr. Terence Love (centre rear above).

## Why is Bore-Well Recharge so effective?

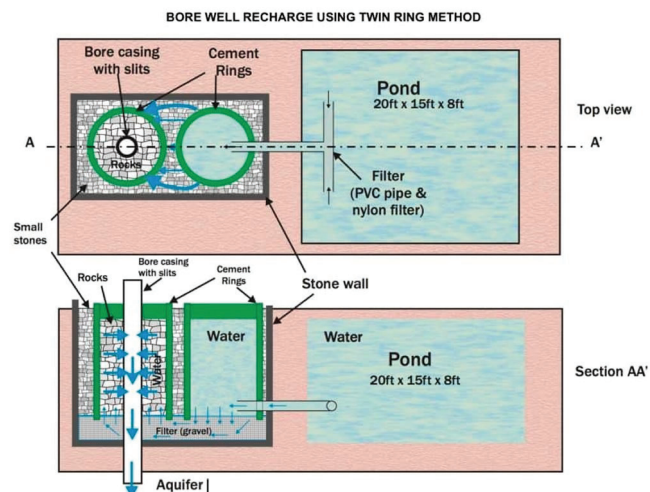
Key reasons for its success include:

- Immediate water for crops from flowing borewells following the main rain period
- Captures water locally that would otherwise run-off or evaporate

- Five times more effective than simple percolation from rain falling on the earth
- Aquifer water-level *increases* at about 3 times the loss of level caused by bore use
- Ground water pollutants are diluted by fresh rainwater
- Works on fully dried-up borewells
- In India it is cost-effective at only US\$450 per bore well (1/3 the cost of a new bore well)
- Keeps farmers on their land and their families healthy
- Removes the water shortage pressures that result in farmer suicide and other adverse social outcomes
- Enables farmers to operate relatively independently of rainfall timing
- Gives water and food security for future generations
- Nearby farmers receive the benefit from raised aquifer levels enabling them to irrigate also.

## How does it work?

The most common approach SRDS uses is Sikandar's design for a twin-ring bore well recharge system. To date, this has been implemented on over 1500 bore wells with the potential of recharging 450 million litres of usable water into aquifers every year.



An example of SRDS bore-well recharge technology - a twin-ring setup

The twin-ring borewell system is shown above:

1. A small pond is dug nearby an existing bore well as a collection point for rainwater runoff to for recharging the bore well during the rainy season.
2. A rectangular pit is dug around the borewell. 8 feet deep and 8 feet long by 4 feet wide.
3. The lower part of this pit is filled with a selected sand and stone mix as a filter medium
4. The borewell casing has slits cut into it to allow the filtered rain water to enter. An extra filtration mesh is wrapped around the bore casing
5. Five cement rings are placed around the bore well



and filled with selected sand/gravel

6. A second set of cement rings are placed next to it and connected to the collection pond by a pipe with a filtration mesh inside it
7. The second set of cement rings are left empty and capped and the pit is filled with stones.
8. The rain water fills the pond, then flows into the empty rings and then flows from below into the cement rings containing the bore casing.

## Other benefits of borewell recharge

The above borewell recharge technique has seen a profound increase in groundwater levels wherever it is used. In addition, many other benefits are found.

Due to the influx of pure rainwater, the quality of the groundwater is improved, with the solids and toxins diluted rendering previously hard or contaminated water potable. Erosion of precious topsoil is significantly reduced by directing the runoff water from the farms and open fields to the recharge pond.

The increased availability of water enables farmers to attain multiple crop cycles and crop diversification leading to better livelihoods and uplifting their lives in enormous ways. The expansion in cropping and affluence in the area also brings employment possibilities for landless and underprivileged people.

And, even better, a reduction in the demand for new borewells has been seen. This is a big plus for the environment. By its sustainable practices, SRDS is conserving water-resources in an eco-friendly manner ensuring long lasting impact on the community.

The cost of borewell recharge system is minimal compared to the hit and miss expensive cost of drilling more borewells. Borewell recharge has a 90% success rate and guaranteed to be much more likely to achieve an excellent result.

Another commonly used alternative is farm ponds for

water storage. However, they have proved problematic due to evaporation rates and the amount of land needed. For example, inland Karnataka has rainfall of 1 m/yr and an evaporation rate of 3.6 m/yr. The result is farm ponds need to be large and around 50% of rainwater is lost by evaporation. Where farm ponds are used to store groundwater, this depletes aquifers even faster due to it evaporating the rare groundwater resource.

Borewell recharge technology offers a way of rapidly recharging aquifers by collecting monsoon rain in a small collection pond, filtering it and returning it to the aquifer via the bore pipe casing. This increased the return to the aquifer to around 25% of rainfall (compared to 5% by simple percolation through the soil). It raises the aquifer upper surface locally by 2-3 metres per year compared to a lowering the aquifer water level by around a meter per year if recharge is not undertaken.

In practical terms, this can enable a farmer to start irrigating again in the growing season following the first monsoon after the bore well recharge systems is installed. Additionally, the aquifer continues to recover.

An important question is about use more widely,

*“Can this technology be adapted to diverse rainfall areas such as Australian conditions?”*

Australia has many borewells in rural and urban locations and the SRDS twin ring method (and SRDS' rainwater harvesting rooftop method) could be a solution for areas suffering from lack of water or salt encroachment. The SRDS borewell recharge system can also be adapted for recharging only, without providing water extraction.

In urban settings, the SRDS twin ring method can be used to replace large drainage sumps to manage rainwater drainage runoff and roof runoff from large buildings.

*Shazar Robinson, Consultant, SRDS*

*Dr Terence Love, Technical adviser, SRDS, editor NB*

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## Support SRDS

SRDS welcomes support: both technological expertise and financial assistance.

You are invited to visit - study tours are arranged with the view to scaling the reach of the borewell recharge technology internationally.

For further information see <https://srdssindia.org> or email [info@srdssindia.org](mailto:info@srdssindia.org)



Sikandar and farmer testing a previously dry borewell after the monsoon

# MECHANICAL ENGINEERING OT SYSTEMS AGAINST TERRORISM AND CYBER-WARFARE

Industrial control systems (ICS) are central to engineering in the process industries. Often referred to as OT (Operational Technologies), they control large important electrical grid infrastructure and manufacturing plants, nuclear power stations, sewage plants and the like via SCADA (Supervisory Control and Data Acquisition) systems.

OT /SCADA ICS systems are often regarded as poor in cyber-security terms and targets for cyber-criminals and terrorists.

If bad actors can take control of OT /SCADA ICS systems they can create tremendous amounts of long-term damage, and threats to life for large populations: a perfect terrorism scenario.

So why shouldn't the conventional IT security controls, patching and monitoring apply to OT /SCADA ICS servers and networks?

Typically, OT /SCADA ICS systems are Windows and Unix and Linux servers running specialist software applications. These systems are controlling gas pressure in pipelines, heat settings in refineries and chemical plants, radiation levels in nuclear facilities, and the power supply and internet services to your home. Patches can and often do break the applications running on these servers and things can really get out of hand: think pollution, fires, threats to human life. Sometimes, many thousands of lives could be at risk.

Recently, there has been a significant drive by managers and IT staff to connect OT/SCADA systems to corporate IT networks and the Internet. This is known as IT/OT - some think of it as IDiOT.

Traditionally, OT/SCADA systems have had little need for direct protection against cyber-attacks from the Internet.

Early OT/SCADA systems were not connected at all to the internet. OT/SCADA environments typically connect to corporate networks via secure gateways (firewalls) with very limited access, mainly for monitoring tools.

New terrorism/cyber-security risks result from connecting OT/SCADA systems to the Internet via business quality IT systems.

OT/SCADA software design and management has a security culture that focuses on avoiding major risk consequences including catastrophic failure of industrial systems leading to loss of life: on maintaining reliability of systems to avoid plant downtime and avoiding system changes that might lead to compromise of reliability or safety.



Refinery controlled by OT and SCADA ICS systems

In contrast, enterprise and business IT cyber-security focuses on managing cyber-risks to minimise effect on share price and the ability to achieve profits.

The reliability requirement of OT and SCADA systems is generally orders of magnitude higher than for business IT systems. Well-defined and managed redundancy/resilience arrangements for critical OT systems have been in place for much longer than for business IT systems.

The focus of cyber-security and anti-terrorism, however, has been in IT cultures and primarily the problems in IT/OT cyber-security is the lower rigour of IT cyber-security practices.

One solution, therefore, is to focus IT/OT cyber-security on the IT side of IT/OT gateways and require the IT side of the gateway to **guarantee** the cyber-security of external communications from and to the OT/SCADA environment and maintain the required level of security and reliability and ensure that cyber-security processes are located at the source of risk.

For more detail on this issue see the full article at <https://www.linkedin.com/pulse/improving-ot-scada-cyber-security-make-do-work-dr-terence-love/>.

Please note neither this article nor the expanded version on LinkedIn has been reviewed by, or authorised by, or can be taken to represent the views of Hivint.

*Dr Terence Love, editor NB*  
*Mark Ames, Principal Adviser to Hivint*

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## WORKSHOPPING THE OCEANIA BUSINESS PLAN.....

If you take a bunch of active volunteer mechanical engineers, trap them in a meeting room the day before the Australian Grand Prix, and feed them caffeine and muffins – they do a great job of updating the IMechE Oceania Region Business Plan.

Now that might come as a shock to some – even 2 shocks. Firstly, that our regional committee has a Business Plan – and secondly – that it is willingly and routinely updated to ensure we are going in the direction we intend to – rather than the alternative as per this Lewis Carroll quote “If you don’t know where you are going, any road will get you there” .

Now the task at hand might sound dour – but it can be enlivened by several ‘facilitators tricks’ – and I confess I used a lot of them.

We could have spent all morning reading the document together, writing sentences by committee and editing it on the screen.....but that’s not much fun.

What we did instead was complete a few fun, group exercises and get valuable input, teamworking, and relationships happening.....

We started with a structure – because what engineer can proceed without a structure of some kind?? (Admit it – we are all the same in that way!)

Then having split the group into two teams (and to keep it simple I adopted the pick a number - and then evens in one team, and odds in the other).

Each team got to do half the review in each case – then presented their results for critical and constructive challenge by the others. Risks were revisited – with consequences and likelihoods tweaked up and down as the group consensus dictated. What was more pleasing was the development of concrete actions to manage those risk, or to maximise the opportunities open to us.

Then onto the SWOT. We had a very positive session – far more strengths and opportunities were identified than weaknesses and threats. I put that down the excellent job the facilitator did in setting and maintaining the tone (But then I would, wouldn’t I?). It was either that or the sugar laden morning tea.....

Throughout, the ultimate facilitators trick was deployed – getting others to work whilst you watch on. Only trouble was I got stuck with the job of post processing the outcomes, and compiling everything..... but you can’t win them all....

But we did end up with a revised, robust and current Business Plan against which we can both measure our progress in delivering value to our membership, and in spending our grant from HQ to the maximum benefit of our fee paying members.

After all, its our institution, and our money, and our Oceania Region of the Institution of Mechanical Engineers exists to serve the membership of the Institution residing in, or visiting, principally New Zealand (NZ), Australia and Papua New Guinea (PNG).

If you want to read the plan, contribute to it, or even volunteer to deliver an aspect of it, I’m sure Leslie would be only too pleased to hear from you....

*Ian Mash*  
*Secretary, Oceania Region*



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### STRUCTURE





## PANEL UPDATES

### New South Wales

Members of the NSW Panel promoted and attended a presentation on 'Managing Leading Edge Technology in a Competitive Environment', organised by EA, along with a group of IMechE members. The presenter discussed the art of managing technologies that could help to shape how an enterprise can stay competitive.

This presentation provided some thought-provoking content on how decision makers always look for extra edges to be the leader of the market. Part of this being the ways new and emerging technologies can often provide the solution.

Members of the Panel attended the Engineers Australia 2019 CPD Planning & Volunteer induction day in January to identify opportunities for further collaboration with EA and raise awareness of IMechE. This provided the Panel with some additional contacts (e.g. in the Young Members area) which we have since followed up.

The NSW Panel held an autumn social event that had an excellent turnout (see photo). We had a number of familiar members in attendance, plus some new faces which was great to see. Conversation ranged from the challenges of job-seeking for recent graduates through to demystifying the IMechE Chartered Engineer process.

Our social events will run regularly from now on to enable us to keep in touch with our members.

The next planned event is a presentation in collaboration with the EA Mechanical Chapter for which we will be providing the speaker – Ian Mash.

*Next presentation: Risk Assessment – in the round*

*Speaker: Ian Mash*

*Synopsis: The process of risk assessment is so fundamental not only to the role of the engineer, but also to the successful functioning of a business. Drawing on his considerable experience in leading and reviewing risk assessments, Ian will deliver 'in the round' – a warts and all session in which the audience can expect to learn a thing or two, do a thing or two, and perhaps leave with a renewed appreciation for what 'good' can look like in the risk assessment process.*

*The presentation will draw out lessons hard learned, to provide the opportunity to others to avoid making similar mistakes.*

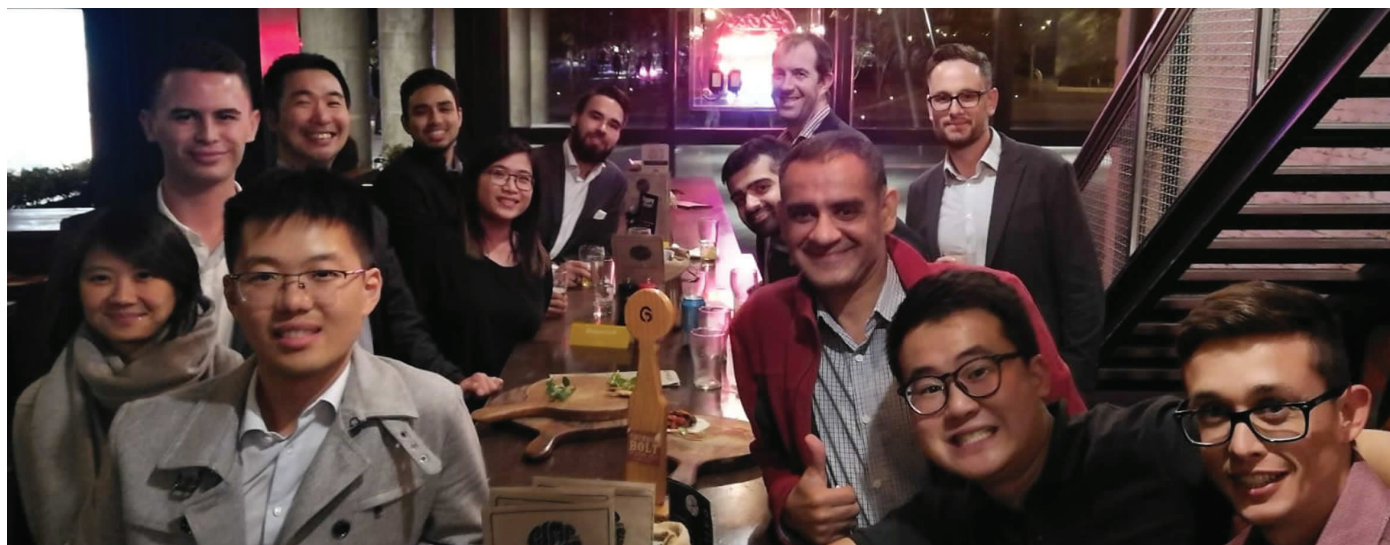
*Ian will initially briefly explain some risk assessment theory and then move on to discuss who should be involved, in risk assessment and how to do the key process steps well, including risk scoring. He will then cut through confusion on the definition of 'So Far As Is Reasonably Practicable' (SFAIRP)*

*As part of the presentation, Ian and the audience will together jointly undertake a worked example demonstrating how simple it really is to ensure SFAIRP.*

Planning is also underway for an 'Industry Night' event to be held in August. This will have a number of speakers from industry, followed by a Q&A. One aim of the event will be to provide sound advice on making the first step into an engineering career.

The NSW Speak Out for Engineering (SOFE) competition is planned for 17 October. We will commence the promotion and application process for competitors in a couple of months.

The ACT SOFE competition planning is ongoing but not yet confirmed. If we have any members in Canberra that would be willing to assist then we would be grateful for their support.



NSW IMechE Panel Meeting

The future of the NSW IMechE Panel is looking good. We have an active core team of Panel committee members and continue to organise events / engage with our members regularly. We have four main focal activities in addition to managing the Panel. We try to arrange events to be in regular contact with members (e.g. social events), We continue and support collaboration with Engineers Australia (EA). We arrange an annual Industry Night event, and run the SOFE competitions.

Jerald Skuta is our new Young Members representative on the NSW Panel. He has injected some great enthusiasm and organisation into our activities. Jerald has a wide network of graduate engineers who have attended events, and he is getting actively involved with the other YM representatives across the Oceania region.

Since the last News Bulletin, the pressure on undertaking Professional interviews has eased. After a flurry of activity last year, we have had a quiet period for interviews over the past 4 months and now have one to be arranged over the next couple of weeks.

On a more personal note, our Communications Officer, David Wong, who is currently working in Sydney on the Sydney Metro project, has recently gained his Permanent Residence visa to enable him to settle in Australia for the long term. Congratulations David!

*Neil Moriarty*  
*NSW Panel Chair*



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## Queensland Panel Report

The QLD Panel has recently held it's AGM and welcomes the new committee:

- Colin Sheldon (Chairperson)
- Paul Darjan (Honorary Secretary)
- Dayaratne Dharmasiri (Honorary Treasurer)
- Luke Inglis (Committee Member)
- Michael Barltrop (Committee Member)
- Tharmalingam Sivarupan (Committee Member)

After a busy year of events in 2018, the Queensland Panel is investigating various events including collaborations with kindred intuitions similar to the very successful joint APGA event held late last year.

Stay tuned and check NearYou to ensure you receive the latest event communications from the panel. We would be grateful if all members would change their

Near You profile settings to enable them to receive all messages by both email and print.

The Queensland Panel continues to work closely with the University of Queensland to hold the Queensland Speak Out for Engineering (SOFE ) competition which is typically held in September or October to coincide with the end of year presentations of fourth year engineering students

In the Queensland Panel we are excited to progress the IMechE application for RPEQ assessment with the Board of Professional Engineers Queensland. We expect this to hopefully be completed and confirmed by the third quarter this year.

*Alfredo Mendez*  
*Outgoing Queensland Panel Chair*

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## Victoria Panel Report

The Victorian Panel started its 2019 program of events with a visit to the University of Melbourne's *soft robotics laboratory*. We were hosted by Dr Aireza Mohammadi, who is a member of the IMechE.

Dr Mohammadi has been working to develop a lighter and cheaper prosthetic arm using soft robotics technology and he did a presentation for us on the technology and the process of prototyping the unit.

The prototype designed by Dr Mohammadi's team weighs about 1Kg less than commercially available prosthetic arms and the cost involved is about one third of the commercial units.

After the presentation we were shown around the rehabilitation robotics laboratory.

In March, the Victorian Panel organised another informal social networking event.



Dr Aireza Mohammadi in his Soft Robotics Lab



These social events have become popular among young engineers and students of engineering. We have found out that such events can also double up as informal mentoring events.



VICTORIA Panel Technical Meeting at Soft Robotics Lab

On a personal note, I am planning on stepping down as Victorian Panel Chairman this year. I took over the role from my predecessor in 2016 and it has been a pleasure to serve the Victorian membership.

A highlight of my tenure was the presentation of an IMechE Engineering Heritage Award to the Psyche Bend Pumping System in Mildura.

I would like to take this opportunity to thank the Victorian Panel Committee and our members who support our activities.

*Roshan Dodanwala*  
*Victorian Panel Chair*



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## Western Australia Panel Report

Engineer registration in Western Australia is likely to occur after the current elections. The current administration is keen on registration, but doesn't have sufficient administrative capacity to implement at this stage. The process for registration of engineers in Western Australia will most likely be very similar to that of Queensland and is locally supported by Engineers Australia.

Our next technical event is a technical presentation on successfully using Bore Well Aquifer Recharge methods in India to rapidly increase ground water resources. This is a significant issue at present where overuse of borewells in India has resulted in many farmer's borewells drying up leaving them unable to grow crops, financially bankrupt and in a large number of cases committing suicide, leaving their families

also destitute.

The Speak Out for Engineering (SOFE) competition in Western Australia will this year be expanded to include all universities in Perth with mechanical engineering programs. It will also be advertised widely in industry to young engineers (graduate engineers) who post-university still qualify to compete in SOFE. The aim is to have a single large SOFE session with all presentations in a single evening. Timing has been maintained from last year with the intent that students can use the session for their final year project speeches.

The Western Australian Panel is currently working without a Secretary and volunteers for that role would be most welcome.

It is expected that the current expansion wave in the Western Australian resources sector will result in increased numbers of IMechE members in Western Australia and greater participation in the Panel. The Panel committee is actively promoting IMechE within our organisations to generate interest.

The Western Australian IMechE professional interview reviewers on the Panel conducted one professional review interview in the last quarter and expect to conduct another one in the coming weeks..

*Ben Witton*  
*Western Australian Panel Chair*



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## New Zealand Panel Report

The New Zealand Panel was formally constituted in February. It has a long way to go to become firmly established, however, the hard work of the IMechE Panel volunteers will ensure the panel formation is successful and robust.

The New Zealand Panel is still in formation phase in legal terms. We are currently developing a 'rules book' that will enable us to provide NZ authorities with a non-commercial statement of incorporation. Addressing this issue is a priority action at present

For Wellington, the main news is that Duncan Henderson (who represented Wellington and New Zealand for the 2018 Oceania IMECHE SOFE competition) has just won the SOFE World competition final in Delhi. This extends New Zealand's record of success in this competi-

tion. It offers substantial bragging rights to IMechE in Wellington, New Zealand and the Oceania Region. Our congratulations to Duncan.

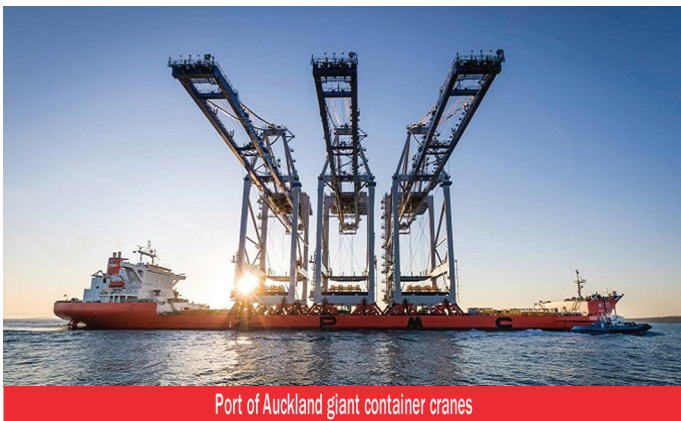
Duncan Henderson is a student in Mechanical Engineering at the Wellington Institute of Technology and is now in his final year of study, working hard on his final year project (amongst other things).

In Wellington, the Branch Committee work closely with the Engineering New Zealand's Wellington Branch (two of the committee members, Hugh Evans and Adrian Ferguson, sit on both committees), and news of the success in the IMECHE SOFE competition has led to a request for a repeat of Duncan Henderson's presentation to a wider audience across many of the various Engineering Institutions and Technical Interest Groups.



Wellington Institute of Technology

The Auckland region had a Technical Event visiting the new Ports of Auckland Container Crane facility. This involved some of us clambering 130m above ground level to the cabs of these monsters.



Port of Auckland giant container cranes

It was great fun for the enthusiastically able-bodied.

Our next Technical Event will be a presentation on the seaworthiness improvements for naval patrols in the Southern Ocean. This will be a more sedentary event in a lecture theatre.

The New Zealand Panel has two professional interviews to undertake in the immediate future and look forward to doing more.

On a personal note, the New Zealand Panel Chair, Darren Sharpe married Annabel on 1st March this year. They are planning to move house in May and so they have busy personal and professional lives at present.

*Darren Sharpe*  
*New Zealand Panel Chair*

*Simon Fleisher*  
*NZ Panel Committee, Wellington*

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## Prizes and Grants

Members are reminded of the Paul Henderson Prize (Australia) and the Andrew Fraser prize for PNG students.

The next edition of News Bulletin will contain an overview of over 30 IMechE prizes, grants and awards available to Oceania IMechE members.

## News and Articles

Please send news items and articles to the News Bulletin editor, Dr. Terence Love, at:  
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