



**A Technical Society of Engineers Australia
ABN 80 561 695 651**

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National Chairman – Doug Roser

Welcome to the third of our National Newsletters which follows the teleconference meeting of the National Committee held 18 May 2011.

Industry and commerce, because of their evident impact on the economy and associated quality of life, are recognised for their contribution to Australia's success and standing in the world. However, the readiness of the Defence Force is, and always has been, a critical factor that allows this country to grow its international role with all the economic, political and social benefits that go with it.

The ADF is at immediate readiness to meet government commitments and is custodian of the integrity and quality of the capabilities and values that have made it possible for governments to commit the Defence Force in ways that have advanced Australia's strategic objectives. This readiness to commit Australia's armed forces to common strategic perceptions have been important contributions to the way we are perceived by others.

In saying this it is important to recognise not only this role of the ADF but also the role of the Defence public service and Defence industry which contribute so much to the development and support of the ADF.

Your National Committee is continuing its efforts to ensure the enormous contribution made by defence engineering in all of its forms to the capability of the ADF to fulfil its important role to the achievement of Australia's national and international objectives is acknowledged by Engineers Australia, and recognised within the engineering profession and, where possible, the public.

National Committee Report – Doug Roser

Participation in Engineers Australia Year of Humanitarian Engineering

ASDE continues to highlight that the role of the ADF in humanitarian engineering must be recognised in the activities surrounding this Year. The Sydney Division has been very receptive and Army was one of the presenters at the Launch and will be involved in Engineering Week.

I have just been advised of a series of Workshops to be held in the various Divisions in which Defence is expected to be involved.

ASDE's support and involvement in these workshops has been requested and I am sure local chapters will keep you informed of the dates and opportunities to participate. The culmination of the Year will be a Conference in Melbourne late in the year.

The DMO/ EA/ASDE Conference held in Canberra 23 Nov 2010

The feedback indicates that this conference was successful and achieved its aims. The accounts have been finalised and ASDE is required to meet a shortfall of costs of some \$3,400.

Role of Engineers in Defence activities

The role of engineers in the many facets of defence engineering continues to absorb the members of the National Committee. ASDE made a submission to the recent Rizzo Review and continues to follow the outcome of the Naval Engineering Review, to which ASDE made a submission.

ASDE is now also considering whether to follow-up these submissions and the Engineers Australia Policy Statement "Engineering for Defence" issued in November 2009.

The Society will develop a position paper on the status of engineers in defence activities and if they have face any particular problems eg lack of continuity of work, a problem raised by AIDN. As this initiative is further developed we will be seeking input from Members. If you have any thoughts now I would be pleased to have them.

Submarine Conference in Adelaide 8 – 10 November 2011

This conference is being organised by the Submarine Institute of Australia (SIA) and is booked for three days from 8th to 10th November at the Crowne Plaza Hotel in Adelaide CBD.

The conference is structured into three days with day one focussing on science, research and development with a number of invited speakers, day two is a plenary day

with federal and state politicians and leaders of academia and industry invited to speak.

The third day, being jointly organised by the SIA and ASDE, is for papers from open call and 28 abstracts have been received so far with four more promised, which augurs well for a good day with two or three parallel streams (for which the venue is well suited).

Students will be encouraged with generous discounts for registration. The registration facilities will be published soon on the new SIA website and we will advise ASDE members.

Defence and Engineering Team (DIET) Day on 3 Aug at ISSEC 2011 Conference

The ISSEC 2011 Conference will be held in Sydney 2 – 5 August and will include a Defence and Engineering Team (DIET) Day on the 3 August. Details are currently being finalised with DMO and members will be advised details as soon as they are known.

WA Chapter

At a recent meeting of Engineers Australia, members of the Western Australia Division asked me why WA did not have a Chapter of ASDE. The National Committee has taken this matter up and will be making contact with defence organisations and companies to ascertain the probable support for such a chapter. Any members with appropriate contacts in such organisations are asked to advise them to me.

Cooperation with Systems Engineering Society of Australia (SESA)

Discussions have been held with SESA with a view to the identification of areas where ASDE and SESA could collaborate. The possibility of joint support for special courses is one area to be investigated.

Finances

Treasurer, John Elliot reported that ASDE maintains a good financial position.

Membership

Membership has declined slightly. Members are asked to advise colleagues and associates of the objectives of ASDE and invite them to one of our presentations to give them the opportunity to consider membership.

Chapter Reports

Queensland Chapter

The Queensland Chapter held a most enjoyable and successful social networking session on 25 March 2011 at the Queensland Rugby Club. The Queensland

Committee would like to thank GHD for its kind support in sponsoring the event.

Our next seminar is scheduled for 31 May 2011, with WGCDR Rob Matchett presenting on the RAAF's Heavy Air Lift Systems Program Office (HALSPO). Rob is the Chief Engineer for HALSPO and will present on the C-17 and the KC-30 Multi Role Tanker. The presentation is to be held at the United Services Club and registrations can be made through the EA web site.

Another two seminars and a second networking event are planned for the second half of the year.

NSW Chapter

The NSW Chapter continues to be involved with the Year of Humanitarian Engineering and liaison with Army who have already contributed and will do so further in Engineering Week in August.

The most recent presentation arranged by the Chapter was on 2 May by Air Commodore Terry Saunder, the Director General Technical Airworthiness who spoke on Technical Airworthiness in the ADF. The next presentation is on 4 July by Dr Brian Ferguson of DSTO titled "Countering fast inshore attack craft, underwater intruders and hostile snipers with acoustic systems".

As details are finalised of the Workshop in support of the Year of Humanitarian Engineering (to be held in Sydney in October) members will be advised. The NSW ASDE Committee will lead the consideration of the development of a position paper on defence engineering.

Victoria Chapter

Victoria Chapter has had a positive three months since the last NCM in February. Our membership has held steady and services to our members have been increased by the formation of the ASDE Victoria Library.

The catalogue includes publications from the Australian Strategic Policy Institute, Royal Australian Navy Engineering Reports, AIDM Reports and the Australian Defence Magazine. Our Chapter Newsletter has been emailed to members regularly. The AIDN Newsletter is attached as per our membership agreement.

On April 4, ASDE Vic., hosted Mr Brad Yelland, General Manager, Aerospace and Autonomous Systems Development who gave a technical presentation titled "*BAE Systems Australia - Engineering Hub*". It focused on current programmes and future outlooks. Items discussed included the development and application of autonomous systems and related technologies.

Attendees were treated to a unique personal review by Mr Yelland to his thoughts on the future directions for Defence Engineering in Australia.

This aspect in particular was presented in the context of Australia's track record at developing innovative technologies that are cost effective and very successful. Examples included the Nulka ship self-defence decoy, the Ship Air Defence Model (SADM) and more recent autonomous systems technologies.

A recording of the presentation will be made available on the Engineers Australia web site.

The Chapter is planning other presentations moving towards the National Conference in November.

Victoria Chapter welcomes the purchase by Defence of 101 new Bushmasters. They will replace the 31 vehicles lost in combat and will augment the current fleet. Bushmasters are Australian designed and are manufactured by Thales at their Bendigo plant.

Industry News

Our Defence industry threatened

Australia's Defence Industries are threatened by a shortage of tradespeople. The mining industry has siphoned off expertise in metalworking and a whole range of technical and electronic skills.

Australia's ship building industry is virtually paralysed by a dispute between the ASC and BAE's Williamstown Shipyard. One of the problems is that there has been no major steel shipbuilding in Australia since the ANZAC ships were completed about 10 years ago. The skilled workforce has evaporated.

During this time BAE purchased the Shipyard from Tennix which was part of the Transfield Group. The Dockyard was threatened with closure but was saved by a Victorian State Government development grant.

The dockyard is in the then. Premier Steven Brack's seat of Williamstown After a few rejections a contract was awarded to the Shipyard for the AWD's BAE commenced construction and by October 2010 were in trouble with the keel of the *HMAS Hobart*.

Senate Estimates Committee

The problems came to the surface at the recent Senate Estimates Committee. Defence officials told the Committee that:

- There were thousands of "technical queries" on the design of the AWD's
- ASC and BAE were in dispute over the designs.
- BAE did not have enough skilled workforce to complete its share of the project.
- BAE was slow to alert the DMO over its struggle with the workload.

DMO CEO Dr Stephen Gumley told the committee. “ there will be an expert determination on the quality of these drawings”. “We will go through that process to see if there’s a problem”, he said.

DMO deputy chief executive Warren King said that BAE had taken on a “little too much work for the number of people they had”. He said that BAE could have raised the alarm earlier – and avoided delays in the project.

BAE had issues with the design of the ships. Leading to the dispute with ASC.

Mr King told the Committee that five AWDs had been built overseas to the same specifications without experiencing any problems.

Defence Minister Stephen Smith announced that some work would be transferred from BAE to ASC and Forgas in Newcastle and Navantia in Spain to reduce the project delay to up to 12 months.

Defence Budget Overview – Realigning the Budget

In the 2011-12 Budget, Defence will undertake a significant realignment of its budget. This realignment aims to:

- Ensure that Defence has the funding it needs, when it needs it; and
- Reduce operating expenditure through increased efficiencies.

As a result of the realignment, Defence will return to Government:

- \$1.1 billion in 2010-11 and an additional \$1.3 billion over the next four years by reprogramming Major Capital Investment Program funding;
- \$0.4 billion in 2010-11 and an additional \$1.3 billion over the next four years from reduced operating expenditure, adding to savings from the Strategic Reform Program (SRP);
- \$87 million in 2010-11 and an additional \$111 million over the next four years for lower than planned costs associated with acquiring the fifth C-17 aircraft.

In total, Defence will reduce its call on the budget by \$1.6 billion in 2010-11 and \$2.7 billion over the next four years (2011-12 to 2014-15).

The reprogramming is necessary to better reflect realistic achievement of milestone delivery payments by industry for capability and infrastructure projects. This accommodates anticipated delays in project delivery from industry. In 2010-11, capital expenditure has slipped by \$1.1 billion which will have flow-on impacts in future years.

The experience to date with the Strategic Reform Program has demonstrated that reform in Defence is necessary, achievable and sustainable.

With the benefit of this experience, the Government considers that Defence can and should do more to reform.

Reforms to shared services and other efficiency measures means that Defence can reduce this overall forecast APS workforce growth by 1,000 over the next three years. Reducing the APS workforce growth will be achieved by natural attrition, not hiring new staff and, if required, some limited voluntary redundancies.

Savings from these reductions to forecast APS growth will be returned to the Budget.

There will be no reductions to the Australian Defence Force military workforce as a result of these changes.

The Navy and the Capability Development Group will be exempt from these additional reductions to their forecast APS workforce.

These reforms will be incorporated into the Strategic Reform Program, including oversight by the Defence Strategic Reform Advisory Board chaired by Mr George Pappas.

For more information and access to the Portfolio Budget Statement go to <http://www.defence.gov.au/budget/11-12/index.htm>

Defence Capability

Over the next 12 to 18 months, Defence is developing First and Second Pass approvals of Defence Capability Plan projects worth over \$6 billion.

In addition to the recent decisions to acquire a fifth C-17A Globemaster III heavy lift aircraft and the amphibious ship *Largs Bay*, approvals will be sought for a range of key capability acquisitions including:

Air 9000 Phase 8 Future Naval Aviation Combat System

This project will replace the current fleet of Seahawk and cancelled Super Seasprite helicopters with multi-role naval combat helicopters, weapons and related training, infrastructure, logistics and support arrangements.

Land 121 Phase 3 Project Overlander

Phase 3 will deliver Light and Lightweight unprotected Class vehicles and Medium and Medium Heavy protected and unprotected vehicles for land forces. While this phase of Overlander is post second pass, it will be reconsidered by Government when Defence completes the current tender evaluation activities for Medium and Medium Heavy protected and unprotected vehicles.

Land 121 Phase 5A Project Overlander

This phase of project Overlander will deliver further Light and Lightweight unprotected Class vehicles for ADF tactical training critical for our personnel in preparation for operations.

Joint Project 2072 Phase 2A Battlespace communications systems

This project will rollout the communication infrastructure to high readiness land formations and units of the ADF.

JP 2048 Phase 3 – Replacement Watercraft

This project will provide ship to shore vessels to transport forces and equipment ashore and re-embark them back onto the Canberra Class Amphibious Assault Ships.

The Australian Government is continuing its investment in the package of enhanced force protection capabilities for our troops in Afghanistan.

New air-to-air refueling tanker arrives at Amberley

After a delay of nearly three years, the first of five KC-30A aerial tankers ordered by the ADF, has arrived at its base at RAAF Amberley. The aircraft is a military version of the A300 Airbus. CAE Australia has had its contract to provide aircrew training contract to provide management and support to 15 of the Defence Force's training devices and simulators across the country, extended to cover the new air-to-air tanker. CAE support teams will be on-site at the training facility Amberley to provide maintenance and support to the simulator on which the aircrews of the KC-30As will be trained.

By extending the existing contract Defence can cut overheads and operate a more economical and efficient simulator training system for ADF personnel.

Powering troop deployments from rubbish

DSTO and Melbourne based HRL Technology are developing a deployable Waste To Energy (WTE) concept capable of utilizing a range of solid wastes or rubbish to produce electricity.

One of the biggest fuel usages in a deployed environment, excluding air operations, is power generation for headquarters, field hospitals, and humanitarian relief sites where most power infrastructure is destroyed.

Mr Snowden said in launching the pro a typical ADF battalion of 500 soldiers generates about 1,000 to 2,000 kg of waste per day on deployment. The WTE system is to recover the embodied energy of the rubbish and generate power for the base, reducing the need for diesel.

DSTO and HRL Technology have developed a technology capable of processing up to 5,000 kg of solid waste per day. They found the most effective way to generate power was to utilise hot gases from waste combustion in a grate furnace, which heated compressed air for expansion through a turbine. The WTE system could potentially generate 200 kW of power, enough to power 240 homes and 3,000L of hot water per hour, using some 2,000 kg of rubbish per day. This equates to a fuel saving of up to 1,300 litres of diesel per day – not only could that benefit the environment and is also a substantial potential cost saving.

The technology is relatively small and deployable and requires little or no water. The system could also be used at military bases between deployments to generate power, thereby reducing the ADF's green house gas emissions by diverting waste from landfill.

The WTE system would also be suitable for use in disaster relief situations, such as the recent floods in Queensland, where many of the electrical assets could be destroyed and large amounts of combustible waste/debris are available, Mr Snowden said.

The next stage of development involves the construction of a prototype unit to demonstrate the concept and this should be completed within two years.□

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ASDE National E Newsletter welcomes contributions considered to be of interest to our members.

E-mail your copy to peterdavidson@pacific.net.au. Copy may be edited and publication is at the discretion of the Editor.

Titles and Acronyms

As most of our readers are members of the defence community they are well aware of the major players and operators within the sector. The Editor has taken some short cuts to reduce duplication in the copy.

Stephen Smith MP, Minister for Defence;
Warren Snowden MP, Minister for Defence Science and Personnel;
Jason Clare MP, Minister for Defence Material.

Acronyms

ASDE – Australian Society for Defence Engineering
DMO – Defence Materiel Organisation
DMTC – Defence Materials Technology Centre
DSTO – Defence Science & Technology Organisation
EA – Engineers Australia
SME - Small and Medium Enterprises