A Technical Society of Engineers Australia
ABN 80 561 695 651

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National Chairman – Doug Roser

Over the last two years or so our Society for Defence Engineering has not only influenced the Engineers Australia Policy Statement – Engineering for Defence- but has also made submissions to the Naval Engineering Review and the Rizzo Review. These have highlighted our concerns with the reduction in the influence engineering has in Defence projects as well as the lack of planning for the through life support of new defence systems.

Against this background the release of the Rizzo Review Report in July was a most pleasing result as it clearly recognised the systemic failures in defence engineering which had been of concern to our Society and recommended corrective actions to address them. A big "well done" to the Rizzo Review Team. For those members who have not made themselves aware of the Report, I would strongly recommend you visit the defence website and at least read the Executive Summary.

ASDE will certainly continue its interest in ensuring that the influence of engineering in defence procurements and operations is returned to, and maintained at, appropriate levels.

Also of great interest to our Society is the announcement by DEFENCE Minister Stephen Smith of a review of the maintenance regime of the navy's troubled Collins-class submarines and why so few of them are available for operations. The review is to be conducted by John Coles, a British-based private sector expert in major defence programs who is to provide an interim report by December and a final version by March 2012.

Members are also reminded that the on-line update to the Public Defence Capability Plan (2011 Public DCP) is available on the Defence website. It highlights the various capabilities needed to achieve a balanced force capable of meeting contingencies that the ADF may be faced with over the next two decades.
http://www.defence.gov.au/dmo/id/dcp/dcp.cfm

National Committee Report – Doug Roser

Participation in Engineers Australia Year of Humanitarian Engineering

ASDE continues its endeavours to ensure that the role of the ADF in humanitarian engineering is recognised in EA's Year of Humanitarian Engineering. The dates for the program of workshops to support the Year, details of which have been distributed to all Chapters, are:

Brisbane	27 September
Hobart	6 October
Adelaide	12 October
Melbourne	18 October
Sydney	20 October
Canberra	27 October
Perth	4 November
Darwin	9 November

The culmination of the Year will be a Conference in Melbourne late in the year with which the National Committee plans to hold its annual face-to-face meeting.

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

The ISSEC 2011 Conference was held in Sydney in 2–5 August and included a Defence and Engineering Team (DIET) Day on the 3 August. This day was preceded by a DMO only seminar on 2 August but the DIET Day, which was supported by the Sydney Division of Engineers Australia and ASDE, was open to industry and others – EA and ASDE members paid a discounted registration fee The focus of the day was "Engineering Assurance" and comprised presentations by DMO and industry counterparts (some of which were combined) of their efforts to deliver outcomes with the required level of engineering assurance. Doug Roser, the National Chair of ASDE was the Chairman for the DIET Day and contributed to a Panel Session for the ISSEC Conference as well. The DIET Day was most successful and further reinforced the support of Engineers Australia and ASDE of DMO.

Submarine Conference in Adelaide 8 – 10 November 2011

The arrangements for this Conference, to be held 8-10 November at the Crowne Plaza Adelaide, are progressing very well and a MOU has been signed between the Submarine Institute of Australia (SIA) the main organiser of the Conference and Engineers Australia who are supporting, along with ASDE, the third day with a focus on the engineering aspects of submarines. A wide range of papers have been received which augurs well for a good day with two or three parallel streams (for which the venue is well suited). Students, as well as seniors, will be encouraged with generous discounts for registration. The registration facilities are accessible on the SIA website www.submarineinstitute.com

Eminent Speaker

ASDE is in contact with EA to arrange a tour next year by RADM Moffitt as an Eminent Speaker to present the New Submarine Project.

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. After making a submission to the Naval Engineering Review and the Rizzo Review, the National Committee had decided to continue to follow up the issues raised in the submissions by the development of a position paper on the status of engineers in defence activities and the continuing lack of influence in a number of areas of Defence. However, these concerns have been addressed by the Rizzo Review Report and ASDE has decided that it will now continue its interest, at least for the time being, in this issue by monitoring the progress of the implementation of the recommendations of that report and by contributing, if possible, to the Cole review of the maintenance regime of the Collins-class submarines.

Co-operation of EA/ASDE/DMO

The relationship between DMO, Engineers Australia and ASDE in very important to all three organisations and has been evident over recent years in the support DMO has provided to EA's Professional Development Program and the co-operation between all three organisations in the conduct of seminars.

With the increased focus of EA on a system of national registration for engineers, the departure of Dr Stephen Gumley from DMO, the recent assumption by John Anderson of the responsibility as the EA National Director of Engineering and the suggestion that the development of a special set of Stage 2 (CPEng) competencies for Navy engineers is needed, the requirement for continuity of the relationship between EA/ASDE/DMO increases in importance.

The ASDE National Committee discussed this matter and the National Chair also canvassed the thoughts of John Anderson. Engineers Australia is a somewhat unique peak organisation for engineers in that it covers all the engineering disciplines. Thus, it is difficult to have a set of competencies, including three compulsory, to cover all the engineering disciplines and the many multi-facetted roles in which engineers are involved. And defence engineering epitomises most of these disciplines and roles.
ASDE has therefore agreed to work closely with John Anderson of EA to ensure that the many various roles of defence engineering are catered for by the accreditation and PDP processes used now and in the future by EA. The National Committee also decided to contact DMO and EA with the aim to further develop the opportunities for cooperation between EA/ASDE/DMO including regular seminars and conferences.

WA Chapter

A member of the National Committee will be visiting WA and will follow up the proposal to consider the establishment of a chapter of ASDE in WA.

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

NSW Chapter

The NSW Chapter continues its efforts to highlight the contribution of the ADF to humanitarian engineering and was delighted to have Captain Bradley Willis from the Force Engineer Branch Headquarters 6 Brigade as one of the speakers for the Harricks Address held as part of Engineering Week.

The most recent presentation arranged by the Chapter was on 4 July by Dr Brian Ferguson of DSTO titled "Countering fast inshore attack craft, underwater intruders and hostile snipers with acoustic systems". The next presentation will be held on 5 September by Mark Eggler, Principal of Eggler Consulting Engineers, with the topic "An Introduction to the Design of Fighting Vehicles".

The Chapter has been in contact with Commodore Mark Purcell who has agreed to give a presentation on Technical Seaworthiness early next year – as this will be of interest to other chapters we will also arrange for the talk to be given to them or video streamed .

John Elliott represented the NSW Chapter at a meeting on 27th July 2011 of the Sydney Aerospace and Defence Interest Group (SADIG) organised by Regional Development Australia – Sydney Inc.

Victoria Chapter

We have the largest membership of the five ASDE Chapters. Our members are generally young, career focussed people and are time poor. We provide industry and technical information of value to our members, who are spread across Melbourne and the state. We are also responsible for a number of overseas members. A lot has changed over the past 25 years - our members face long hours getting to work and returning home. They have young families. Much of Victoria's heavy defence industry is located in the west of the CBD. Specialist industries are generally located in our south eastern suburbs. There are country members working in Bendigo,

Mulwala, Wangaratta and Wodonga. We have designed a communications program to cater for their needs As part of our charter we have established ongoing relationships with the Australian Strategic Policy Institute, Royal Australian Navy, Australian Defence Magazine and the Royal Aeronautical Society Melbourne Branch.

I wish to thank Richard Bromfield, our Secretary who has set up our Chapter library. It holds information from these organizations which are available to our members and compliments our newsletter which includes the AIDN newsletter.

I thank Richard Bromfield, Karen Bromfiield, Mark Read, Declan Ellis and Cristopher Lindermann for their work and support for the Society during the year. I trust they will be able to continue their support in the future.

Peter G. Davidson Chairman, ASDE Victoria Chapter

Industry News

Changes in Defence Management

Dr Ian Watt, former Secretary of Defence as been appointed Secretary of the Department of the Prime Minister and Cabinet. Minister for Defence, Stephen Smith said he will provide the Government with advice of quality and integrity on public policy and public administration. I have very much enjoyed working with Ian. I look forward to working with him in his new capacity.

Mr Smith congratulated Duncan Lewis on his appointment as the Secretary of the Department of Defence. He said he first worked closely with Duncan when he was a Deputy Secretary in the Department of the Prime Minister and Cabinet. Mr Lewis was National Security Adviser on international, national security and defence issues. He graduated from the Royal Military College in 1975. During 34 years in the ADF, he rose to the rank of Major General. He served on the Army Headquarters staff as Director of the Defence Reform Program in Army and as the Director of Strategy and International Engagement. During the INTERFET period Mr Lewis was appointed the ADF spokesman on East Timor. An Army Attache in Jakarta from 1994-96 he returned to Jakarta as acting HADS for a short period in 1998 following the evacuation of Australian nationals. Mr Lewis is a graduate of the British Army Staff College, Camberley and the United States Army War College. He holds a Bachelor of Arts degree from the University of NSW and a Graduate Diploma in Defence Studies from Deakin University. He is a graduate of the ADF School of Languages where he studied Indonesian. On retirement from the ADF he joined the public service in the area of national security.

Decommissioning of HMAS Kanimbla

The amphibious ship HMAS *Kanimbla* will be decommissioned. In September 2010 the Chief of Navy imposed an operational pause on the ship due to seaworthiness concerns. Since then, Defence has assessed its future and decided that the most cost effective and lowest risk option is to decommission the ship.

The Government decommissioned HMAS *Manoora* in May on the advice of the Chief of Navy. In April the Government announced that it had acquired Largs Bay for £65 million (approximately $100 million) from the UK. It will be commissioned into Navy service as HMAS *Choules* in honour of Mr Claude Choules, the last known veteran to have served on active service in the First World War. He served in the RN in WW1 and transferred to the RAN as an instructor. He served in the RAN as a submarine and torpedo instructor. He died recently in Perth

HMAS *Choules* is expected to arrive in Australia for a commissioning ceremony in Fremantle in December 2011.

HMAS Tobruk

HMAS *Tobruk* has been docked in Sydney since May while Defence undertakes scheduled maintenance to return it to 48 hours readiness notice. HMAS *Tobruk* is expected to be available for sea for a short period of time from end August to early September before it undergoes further scheduled and previously announced work to prepare it for the cyclone season which commences in November.

Defence leased the Australian Customs Vessel *Ocean Protector* to provide a humanitarian assistance and disaster relief sealift response vessel from 12 August until 14 October 2011. The *Ocean Protector* is in addition to Australia's agreement with New Zealand that the amphibious lift ship HMNZS *Canterbury* would be made available, subject to any operational requirements in New Zealand.

Navy continues to examine amphibious transport ship options from 14 October in addition to HMAS *Tobruk* to the arrival of HMAS *Choules* at the end of this year.

Step forward for Navy's Anti-Ship Missile Defence

A major milestone in the delivery of an upgraded ASDF for the RAN Anzac Class frigates has been achieved with the completion of a successful trial of the system. The project involved a comprehensive upgrade of the HMAS *Perth's* anti-ship missile defence systems including a new phased array radar. The technology was developed and designed here in Australia by CEA Technologies. The cutting edge technology which will improve the ability of our frigates to detect and track targets. It also means the Ship is now capable of engaging multiple targets at the same time.

Test firing was conducted at sea recently and involved the successful firing of an Evolved Sea Sparrow Missile using the phased array radar system. The system was also at the Pacific Missile Range Facility in Hawaii to conduct operational testing.
HMAS *Perth* is the lead Ship in this project. Defence will now prepare a business case for Government to upgrade the other seven ANZAC Class frigates.

Crucial Bendigo Hawkei Bid

The Thales Bendigo designed "light protected mobility vehicle" is aimed to replace the Land Rovers It meets the needs of the ADF which is challenged by IED's, mines or small arms ambushes. They will provide a highly mobile, light protected vehicle to meet today's and tomorrow's operational needs. Powered by a Steyr 3.2 litre turbo diesel, the Hawkei has a top speed of 130 km/hr and a six speed automatic four wheel drive auto transmission. In battle configuration it weighs seven tonnes. To meet the Australian Defence Force's urgent operational needs, Thales has teamed with some of the best in the business – Plasan for its proven armoured solutions; Boeing Australia for its logistics prowess; and PAC Group for its industrialisation capabilities. Thales is working closely with local businesses and organisations to leverage exceptional and home grown defence industry to deliver a superior quality product, just like the Australian Bushmaster. The tender which will be awarded in coming months includes bids from General Dynamics, with the "Eagle" and the "Ocelot" from Force Protection Europe. A Hawkei is an Australian snake.

First keel block delivered for new Australian warship

Jason Clare has announced the delivery to Adelaide of the first keel block that will be used to construct HMAS Hobart – Australia's first Air Warfare Destroyer. "This is an important step forward in the $8 billion project to construct three new warships," Mr Clare said. Construction of the AWDs involves 90 separate steel blocks being built at shipyards in Adelaide (ASC), Melbourne (BAE Systems), Newcastle (Forgacs) and Ferrol, Spain (Navantia). Three sonar blocks are being constructed in Spain and the United Kingdom. "Approximately 70 blocks will be shipped to Adelaide over the next four years where they will be consolidated into three new warships," Mr Clare said.

Over the next six months it is expected that six blocks will be delivered from Melbourne and Newcastle to Adelaide. This first block weighs around 180 tonnes. It is 18 metres long, 16 metres wide and five metres high and will form part of the keel of HMAS Hobart. It was loaded on to a barge at BAE System's Melbourne shipyard on 11 August. The barge was towed to the Common User Facility in Adelaide arriving on 15 August. It was removed from the barge and transported by a large multi-wheeled vehicle to the pre-fit-out facility. Further work on the block including blast and paint, fitting pipes, installing communications and electrical cables and fitting internal walls will now be completed.

Two other hull blocks are currently being prepared for shipment from Melbourne to Adelaide. Construction has begun on all main blocks for the first ship and work has also begun on blocks for the second ship, HMAS *Brisbane.* Next year work will begin on blocks for the third ship, HMAS *Sydney* and the first ship will start to be consolidated in Adelaide. There are more than 1,000 people currently working on the ships across the three Australian shipyards. In May, the Government announced that the AWD Alliance had reallocated construction work on the project to reduce the schedule risk to both the AWD and Landing Helicopter Dock ship projects.

"The delivery of the first keel block is an important step forward in this project," Mr Clare said.

Government invests $13 million in research and development for Defence

The Minister for Defence Science and Personnel, Warren Snowdon, announced that innovative Australian research projects involving helicopters, objects in space, sonar analysis and solar energy had been selected to receive combined funding of $13 million. Five projects were selected out of 119 submissions received under Round 15 of the Defence Capability and Technology Demonstrator (CTD) Program.

"In supporting these proposals we have the potential to advance Defence capability, produce innovative products for Defence and civilian use and stimulate Australian industry growth," Mr Snowdon said. "Defence is proud to be supporting Australian business in developing these innovative products. I am especially pleased to note the five successful proposals have come from small and medium enterprises and I congratulate the companies involved for supporting innovative research and development technology," Mr Snowdon said.

The CTD Program, managed by DSTO and sponsored by the Capability Development Group, supports Australian industry in demonstrating new technologies that have the potential to contribute to Defence capability.

Since the program began in 1997, Defence has invested $237 million in 99 projects. Of these, 72 projects have been completed successfully, 11 projects have transitioned either into service or as a contender for a major project, and a further 11 have transitioned into funded CTD Extension or CTD Transition Projects.

These are very good results for high-risk research and development projects that benefit Defence and Australian industry.

Background on 5 proposed technologies (CTD Round 15)

PROJECT	**COMPANY**	**CITY**
1. Nanoparticle-Hydrophone Development This proposal has the potential to improve underwater sonar sensing for ships, submarines and unmanned underwater vehicles (UUV). The small pad-like devices could be installed in large numbers on the hulls of vessels, reducing the overall size of the vessel by eliminating the need for bulky sonar structures and taking the place of sonar array cables.	**Phoenix Engineering Systems Pty Ltd** (Engineering and business consulting company offering practical solutions for the Defence industry) **With Thales Australia** (A prime Australian Defence contractor)	Sydney
2. Active Pulse Analysis System (APAS) This proposal aims to develop an advanced underwater detection and analysis system as well as innovative displays to enhance a vessel's sonar sensing capability. The APAS would allow automatic scans of the large amounts of information collected by a ship's sonar to detect targets and to asses the type of detection, allowing the operator to decide which signals need further attention.	**Sonartech Atlas** (Leading submarine sonar house specialising in design, manufacture and support of underwater sonars)	Sydney
3. Integrated Power System for Dismounted Combat This technology seeks to reduce the weight of batteries a soldier needs to carry to power equipment such as GPS systems and radios for communication. It also aims to reduce the complexity of the power system. Foot soldiers are increasingly reliant on electronic devices which require battery power but they increase the weight a soldier has to carry. The proposal would integrate flexible lightweight power generating solar cells, more efficient power storage technology and power generating electronic textiles, and apply smarter techniques for managing the power requirement.	**Tectonica Australia Pty Ltd** (Defence and security systems integrator specialising in developing fully integrated systems for soldiers, armoured vehicles and related capabilities). **With Australian National University and CSIRO.**	Melbourne, & Canberra,

4. Pegasus Aircraft Buoyancy System This proposal will demonstrate a lightweight, detachable emergency floating device for the Australian Army's fleet of helicopters. With the introduction of new LHD (Landing Helicopter Dock) ships, Army will operate helicopters from naval platforms. Therefore a capability to enable a helicopter to remain afloat after ditching in the sea is vital for the survival of the crew. The Pegasus concept aims to keep an aircraft up to 10 tonnes in weight afloat. The system will weigh less than 50 kg and provide quick and easy attachment. It will have the capability to lift the aircraft to the sea's surface from a depth of up to 10 metres and will operate automatically or under pilot control with no wired connection to the aircraft.	**L-3 Nautronix** (specialist provider of maritime systems and solutions for surface and undersea defence applications, including acoustic and through-water communications) **With AADI Defence Pty Ltd** (Consortium of experts providing strategic, technical and commercial advice, facilitation and advocacy for defence companies)	Perth and Melbourne
5. Integration of EO/Laser Space Object Tracking Capability In this concept it is proposed to develop a system that can significantly improve the ability to track objects in space. It would provide considerable improvements to existing and planned space surveillance systems. Better accuracy and reliability will mean greater protection of operational satellites from colliding in space.	**EOS Space Systems Pty Ltd** (Specialises in the design, development and production of electro-optic technology systems for the space and defence sector). **With Northrop Grumman International.**	Canberra,

Diggerworks – New team established to enhance protection of Australian soldiers in Afghanistan

A specialist team of combat experienced soldiers, scientists and engineers are part of a new team called Diggerworks delivering new equipment to better protect Australian troops Jason Clare said Diggerworks has been established to respond to the changing needs of soldiers in the field. Diggerworks comprises Defence agencies responsible for developing combat solider capability and is similar to the United States Marine Corps' Gruntworks. It is headed by Colonel Jason Blaine who commanded Mentoring Taskforce 1 in Afghanistan in 2010.

The latest example of their work is the acquisition of a new pelvic protection system to soldiers currently operating in Afghanistan, it includes a protective under garment to prevent fine dirt and shrapnel particles from explosions causing infection in any wounds sustained. This garment is expected to be provided to Australian troops on patrol in Afghanistan from November this year.

Defence will also trial a soft armour ballistic groin protector worn over the combat uniform designed to provide increased protection against larger shrapnel. This decision has been made based on the experience of the British Army whose soldiers have suffered an increasing number of pelvic injuries in Afghanistan. "This system will provide another layer of protection for Australian soldiers against infection and injury in the field," Mr Clare said. "Diggerworks is doing is very important work. It's about soldiers who have been in Afghanistan using their experience to help soldiers in the field."

Diggerworks is also responsible for developing the new lighter combat body armour called TBAS which has just been rolled out to our troops in Afghanistan. TBAS has been designed based on feedback from our troops in Afghanistan that the existing body armour was too heavy and made it difficult to do their jobs. TBAS is lighter, fits better, is more comfortable and makes it easier for soldiers to get into a firing position. Mr Clare visited Afghanistan recently and discussed TBAS with the troops. "The feedback I got was extremely positive. Soldiers told me it made it easier for them to do their job," he said.

Diggerworks will also work on a $20 million research project with Defence industry, the DMTC, the University of Wollongong and RMIT to enhance the protective equipment worn by soldiers to combat a range of existing and evolving threats like Improvised Explosive Devices. This is in addition to the package of initiatives worth $1.6 billion the Government committed to following the 2009 Force Protection Review. Measures that have been delivered as part of this package include:

- Upgrading our Bushmaster vehicles to provide better protection for troops inside;
- Equipping Bushmasters with heavier calibre weapons;
- Attaching mine rollers to the front of Bushmasters to roll ahead of the vehicle to take the impact of an IED explosion;
- Purchasing new handheld mine detectors;
- Improving counter IED training here in Australia; and
- The Counter Rocket Mortar and Artillery early warning system.

Cadet election commitment fulfilled

The Defence Legislation Amendment Bill 2011, fulfills an election commitment. It will provide greater consistency and certainty for all Cadets and Cadet staff Specifically, this Bill will reduce duplicated effort across Cadet programs and facilitate the establishment of a concerted youth development strategy within Defence. It provides the CDF in addition to the Minister for Defence, with the authority to issue directions to the Service Chiefs in relation to the administration of their respective Cadet schemes.

The ADF Cadets is a community-based youth development organisation focused on Defence traditions and values. It comprises the Australian Navy Cadets, Australian Army Cadets and Australian Air Force Cadets. There are approximately 22,000 ADF Cadets and about 2,500 Cadet staff in some 500 Cadet units and headquarters across Australia.

Sorry readers, This my Editorial indulgence. I joined the School Cadets about 57 years ago at the age of 13. I rose to the rank of Cadet Under Officer in charge of the mortar platoon. I was also captain of the School's Rifle Team which competed at the Williamstown Rifle Range in Victoria.

In my teens I carried a .303 Enfield rifle back and forth to school each Thursday on public transport. I was selected for the cadet guard. The uniform included a kilt. sporran. spats and an 18 inch bayonet in a scabbard on my belt with my rifle to school. If a teenagers did that today they would be heavily fined.

During my time in cadets, I fired the 303. many times, the Vickers machine gun (my knuckles still remember), a Bren gun many times, the Qwen submachine gun. Threw grenades and fired the three inch and two inch mortars (with practice bombs).

Today's Cadet are more humanitarian service based

Peter Davidson

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.

Titles
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