

## **Far from Sanctuaries: Sustaining a Fifth-Generation Fight in the Indo-Pacific**

*Mrs Donna Cain-Riva provides valuable insights into how the Royal Australian Air Force is considering the 'self-sustain' challenges of operating a fifth-generation force in a competitive Indo-Pacific. This is an adaptation of Mrs Cain-Riva's presentation to the Williams Foundation's self-sustain seminar, held in Canberra on 11 April 2019.*

Over the last few years, Logistics Branch – Air Force has pursued a dedicated effort to understand and respond to the sustainment challenges posed operating a fifth-generation force in an increasingly challenging Indo-Pacific. This presentation summarises the key challenges this effort has considered and provides some insight into Air Force's responses.

In 2030, air power projection locations in the Indo-Pacific, and our air bases across the entire National Support Base will not be sanctuaries. The future battlespace will be highly contested, and future adversaries will have the ability to reach out and touch us anywhere in the world – physically and virtually. Sustaining fifth-generation capabilities in a future conflict will challenge every tenet of the logistics and sustainment enterprise designed to support them – from tooth to tail.

We must look critically at our sustainment and support constructs, and challenge our current paradigms of sustainment policy and practice. Our success depends on our ability to think differently, to think creatively, and to act with agility. We must redefine the notion of 'self-reliance' – take a contemporary, and arguably a realistic view, and understand the nuances and inter-dependencies between sovereign and collective self-reliance as part of a global alliance structure.

As the strategic outlook changes, and we introduce fifth-generation capabilities, we have an opportunity to redefine how we can enhance and sustain sovereign Defence capabilities through deep and enduring alliance and regional relationships. An integrated strategy, that identifies the priority capabilities that Australia must be able to sustain, or sustainability contribute to, will give us the reach, flexibility and resilience to operate independently, or as part of a combined operation in a high-end, high intensity conflict.

### **The Need to Change our Mindsets**

So what does all this mean for sustaining a fifth-generation fight in the Indo-Pacific? And where do we start? It starts with challenging ourselves to move beyond our current, or what I refer to as our 'Middle East' sustainment mindsets. Notwithstanding some sustainment challenges experienced during our operations in the middle-east – notably around the acquisition and management of explosive ordnance and management of critical platform spares – we have been, and continue to be, successful in sustaining our capabilities on operations. But if we are honest with ourselves, the prevailing threats were asymmetric, and far removed from the National Support Base and domestic Air Force bases.

If we take a deeper look, a central component of the logistics scheme of manoeuvre prior to major combat operations in the middle-east was the build-up of support forces and infrastructure across the region to support impending operations. These hubs became a network that could be called upon to support a number of different operations, and were augmented by significant coalition, commercial and host nation support. Basing locations for Air Force systems were, for the most part, located in areas of relative safety. Air lines of communication flowed freely across the battlespace. Global supply chains were free to transport goods to agreed points within the Host Nation, where ADF supply chains would then distributed supplies – uncontested – across the theatre. The ADF contracted commercial platforms to supplement airlift capability and transport equipment directly into theatre. And the ADF leveraged coalition contracts for support, including for fuel and force sustenance at major bases. Whilst generally speaking, demand did not out-strip supply, our operational rate of effort was tempered by known sustainment limitations – we were fortunate that the operational exigency did not demand more from our sustainment system than it could reasonably satisfy.

Across the theatre, Logistics Information Systems were unaffected through cyberspace, data was able to pass between deployed locations and the NSB with ease, and the need to highly classify and protect data was limited. Operations across the middle-east, for over a decade, were successfully supported via traditional and global supply chains and support arrangements. Notwithstanding, Operation OKRA, while successful, did challenge ADO capabilities across the spectrum, and that was with the theatre mostly set

with established basing, distribution, supply chains and theatre networks – and no one was shooting at us! We were not self-reliant in the middle-east, but our experience also did not demand it.

### **Characteristics of Future Conflict**

So what changes when we look to the future, with a focus on the Indo-Pacific? To put some context around our needs for enhanced sovereign Defence capabilities, it is important to discuss the strategic environment, because how we respond to a changing security landscape is central to every acquisition and sustainment decision that we make.

In a high-end, high-intensity conflict, adversaries will seek to deny us access to physical and virtual areas of interest, which will likely commence well before the 'red flag' goes up. Adversaries will seek to hinder our ability to enter the area of operation; contest our freedom of operational manoeuvre; disrupt our supply chains; and challenge our defensive systems with multi-axis effects coordinated across all domains. Our air bases, deployed and at home, are likely to come under attack – through disruption to the logistics systems and communication networks that we rely on; through interdiction or sabotage of critical supplies and services essential for effective base functioning and capability sustainment; and through physical threats that will have increased range, speed, accuracy and lethality.

The distinction between 'grey-hull' and 'white-hull' warfare will become increasingly blurred. And a high-intensity conflict could be initiated with little warning; fought at a considerably faster tempo than previously experienced, and with higher levels of risk to capability and the force.

### **New Ways of Operating**

A fifth-generation Air Force will operate differently in this environment. And the viability of our new and emerging fifth-generation operating concepts are critically dependant on enhancing our combat support and sustainment capabilities, including enhancing sovereign options. Our advantage can no longer be based on the capabilities we possess, but rather, how we employ them. Agile and adaptive operating concepts will exploit temporal windows of opportunity to project and employ Air Power. But to achieve this we must build a network of power projection and basing options across the region to enable operational reach, flexibility and persistence. And importantly this must be underpinned by a resilient sustainment network that can rapidly respond to war-fighter needs.

This entails leveraging our natural geographic strengths, building infrastructure, growing regional partnerships, enhancing coalition engagement and cooperation, and developing synchronised sustainment strategies with our allies, as an integrated part of our deterrence posture. And Australian Industry has a critical role to play.

How quickly could we mobilise for war? As an Air Force – as an Australian Defence Force – and as a nation? How long could we sustain high-intensity operations before we deplete our fuel reserves or can no longer arm our platforms? How quickly could we repair or replace critical platform components before we impact sortie generation? And how rapidly could we recover a base from attack, or re-establish critical infrastructure and services such a water or power to enable airbase operations?

In an environment where risk to force is high, and multi-domain effects will not necessarily be bound by operational borders, our traditional notions of expeditionary combat support and layered sustainment will be extremely challenged. The days of large forward deployed airbases, sustained by secure lines of communication enabling the reliable flow of equipment and supplies, and reach-back for deeper levels of support and maintenance cannot be guaranteed.

Logistics, whether we like it or not, is a potential soft underbelly exposing vulnerabilities and risk to operational outcomes. Are we confident we can BASE – FUEL – ARM – FIX – SUPPLY and MOVE the force in a high-end, high-intensity conflict; and sustain it?

### **Enhancing sovereign Defence capabilities for Collective Self-Reliance**

We do not share these challenges alone. Our coalition partners and allies are equally challenged, and this presents an opportunity to enhance sovereign capabilities as part of a global alliance structure. Enhancing

sovereign options, through collective self-reliance will help us to mitigate risk and manage our vulnerabilities, and offers Australia Industry exposure to broader markets and higher demand profiles.

Acknowledging Australia's limited resourcing capacity for self-reliance, we must prioritise sovereign capability development to ensure its sustainability. There is significant opportunity across the combat support, logistics and sustainment enterprise to enhance our collective self-reliance. The following are a few areas I believe worthy of consideration:

Firstly, **BASING** the force. We must think beyond just military bases and consider how we develop a network of air power projection locations within the NSB and across the region. Defence is investing in infrastructure and facilities to support Air Force's expanding strike and air combat capabilities. We must continue to modernise and harden our infrastructure, and train and exercise to fight and recover our bases. Passive defence measures offer an opportunity for innovation – what does the next generation of camouflage, concealment and deception measures look like in the Information age? And how can we leverage emerging technology to rapidly initiate flexible or dispersed operations to preserve and protect the force, and enable operational manoeuvre?

Higher levels of risk to force may also challenge our high-reliance on contracted personnel that augment our combat support forces on our bases. Perhaps it is time to reconsider our current service delivery models across our National Support Base to ensure they will support the rapid transition from a peace-time to war-time setting.

**ARMING** the force. Air Force is pursuing enhanced munitions integration with our coalition partners. Interoperability objectives associated with munition preparation and aircraft loading are the first steps. But Australia could also play a greater role in the global development, production and testing of next generation missile capabilities. Improving trade relationships, combined with our key coalition partners stated objectives to leverage partner capabilities, enable us to challenge current export constraints and extant agreements that may limit our current role.

**FUELLING** the force. Australia, as I am sure you are all aware, relies heavily on imports for a significant portion of refined petroleum products. Are we confident in the ability of the market to surge and supply if regional stability and security degrades? We must seek to exploit emerging energy markets or enhance our sovereign energy production. Investment and innovation in fuel infrastructure, delivery modes, storage capacity, reserve fuel holdings, and diversification of the fuel supply chain are all worthy of further consideration.

**SUPPLYING** the force. Sustaining our capabilities through increased organic means, with reach back to indigenous and sovereign industrial capabilities, that provides us with increased surety of supply and services, is a noble objective. But is this realistic where complex and diverse global supply chains dominant the landscape. There is significant opportunity to exploit advanced manufacturing and emerging technologies to disrupt traditional and geographically dispersed supply chain constructs, and to minimise the impact of supply chain shock.

Supplying the force also starts with understanding where we carry supply chain risk and vulnerabilities. From a cyber-vulnerabilities perspective, a recent US TRANSCOM study found that over 70% of the supply chain for a typical aircraft component was managed within the .com / .net environment, as opposed to the more secure .gov / .mil environment. TRANSCOM realised that its commercial partners, who carry equipment by train, plane, ship and other modes of transportation were not held to the same cyber security standards as US Department of Defence. Australian industry and the commercial entities that support the production, supply, warehouse and distribution of our equipment also have a role to play in being more cyber aware.

**FIXING** the force. Global supply chains present many maintenance and support opportunities for Australia Industry to enhance our self-reliance. Air Force is also pursuing enhanced maintenance integration across common platforms with our coalition partners. Interoperability objectives associated with aircraft repair and cross-servicings are progressing. But Australia could also play a greater role in supporting regional maintenance hubs, as well as component manufacture, repair, over-haul, and the provision of engineering services.

In 2035, the global pool of F-35's will be around 3000, and as the global support solution continues to mature and evolve, including the establishment of regional maintenance facilities in Australia, there will be many more opportunities for Australian Industry to enhance its role.

**MOVING** the force. Agile and adaptive deployment objectives will drive smaller expeditionary logistics support packages, requiring responsive resupply and distribution to meet dynamic operational needs. We must seek to optimise volumetrically, and exploit advances in technology and automation to develop modular, tailorable, scalable and lean force packages.

**COMMAND** the force. There are many opportunities to leverage emerging technology and innovation to enhance C2, situational awareness, and to provide visibility of logistics capabilities and resource availability across the battlespace. Enhanced logistics C2, supported by a common operating picture, will enable the sustainment enterprise to 'sense and respond' to dynamic war-fighting needs. We must exploit and leverage advances in sensing technology, data analytics and artificial and augmented intelligence to predict, anticipate and respond rapidly to operational needs. This will provide us the power to process increasing volumes of complex operational and logistics information generated by fifth generation platforms and systems.

### **Conclusion**

We require a broader understanding of the combat support, logistics and sustainment challenges we face if we are to prevail against the increasingly complex and lethal threats of warfare in the information age. Logistics will be targeted, and our airbases will not be sanctuaries. These are global challenges, and they require a global response, and this presents an opportunity for Australian industry to expand their role as part of a broader alliance structure. We must harness the opportunity to strengthen our coalition and allied partnerships, enhance our relationships and access within the region, build shared capacity and capability; and in turn, enhance our sovereign Defence capabilities.

*Mrs Donna Cain-Riva is the Director of Future Logistics Capability – Air Force.*