North of 26° south and the security of Australia
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Supporting a rare-earths industry in Australia
Genevieve Feely and Rhys De Wilde, 12 July 2019

Last month, Stephen Kuper highlighted his concerns about the security of the global supply chain for rare-earth elements (REEs), particularly as it relates to sustaining the US defence force. Right now, it’s a bleak outlook. The Chinese government dominates the global supply of REEs and has demonstrated an increased willingness to use that as leverage against America and its allies during the continuing US–China trade war.

However, it’s not all bad news. Anxiety over access to supply chains could create an important strategic and economic opportunity for the Australian government, a suggestion raised elsewhere in the media recently. With new thinking, and the right investments, Australia could source and process REEs.

Image courtesy: ullstein bild/Getty Images
REEs are essential for manufacturing of a range of everyday products, such as mobile phones, refrigerators and cars. They also play a critical role in the production and maintenance of the world’s cutting-edge defence capabilities.

REEs didn’t get a mention in the 2016 defence white paper, but, more recently, Defence Minister Linda Reynolds has recognised that securing the supply of REEs is in our strategic interest.

Australia holds 2.6% of the world’s estimated reserves of REEs. While that may not sound like much, we were ranked third worldwide on that measure and second for production in 2016.

Extracting and processing REEs is expensive and time-consuming, and any investment in the industry needs to make both strategic and economic sense. Central to the decision-making exercise should be a discussion of the feasibility of fostering and sustaining a viable Australian REE extraction and processing industry. The Australia-based REE mining company Lynas already extracts elements from a mine at Mount Weld in Western Australia—one of the world’s richest known deposits of REEs.

REEs are not exactly rare, but they aren’t found in high concentrations and are mixed with other minerals in deposits. If they can be found and extracted, there’s a high level of toxicity and significant adverse environmental impact associated with processing them. The US had ceased processing REEs because of the environmental impacts; however, one mine in California has recently reopened. It’s likely that many private-sector ventures have been deterred from investing in Australian onshore processing by the devastating environmental effects.

There’s not much of an extraction and processing industry base or a lot of expertise in the field outside of China.

Convincing the securocrats in Canberra of the necessity of developing an Australian rare-earths industry based on strategic considerations would be relatively simple. Engaging with industry and developing a nuanced investment plan that is both feasible and sustainable is a far more difficult proposition.

The impetus for a rare-earths industry in Australia will have to come from the federal, state and territory governments. Under the direction of the defence minister, the Department of Defence could work with industry to identify essential REEs to maintain our supply chain of defence hardware. Other Commonwealth organisations, such as the Department of Industry, Innovation and Science, could provide guidance and financial support to the industry.

The Northern Australia Infrastructure Facility has, in the past, been critical in the development of the capital infrastructure required to support the extraction industry. Writing in the Australian Financial Review, Angus Grigg and Peter Ker suggest it will also be critical to the development of an Australian REEs industry. A resource company based in the Northern Territory, Arafura Resources, has already applied to use it for a rare-earths project. The facility provides a well-tested framework for ensuring that decisions on a rare-earths industry in northern Australia will critically examine environmental impacts and undertake meaningful engagement with Indigenous peoples.

The government could implement other policies to support the creation of this industry onshore.

First, the government should consider increasing funding for research and development into cleaner processing of REEs. Even though China has gained a significant strategic advantage by monopolising the REEs market globally, it is now grappling with the consequences of an extremely toxic industry. Areas in China with significant REE mining are now attempting to clean up what has been left behind.

Lynas’s licence renewal in Malaysia was almost stopped due to concerns about the removal and disposal of 451,000 tonnes of radioactive water-leach-purification residue produced in the mining process.

In Australia, the CSIRO has indicated that it is researching new methods that could drastically reduce the amount of processing required, as well as the processing costs. The government should expand its support for this work by offering bigger R&D grants to universities and other organisations to accelerate the creation of new processes. The aim of such a program would be to help address the environmental concerns and reduce uncertainty about the industry’s ability to survive in Australia.
Second, the government should consider providing tax incentives for companies that want to explore, extract and process REEs. Financial concessions could be used to reduce the barriers to market entry, which would in turn ease the process of creating this industry onshore.

Finally, the government should consider developing a national strategy for REEs that prioritises investment from domestic companies. For example, it could develop a specific compliance framework that emphasises the role REEs play in Australia’s national security. The Security of Critical Infrastructure Act 2018 sets out compliance strategies (such as reporting obligations and directional powers) to limit the investment of hostile actors; a similar system should be created to regulate the rare-earths industry.

For business, prioritising sale to allies and for domestic use should also be a consideration. Lynas’s prioritisation of US military needs for the REE production plant it is building in Texas should serve as an example for the industry.

It’s time to start using creative economic policies and incentives to better support Australia’s strategic needs. China has had a head start in extracting and processing REEs and it has come with significant domestic environmental costs. If the strategic need to secure this resource is clear, then the government needs to create an environment that enables industry to support this objective economically and sustainably.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/supporting-a-rare-earths-industry-in-australia/
Can Darwin be a ‘resilient city’?

Paul Barnes, Luke Courtois and Rhys De Wilde, 26 July 2019

In the past decade, the concept of urban resilience has become integral to the development and design strategies of city planners and decision-makers around the world. As cities have grown larger, there’s been a concerted effort to ensure they can endure a multitude of threats to social cohesion and public health.

One particularly well-known approach to this problem is the 100 Resilient Cities program, an initiative started by the Rockefeller Foundation in 2013. Dedicated to developing resilience frameworks for cities with sprawling populations, the program views urban resilience as ‘the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience’. While the program has been implemented in ‘megacities’ (large cities with millions of people), its key rationale applies to all cities regardless of size or density.

Of the 100 cities in the program, 16 can be considered ‘small’, with a population under 500,000. Within this category, only three are comparable in population size to Darwin (148,393 people in 2017): Berkeley (122,324), Vejle (113,720) and Boulder (107,125). It’s a small pool of cities that Darwin could use to benchmark itself against on resilience challenges and to inform options for city planning and decision-making. Of course, while their population sizes may be similar, the three cities’ geopolitical, strategic, environmental and economic challenges don’t fully fit the uncertainties that Darwin is currently facing.

From economic pressures to water sustainability and border security, Darwin has a unique set of challenges. Population growth is slowing down, the economy is struggling, and the city is particularly vulnerable to extreme weather events related to climate change. Those challenges are compounded by Darwin’s growing strategic importance as Australia thinks about its national security needs and its future defence posture.

In that regard, supporting the Northern Territory government’s efforts to make Darwin a better, more liveable and adaptable city—one that’s able to cope with the uncertainties of climate change, demographic changes, a fluctuating economy and changing security demands—is not only beneficial but necessary.
As members of the 100 Resilient Cities project, Melbourne and Sydney rely on extensive and detailed resilience frameworks. While their implementation differs, these cities apply variations of the city resilience framework developed by Arup as a basis for their ongoing policy and planning development.

The framework uses four broad dimensions: infrastructure and the environment, economy and society, leadership and strategy, and health and wellbeing. These four categories underpin a multitude of indicators (Arup’s city resilience index has 52 indicators) that decision-makers can use to detail opportunities to enhance the liveability and adaptability of large cities to a range of stressors.

But would such a framework be useful for Darwin? Melbourne, for example, is coping with explosive population growth and an expensive housing market. It will also have to adapt to periods of extreme heat, a higher frequency of intense rainfall events in parallel with water scarcity, and varying degrees of ecological instability.

While these conditions already exist in the north of Australia, Melbourne has a range of resources and capacities available that can’t be matched in Darwin.

Full implementation of the large-scale approaches in the city resilience framework that could work for Melbourne may be less suited to smaller cities like Darwin. Arguably, those approaches are designed for cities with dense populations and complex infrastructure systems across wide urban and industrial landscapes.

But it’s worth considering whether subsets of the framework might allow Darwin to more effectively capture current vulnerabilities and plan for future developmental needs. Such considerations may offer new options for addressing Darwin’s economic, demographic and environmental challenges.

There are several benefits to this proposal. One is that it would give Darwin’s city planners opportunities to benchmark existing planning regimes against a subset of a framework that has become an informal gold standard for resilience planning in cities and urban spaces globally. Luckily for Darwin, its relatively small size provides an opportunity to focus on a more limited, but nonetheless important, set of challenges.

A second benefit for Darwin goes beyond the Australian context. Developing an urban resilience framework for small cities and towns would enable Darwin to be a leader in the design and planning of cities facing similar issues around the world. It’s been notoriously difficult to attract foreign investment and attention to Darwin. Developing adaptable resilience frameworks is a particularly attractive proposition Darwin’s city planners should consider.

There’s also a strong argument for creating a resilience framework for Darwin as a public benefit, which is based on developments embodied in the World Commission on Environment and Development, established in 1983 by Gro Harlem Brundtland (former prime minister of Norway and director-general of the World Health Organization), and the commission’s 1987 report titled ‘Our common future’ and known as the Brundtland report.

Encompassing many of the early ideas of sustainable development, the Brundtland report emphasises the benefits of a healthy and inclusive economy, thriving community life and hospitable urban environments. It also influenced the development of the World Health Organization’s Healthy Cities movement: a global initiative with strong policy and practice links to current notions of resilient cities.

Darwin’s development of its own resilience plan would respond to and help strengthen the city’s importance as a viable, vibrant and secure capital.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/can-darwin-be-a-resilient-city/
Shoring up the north for Australia’s defence

David Malone, 9 August 2019

In April, in the lead-up to the federal election, Labor leader Bill Shorten pledged that if his party won government, it would ‘undertake the first review of Australia’s force posture since 2012 as one of its first acts’.

Not long after that announcement, one of ABC Radio Darwin's presenters discussed what such a review might mean for the Northern Territory and its people. A caller to the program summed up the Defence Department’s perspective on the Northern Territory by arguing that Darwin Harbour was too shallow, the wet season restricted training options, and there was limited industrial capacity. He then argued that these realities mean that the scale and diversity of Australia’s defence forces in the Top End are unlikely to change.

Putting aside the fact that Darwin Harbour can accommodate aircraft carriers, and that the wet season is a phenomenon that occurs in the tropics worldwide, the last point reflects a serious challenge for Australia. And it’s one that has exercised minds at either end of the country for more than a century. Put simply, how do you protect Australia’s interests and deliver an effective deterrent from within a sparsely populated region?

There are just under 250,000 people living and working in the territory, a jurisdiction of more than 1.3 million square kilometres. Mathematically, every citizen has more than 5 square kilometres. In contrast, people living in Hong Kong have just 158 square metres each. In terms of population density, the contrast is almost cattle station versus garden shed.

It’s for that reason that the Northern Territory’s economy is not centred on providing goods and services to the local population. The scale simply isn’t there.

The NT’s economy is instead centred on delivering goods and services to much larger population centres interstate or overseas. Economic activities like the provision of LNG to Japan, mineral resources to Asia, cattle to Indonesia, and tourism to the world drive the economy of the NT. So much so that almost half of the territory’s output is exported. Per capita, the NT exports twice as much as the national average.
Mostly, the industrial capacity supporting these activities is capital-intensive and linked by its own dedicated supply and logistics channels.

Without a big population base like those available in Australia’s major urban centres in the south, the north lacks the wider economic capacity that Defence needs to be able to leverage.

Under these circumstances, the temptation to retreat from the north to areas where that capacity already exists is understandable. In peacetime, efficiency over strategy is a compelling narrative.

But this narrow interpretation of efficiency doesn’t provide the types of investments that ensure the northern industry base and infrastructure are ready to support Defence in times of conflict.

In 2018, rumours swirled that Exercise Pitch Black ended a day early after aviation fuel supplies were exhausted. If that’s right, it shows how quickly sustainment can be compromised as the tempo of operations rises above the capacity of the surrounding infrastructure.

Problems like this will often bring a focus on ad hoc, incremental solutions—like shortening or relocating the exercises, or even looking for stop-gaps to get around the constraints.

Those of us who represent NT industry argue that there’s another option—one that accepts the nature of the north for what it is and builds a new model appropriate for the context.

What’s needed is a genuine strategic alignment of the planning and investment activities of the NT and federal governments with the longer-term needs of Defence and the ambitions of the private sector. A genuine four-way partnership.

Any suggestions in this direction can sometimes strike fear within Defence circles. There’s concern that such thinking is vulnerable to being financially leveraged for the economic aspirations of the region. But that kind of thinking only holds true if you believe that the primary interests of Defence are not enhanced by the growth of industrial capacity in the north.

At a minimum, Defence should be at the economic planning table at the most strategic of levels. Within acceptable security constraints, information on future defence needs could be matched up with other economic drivers to see whether business cases might stack up. Those charged with investment attraction could then better understand where opportunities might exist, either now or into the future.

Today, very few would know what industrial capacity Defence might require to fulfil its primary purpose in the north over the next decade or two. Some of the limits to that information are obvious. But there’s still room for a genuine economic partnership among the four key players—the territory and federal governments, Defence and the private sector.

Bringing together such a partnership requires vision and leadership. While NT industry is ready for such discussions, including reimagining how efficiency is assessed, a commitment from the government in Canberra is needed.

For the foreseeable future, the economic trajectory of the north is going to centre on exports. Billions of dollars of LNG, minerals, food and tourism will shape the nature of our capacity and capability. And a lot of that will leave from Darwin Harbour no matter the season. But we also need to build an effective industrial capacity to support our national security interests, and a fresh approach to that discussion could make all the difference.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/shoring-up-the-north-for-australias-defence/
The strategic importance of northern Australia to our national security has long been recognised by successive governments, but policymakers have struggled to develop a coherent long-term plan for the defence of the north.

Until recently, there hasn’t been any real urgency to getting our defence thinking about northern Australia right. During the Cold War, Australia was a half a world away from superpower competition. And ever since the release of Paul Dibb’s 1986 review of defence capabilities, defence strategists have largely assumed that, should the defence of northern Australia ever become a national priority, we would have a decade or more to address the problem.

Unfortunately, as Australia’s strategic outlook becomes more uncertain in a new era of great-power competition, we now have to think about the defence of the north in a more deliberate and urgent fashion.

Over the last decade, the gap between the strategic policy vision outlined in successive defence white papers and the Australian Defence Force’s actual presence in the north has widened.

If our industry and logistics base across northern Australia can’t easily be scaled up in a crisis, the ADF may not be able to defend our northern approaches or conduct joint expeditionary operations in our neighbourhood at short notice.

Piecemeal Defence investments in the north may have their benefits but they don’t provide a sufficient foundation for rapid military escalation should changing circumstances dictate.

Because of the significantly reduced warning times for future conflict, it’s likely that northern Australia will increasingly become either the ADF’s forward operating base (FOB) or its springboard to another location in the Indo-Pacific.
In my report *Strong and free? The future security of Australia’s north*, released today, I argue that there’s a need to rethink the importance of northern Australia, defined as those areas north of the 26th parallel south, as a single, scalable defence and national security ecosystem.

Titled ‘FOB North’, this network could be developed to deliver integrated support to current and future ADF and national security operations. Traditionally, an FOB is a small, usually temporary, base that provides tactical support in an operational theatre. In the context of this report, FOB North conceives of the north of Australia and its defence infrastructure as being in a state of readiness to support a range of defence contingencies of which we may have little advance warning.

Northern Australia’s industrial and logistical base will need to be enhanced to be able to provide a permanent civilised replenishment and depot-repair capacity for defence assets deployed across the various physical nodes of FOB North.

For Australia’s future defence force, much of the thinking to date has been concerned with capability choices, manufacturing and deep maintenance.

The next step must set in place the facilities and resources needed to sustain those capabilities in the north during their deployments. Darwin and Royal Australian Air Force Base Tindal would need to become critical nodes in global defence supply chains for such capabilities as the RAAF’s F-35 jets. These preparations will also require federal, state and territory government investment in ‘Industry 4.0’ capacity in northern Australia.

To succeed, the FOB North concept must be a key element of Australia’s broader national security strategy.

ADF and other national security activities must be closely linked and mutually supporting within an FOB North strategy, and Home Affairs and intelligence agencies should also be integrated within it.

One of the biggest stumbling blocks in achieving FOB North is money. The creation of FOB North would require investment, though that shouldn’t be viewed simplistically through a defence lens. Rather, the entire strategy should be based on a cost-sharing arrangement within a national investment plan across both the public and private sectors.

The FOB North concept would provide policymakers with a foundation for thinking of the north as a facilitator of engagement with the region. FOB North will make the north of Australia a vehicle for regional defence and security, rather than defence from the region.

The development of FOB North needs to be part of, and supported by, Australia’s sovereign nation-building efforts. As both a sovereign defence and a national security concept, FOB North would play an integral part in building national resilience in northern Australia. It shouldn’t be simply planned and delivered through a future defence white paper.

This kind of ambitious national approach will involve Defence working with a diverse array of stakeholders and partners. It will also allow Defence to make a significant and lasting contribution to its most basic strategic interest: a secure, resilient Australia.

It’s been 12 months since former major general and senator Jim Molan locked horns with ASPI’s Marcus Hellyer in the Strategist over armoured fighting vehicles (AFVs). Both put some great arguments forward, and the matter has rested there since.

However, recent discussions with Depfence Department officials indicate that the Australian Army 1st Brigade’s LAND 400 phase 3 vehicles are likely to skip Darwin for Adelaide so that they can be used year-round warrant a return to the issue.

In an August 2018 article in The Australian, Hellyer suggested that AFVs might be ‘ill-suited to tasks that feature heavily in modern counterinsurgency operations, such as route clearance and patrolling’, and highlighted their vulnerabilities on the conventional battlefield. He made a strong case that AFVs may be ‘poor value for the likely tasks the ADF will have to perform in the future’.

Later, Molan argued that AFVs have proven their worth, in terms of both winning conflicts and saving soldiers’ lives, through hard-earned experience on the battlefield.

These arguments are particularly relevant now as two contenders will soon be shortlisted for the army’s new infantry fighting vehicles (IFVs).

In 2011, the army released Plan Beersheeba, which sought to create three combined-arms multi-role combat brigades. Each brigade was to comprise two infantry battalions and an armoured cavalry regiment, ‘with organic armoured, cavalry and mounted combat lift capabilities along with the usual supporting element of artillery, signals, combat engineers and combat service support units’.

The army is more cognisant than ever that even in low-threat environments, non-state actors like insurgent groups and terrorists have the technology to seriously threaten Australia’s current armoured capabilities.
The LAND 400 program will provide the Australian Army with the means to reshape and reorganise its combat formation. The army is acquiring new IFVs to improve safety and minimise casualties across all conflict scenarios, while simultaneously providing increased firepower to operate in concert with tanks in offensive operations.

Former defence minister Marise Payne opened a request for tender for phase 3 of the LAND 400 program in August last year. The $10–15 billion project aims to replace the army’s ageing M113 armoured personnel carriers with a fleet of up to 450 state-of-the-art IFVs and 17 manoeuvre support vehicles.

The tender sought vehicles with high levels of protection, mobility and lethality. It also required the vehicle to be tracked, have the capability to carry a section of eight soldiers, and be able to engage in combined arms manoeuvres with Australia’s M1 Abrams tanks.

Three brigades will be equipped with vehicles from phases 2 and 3 of LAND 400. But rumour has it that 1st Brigade’s IFVs will likely be based in South Australia, where they can avoid Darwin’s wet season and train all year.

Professor Paul Dibb’s 1986 review of defence capabilities highlighted that when it came to Australia’s north, the army needed forces that could move quickly and effectively, with minimum logistical support and some fire support. It’s little wonder, then, that the first capability to be moved north after Dibb’s review was the 2nd Cavalry Regiment, which was soon followed by the mechanised 1st Brigade.

It’s surprising that, three decades later, the unchanged environmental challenge of ‘the wet’ has become a justification for moving whole units and capabilities—such as the tanks of the 1st Armoured Regiment—south to Adelaide.

If wet season factors are driving any plans to divert 1st Brigade’s IFVs to Adelaide from Darwin, it must be asked whether the vehicles themselves are fit for purpose.

As a former soldier, Molan argues convincingly that ‘there can be no sound defence policy or strategy without sound tactics’. At the same time, however, tactics should not be the sole driver of policy and strategy decisions. In this case, it seems that the tactical and administrative challenges of raising, training and maintaining capabilities in northern Australia are driving decisions that run counter to good national strategy.

In today’s increasingly unpredictable strategic environment, we are more likely to find ourselves operating throughout our region than defending our nation from within our own borders. That means the possibility of having to operate our armoured vehicles in the tropics is high. At the very least, the IFVs need to be able to operate across the length and breadth of Australia regardless of the season and the weather. Without that ability they’ll be of neither tactical nor strategic value.

If the army is saying that its IFVs wouldn’t be able to operate in our region for large parts of the year if they were in Darwin, or that they will only be able to be deployed on sealed roads, it’s hard to justify the project’s price tag.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/australias-new-armoured-vehicles-must-operate-from-the-north/
Australia should invite more defence partners to use its northern training areas

John Coyne and James Rickard, 13 September 2019

With Australia's increasingly contested and uncertain strategic environment, defence diplomacy is more important than ever. The Australian Defence Force's extensive and diverse training areas should play a key role in that effort.

The Australia–Singapore military training initiative and the US government's force posture initiatives, including the Marine Rotational Force—Darwin, clearly demonstrate the value of our nation's military training areas. However, the benefits of these agreements are by no means one way. While Singaporean and US forces come here to reap the benefits of our large training areas, Australia gains a high return on investment in terms of economic and strategic benefits and ADF interoperability.

The Singapore Armed Forces have been conducting individual and joint training in Australia since 1990, when the first Wallaby Exercise was held at Shoalwater Bay Training Area in central Queensland. These exercises have been growing in scale ever since.

In 2016, the Australian government announced that it had entered into a 25-year deal with Singapore under which the number of Singaporean troops training in Australia each year would increase to include as many as 14,000 personnel. These personnel will now stay in Australia for up to 18 weeks a year. The agreement also includes the co-development of a new training area in northern Queensland near Townsville. Singapore has pledged $2.65 billion to the project, which also includes an expansion of the Shoalwater Bay facility.

While it’s taken some time for the US Marine Corps to reach its target of training 2,500 marines in Darwin during the dry season, each of the US military services is cognisant of the benefits northern Australia’s training areas provide. The presence of the Marine Corps, and the accompanying Enhanced Air Cooperation initiative in Darwin, are important expressions of America’s strategic commitment to the security of the region.

To support the US Force Posture Initiatives, Australia and the US are investing around $2 billion in defence infrastructure and facilities at defence sites in the Northern Territory.
Even with the presence of the Marines and the SAF, we are yet to fully utilise northern Australia’s vast training areas, and their unique capabilities.

Earlier this year, our ASPI colleague Malcolm Davis highlighted the value of Delamere weapons range. But there are other training areas just waiting to be fully used. One of the most prominent and currently underutilised is the Bradshaw Field Training Area.

Bradshaw was established in 1996 on a former pastoral station near Timber Creek and the Victoria River in the northwest of the Northern Territory. Covering approximately 871,000 hectares, Bradshaw was initially acquired at a cost of $54 million to provide a training base for the 1st Brigade because the existing Mount Bundey Training Area was inadequate for manoeuvre exercises. Mount Bundey is limited in its capacity to handle some types of manoeuvre training, principally because of the impact of armoured vehicles on the environment and infrastructure.

In contrast with Mount Bundey, the Bradshaw Field Training Area is designed to support training in formation manoeuvres, field live-firing, and aerial live-firing and bombing. Its facilities include field firing areas, high explosive impact areas, manoeuvre areas, training sectors and infrastructure to support management and operational use.

Its remoteness also allows the ADF and its partners to use the full array of its electronic and cyber capabilities. It’s now part of the electronically networked North Australian Range Complex, which also includes the Delamere range and Mount Bundey.

Defence has already invested heavily in Bradshaw’s infrastructure, and it promises more. With a road network of approximately 340 kilometres, maintenance areas, a range control facility, a 500-person campsite and support facilities, Bradshaw has become a turnkey capability that’s ready to go. Which is why it’s already regularly used by Australian, US and other forces (such as Singapore) for infantry and armoured formation manoeuvre and munitions training.

Of course, training at Bradshaw has its challenges. Northern Australia’s wet season makes year-round training, especially for land forces, particularly difficult. In addition to the practical mobility challenges of the wet, range users must be constantly mindful of their detrimental environmental impacts, which can get worse over time if they’re not careful. The Aboriginal heritage and cultural sites dotted across the training area also require careful management.

It’s clear that Bradshaw, like Delamere, is a critical defence asset. At present, however, the tempo of exercises by Australia, the US and Singapore at Bradshaw has plateaued, especially with the relocation of many of 1st Brigade’s armoured assets to Adelaide.

With the spare capacity in many of the north’s training areas, there’s plenty of opportunity to increase our defence diplomacy efforts by offering regional partners space to train.

Bradshaw, like other training areas in Australia’s north, has spare capacity that could be used by our Japanese, South Korean, Indonesian and Vietnamese defence partners.

As we continue to come to terms with our more dangerous and unpredictable strategic outlook, Australia’s defence diplomacy efforts should make use of these important assets to demonstrate our strategic commitment to cooperation in our region.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/australia-should-invite-more-defence-partners-to-use-its-northern-training-areas/
One of the ironies of the current debate about how Australia should adjust its military strategy in light of the changing great-power balance in the Indo-Pacific is that many of the participants—regardless of their views on the future of US military power—make similar recommendations, namely, that Australia should seek greater defence self-reliance.

This would be achieved by capability solutions based largely on ‘more of the same’. That is, to meet an increasingly uncertain strategic environment, our future force structure should be built around more of the things we already have, or are getting, such as F-35A joint strike fighters and submarines (even if some advocate different submarines from the ones we’ll eventually get under the current plan).

So it’s important to understand those systems and their limitations to see what additional capability more of them would provide. Since Australia and its region are geographically far-flung, and we have only a small number of military assets, we’ll focus on their ability to maintain a presence over large distances. The key question is, to what extent do the capabilities the Australian Defence Force is acquiring enable Australia to project power and what would further enhance that power projection?

We’ll start with the F-35A. Defence is in the process of acquiring 72, with potentially some more down the track. The F-35A is now a very capable aircraft, but it still faces the old problem that, no matter how good a military platform is, it can’t be in two places at once. And due to the inherent limitations of fighter aircraft, there are a lot of places they can’t be at any time.

Most Australians’ experience of aviation involves getting on a passenger jet in a major Australian airport and getting off on another continent, say in Los Angeles, Dubai or Tokyo. But those kinds of ranges are vastly greater than what modern fighter aircraft can achieve. This is a characteristic of all fighters; the F-35A has pretty good range in comparison to its peers.

The air force’s website lists the F-35A range at 2,200 kilometres, which is how far it can fly in a straight line. That doesn’t get the aircraft from the RAAF’s main fighter base at Williamtown in NSW to Perth (3,363 km) or Darwin (3,108 km). But since you want the pilot and aircraft to get home from the mission, its combat radius of 1,093 km is a more meaningful number than range.
There are three radii that are useful to consider in the context of the F-35A: they are (roughly) 500 km, 1,000 km and 1,500 km. The one that is most appropriate depends on the mission and how many resources Defence is able to apply to achieve it.

The ‘owner’s manual’ radius of the F-35A is essentially 1,000 km with a little margin built in to take into account real-world factors. What does that look like in the vast distances of the Indo-Pacific or the blue continent of the South Pacific? The map below is based on one developed by my ASPI colleague Malcolm Davis. The red rings represent the F-35A’s combat radius operating from the six mainland airbases in Australia’s north: Darwin, Townsville, Amberley, the bare bases at Curtin and Learmonth in Western Australia, and Scherger on Queensland’s Cape York Peninsula.

Figure 1: 1,000-kilometre combat radius from northern Australian bases

So, 1,000 km doesn’t project very far out into the vast distances of the Indo-Pacific. It doesn’t even get very far out into our South Pacific backyard. At least from our northern bases we can cover our immediate approaches. However, the RAAF couldn’t operate all those rings simultaneously with the three squadrons on order (and a fourth made up of the Super Hornet, or whatever replaces it).

But 1,000 km doesn’t include fuel to stay on station, so while it may be helpful for understanding range for a strike mission (fly out, launch ordnance, fly home), it’s not a useful number for missions where the aircraft have to loiter—for example, protecting a deployed maritime or amphibious task force, or providing close air support to land forces. The more time on station, the less range.

Moreover, 1,000 km isn’t necessarily a representative number for air-to-air combat in which fuel consumption increases exponentially as the aircraft accelerates to combat speed or uses afterburners. In short, an F-35A that flies out 1,000 km and fights enemy aircraft probably isn’t going to make it home, so a 500 km combat radius might be more accurate when it comes to an air defence role or one that requires some time on station.
That makes a big difference. There are now gaps between the red rings, even if we could operate in each of those rings simultaneously. And the longer you want the aircraft to loiter on station, the smaller that radius becomes.

Moreover, it’s difficult for the F-35A to sustain a continuous presence over any land mass outside of the continent, which means a maritime task force could only be protected if it was operating very close to the Australian mainland, or, in the case of an amphibious task force, if it was seeking to deploy its land component actually on Australian soil.

Of course, this analysis doesn’t take air-to-air refuelling into account. In part 2, I’ll examine how tankers change the picture.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/projecting-power-with-the-f-35-part-1-how-far-can-it-go/
In part 1, I examined the hard limits on the F-35A’s unrefuelled range. Air-to-air refuelling can certainly help extend it.

Tankers can substantially increase fighters’ time on station (that is, how long they can stay out). But they can’t extend the jets’ combat range indefinitely. There are several reasons for this. The first is that generally pilots want to have enough fuel on board to get home alone, just in case the tanker they were planning to refuel from isn’t there (due to mechanical problems, being shot down or driven off station by enemy aircraft, or just running dry).

In a region like the Middle East, this risk can be mitigated by having fallback airfields to divert to in an emergency, but in the Pacific (and indeed in Australia itself) there are very few fallback options, particularly ones that you can safely land a conventional fighter on.

That means once an F-35A flies out roughly 1,000 kilometres, it needs to tank before it can go any further. But that load of fuel only allows it to go a further 500 km because at that point it will still need to have 1,500 km of fuel reserves on board to get home. And that doesn’t give any time on station or give it fuel to fight. So, it would need to tank again to stay on station. But, theoretically, a combat range of around 1,500 km is achievable. That would look something like the red ring in Figure 1.
I’ve included only one ring, and that’s because of the second reason that tankers can’t extend a fighter’s range indefinitely—
air-to-air refuelling to keep fighters on station is very resource intensive.

If a commander wanted to keep F-35As on station around 1,500 km out from mainland airbases (potentially protecting an
amphibious task force, a lodged land force, or a naval task force patrolling choke points), planners would likely need to set up two
refuelling circuits—one to enable the fighters to reach their station, and then one a few hundred kilometres behind the fighters’
station so they can pull back, refuel and return to station with fuel to fight.

In that scenario, keeping just two F-35As on station would take at least eight F-35As in the air at one time around the clock (two
heading out, four cycling between their station and the refueller, and two heading home). Each of them would need to fly an
eight-hour mission, potentially tanking four or five times. Taking aircraft maintenance and unserviceability into account (which
will increase as the operation continues), that would potentially require at least 12 to 16 aircraft to sustain. But since pilots can fly
that mission only once per day, the cycle needs a minimum of 24 pilots (and more to account for ‘unserviceability’ of pilots as the
operation grinds into the future).

But more is needed. The whole concept of a fifth-generation air force relies on superior situational awareness, so to fully exploit
the F-35A’s capabilities the package would need to include an E-7A Wedgetail early warning and control aircraft flying a circuit a
hundred kilometres or so behind the fighters to detect enemy aircraft. The RAAF has six, and fewer than that will be available for
operations, and fewer again serviceable for missions. Therefore, sustaining that one combat air patrol will likely require all the
Wedgetails. Keeping them on station will likely draw on some of the tankers’ fuel.

But the biggest stressor on the viability of the mission is tanker capacity. The air force now has seven KC-30A air-to-air refuellers
after recently acquiring an additional two. It’s hard to see more than five being available, and fewer will be serviceable on any given
day. One tanker, engaged in continuously refuelling fighters on the combat air patrol, can’t stay on station for more than four to six
hours before needing to refuel.

Sustaining two refuelling stations (one to get the fighters out to the patrol area and one to sustain them on station) with a force of
only four or five tankers would likely exceed any responsible commander’s risk tolerance by creating a single catastrophic point
of failure. One unserviceable tanker, accident or combat loss would cause the entire cycle to collapse, potentially with pilots and
aircraft unable to make it home.

Keeping the fuel flowing to the tankers would also be challenging. Even exercises such as Pitch Black have taxed fuel supplies at
permanent bases. The kind of scenario outlined here would require well in excess of 500 tonnes of fuel per day (visualise around 20
semi-trailers, or over the course of a month something roughly commensurate with the Northern Territory’s total average monthly aviation fuel consumption). Getting that reliably to remote bare bases such as RAAF Scherger on Cape York would be a demanding task, although the challenge could be mitigated by flying the tankers out of permanent air bases.

A 1,500 km sustained presence over a hypothetical task force in the Bismarck Sea would look something like the smaller of the two rings in Figure 2. That would consume all of the RAAF’s enabling capabilities. It’s possible that enough fighter pilots and jets would be left over to conduct air defence of one other location (indicated here by the ring based on Darwin), but they’d be doing it without early warning aircraft or tankers.

Figure 2: F-35A combat air patrol at 1,500 kilometres

Pulling the patrol back into 1,000 km would destress the cycle, potentially by allowing the commander to manage with just one air-to-air refuelling circuit, thereby requiring fewer KC-30As. But that gets us back to our starting point—air-to-air refuelling doesn’t help that much with increasing the F-35A’s combat range.

Would more of the same help? The short answer is, it can’t extend range much beyond 1,500 km as that limit derives from the nature of the F-35A. But more enablers would make the system robust. Andrew Davies recently gave a concise list of what these would be, ranging from greater fuel storage to tankers.

People are key—not just pilots, but also maintainers, ordnance handlers, and air combat officers in the back of Wedgetails, to name a few essential categories—but all will be taxed in a scenario of sustained operations. Even mundane things like concrete hard stands would be in high demand, because the limited space of the bare bases would quickly be overwhelmed. In short, the F-35As themselves are just the tip of the iceberg.

If the enemy has long-range standoff strike weapons or special forces that can destroy fuel farms, that’s another point of failure, as is a strike that craters the runway and shuts down operations. A favourite special forces tactic in exercises is to sneak in at night and ‘kill’ all the pilots. So ‘more of the same’ would also need to include defensive capabilities such as ground-based air defence missiles, air defence guards, and maybe even a combat air patrol over the base itself (requiring more F-35As, more pilots and more fuel).

More fighters could allow the RAAF to operate simultaneously from multiple airbases, partially mitigating the risk posed by an enemy strike on any individual base, but those bases would also need the rest of the logistics chain.

With the sticker price just for tankers around $300 million each, building robustness is a very expensive proposition.

In part 3 of this series, we’ll look at what this means for operations.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/projecting-power-with-the-f-35-part-2-going-further/
China’s muscle-flexing shows defence planners need to prioritise northern Australia

John Coyne, 11 October 2019

Last week, the Chinese government demonstrated its continued mastery of multi-layered messaging. Nary a news media outlet in the world failed to cover the show-stopping, muscle-flexing military parade held in Beijing to celebrate the 70th anniversary of the founding of the People’s Republic of China. On the day, President Xi Jinping, resplendent in a charcoal-grey Mao suit, was beamed across the globe yelling ‘Comrades work hard!’ while passing the 15,000-strong line-up of military personnel.

While this kind of nationalistic stage production may resonate with Chinese citizens, for those in the West it’s looks more like a parody of the increasingly irrelevant Cold War era. Unsurprisingly, then, the parade imagery won’t have been interpreted by many Australians as portraying Xi’s China as any sort of threat.

For national security analysts, like my ASPI colleague Malcom Davis, who are willing to look a little closer, the parade demonstrated ‘the cutting edge of the Chinese state’s military capability, with some key weapons systems on show that haven’t been seen before’. The specific capabilities unveiled at the event will keep analysts busy for many months, if not years.

Setting aside questions about specific capabilities, the new military hardware showcased at the parade also offers insights into Chinese government strategy.

These new weapons systems, along with the People’s Liberation Army’s development of airbases and other facilities in the South China Sea, serve as a strong indicator of Xi’s strategic intent. It appears rather clear that the Chinese government’s reform agenda for the PLA is increasingly focused on projecting force as far out from the mainland as possible. Many of the capabilities that were revealed suggest a clear intent to extend the range of the PLA’s anti-access/area-denial capability well beyond the first island chain. The strategic intention behind that is likely to be the progressive squeezing of a conflict-weary US out of the Indo-Pacific.

As Davis highlighted, the parade was a wake-up call that we can ill afford to ignore. Australia and its allies will need to consider how they’ll contend with these advanced military capabilities.
Australia’s ambitious defence projects, such as the F-35 joint strike fighter and the Attack-class submarine programs, illustrate that high-end defence capabilities have decades-long lead times. That time lag may explain why the US is urgently developing a strategy of dispersal for its forces in the Indo-Pacific.

Australia has become key political, economic and military terrain for both China and the US in this new era of major-power competition.

In this environment, northern Australia will become increasingly critical to Australia’s national security and defence.

As I have highlighted in the past, it’s reasonable to conclude that in a future conflict the north of Australia could well become either Defence’s forward operating base, or its stepping stone to another location in the Pacific or in the first or second island chains. Northern Australia could also be an important element in the US dispersal strategy.

Successfully deploying Australian Defence Force capabilities from bases in southern Australia takes time and is reliant on the right enabling functions being in place—or being rapidly established—in northern Australia.

The strategic importance of northern Australia to our national security has long been recognised by successive governments, but policymakers have struggled to develop a coherent long-term plan for the defence of the north. Despite the good will of the governments of Western Australian, the Northern Territory and Queensland, as well as some positive steps from Defence, more needs to be done to enhance the readiness of key enabling functions in Australia’s north.

The Australian government needs to quickly reconceptualise its thinking on northern Australia if it’s to realise the strategic opportunities that the dispersement of US forces and proximity to the region can provide.

Of course the ADF’s force posture in northern Australia needs to be concentrated in the key centres of Townsville, Cairns, Darwin and Tindal. However, the bare Royal Australian Air Force bases of Scherger, Curtin and Learmonth need to rapidly become turnkey assets. All-new facilities in northwestern Australia will also need to be considered.

This kind of ambitious thinking is not necessarily about boots on the ground but rather the creation of a single, scalable defence and national security ecosystem to support the deployment of Australian and allied advanced defence capabilities at short notice.

Northern Australia’s industry base needs to be enhanced to be able to provide a permanent and scalable civilianised replenishment and depot repair capacity for Defence capabilities deployed across the north. If the industry base isn’t improved, the ADF may not be able to optimally configure to undertake defence-of-Australia tasks or to conduct short-notice joint expeditionary operations with our allies in the region.

Xi’s military parade was as much a call for Defence to focus more on northern Australia in its planning as it was about advanced military capabilities.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/chinas-muscle-flexing-shows-defence-planners-need-to-prioritise-northern-australia/
Darwin should be a forward operating base for Australia’s submarines

Luke Gosling, 24 October 2019

Building on its long history as a forward operating base, Darwin is ready to support our future submarine operations. Though it’s commonly seen as unsuitable as a home port for submarines, that doesn’t disqualify Darwin from playing a logistic support role to resupply and maintain the boats mid-patrol and rotate out their crew.

A 2016 report by the Defence Science and Technology Group contended, ‘The shallowness of the surrounding sea near Darwin that leaves submarines vulnerable to attack, the location of the city on Australia’s northern frontier closest to potential adversaries and the relative lack of industrial infrastructure make Darwin less than ideal as a submarine base.’ Let’s consider each point.

In the first instance, it’s hard to argue with geography.

It’s true that the Timor Sea is shallow at an average depth of 200 metres, compared with the 300 to 450 metres at which most submarines operate. Meanwhile, the Arafura Sea is even shallower with a depth of between 50 and 80 metres. That’s just enough for a Kilo-class submarine—with a reported minimum depth requirement of 45 metres—not to scrape the seabed.

On these grounds, some observers have expressed concerns about our submarines losing the stealth central to their deterrent effect. But submarine rotations to Darwin present an acceptable level of risk to train submariners to defend our approaches and surface combatants, as they might need to do in wartime.

A second concern is premised on Darwin’s proximity to the front in the Pacific War.

A 2011 Department of Defence report on future submarine basing options stated that Darwin wasn’t assessed partly because, as ‘Australia’s northern most capital city, it is believed to be inherently more vulnerable to hostile attack than any other city’. This would make chilling reading for people in Darwin who haven’t forgotten repeated air raids during World War II on our city, but we should reflect dispassionately on what it means for our national defence.
If Darwin was ever in such a dire situation again, contemporary weapons systems could likely bring Fleet Base West and all of our bases north of Tasmania within range. In today’s world, an enemy no longer needs to be at the gates to attack our cities, northern or southern. Geography is therefore a flimsy reason for not rotating submarines in Darwin.

Current strategic trends are increasing the value of Darwin as a forward operating base. If our cities were being targeted by long-range weapons, without intermediate-range missiles of our own and with our F-111s retired, the Attack-class submarine could present the most potent and maybe only means to counter attempted coercion. In this scenario, 10 days’ extra fuel could be tactically decisive in our ability to sustain a submarine forward presence to defeat a long-range threat.

Finally, let’s consider our local defence industry.

Some have argued that Darwin Harbour is inadequate for our future submarines because there’s only one entrance. But with the exception of Fleet Base West, all options assessed in the 2011 report—Sydney, Jervis Bay, Newcastle and Brisbane—also have only one entrance. What some ports gain in strategic depth they lose by being a very long way from anywhere our submarines might need to patrol or loiter.

It’s true that Darwin still lacks the skilled workforce to sustain submarine operations. Learning from our Collins-class recruitment woes, it makes eminent strategic sense to homeport future submarines on the densely populated east coast. For the foreseeable future, Darwin won’t contest the place of other larger cities in supporting our submarine industry.

Darwin’s comparative advantage is to serve as a forward operating base—a role which other capitals don’t want and can’t play. Darwin has solid logistical, airport and housing infrastructure to sustain a skilled local workforce to perform light maintenance, leaving the much trickier and longer full-cycle docking in South Australia or Western Australia.

In this connection, I salute the announcement by Rear Admiral Wendy Malcolm at the Pacific 2019 exposition in Sydney this month that Defence was moving towards a new model of regional maintenance centres in Darwin, Cairns, Perth and Sydney. Her presentation to industry confirmed that Darwin was considered important to sustain the navy’s operations, which will require a skilled local workforce rather than one working on a fly-in, fly-out basis. This will make it even more operationally attractive to rotate future submarines through Darwin.

Currently, when submarines visit Darwin from being ‘up top’, they tie up to the submarine buoy in the middle of Darwin Harbour. They’re not there for long, taking about a day to resupply. Ongoing redevelopment of facilities at HMAS Coonawarra to build a wharf structure and berthing dolphins will allow our future submarines to be even more quickly and effectively refuelled and resupplied. But we can do much more.

The 2011 Defence Department report concluded that ‘Darwin as a forward operating base for FSM [future submarine] operations will enhance FSM capabilities.’ One obvious way in which this will be true is the added range and presence Darwin will give our submarine operations. Diesel-electric submarines need more pit stops than their nuclear-powered cousins, making Darwin vital to any extension of their operational range. The upcoming strategic review of the 2016 defence white paper should explicitly note Darwin’s value in this regard.

Finally, Darwin’s enhanced profile as one of the navy’s key regional maintenance centres won’t be of use to just our own forces. Some speculate that Darwin could in future accommodate ships as large as a Nimitz-class aircraft carrier.

If that’s true, we’ll see more than Australian submarines frequenting Darwin to protect these high-value assets. And we’ll also need to step up our inbound port visits and naval exercises with Indonesia and other ASEAN partners for Darwin to continue to play its role as a crown jewel of our defence diplomacy.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/darwin-should-be-a-forward-operating-base-for-australias-submarines/
Australia needs to back itself on rare earths
Luke Bowen, 8 November 2019

Critical minerals such as rare earths are driving faster and more powerful technologies and Australia is an ideal place to source and develop these new materials. Rare earths, including those transformed into high-performance metals, are essential to advances in computing, manufacturing, energy and transport.

Over the past decade, the main investment in the Northern Territory’s rare-earths industry has come from China. Although that tide is now ebbing, government intervention is required before investment from other international investors can be expected to flow.

China has a strong grip on the global supply of rare-earth elements, prompting fears that access to these minerals could get caught up in a trade war between the US and China. Even if the political risks to supply are overcome in the short-term, a long-term vision and a willingness to intervene in the market are required to ensure that the global availability of rare-earth elements is not beholden to a near-monopoly supplier.

That is where Australia—and the Northern Territory in particular—can play a role.

But while there are clear signals from our national and Territory leaders in support of mining and processing rare earths, the local market has been slow to take up the call.

In the Territory, we’ve found that Chinese investors have a long-term view and are prepared to take risks to secure their supply and develop technologies. It’s this approach that has contributed to China being by far the most advanced processor of rare earths, controlling 80%-plus of the international market.

US defence manufacturers are a major user of rare-earth elements, which are essential to missile and weapon guidance systems, armoured vehicles, GPS, lasers and night-vision goggles. In everyday life, they are present in rechargeable car batteries, smartphones, computers, lighting, catalytic converters, magnets, alloys, PET scanners and wind turbines.
Japan is anxious to find alternative rare-earth sources and the United Kingdom and Europe are significant users at the manufacturing stage.

Australia has a limited demand for rare earths in manufacturing. But what we do have is abundant rare-earth deposits of exceptional quality.

The federal government has gradually woken up to this fact. Trade Minister Simon Birmingham, Minister for Resources and Northern Australia Matt Canavan, and Defence Minister Linda Reynolds have all expressed interest in promoting the production of rare earths and critical minerals in Australia.

They see broadening the availability of rare earths as an economic opportunity, which will also assist Australia’s allies while reducing the overwhelming reliance on a single supplier.

On this point, the US has been slow to progress rare-earth production. It has only one productive mine in California. A more prosaic explanation may be that the world has been caught napping, allowing China to dominate the market.

Early last year, President Donald Trump and former prime minister Malcolm Turnbull agreed ‘to work together on strategic minerals exploration, extraction, processing and research, and development of rare earths and high performance metals to sustain the jobs of today and develop the jobs of tomorrow’.

It has been reported that a single F-35 fighter jet (which Australia is acquiring 72 of) requires ‘417 kilograms of various REEs [rare-earth elements] to support information transfer, energy storage, computational devices and in some cases stealth coatings’.

With China so well advanced in rare-earth research and extraction, its ability to dictate prices makes some people nervous. The US will step up the pace from now on, and also wants Australia to join it in order to return some balance to the global rare-earth market. That provides the Northern Territory with an economic and strategic opportunity.

Arafura Resources’ Nolans rare-earth project in central Australia has the potential to produce rare earths needed for key military programs and is well suited to supply the global market. The project can supply the rare-earth elements neodymium and praseodymium, which are used in the manufacture of the iron boron magnets that are increasingly required for electric vehicles, wind turbines and defence applications.

The challenge for Australia is not identifying rare-earth deposits. We have a number of undeveloped resources and, according to Geoscience Australia, we rank sixth globally in rare-earth resources.

The problem lies in finding private money to back rare-earth projects and improving cost efficiencies in extracting rare earths once they’re dug from (typically) open pits. These elements don’t hang together in easily accessible clusters. Rather, they are spread throughout the beds where they lie and require complex and expensive extraction processes to render them into their pure form.

Arafura Resources has now received all environmental approvals for its Nolans mine site, but still awaits a final investment decision. Yet there remains a bottleneck.

From an investor perspective, rare earths are heavily hyped and subject to extreme stock market fluctuations. There are long lead times to actual production and genuine concerns about the high costs and environmental impacts of rare-earths mining. These are key challenges which the market alone is unlikely to resolve.

The federal government’s planned package of measures to support the critical minerals industry will advance Australia’s position. Considering tax breaks for miners, using the Northern Australia Infrastructure Facility to encourage start-ups, and backing research and development in the field of rare-earths extraction are all steps in the right direction.

Such research should focus on improving efficient and environmentally robust extraction methods in order to satisfy both investors and the general public that the process is safe.
The CSIRO has been investigating ways to use less heat and acid to separate rare earths from their ore. Chris Vernon, the research head of the CSIRO’s extractive metallurgy program, has urged Australia not to think of itself as simply a raw-ore exporter. Instead, he argues, we should maximise the strategic benefit by processing rare earths at home.

Most importantly, the smaller companies that are typically most interested in rare-earth extraction need sales agreements with rare-earth users. Government might even need to be willing to take a role in the aggregation of offtake agreements to give projects the demand certainty they require to attract financing.

The federal government is well placed to take positive steps towards encouraging investors to see the value of rare earths, and to make the case that rare earths are intrinsic to the development and manufacture of many climate-abating technologies.

It can also assist rare-earth producers to make the necessary connections to the giants of US defence manufacturing and their commercial suppliers, together with prospective customers in Japan and Europe. If we start seeing the first investors holding their nerve and committing to projects, the hype could become reality.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/australia-needs-to-back-itself-on-rare-earths/
Timor-Leste and northern Australia: opportunities for mutual benefit

Lucy Rodgers and Corinda Hollis, 22 November 2019

Dili is a mere 55-minute flight from Darwin. The proximity creates a natural partnership between northern Australia and Timor-Leste that brings benefits to both countries and contributes to greater regional economic integration, including with Indonesia.

The signing of the maritime boundary treaty in March 2018 was instrumental in laying the foundations for stronger cultural, economic and trade relations between Timor-Leste and Australia, especially northern Australia. Connectivity, maritime activities, employment and education are important aspects of the Timor-Leste – northern Australia relationship. Economic diversification is a key goal for Timor-Leste, which is why creating more links with northern Australia and engaging with its economy are high priorities.

The Timor-Leste – Indonesia – Australia Growth Triangle is an initiative by the three governments to boost trade, tourism and connectivity in the region. The Australian government believes the growth triangle can bring positive developments to the northern regions of Australia, especially Darwin, while Timor-Leste would like to see more manufacturing in the country, among other developments.

An issue of high priority for the Timor-Leste government is air connectivity. Darwin boasts the only direct flights from Australia to Timor-Leste. Flights leave Darwin eight times a week, which facilitates trade, tourism and people-to-people links. However, flight costs need to be reduced, as high prices are a major obstacle to tourism and trade. The route between Darwin, Dili and Bali has been identified by the Growth Triangle as a ‘tourism path’ that would benefit the region. Affordable flights along that route would be welcome.

In February 2018, the Northern Territory government created Team NT, designed in part to strengthen the promotion of the Territory’s economic interests internationally. One of the immediate priorities is improving air and sea links between Darwin and Timor-Leste. The NT government has begun a study on the feasibility of more passenger and freight planes.
In August this year, the Australian government announced that it would support a fibre-optic internet cable to Timor-Leste as a way of better connecting the nation to the world and boosting economic development. The cable will connect to the North-West Cable System, which runs between Darwin and Port Hedland. As one of the few nations without fibre-optic cables, Timor-Leste relies on satellite services. The cable is expected to assist Timor-Leste to develop its economy.

With the signing of the maritime boundary treaty, Australia and Timor-Leste are poised to continue to develop their relationship and joint projects, especially in the northern seas of Australia. Both countries are ready to jointly develop the Greater Sunrise gas fields and have agreed on a joint patrol for illegal fishing and broader maritime security. There are opportunities for more projects and cooperation in the region in the broader context of the current debate in Australia on a forward operating base in the north, which could generate investment and employment.

Tourism and hospitality are named as areas of importance in Timor-Leste’s strategic development plan for 2011–2030. The shared sea and close proximity provide Timor-Leste and northern Australia with a great opportunity to promote sea tourism. One example is the Darwin to Dili boat race, which began in 1973 with a few locals in Darwin deciding to sail to Dili. The event was reborn in 2010 and has been held annually ever since.

A joint report developed in Timor highlighted the real potential of cruise ship tourism in Timor-Leste. Four cruise ships are currently scheduled to stop in Dili in 2020.

Australia’s Seasonal Worker Programme allows Timorese to work in the accommodation sector in the northern regions of Australia, which helps them to get jobs, save money and invest in businesses back in Timor. From 2011 to October 2018, Timor-Leste sent more than 2,500 workers to Australia to work in agriculture and hospitality. Remittances from 2017 reached $4.6 million, averaging out to $5,900 per worker. The program also provides invaluable work experience and training in hospitality. Unfortunately, take-up of the program in the accommodation sector for Timorese is low; only two employers are currently using Timor-Leste hospitality and accommodation workers.

The Pacific Labour Scheme is a newer labour mobility program that is designed for semi-skilled workers to work in any industry in rural and regional Australia. This program provides more industries for Timorese to access, including meatworks, fisheries and cookery.

Charles Darwin University has been involved with Timor-Leste in a number of areas. One of these was leading an 18-month hospitality training program for local trainers and colleges. The capacity-building program was designed to train 15 Timorese hospitality trainers, develop a range of learning and assessment resources, and pilot the new Certificate III in Hospitality.

The university’s Research Institute for the Environment and Livelihoods has conducted a number of research studies on Timor, including on climate change adaptation, fisheries, agriculture and nutrition. Charles Darwin University is one of a number of universities in Australia providing scholarships, undertaking research and liaising with governments.

With the maritime boundary treaty implemented and finalised, the relationship between northern Australia and Timor-Leste has a promising future. Developments focusing on investment, tourism, agriculture and labour mobility in the region have the potential to benefit both nations, and to lift and diversify the Timor-Leste economy.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/timor-leste-and-northern-australia-opportunities-for-mutual-benefit/
Northern launch site could transform Australia’s role in space

Malcolm Davis, 20 December 2019

The Australian continent is in an excellent position when it comes to launching payloads into space, because its north is so close to the equator. Only Kourou in French Guiana—the European Space Agency’s main launch site—at 5 degrees north latitude and the Alcantara launch centre in Brazil at 2° south latitude (inoperative after a devastating accident in 2003) are closer to the equatorial sweet spot.

It’s Rocket Science 101 that launching close to the equator on an eastern trajectory provides a ‘ΔV’ (‘delta-V’) advantage that gives a rocket a boost in energy from the earth’s rotation from west to east. That translates into either fewer dollars per kilogram or more kilograms per dollar to launch a payload into low-earth orbit (LEO) compared with launch sites at a higher latitude, such as Cape Kennedy in Florida.

The Arnhem Space Centre near Nhulunbuy in the Northern Territory that’s being established by Australian company Equatorial Launch Australia (ELA) is designed to exploit this natural advantage. The site is at latitude 12° south of the equator, and is one of two launch sites to be developed in Australia (the other is operated by Southern Launch at Whalers Way in South Australia, which will be ideal for launching satellites into sun-synchronous orbit).

Nhulunbuy is perfectly placed to deploy small satellites into equatorial LEO at latitudes between 15° south and north of the equator, as well as into all other orbits. The equatorial LEO orbital region will be crucial for supporting the needs of Southeast Asian and Pacific nations and the rapidly developing economies in Africa and South America. Altogether, that’s a market of around 3 billion people, all of whom will need access to satellite capabilities.

For Australia, equatorial LEO is one of the best locations in space for observing our maritime and air approaches and monitoring sea lanes of communication. The requirement for high revisit rates in those missions implies the use of many satellites for tasks such as maritime surveillance. The Nhulunbuy site would need to be available for nearly constant use to launch satellites, update deployed constellations of satellites and expand surveillance capability.
That's also good news for Australian providers of launch vehicle such as Gilmour Space and Black Sky Aerospace, as well as companies like Hypersonix that are working on sovereign launch capabilities.

The establishment of space launch sites in Australia, and the growth of launch vehicle providers, will mean the end of our dependency on foreign launch providers. Australia will become self-sufficient in assuring space capability for both civil and military requirements. We'll no longer be at the mercy of long launch schedules with foreign space launch companies. Instead, Australia will be able to enter a potentially lucrative global launch market driven by the rapid growth of satellite megaconstellations in the 2020s. For defence purposes, it means we'll be able to provide assured space support for the Australian Defence Force and to burden-share with key allies.

A sovereign launch capability will enable Australia to exploit the advantage of the falling cost of space launch, particularly as more commercial launch providers develop reusable rocket systems. Australia is well placed to build its own small satellites and cubesats, and exploit ‘fourth industrial revolution’ manufacturing technologies to constantly update its space capabilities through spiral development. We'll also be able to build satellites to order for foreign customers, and thus develop a space export industry alongside a domestic one.

The Northern Territory is set to play a crucial role in this future. Although the Australian Space Agency will be headquartered in Adelaide, and a concentration of space industry players will emerge in South Australia, key elements of that industry should also emerge in the NT, and be located close to the Nhulunbuy launch site. In particular, launch vehicle integration and test facilities need to be established close to the launch site. It's not too far a stretch to envisage a satellite manufacturing industry emerging in Darwin that exploits robotic production lines and 3D printing as well as synthetic design techniques to rapidly design, test and produce small satellite and cubesat constellations. Co-locating space industry with space launch sites would stimulate the NT’s high-tech sector.

The ELA launch site at Nhulunbuy could also offer launch services to overseas partners. Key defence partners such as the US, Japan and Southeast Asian states could conceivably launch payloads from Nhulunbuy on their own launch vehicles, and ELA recently signed an agreement with NASA to launch sounding rockets from the launch site in 2020. Looking ahead, it’s quite possible that reusable vehicles launched from elsewhere on the planet could be recovered and then prepared for a new mission launched from Nhulunbuy. With SpaceX now regularly recovering the first stages of its Falcon 9 and Falcon Heavy boosters, and with plans to fully reuse the ‘Starship Super Heavy’ launch vehicle, Nhulunbuy doesn’t need to be limited to small launch vehicles either.

The opportunities for growth are clear, especially if the NT can promote the launch site as a beginning of a new ‘space coast’ that international partners can support. That would also further stimulate the growth of the Territory’s economy beyond the space sector. The emergence of space launch from the NT will create jobs for the local population and, crucially, open up employment opportunities for Indigenous Australians in a vital new high-tech sector of the Australian economy. There’s also considerable potential to grow science, technology, engineering and maths, or STEM, programs in secondary and tertiary education.

The Australian Space Agency recently updated regulatory structures for space launches to make it easier and more cost-effective to send payloads into space from Australian sites. Both the Nhulunbuy and Whaler’s Way sites are well placed to take advantage of this change to become key centres of space activity in the next decade in a way that utterly transforms Australia’s role in space at a global level.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/northern-launch-site-could-transform-australias-role-in-space/
Northern Australia’s value not lost on friends and rivals

Peter Jennings, 20 January 2020

It has been painfully obvious for years that our major ally, the US, major regional partner, Japan, and major market, China, all see more strategic value in northern Australia than successive federal governments and much of our defence establishment.

At a time when the US has been trying to reduce the burden of overseas military commitments, the ‘rotational deployments’ of US Marine Corps troops to the Top End—now in their ninth year—are based on an American judgement that northern Australia is increasingly important to Asia’s security.

In the face of a more aggressive China with stronger military forces, the US is dispersing its own forces in Asia. While it’s right to say that 2,500 marines is hardly a threat to Beijing, it’s an important demonstration of America’s commitment to Australia and Southeast Asian security.

Strategic thinkers in Japan see northern Australia and Darwin as being an essential part of Japan’s long-term energy security. China can effectively shut down air and maritime transport through the South China Sea any time it chooses. This is an existential threat to Japan because of its dependence on oil shipped from the Middle East. Tokyo needs energy-delivery options that avoid the choke point of the Strait of Malacca and Beijing’s control of the South China Sea.

Darwin’s INPEX LNG facility is a strategic lifeline for Japan—a central reason for Prime Minister Shinzo Abe’s visit to Darwin in November 2018. China has been working to cement its dominance in the Indo-Pacific. Far from just being about trade and investment, Xi Jinping’s Belt and Road Initiative is a plan to dominate the region’s critical infrastructure, exclude competitors and build economic dependence to the point that political acquiescence follows.

Just like the fast-food advertisement, the Chinese Communist Party’s strategy is to get regional countries to shut up and take the money.

Many Australian state and territory governments have been only too happy to comply.
The combination of greed and strategic sleepiness that allowed a Chinese company in 2015 to lease the Port of Darwin for 99 years was a grudging wake-up call in Canberra. Half a decade on, it is to the Morrison government’s credit that the penny has dropped on the danger of overdependence on China.

The Port of Darwin lease remains unfinished business. In time, an Australian government will conclude that the port should be brought back into Australian ownership. As with so many issues in Canberra, the delay in getting to this outcome is caused by fretting about how Beijing will respond.

A redesigned strategy for northern Australia should focus on encouraging more investment and engagement from Japan, India and Southeast Asia, particularly Indonesia.

We will be pushing on an open door, especially in Tokyo.

Canberra should also significantly sharpen its thinking about defence and northern Australia. For its own myopic reasons, the Defence Department has, frankly, wanted to reduce its footprint in the north. In fact, the opposite must happen.

A larger and more visible military presence across the north is needed to protect our offshore oil and gas industry and to assert sovereign interest in a crowded and contested region.

In Darwin, the strategic need will be to invest in bigger and more capable defence basing. We should work with the US to grow its Marine Corps presence.

A larger defence presence in the north would position Darwin as a security hub, lending confidence in the region and counteracting China’s attempts to dominate and demoralise the neighbourhood.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/northern-australias-value-not-lost-on-friends-and-rivals/
ASPI’s ‘The north and Australia’s security’ program has just turned one. Over the past year, more than 30 pieces have been published under the banner of the program’s ‘North of 26° south’ Strategist series. Authors from an array of disciplines have explored the role of the north in the broader security of Australia and proposed some new ways of thinking about it.

Interestingly, almost all the discussions I’ve had about this work—with politicians, policymakers, the media and other interested parties—have involved questions about whether we’ve got the right defence personnel numbers and the right capabilities in Australia’s north.

Such questions are unsurprising; the strategic importance of Australia’s north to our defence has long been recognised by governments and policymakers (see here for more detailed analysis). Indeed, as ASPI’s Peter Jennings recently pointed out, the value of Australia’s north isn’t lost on our friends or rivals either.

Despite this shared understanding, Australia’s policymakers have consistently struggled to develop a coherent long-term plan for the defence of the north and the role of the north in Australia’s defence. To be fair, though, until recently there hasn’t been any real urgency to get this thinking right.

Over the past year, I’ve spent some time discussing the Australian Defence Force’s reduction in troop numbers and capabilities in Australia’s north (see here, here and here), with a focus on the army. I’ve sought to highlight that such changes haven’t been accompanied by a clear strategic narrative, and often fly in the face of the prevailing strategic context.

There would be few in uniform who would disagree with the premise that the army’s decisions on force posture in northern Australia ought to align with broader defence policy and be guided primarily by the threat context and mission requirement. However, as successive defence white papers have illustrated, even with these well-defined parameters, reaching a consensus on the army’s northern force posture has been difficult because of the number and variety of divergent perspectives.
Strategic geography remains important, in terms of both traditional security responses and geopolitical messaging.

While it may be easier and cheaper to raise, train and sustain capabilities in Australia’s southern states, the army’s presence in the north is an important part of our strategic and defence posture. Arguably, the army should be increasing its presence in northern Australia to match America’s commitment to regional security: the presence of the US Marine Corps, and the accompanying ‘enhanced air cooperation’ initiative in Darwin.

Dots on a map marking deployments or bases can have substantial strategic importance, even if they don’t directly contribute to operational capability. The US government’s increased use of Australia’s north for individual and collective training illustrates this point particularly well.

Army chief Rick Burr’s 2018 command statement declares that the army ‘is a versatile, decisive force, offering broad utility for the nation’. His futures statement, Accelerated warfare, argues that the army must ‘own the speed of initiative to outpace, out-manoeuvre and out-think conventional and unconventional threats’.

As I’ve noted in the past, it’s reasonable to conclude that in a future conflict the north of Australia, and more specifically Darwin, could well become the ADF’s forward operating base or a stepping stone to another location in the Pacific or in the first or second island chain.

Deploying army capabilities from bases in southern Australian to northern Australia takes time. It also requires the right enabling functions to be in place—or be rapidly established—in northern Australia. Northern Australia in general, and the bases in Darwin and Tindal more specifically, will provide important geostrategic advantages to an army striving to own the speed of initiative.

Whether the army is projecting into the region in support of its partners or undertaking humanitarian and disaster relief activities, the minimum mission requirement is increasingly a battalion battlegroup. These agile and lethal battlegroups must be capable of deploying by air or sea and supporting themselves logistically for up to 14 days.

Given the strategic importance of Australia’s north, at least two, if not three, such battalion battlegroups are needed in Darwin. The army’s current force posture in Darwin falls well short of the mission requirement.

The Department of Defence is currently engaged in a ‘re-assessment of the strategic underpinnings of the 2016 Defence White Paper’. Defence Minister Linda Reynolds has indicated that the review will be finalised early this year; hopefully it will address the question of what the army’s force posture in northern Australia ought to be. Darwin needs a greater army presence, not a smaller one. But the first step in quantifying the ADF’s force posture in northern Australia ought to involve the development of a single shared policy position.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/the-australian-defence-forces-presence-in-northern-australia-must-be-increased/
The government’s decision to significantly expand the Royal Australian Air Force’s key northern base near Katherine, around 300 kilometres southeast of Darwin, is a giant strategic step forward and will deliver a firmer deterrent posture and a closer alliance with the US.

A stronger defence posture in our north could also be the basis for a greater Australian leadership role in the region, where we can work with our key Southeast Asian partners—Indonesia, Singapore, Malaysia, and hopefully Vietnam—in a shared strengthening of the region.

Especially valuable is that the enhancements at RAAF Base Tindal are planned to be finished by 2027. In contrast, on current plans, the first of our Attack-class submarines will still be nine years from entering service by then.

The importance of the new submarines should not be underestimated, but the security situation in the region is changing so fast that Australia needs to urgently boost its military strike power and strengthen its deterrence capability. There is no better or quicker way to do this than through air power and the US alliance.

I’m very positive about this military strengthening, not least because a decade ago I led the Defence Department effort to expand cooperation with the US in northern Australia.

There were three reasons for establishing a US Marine Corps presence in the north and planning for increased cooperation between our air forces and navies.

First, it added a new dimension of closer cooperation with the US, deepening American engagement in, and commitment to, Australian security. This is a hugely valuable deterrent asset for Australia, one that complicates the planning of any potential adversary.
Second, this cooperation will modernise the alliance and make it better suited to handle emerging threats. The northern focus will be on having the ability to rapidly disperse and deploy forces over large distances, extend the range of combat hitting power and bring our military forces into more effective high-technology cooperation.

Third, enhanced northern cooperation is a strong signal of American and Australian interest in the security of Southeast Asia.

Geography doesn’t change. Southeast Asia was the strategic fulcrum around which the Pacific War was fought, and it is the region most sharply in Beijing’s sights as the Chinese Communist Party seeks to weaken America’s security leadership in the Asia–Pacific.

A much sharper strategic competition for influence is building in Asia between the US and China. Australia can’t opt out of this reality. Washington and its key allies in the Indo-Pacific—Japan and Australia—need to give the wider region some confidence that collectively we can push back against Beijing’s bullying.

The bones of the enhanced northern defence cooperation plan were shaped in early 2011 and announced in November of that year in Darwin by US President Barack Obama and Prime Minister Julia Gillard. We should have done a better job of bringing Indonesia into the discussion, and Indonesia’s president at the time, Susilo Bambang Yudhoyono, did Canberra and Washington an enormous favour by graciously accepting what he knew to be a positive strategic development for the region, notwithstanding the lack of consultation.

Learning from that mistake, Prime Minister Scott Morrison should brief President Joko Widodo quickly. He must surely have been given a heads-up about the Tindal development on his recent Canberra visit.

Jokowi’s speech to the Australian parliament, in which he said ‘Australia adalah sahabat paling dekat Indonesia’, meaning ‘Australia is Indonesia’s closest friend’, is not an expression of friendship so much as a statement of shared strategic risk.

In contrast to the strategic outlook of two decades ago—when East Timor’s independence loomed large and trust between Canberra and Jakarta was abysmally low—this new stage of defence interest in Australia’s north can involve Indonesia as a vital partner.

Of course, the most dramatic difference between the strategic situation at the time of the Obama–Gillard announcement and today is China.

In 2011, Xi Jinping had yet to become president, and was yet to assume permanent personal control of the CCP and purge its and the military of his rivals. China had not yet annexed the vast bulk of the South China Sea, where it built three substantial military bases that have brought Chinese air and maritime power into the heart of Southeast Asia.

In 2011, China was well down the track of modernising its military forces but few Western analysts at that time would have imagined how far and how quickly the People’s Liberation Army would develop in less than a decade.

China’s reaction to the expansion of Australian and American air power out of RAAF Base Tindal and Darwin will take two forms—one public and one private.

Publicly, Beijing’s diplomats, PLA senior colonels and editorial writers will berate Australia for ‘Cold War thinking’, for failing to appreciate the benign intent of the Belt and Road Initiative and for misrepresenting China’s honourable and defensive cyber espionage operations.

In Australia, a variegated collection of China boosters, US alliance haters and people determined to see in our modest defence companies a ‘mini-me’ military–industrial complex, will complain about the government’s initiative and, indeed, about ASPI’s gall in talking frankly about the strategic risks posed by an assertive, authoritarian China.

Can Beijing’s response and its domestic echoes be completely unconnected? China’s palpable decision to turn the diplomatic dial to ‘loud and angry’ has been noted around the world.
It seems that any national expression of independence not completely aligned with ‘Xi Jinping thought’ will be aggressively refuted. Any attempt to enhance Australian and American military cooperation—which has been at the core of our defence policy since before the communist take-over in China—will be treated as an affront by Beijing.

None of that should matter to Scott Morrison. A more private Chinese leadership reaction will be to regard the Tindal announcement as a logical strategic response to China’s influence-building in Southeast Asia.

Beijing’s strategic planners are opportunistic realists. They understand how to make tough judgements based on national interest and they will see the Tindal announcement in that light.

China views Australia’s defence alliance with the United States with a mix of envy and puzzlement. Beijing is envious because the alliance gives Australia access to a trove of technology and information that China could never source through willing partnerships. Its puzzlement is about how countries can cooperate so effectively based on trust, strategic interest and shared values. China does not have these types of relationships.

What should happen next in Australia–US defence cooperation in northern Australia? There’s certainly scope to expand the Marine Corps’ footprint from its current level of around 2,500 personnel annually.

Australia is also well placed to offer sophisticated air-training ranges in the north to countries that, like us, are buying the F-35—Japan, South Korea and Singapore.

At the heart of all these trends is the increasing need for weapons with extensive range. Finding a weapon that can push the Australian Defence Force’s strike power and deterrent effect well north of the Indonesian archipelago is the next essential task for defence planners.

Finally, there’s the Port of Darwin, which is now in year five of its 99-year lease to a Chinese company. How long will that odd deal last in an emerging regional order which makes northern Australia more strategically significant to us, our allies and our neighbours?

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/tindal-air-base-expansion-shows-the-way-to-a-more-secure-region/
The Chinese government was likely well aware of Australia’s plans to significantly enhance the Royal Australian Air Force base at Tindal in the Northern Territory before it was announced last month. Nonetheless, the government’s decision to invest an extra $1.1 billion in Tindal, as ASPI’s Peter Jennings noted, is a ‘strategic step forward’ for Australia.

However, Chinese analysts worth their salt will have quickly realised that despite this expansion, jet fuel security remains an Achilles’ heel for northern Australia.

You don’t have to look too far into the jet-fuel supply chain to see that the government will have to deal with some very challenging issues outside RAAF Base Tindal’s perimeter fence if the full benefits of this investment are to be realised.

The ships supplying northern Australia’s jet fuel depart from Singapore and then arrive at Darwin’s port, which is currently leased to the Chinese-owned Landbridge Group. The fuel is then transferred to the Vopak Terminal Darwin, where almost all of northern Australia’s jet fuel is stored. Tindal’s fuel is then transported the 300 kilometres from Darwin to Katherine by trucks owned and operated by private companies.

For most of the year, Australia’s airlines are the biggest consumers of jet fuel in Australia’s north. The Australian Defence Force’s use of 30 million litres annually pales in comparison with the commercial sector’s consumption of 125 million litres.

It’s during major military exercises, when consumption rates rapidly rise, that the jet-fuel supply chain in northern Australia gets stretched, even though exercises are planned years in advance.

Even in peacetime, jet fuel from Singapore is subject to availability and weather conditions. Despite this vulnerability, there’s no legislated or mandated requirement for a strategic reserve of jet fuel to be held in northern Australia.
Northern Australia has only limited capacity for bulk storage of jet fuel. The storage capacity at Darwin’s Vopak facility was built on a 1996 assessment of fuel requirements.

Resupply to Tindal is limited by the availability of trucks and drivers and there are none waiting on standby just in case the ADF needs more fuel.

Defence’s answer to this problem, and the increasing fuel demands of larger aircraft, is to increase the amount of storage at Tindal. Increased jet-fuel storage would allow Defence to store enough in reserve to support short periods of high fuel consumption like those experienced during large-scale multilateral exercises such as Pitch Black.

But the decision to invest in bulk fuel storage at Tindal will bring new challenges. Jet fuel has a very limited shelf life that requires careful stock management, as well as complex testing regimes.

Defence’s approach to jet fuel in Australia’s north is underpinned by assumptions that the market will continue to ensure its availability and that there’s no requirement to invest in other fuel infrastructure or pay extra for surge capacity or reserves. However, market forces will not support the level of investment needed to develop strategic fuel infrastructure—especially if Defence isn’t willing to pay more for its fuel.

While the Tindal investment sends a clear strategic message about Australia’s commitment to national security and the US alliance, it will do little to address the broader fuel supply vulnerabilities in northern Australia. This is clearly not an issue for Defence to resolve on its own, but one that requires the federal government to think in terms of national security through nation-building.

Unfortunately, in 2013, Prime Minister Tony Abbott abolished the position of national security adviser and there hasn’t been clear public service leadership on whole-of-government national security issues since.

Any discussion on supply chains and resilience, especially with respect to fuel, quickly comes down to who will cover the costs. And that’s why, in a time of increasing strategic uncertainty, the government needs to consider stepping up to make the nation-building investments in Australia’s north that are required for our national security.

In the 1959 Alfred Hitchcock thriller *North by Northwest*, the hero (played by Cary Grant) is drawn in a northwesterly direction to the movie's climax on Mount Rushmore. The movement is inexorable and inevitable. In a pair of *Strategist* posts, ASPI's John Coyne implies that there’s a degree of inevitability in the movement of the Australian Defence Force to the north (west and east) of the country.

This northerly movement is predicated on the assumption that ‘it’s reasonable to conclude that in a future conflict the north of Australia, and more specifically Darwin, could well become the ADF’s forward operating base or a stepping stone to another location in the Pacific or in the first or second island chain’, and that bases in northern Australia ‘provide important geostrategic advantages to an army striving to own the speed of initiative’.

Are these statements accurate, and does the northerly impetus have a momentum that it is actually inevitable? Do we need, or want, to go north?

There’s no doubt that the north of Australia provides geographic advantages for the projection of airpower. It’s closer to likely operational areas, meaning less time in transit and more time actually doing the job. Similarly, there are benefits in having army elements stationed forward for defensive purposes and, as argued by ASPI’s Peter Jennings, to demonstrate Australia’s resolve to our regional partners.

Northern Australia is important for Australia’s economic wellbeing and security, and obviously needs to be appropriately protected. Military units in the north provide a measure of deterrence that units in the south simply cannot, as demonstrated by the recent announcement to upgrade the Royal Australian Air Force base at Tindal in the Northern Territory.

For humanitarian activities and for operations short of conflict, there can also be advantages to being positioned forward. A northerly stepping-off point reduces the time to get to potential operational sites if the units being moved, and the units
doing the moving, are somewhat co-located. This implies that airlift and/or sealift elements must also be located in the north in order to achieve the speed of initiative that is being proposed.

So far, so good.

However, the central thesis of Coyne’s argument focuses on conflict, and it’s there where the cracks appear.

First, forward positioning of strategic airlift and sealift capabilities exposes them to far greater risks than they would face with southerly basing. The entire ability of the ADF to respond with the movement of massed troops would rest on the ability to protect the lift capabilities in their northern bases. This implies the need to acquire a level of defensive capability that we currently don’t have.

And the risks multiply from there.

Operations to the South Pacific from Darwin require transit of the Torres Strait, a passage that imposes significant operational limitations on naval manoeuvring and screening activities. It can be easily blockaded, using either sea mines or small conventional submarines. Australia’s large naval ships, replete with army personnel and equipment, will be in constrained and constraining waters for significant amounts of time, and thereby highly exposed to air and missile attack.

Transits to the likely operating areas to the north of Australia from Darwin will mean moving though the Indonesian archipelago, an area ideally suited to the operation of small submarines. The embarked army will be under significant threat during the journey. The risks are magnified if the adversary can establish itself in Papua New Guinea or East Timor. Townsville as the departure point is also bedevilled by the need to transit the Great Barrier Reef through one of a small number of navigable passages. The seaward end of these passages provides a choke point that will require sustained anti-submarine coverage to ensure safe passage. As with any Torres Strait transit, naval units will be constrained until they are in open waters.

Somewhat counterintuitively, southern locations provide the greatest protection, and the greatest operational flexibility. The choke points are fewer, the water is deeper, and the operational limitations from the departure points are minimal.

If the army is stationed forward and the lift capabilities are in the south, then, because the lift will have to go to Darwin to collect the troops, all we’re doing is exchanging a situation with manageable risks for one in which the risks have increased significantly and operational flexibility has been eroded.

Deploying from the south undoubtedly entails increased transit time, but it also brings increased survivability. There’s little ‘speed of initiative’ when the ability to arrive safely at the point of the operation is compromised, perhaps fatally so.

Australia’s geography has largely been its friend in the past. We need to ensure that we continue to realise the benefits that this geography provides, rather than sacrifice them, and potentially lots more, in an attempt to get closer to the fight.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/moving-north-would-compromise-the-australian-defence-force/
Defending Australia’s north: proximity does matter

John Coyne. 17 March 2020

In October 1942, Edward Ward, the minister for labour and national services, accused the Australian government of having planned to abandon the country’s north in the event of a Japanese invasion. While the ‘Brisbane Line’ accusation was never substantiated, its legacy has lived on, especially in the cultural memories of the northern centres that were bombed by Japan.

In a recent Strategist article, responding to two of my pieces, Graeme Dunk breathed new life into the Brisbane Line myth. His thesis is that Australia can be best defended from the south.

While acknowledging that the north ‘obviously needs to be appropriately protected’, Dunk offers a cavalcade of reasons why the navy and army couldn’t, or rather shouldn’t, be defending our nation from the north. But in doing so, Dunk has missed the nuances in my reasoning and misunderstood my argument.

Most strategists, policymakers and governments are in fierce agreement on the strategic importance of Australia’s north, but they can’t seem to articulate a coherent long-term plan for defending it. My argument is that the current force posture in northern Australia is not fit for purpose. There’s more than a little irony that while the Australian Army continues to reduce its presence in Darwin, the US Marines increase theirs.

To clarify, I don’t contend that Defence’s move north is inevitable, but rather that it’s reasonable to think that northern Australia could be used as a forward operating base or lily pad in a future conflict.

Given the limited planning range of the Royal Australian Air Force’s new F-35 fighter jets, the lily pad option is looking pretty good. It also explains why the government continues to invest in the development of the RAAF base at Tindal in the Northern Territory.
The idea that the Attack-class submarines would travel to the South China Sea, expend their ordinance, then sail for two weeks back to Stirling in Western Australia to rearm—while under threat from anti-submarine warfare, as they’d have likely compromised their location—before sailing for another two weeks to get back into the fray clearly illustrates the tyranny of distance.

Both examples also demonstrate that at times proximity to the battlefield does matter, and extended transit times can expose the Australian Defence Force to additional risks.

To his credit, Dunk makes some valid points about the challenges of operating from Australia’s north. Forward positioning all our air and sea lift capabilities in Darwin would of course expose them to greater risk.

In contrast, finding the right capability mix for our northern force posture would have benefits. For example, it would allow the ADF, in a time when extreme weather events are occurring more frequently, to provide government with options, including the ability to rapidly respond to regional events, or perhaps to contribute a battlegroup to a regional response.

Defence needs a scalable defence industry presence in northern Australia to support its future operations in the region, whether that’s responding to a pandemic, contributing to a multinational peacekeeping operation or engaging in some form of conflict. Assumptions that industry can fill short-notice operational needs without such a presence are ill-founded.

Logistics matter, and in this case so does proximity. And Dunk is right, we need to ‘acquire a level of defensive capability that we currently don’t have’ to protect these logistic functions.

He is also right about the challenges of navigating Australia’s northern waters. And that deploying to the Pacific by sea from Darwin makes little sense. But that’s why I didn’t argue that Darwin itself would be a suitable forward operating base for all conflicts, just that it could be important.

Nonetheless, the idea that operating from Australia’s southern ports offers the ADF increased survivability doesn’t adequately acknowledge the challenges of modern warfare. And it smacks a little of the ‘it’s all too hard to operate in the north’ argument that has prevailed since Paul Dibb’s landmark 1987 defence capability review.

Neither Australia nor any of its Five Eyes partners has been able to maintain the intelligence edge that it enjoyed in the 1990s. The proliferation of low-cost space capabilities has been a great leveller in terms of intelligence, surveillance and reconnaissance.

Australia cannot assume it will have air or sea superiority in any future conflict. China has substantially increased the size, range and lethality of its blue-water fleet. It has increased the range, mobility and accuracy of its strategic strike capability. In a future conflict, our southern ports and airfields and their approaches may be as susceptible to a surprise attack as those in the north.

Dunk’s final paragraph crystallises the absolutism that underpins his position: ‘We need to ensure that we continue to realise the benefits that this geography provides, rather than sacrifice them, and potentially lots more, in an attempt to get closer to the fight.’ But speaking in absolutes brings inherent danger.

The way that geography is understood can indeed change with time and context. Australia has become key political, military and economic terrain in this new era of major-power competition. Japan’s massive investment in energy resilience through the Inpex LNG plant near Darwin and Sun Cable’s proposal to build a $20 billion solar farm to supply power to Singapore illustrate this point.

I hope that Defence’s ‘re-assessment of the strategic underpinnings of the 2016 Defence White Paper’ carefully considers the strategic importance of Australia’s north and our force posture there.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/defending-australias-north-proximity-does-matter/
Northern Australia needs to be ready to meet climate-change-driven security challenges

Hal Crichton-Standish, 20 March 2020

Over the coming decades, climate change will have serious and pervasive impacts on human security across the Indo-Pacific region. From supporting regional disaster-assistance missions to responding to sudden climate-change-related mass migration, Australia’s north will need to be prepared to meet the challenges of a changing climate.

Projections of sea-level rise suggest that mass migration in the Indo-Pacific will become a fact of life by 2100. But the escalating frequency and severity of natural disasters will likely destabilise the region long before then.

Regional instability will present both short-term and long-term risks for human security in the region. In the short term, floods and storm surges will pose the greatest threat to local communities and will likely increase the flow of migrants across international borders. Timor-Leste and Indonesia’s Maluku Islands are particularly at risk as they don’t have access to the level of resources and infrastructure that neighbouring islands like Java have.

Cyclone Lili passed directly through the region in May 2019 and could easily have set in motion a chain of events leading to the evacuation of the hundreds of small islands in the area. Climate change is expected to increase the frequency and severity of these natural disasters, limiting the opportunity for governments to recover from a disaster before the next one hits.

Long-term risks to the region may be less immediate but have potentially even more devastating impacts. Sea-level rise is the most likely driver for climate-change-driven migration in the Indo-Pacific: some island nations are predicted to disappear below sea level in as little as 20 years. A World Bank report has already called for Australia to begin accepting around 1,300 migrants a year from Tuvalu and Kiribati to avoid a mass forced migration in a couple of decades.
Indonesia is particularly vulnerable to the impacts of climate change and more frequent extreme weather events. While the Pacific islands are more vulnerable, Indonesia has a larger population and is geographically much closer to Australia, so a climate emergency in Indonesia will have a far greater impact on our north.

The country lies in one of the world’s most natural disaster-prone areas, with an average of 289 significant natural disasters every year. The average annual death toll in Indonesia from such events is 8,000. Many of the more than 260 million Indonesians live close to the coastline.

The nearly 10 million Indonesians living in Jakarta are already dealing with the health and economic impacts of living in a city that’s sinking. By 2030, 90% of the city is expected to be below sea level. Indonesia is planning to build a new capital in Borneo, but that island is also prone to flooding and storm surges.

Indonesia already spends around half a billion dollars a year on post-disaster reconstruction. The figure was closer to $7 billion in 2004 following the Indian Ocean tsunami and $2 billion following the 2010 Mount Merapi volcanic eruption.

Climate change is already affecting food production and the availability of fresh water across the Pacific and parts of Southeast Asia. The increasing rate and severity of natural disasters will only speed up that process, rendering many islands across the region uninhabitable. As one of the leading economies in the region, Australia will be called on to help address this problem, and we are nowhere near ready to respond.

In the likely event of sudden climate-induced migration, the Northern Territory will need to be Australia’s first line of response to humanitarian crises. However, with one of the least developed infrastructure systems of any state or territory, the NT is woefully underprepared for the magnitude of future climate crises.

Australia’s north needs to be better prepared for the coming climate emergency.

We need to start with investing more in training humanitarian and defence teams to react to climate disasters. These teams will also need to be ready to deploy to our neighbours to help maintain stability and security in the region. Overseas deployment will be crucial for Australia to maintain its international standing and influence and to be a leader in Pacific security. The Department of Defence would be well advised to continue to invest in preparing Darwin and Tindal airbases to support response operations.

Australia should invest early in the necessary infrastructure in the Northern Territory to ensure it is ready for future climate-driven migration and extreme weather events. Darwin, despite its recent success in dealing with Australians evacuated there at the beginning of the coronavirus outbreak, needs further infrastructure investment to ensure it is ready for future climate-driven migration and extreme weather events.

Australia also needs to work closely with other Indo-Pacific nations to help prepare them for future environmental challenges.

The global spread of Covid-19 has highlighted the importance of having a health security strategy that extends way outside of Australia.

The **Indo-Pacific Centre for Health Security** in the Department of Foreign Affairs and Trade demonstrates Australia’s commitment to preparedness for health emergencies in the Indo-Pacific. The centre was established in 2017 to build capacity in laboratory surveillance and field-based epidemiology and to drive research that enhances pandemic preparedness and response and supports Australia’s biosecurity priorities.

The centre works closely with national and regional bilateral and multilateral partners to deliver on the International Health Regulations 2005, which lay out the core capacities that all World Health Organization member states are required to have. Progress on meeting the core capacities is assessed through independent **joint external evaluations** that identify gaps and support states to develop work plans to fill the gaps.

One core capacity that’s consistently evaluated as poor in almost all countries in the Indo-Pacific is the linking of public health and security authorities during a suspected or confirmed biological event. Linking is evidenced by the development and formal acceptance of a memorandum of understanding or other agreement or protocol between a country’s public health and security authorities and by the development of country-specific training curriculums. While a supporting national and international partner is identified for many of the core capacities, the regulations and guidance don’t say who is responsible for resourcing activities related to building capacity in the public security sector and driving formal partnerships between public health and public security.

In response to Covid-19, the Chinese government mobilised its Public Security Bureau to lock down Wuhan and the surrounding Hubei Province for over two months. It’s doubtful that many countries could (or would want to) implement the extreme control measures taken in Wuhan, which have included using the mass surveillance capacity of the Chinese state and strict door-to-door enforcement.
While the Wuhan approach drew praise from the WHO, it didn’t involve public security playing a ‘partnership’ role with public health. Neither do many of the various Covid-19 responses being rolled out across the globe. In fact, we’re seeing the sort of securitisation of health that global health and human rights experts have traditionally rallied against.

As geopolitical dynamics continue to change in the Indo-Pacific region and states’ influence becomes increasingly contested, reshaping and reinvigorating what Australia can offer in our security sector engagement presents a significant opportunity.

While Covid-19 is the virus of the moment, infectious disease outbreaks are common in the Indo-Pacific. From African swine fever in China to measles in the Pacific, it’s clear that the region’s infectious disease surveillance and response capacity is under pressure. Finding ways to build the knowledge and capacity of workers in the frontline security sector would boost disease surveillance, preparedness and response. It would also begin to diversify Australia’s traditional offers to those sectors.

Now is the time to shape how our security sector partners in regional countries engage with their public health sectors. Supporting them to partner in public health will create a safe and apolitical environment in which we can innovate and re-energise our engagement.

We need to bring in new partners at the operational intersection of public health and public security. Conversations spanning organisational boundaries could explore how capabilities can be effectively realigned in times of crisis, without challenging existing organisational power structures. It would also be an opportunity to look at the potential of soft power in the region to provide an alternative to the training offered by China’s Public Security Bureau and make use of the excellent relationships and reach of our defence and policing networks.

Since 2018, the Australian Federal Police has included pandemic preparedness in the curriculum for the regional executive leadership program, which is delivered through the Jakarta Centre for Law Enforcement Cooperation. The role of police in pandemic preparedness now accounts for 20% of the program. Indo-Pacific law-enforcement leaders who attended the program in 2018 and 2019 have reportedly been heavily involved in shaping police engagement in the Covid-19 response in many countries in the region.

Discussions in Canberra in December 2019 explored the potential for a multiagency security sector platform to enhance pandemic preparedness in the Indo-Pacific by developing the capacity of security sector personnel in a range of countries.

A trial of such an initiative would involve Australian agencies collaborating with regional partners to design, test and evaluate capacity-building opportunities, including training, developing cross-sector policies and protocols, improving baseline knowledge about infectious disease, and using technical platforms developed by Australian scientists and researchers. Personnel from Australia’s defence, police, customs, immigration and border agencies as well as military–civilian entities would identify country-level opportunities. Such an approach would allow lessons to be learned quickly and disseminated at scale. It would also signal our intention to build the core capacities of security sector personnel right across the breadth of an agency.

Australia’s experiences in the recent bushfires and in the Covid-19 crisis have demonstrated how difficult it can be to redeploy agencies in roles that aren’t their traditional core business and to bring agencies together to create a larger capability—but it is critical work. Surely it’s worthwhile to support security sector partners and build their capacity to act as partners in public health and play an instrumental role in protecting it.

Civil societies are in part defined by the interaction between citizens and state security agencies. Focusing a partnering public health lens on the role of the security sector would be a risk-free opportunity to boost our engagement in the Indo-Pacific and help shape the operational cultures of security agencies in the region while reinforcing global health. It would be a win–win for all involved.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/reshaping-australias-health-security-engagement-in-the-indo-pacific/
Australia must fast-track new domestic storage to ensure fuel security
John Coyne and Hal Crichton-Standish, 7 May 2020

The Australian government has been quick to defend its record on energy security by arguing ‘supply chain resilience has meant that during Covid-19 pandemic, we have not faced shortages’. Despite these claims, the government has been rapidly developing its liquid fuel policy over the last month.

On 22 April, Energy Minister Angus Taylor announced that the government would establish a national oil reserve. Australia is spending $94 million to buy oil at the current low price. At US$20 per barrel, that’s roughly 3 million barrels, or around 30 days of national supply. It’s a sound economic decision given the dramatic fall in global oil prices in recent months.

However, the proposal has exposed one of the problems with Australia’s national liquid fuel supply chains: a lack of bulk storage capacity.

The government has made a deal with the United States to store Australian government–owned crude oil in the US Strategic Petroleum Reserve, one of the world’s most cost-effective long-term oil-storage facilities.

Australia will be able to store its new national crude oil reserve in the US for an initial period of 10 years. Although the oil will be sitting half a world away, it will count towards our International Energy Agency 90-day stockpiling commitment—a commitment we’ve struggled to meet since 2012.

The obvious flaw in Taylor’s US fuel reserve strategy, apart from the impracticality of the storage location, is that it doesn’t address two key questions: how is the crude going to be refined and how long will it take before the fuel can be used in Australia? Unless something happens (which is why we need a sound fuel security policy), this crude won’t ever be refined or used in Australia; it will likely be sold off, hopefully at a profit.

Having an offshore national oil reserve may buy Australia time during a supply crisis, but it will do little to address our supply-chain vulnerabilities. Even offshore fuel reserves are vulnerable because they involve long supply chains and depend on the availability of maritime assets. The shipping time from the west coast of the US will be up to 35 days. Tanker and insurance rates will be high,
which will add to the pain if there’s a conflict. And the US will likely have priority of access to all of the reserve, including Australia’s portion, in the event of a conflict.

On 1 May, Taylor announced the government’s three-part fuel security package.

The first part of the package is a restatement of the government’s 22 April commitment to establish a government-owned oil reserve for domestic fuel security. The second is a commitment to work with the private sector to develop options to increase local storage as quickly as possible. The third involves the government considering a temporary change to fuel standards.

In implementing its fuel package, the government needs to acknowledge that it’s not starting from a zero base. Bulk storage facilities for liquid fuel are already available here and are underused. There are also several projects that, given the renewed focus on energy security, could soon break ground.

Marine services company NT Port and Marine’s facility on Melville Island near Darwin has 30 million litres (189,000 barrels of oil equivalent) of unused tank capacity readily available. This facility is located near a deep-water port and can refuel any vessel with a capacity of up to 50,000 deadweight tons with marine gas oil and/or diesel.

The Melville Island site is one of several underutilised fuel storage facilities in Australia.

Several years ago, a consortium, led by Airport Development Group, proposed establishing and maintaining a long-term fuel supply and storage capabilities in Darwin. Such a development would support Australian and US military operations in the region.

The project, which would cost up to $200 million to build, includes additional fuel storage facilities at East Arm near Darwin, which would support the importation and storage of large quantities of fuel for naval operations and provide opportunities for extra aviation fuel storage. The proposed fuel storage facility would be capable of holding 60 million litres of diversified fuel with the opportunity to expand to 94 million litres, bringing the total storage space in Darwin to 268 million litres.

The federal and Northern Territory governments, as well as that of our US ally, support the idea of an investment in improved jet fuel security in Darwin. But at the same time, they’re unwilling to pay for it through either infrastructure funding or increased fuel costs. Civil operators, while not against the idea of improved fuel security, are unable and unwilling to pay more for fuel—especially when the profitability of air services in northern Australia is already under pressure. For the oil companies, the northern Australian jet fuel market is too small to make capital investment attractive.

But with a newfound interest from government in energy security and the investment to match, this project could be breaking ground in a year.

Similarly, Darwin Clean Fuels plans to build and operate a $3.3 billion plant capable of producing 100,000 barrels per day of high-quality transport fuels next to the Inpex and Conoco LNG plants at Middle Arm in Darwin. This will take advantage of local production of 250,000 barrels of condensate per day, most of which is currently exported.

Condensate is produced in conjunction with natural gas in areas close to Darwin. The processing of condensate produces 75% less carbon dioxide than traditional crude oil refining. The Middle Arm development would be able to hold the equivalent of around 1.1 million barrels of processed fuels.

Darwin Clean Fuels is completing a bankable feasibility study that could see it breaking ground in 18 months with the right support. The project would support fuel security and reduce imports and also meet the total fuel requirements of the Australian and US defence forces in the area.

The tank storage cost for the project is around $620 million and would constitute a far better investment than a $94 million reserve in the US that we may not be able to access in a time of conflict or fuel shortage.
On average, Australia consumes 1 million barrels per day of transport fuels and imports 600,000 barrels per day from overseas. FGEnergy forecasts that two of four Australian refineries will close by 2027 and none would be able to meet Euro 6 fuel specifications by that time.

The government says its package will help ‘underpin our economic prosperity for the next decade and beyond’. But we should make no mistake that it’s primarily a response to the supply chain vulnerabilities exposed by the coronavirus pandemic.

As soon as possible, the government should prioritise a stocktake of existing domestic fuel storage facilities and examine the planned projects that it could fast-track so that Australia’s fuel security can be ensured in time for the next crisis.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/australia-must-fast-track-new-domestic-storage-to-ensure-fuel-security/
Darwin and Townsville complement each other in defending Australia’s north

David Burke, 12 May 2020

Walter Cronkite, the American broadcast journalist, was an avid sailor and explorer of the United States coast. He wrote books of his voyages and, in his twilight, returned to familiar haunts along the northeastern seacoast with marine artist Ray Ellis. Together they published *North by northeast* as Cronkite rediscovered his passion for the region through the lens of Ellis’s watercolours and oil paintings.

Perhaps it’s also time to revisit familiar territory in the northeast of Australia and view Townsville from a new perspective.

In recent contributions to *The Strategist*, John Coyne and Graeme Dunk have debated Australia’s force posture with a focus on Darwin verses south central Australia. Coyne acknowledges the shared importance of the north in future contingencies and says that Darwin could well become the Australian Defence Force’s forward operating base or a stepping stone to another location in the Pacific.

But the merits of a northern force posture can only be assessed when Darwin and Townsville are considered as complementary partners negating each other’s geostrategic limitations. As Coyne notes, ‘strategic geography remains important’.

There were many reasons the US developed Townsville as the forward operating base and birthplace of the 5th Air Force to defend its air and sea lanes of communication with Australia during World War II. Of primary importance was an assessment of Townsville as the Goldilocks of northeastern Australia: not too far north to be at unacceptable risk of attack, too far south to impede the speed of initiative, but just right sitting on the route to our southwest Pacific island neighbours.

Townsville has remained the forward operating base for all subsequent major regional operations in the Pacific.

No one location in the north answers every military challenge. Dunk’s concern about the transit of an amphibious taskforce through a significant choke point like Torres Strait is valid but irrelevant if Darwin is the launchpad for operations in the northwest and Townsville for operations in the Pacific.
Equally, I believe it’s disingenuous to argue that Townsville is ‘bedevilled by the need to transit the Great Barrier Reef through one of a small number of navigable passages’. There’s only one exit from Sydney Harbour or Cockburn Sound, and it would be inconceivable for an amphibious taskforce to sail in time of conflict without sustained anti-submarine coverage to ensure safe passage.

Forward positioning of a suitable proportion of the Australian Army’s combat capability doesn’t mean that airlift or sealift elements must also be located in the north in order to achieve the speed of initiative, as Dunk contends. Even at high levels of readiness, a degree of force preparation is required prior to any deployment and that can be achieved concurrently as ships or aircraft move to any forward operating base.

Strategic lift capabilities can reside in more secure southern locations and still support operational flexibility. Strategic advantage is achieved by preparing and sustaining a force as close as possible to its area of operations.

Geography is but one of Townsville’s key enablers as the launchpad of choice for Pacific operations. The Australia–Singapore military training initiative will deliver not one, but two networked, all-weather, all-season training ranges. Supported by the Army Combat Training Centre with world’s best simulation-enabled training, there’s no better location to hone military skills. Equally important is the ability to project and sustain the force.

The Port of Townsville is getting a $1.6 billion upgrade to deepen and widen the approach channel. A 62-hectare land-reclamation project is delivering additional capacity to berth large Australian and coalition naval vessels. Upgrading and lengthening the runway at RAAF Base Townsville will enable operations of any fully loaded, wide-bodied aircraft.

The key deficiency is the lack of local logistics infrastructure and capacity. I believe Coyne identifies the heart of the issue with his observation that, ‘Defence needs a scalable defence industry presence in northern Australia to support its future operations in the region.’

A forward operating base can have the best port, airfield and training areas in the world, but it cannot function in isolation. There’s no point positioning ADF units in the north if the supporting industry and logistics are far removed in distance and time.

Perhaps the appetite for broader discussion of Australia’s defence posture in a rapidly evolving strategic environment has taken a back seat to the Covid-19 pandemic, but the speed of change has also renewed our appetite to reconsider the concept of national security.

The opportunity now exists to consider force posture through the new perspective of a post-Covid-19 world. Any assessment of northern Australia cannot be piecemeal or city by city, but requires an honest appraisal of the sum of all of its parts.

*For print readers, the original piece with live links is at* https://www.aspistrategist.org.au/darwin-and-townsville-complement-each-other-in-defending-australias-north/*
Most Australians have no idea how quickly they’ll be running on empty if our fuel supplies from overseas are cut in a crisis.

For decades, the nation has relied on risky, just-in-time deliveries of the fuel required for transport, industry, police and emergency services, individual motorists, and even the operations of the Australian Defence Force.

A new ASPI special report, *Running on empty? A case study of fuel security for civil and military air operations at Darwin airport*, released today, describes how this situation is so fraught, and the national reserve so small, that during major military exercises and actual operations (such as the search for the missing Malaysia Airlines flight MH370), fuel stocks reached critically low levels.

In February 2020, Australia held 25, 20 and 22 days of consumption cover for petrol, diesel and jet fuel, respectively. However, the geographical distribution of those holdings across Australia is far from uniform. Most of them are in Brisbane, Sydney, Melbourne, Perth and Adelaide. In those centres, fuel reserve sizes are, for the most part, maintained by just-in-time supply chains. Market forces have led to long-term investment in critical fuel infrastructure, including for storage and distribution, in those locations. Those infrastructure investments have mitigated some of the risk associated with long, exposed supply chains vulnerable to disruption.

The story in Australia’s north, especially in the Northern Territory, is different. There, demand for petrol, diesel and jet fuel is considerably lower than in the more populous southern states. The limited market makes critical investments in fuel storage commercially unviable, so there’s little market competition. Continuity of liquid-fuel supply relies on maintaining regular, scheduled maritime deliveries, while other petroleum products are trucked (yes, trucked) from interstate.

Because of the limited quantities required and the long overland and maritime supply lines, fuel replenishment in the north of Australia takes longer and is more vulnerable to supply-chain delays, making the region significantly less energy secure.

That makes northern Australia a place where the ADF has to deploy with an expeditionary mindset, as it would overseas, rather than being able to operate with deep national supply lines. That’s a poor strategic handicap to inflict on ourselves.
Oil companies argue that their flexible and responsive global supply chains mitigate the impact of limited storage in northern Australia, but that seems overly optimistic, especially given the global supply-chain problems the world has experienced so far during the Covid-19 crisis.

While relying on market forces to drive the development of critical fuel infrastructure may result in commercially efficient outcomes in quiet times, it doesn’t ensure the best strategic investments for Australia and our national security and resilience in times of crisis. The focus on efficiency in normal conditions is resulting in a premium cost for energy in northern Australia that continues to inhibit development and create risks of supply failure.

The liquid-fuel supply chains in the Northern Territory are highly vulnerable to disruption from natural crises and hostile actors.

Our report explores the challenges that have limited supplies of jet fuel supply in the Northern Territory and ways to improve the situation.

The Australian, Northern Territory and US governments support the idea of improved jet-fuel security, but are unwilling to pay for it in either infrastructure investment or increased fuel costs.

Defence wants jet-fuel resilience, but also appears to be unwilling to pay for it, especially if that involves spending more on fuel or on infrastructure that it doesn’t own. The defence organisation has relied heavily on the private sector’s ability to rapidly scale up operations to meet jet-fuel demands.

The civil aviation sector, under stress from the Covid-19 pandemic, is not keen to pay more for fuel or to contribute to the cost of additional storage. For the oil companies, the northern Australian jet-fuel market, commercial and military, is too small to make capital investment attractive.

Certainty of supply needs to be a higher priority now than past policy and investment settings have recognised.

The pandemic has demonstrated that Australia’s model for nation-building infrastructure investment is far too narrowly focused. The notion that such investments should be funded mainly by those who directly benefit from them rather than by all who gain from the increased capacity is reducing the country’s resilience. This is obvious in the north, where Defence so often wears the cost of developing infrastructure that ought to be funded as part of more comprehensive national security or nation-building programs.

The debt-based Northern Australia Infrastructure Facility and user-pays nation-building efforts are unlikely to result in anything more than passing peaks of economic activity. Unfortunately, those arrangements aren’t supporting the kinds of massive nation-building efforts needed in the north, where the federal government should consider ambitious investments.

Private-public partnerships focused on national and regional energy resilience should get priority. Development of condensate plants in the Northern Territory, for example, could meet some of our liquid-fuel requirements, with the added benefit of diversifying supply.

The wake-up call of Covid-19 has given Australia’s governments an unprecedented opportunity, not just to review policy but to check the validity of the assumptions that underpin their thinking.

The pandemic is being rightly considered as a national issue rather than simply a health issue, and the response to it encompasses the population, business and industry, and all tiers of government.

Similarly, the case study presented in our report shows how the policy challenges of the day and national security, defence and nation building are intertwined.

For print readers, the original piece with live links is at https://www.aspistrategist.org.au/in-a-crisis-australians-might-soon-be-running-on-empty-2/
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