



# AUSTRALIA'S NEW REGIONAL CONTEXT

## Pacific Island Futures and Air Power Possibilities



Peter Layton





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and Air Power Possibilities

**Peter Layton**

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PO Box 7932  
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Telephone: + 61 2 6128 7041  
Facsimile: + 61 2 6128 7053  
Email: [airpower@defence.gov.au](mailto:airpower@defence.gov.au)  
Website: [www.airforce.gov.au/airpower](http://www.airforce.gov.au/airpower)

# FOREWORD

For many, mention of the Pacific Islands conjures up visions of an earthly paradise, but such idyllic perceptions can be deeply misleading. Each nation comprising the Pacific Islands has a complicated past – punctuated at times by the intrusion of external influences. Today, these intrusions continue with shifting global weather patterns and geostrategic competition now the great regional disrupters.

Times change. Emerging from years of colonial rule, Pacific Islanders are today determined to shape their own future. This identity shift affects not just islanders living on small coral atolls, but also those living on the Pacific’s largest island: Australia. For countless years, those calling Australia home have been deeply connected with the Pacific Island region.

Australia’s new Pacific Step Up strategy brings this enduring relationship into sharp focus. The time is opportune to look afresh at the Pacific Island region.

Dr Layton has written a forward-looking paper that moves from today’s national and regional strategies to 2040 with its possibilities for myriad outcomes. The paper argues that emerging aerospace technologies, human security constructs and alternative organisational concepts could combine to enhance Australia’s Pacific Step Up strategy in the future. It is hoped the paper will arouse interest, stimulate thinking and provoke innovation.

As we move toward 2040, much will change in the Pacific Islands. It is clear though that Australian *national* air and space power – a synergistic blend of civilian and military aviation – could play an important role in such an evolution. Now is the time to return the Pacific Island region to the forefront of Australian air and space power thinking.

Jarrod Pendlebury, PhD  
Group Captain,  
Director Air Power Development Centre  
January 2020

## ABOUT THE AUTHOR

Dr Peter Layton, PhD is a RAAF Reserve Group Captain and a Visiting Fellow at the Griffith Asia Institute, Griffith University. He has extensive aviation and defence experience and, for his work at the Pentagon on force structure matters, was awarded the US Secretary of Defense's Exceptional Public Service Medal. He has a doctorate from the University of New South Wales on grand strategy and has taught on the topic at the Eisenhower College, US National Defence University. For his academic work, he was awarded a Fellowship to the European University Institute, Fiesole, Italy. He is the author of the book *Grand Strategy* and several books on air power and emerging technology published by the Air Power Development Centre.

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# INTRODUCTION

In the Australian strategic consciousness the Pacific islands looms very large. There is more than two hundred years of history that includes seminal moments like the capture of German New Guinea in 1914, fighting the Imperial Japanese Forces in World War Two, decolonization and up past the 2003 Regional Assistance Mission to the Solomon Islands (RAMSI) to recent Humanitarian Assistance and Disaster Relief (HADR) operations. This historical legacy shapes Australian thinking but there is a new Pacific Island future steadily unfolding that is different in many respects to the celebrated past.

Three significant issues are disrupting contemporary Australian strategic thinking about the islands. The first is the entry of China as a new great power into the region. This has raised concerns in geographically distant Washington where American strategic thinking is actively considering new directions and defence postures. The Chinese challenge and the US response is though only the most obvious geopolitical change. Over the last decade, many other large and middle powers have unexpectedly become more interested in the Pacific Islands including Japan, the UK, Spain, Chile, India, South Korea and Russia. Geopolitics is now intruding into the islands.

The second issue is very different but again arises externally. Global warming and its implications are of grave concern across most Pacific Island communities with some seeing it as an existential threat. The Pacific Island nations themselves contribute a minuscule amount to global warming but they are noticeably impacted by it. The external states did not set out to weaponise greenhouse-gas emissions. Instead, they were merely striving for ever-larger national power. Global warming is just a by-product. Some Pacific Islands may become simply

collateral damage in others' quests for greatness, with China and the US the largest emitters.

The third issue is dissimilar in being internally driven. The Pacific Islands have reconceptualised themselves. Rather than considering each other as small, widely separated island states adrift in a vast open ocean expanse they now see themselves as being large ocean nations. International legal developments, including the United Nations Convention on the Law of the Sea (UNCLOS), have given many Pacific island countries very large exclusive economic zones. While their land area combined may only be about that of Spain, the Pacific Islands' combined marine areas encompass some 30 million sq kms of ocean, approximately 28% of the world's exclusive economic zones (EEZs).<sup>1</sup> The Pacific Islands as a group have become an EEZ superpower, and these particular EEZs are resource rich.

A changed perspective amongst islanders has reinforced this notion of an imagined oceanic community. The Pacific Ocean is now "not what separates us but rather what joins us together as one ocean continent."<sup>2</sup> This is a somewhat startling vision of a large "Blue Pacific Continent" located in the mid-Pacific Ocean. Of equal consequence strategically, this feeling of an oceanic community is developing in parallel with an ever-growing sense of agency. If in the past, external powers dominated regional developments, now the future is one the islanders themselves seek to actively help create. They consider that if they act collectively, they can shape their tomorrows.

The three factors – the China challenge, global warming and a determined Pacific Island agency – create for Australia a new,

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1 Caroline Anitha Devadason, Luke Jackson and Jennifer Cole (2019), *Pacific Island Countries: An Early Warning of Climate Change Impacts*, Secretariat of the Rockefeller Foundation Economic Council on Planetary Health: Oxford, p. 7.

2 Attributed to Epeli Hau'ofa in *State of Pacific Regionalism: Report 2019*, Pacific Islands Forum Secretariat: Suva, p. 3.

challenging regional context. The world immediately beyond Australia's eastern shores has changed and as importantly will change further.

This paper looks out to 2040 and beyond. The future is always uncertain but in general terms lies within definable boundaries. The past and present shapes the future; it does not arise in some temporally independent manner. Given this, a small number of possible alternative futures are discernible. This is important because force structure changes in large organisations like the Royal Australian Air Force (RAAF) take time. It is advantageous to think about the Pacific Islands future now so that changes can be gradually made that will prepare the RAAF - and the wider Australian Defence Force - for whichever future eventuates.

The paper's first half discusses the Pacific Island's challenges and responses. This examination endeavours to stay at the strategic level by principally considering the various strategies the major participants are employing. The first chapter looks at the principal external challenges in the Pacific Islands: geostrategic competition (Chinese and US strategies) and climate change. The second and third discusses the Pacific Islands' and Australia's strategies in response, including briefly examining Australia's current air operations in the region.

Having set the scene, the paper's second half moves beyond the present, with the fourth chapter looking well-forward to develop four, rather broad Pacific Island alternative futures related to the ADF's 2035 Future Operating Environment's alternative futures. This makes the futures compatible with other ADF futures analysis. The fifth and sixth chapters then use these futures to devise a range of possible strategic options in terms of both potential air power approaches and possible force structure changes. In this the paper focuses on national air

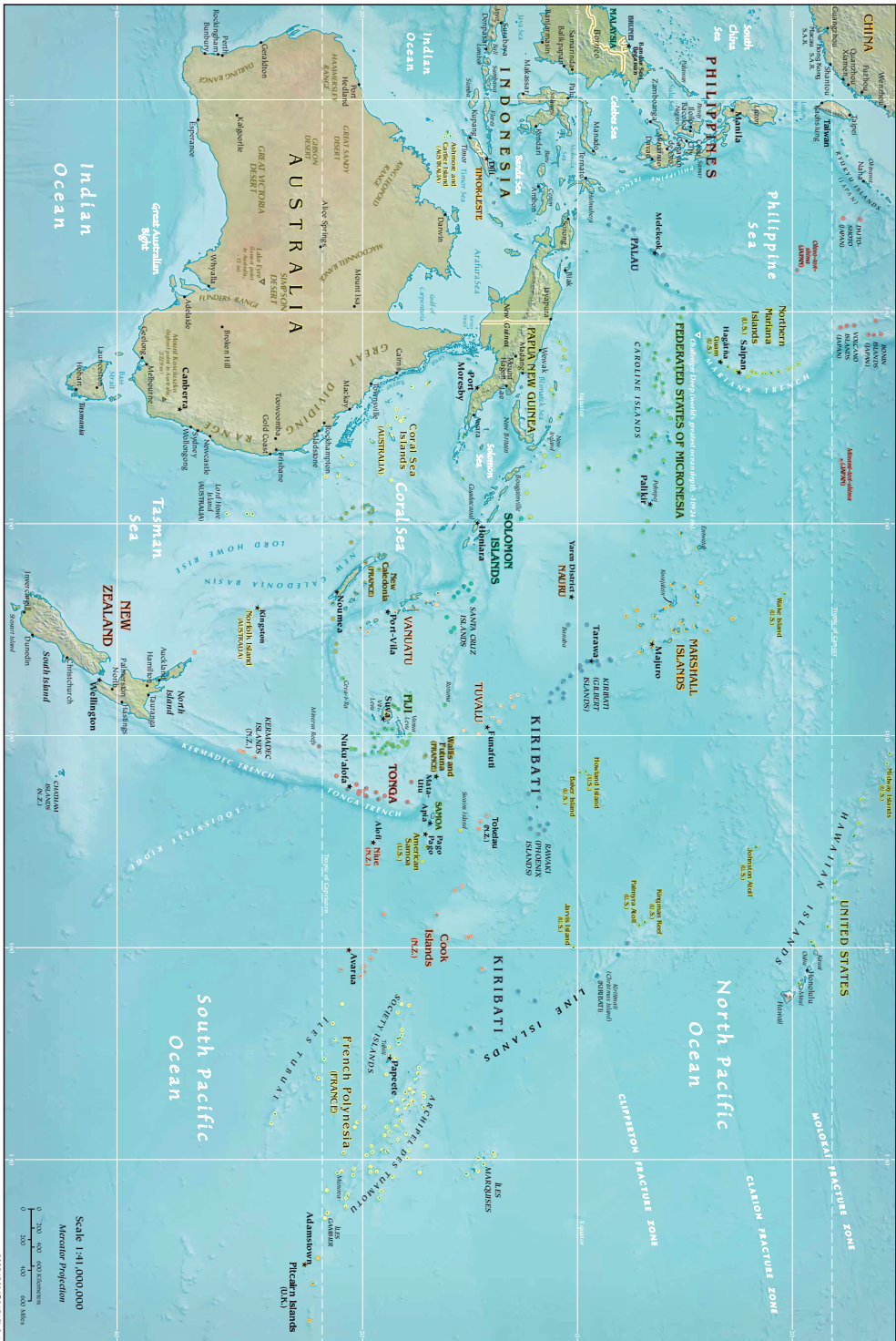
power: the ability of a nation to achieve its objectives through the air domain and encompassing elements of civilian and military aviation.<sup>3</sup>

In using the term 'Pacific Islands', this paper includes the members of the region's principal political grouping, the Pacific Island Forum (PIF) less Australia and New Zealand. These two larger countries are geographically and economically rather different to the other 16 nations making up the PIF: the Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Nauru, New Caledonia, Niue, Palau, Papua New Guinea (PNG), Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. Some islands that feature in other Pacific Island organisations are missing from this listing including the PIF associate members of Tokelau and Wallis and Futuna, together with American Samoa, the Pitcairn Islands, Guam and the Northern Mariana Islands. Nevertheless the core group of 16 countries provides adequate scope when considering Australia's national air power futures. The Oceania map opposite includes the various regional states.

The paper takes in a broad intellectual sweep. Air power has traditionally been conceived mainly in terms of warfighting and in particular applying mainly to major interstate conflict. This is not the world of the Pacific Islands. Instead of state security, the 2018 Boe Agreement signed by Australia and other PIF members placed human security at centre stage. Accordingly, the paper does not assume a future world at war in some rerun of World War Two although some future worlds considerably more fragmented and divided than today are considered. Air power is not usually discussed in terms of human security. However, in the Pacific Island case reality intrudes and perhaps surprisingly air power has much to offer.

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3 Air Power Development Centre (2013), *The Air Power Manual*, Sixth Edition , AAP 1000–D, Department of Defence: Canberra, p.32.



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# 1. EXTERNAL CHALLENGES

“...there are three major powers...in competition in our part of the world: of course the US, but the US has been in the Pacific all this time. China also has been there and... is a very loyal friend to some of us. The third competitor is climate change and, of the three, climate change is winning.”

*Rear Admiral Viliame Naupoto,  
Commander, Fiji Military Forces, 2019*

The great external disrupters in the Pacific Islands today are geostrategic competition and climate change. Some changes these disruptors create will be positive, some will be negative and some will simply shift the background political, economic and societal environment.

Geostrategic competition is a normal event in the life of the modern international system. There is a long history of such challenges and of how the various responses tried succeeded or failed. Climate change is fundamentally different in being a response in the natural environment to a carbon dioxide build-up in the earth’s atmosphere caused by human actions. There is no history of previous response to such a novel challenge, helping make managing it problematic for many. This chapter’s first section discusses the strategies China and the US are using in their geostrategic competition. The second section examines the disruption across the Pacific Islands caused by climate change.

## **GEOSTRATEGIC COMPETITION**

The Pacific Islands are not newcomers to geostrategic competition. In the late 1700s England and France engaged in some incipient rivalry. However, the Napoleonic Wars cut this short and it was not until the second half of the 1800s that Britain, France, Germany and the US together divided up the Pacific Islands region, each formally annexing various islands as colonial possessions.

The French were the first, some thirty years in front of the other empire builders, acquiring sizeable territories including the Tahitian island group (1842) and New Caledonia (1853). In April 1883, concerned that Germany might acquire New Guinea and that Queensland might then border a European nation of uncertain bellicosity, the Colony of Queensland acting independently annexed eastern New Guinea. This set off a chain of events that saw Britain pushed to create a protectorate over the southern half, renamed Papua, with Germany annexing the northern half, renamed Kaiser-Wilhelmsland. Germany later adding the Bismarck Archipelago, the northern Solomon Islands, Palau and Nauru.<sup>4</sup> Overtime Britain also ended up controlling numerous islands including Fiji (1874), Tonga (1885) and the southern Solomons (1899). US annexation of Eastern Samoa in 1899 completed the imperialist carve up.

In this time of geostrategic competition, the separate Australian colonies grew increasingly concerned. The December 1883 intercolonial Sydney Convention called ostensibly to discuss Queensland's unilateral action developed much grander ambitions declaring that:

“further acquisition of dominion in the Pacific, south of the Equator, by any Foreign Power, would be highly detrimental

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4 D.H. Johnson. *Volunteers at Heart: The Queensland Defence Forces 1860-1901*, University of Queensland Press: St Lucia, 1975, pp.88-89, 93.



to the safety and well-being of the British possessions in Australasia, and injurious to the interests of the Empire.”<sup>5</sup>

Quickly labelled the Australasian Monroe Doctrine, German Chancellor Otto von Bismarck called it an “insolent...grasping policy.”<sup>6</sup> In passing, it’s worth noting Australia at the time was interested mainly in Melanesia, New Zealand mainly Polynesia.<sup>7</sup>

When World War One broke out in 1914, the first action the new nation of Australia (formed 1901) took was the capture of German New Guinea by the Australian Naval and Military Expeditionary Force. The operation saw the loss of the Australian Submarine AE-1, the first RAN wartime loss. A Maurice Farman Floatplane and a BE-2a were taken from the Central Flying School in Point Cook but remained crated throughout the operation. At the same time a New Zealand force took German (Western) Samoa while Japan captured what is now Micronesia: the Caroline Islands, the Marshall Islands, Palau, and the Marianas.

In the inter-period (1919-1939) Japan against international agreements militarised several islands in Micronesia building fortifications, airfields and port facilities. These were later used as springboards for the Japanese capture of many Pacific Islands in the early months of the Pacific War. A massive allied counterattack across 1942-1944 involving mainly US and Australian forces ejected Japanese military units from many islands. This was the major theatre of operations for the RAAF during the Second World War; the Service arguably became a true independent Air Force here.

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5 Merze Tate, “The Australasian Monroe Doctrine: Genesis of the Doctrine”, *Political Science Quarterly*, Vol. 76, No. 2, June 1961, pp. 275

6 *Ibid.*, p. 281

7 Greg Fry (2019), *Framing The Islands: Power And Diplomatic Agency In Pacific Regionalism*, ANU Press: Canberra, p. 51.

The remaining occupied islands like New Britain and Bougainville waited until Japan surrendered in 1945 for liberation. All the Pacific Islands then returned to colonial administration but in the 1960-1990s, most islands became independent with the notable exceptions of New Caledonia and Tahiti. The Cold War saw some minor geostrategic manoeuvring by the Soviet Union and Libya<sup>8</sup> however, only in the last decade has the issue really emerged again. The principal extra-regional states in this latest bout of geostrategic competition are China and the US, each employing quite different strategies.

There are always doubts about the strategies nations are employing. It is inherently uncertain if a nation's declared strategy is the actual one or whether there is not some deeply buried secret strategy actually in play. There is also the issue of whether there even is a formal strategy, perhaps the actions nations are taking are just short-term reactions to events and there is no conscious plan. These issues are ultimately unknowable and so the 'as if' rule applies. The nations discussed are acting 'as if' the strategies examined were in force. This means that some logic and rationale can be determined and the various strategies nations' employ can be described, compared and contrasted.

## **CHINA'S REGIONAL STRATEGY**

China is deeply engaged across the Pacific islands and around the world. Its strategy seems to have gradually evolved into today seeking to build an institutionalist order. Such an international order involves a shared agreement amongst the states involved about the underpinning principles, the operating rules and the norms. It is a statist approach where elites operating at the highest national levels of the countries

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8 David Lamb, Kadafi Thwarted in an Improbable Quest—Vanuatu, *Los Angeles Times*, 17 July 1987, <<https://www.latimes.com/archives/la-xpm-1987-07-17-mn-2869-story.html>> [Accessed 16 January 2020]

involved determine issues amongst themselves rather than involving their domestic societies. Such an approach is in harmony with the Chinese Communist party's preferred way of governing within China

The strategy is made evident in China's recent elevation of its relationship with eight individual Pacific island nations - PNG, the Federated States of Micronesia, Samoa, Vanuatu, the Cook Islands, Tonga, Niue and Fiji - to that of a comprehensive strategic partnership. The recent policy change by Kiribati and the Solomons in shifting diplomatic ties from Taiwan to China will doubtlessly see them also soon joining the partnership club. These partnership agreements merely formalize how China approaches its relationships with most Pacific Island nations.

China's involvement in the Pacific uses a comprehensive range of instruments: diplomatic, information, military and economic. However, the use made of the economic instrument is considerably greater than the others. They play only a supporting role. This both makes use of China's singular economic strength while reflecting deeper domestic concerns about needing to sustain China's economic growth.

In welcoming the Pacific Island nations "to board the express train of China's development", President Xi stresses the relationship is for mutual benefit. It is not a one-way aid relationship but a two-way "win-win".<sup>9</sup> In this China gains access to resources and an export market. In return it invests in the region and trades in goods and services – the later mainly in tourism. Xinhua, China's official press agency, editorialized in October 2019 that: "China and the island countries are highly complementary...with huge potential for further cooperation. Pacific island countries are rich in marine, forestry, mineral and

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9 Liangyu, 'China, Pacific island countries lift ties to comprehensive strategic partnership', *Xinhua*, 17 November 2018, [www.xinhuanet.com/english/2018-11/17/c\\_137612239.htm](http://www.xinhuanet.com/english/2018-11/17/c_137612239.htm) [Accessed 10 December 2019].

tourism resources, while China enjoys an edge with its huge consumer market, capital and technology.”<sup>10</sup> The particular institutionalist order China wishes to create is an economic one.

China is now the largest goods trading partner of the PIF countries. In 2017, China's exports to PIF countries was US\$4.7 billion, imports were US \$3.5 billion. Combining at US\$8.2bn, this is well ahead of Australia's US\$5bn and the US's US\$1.6bn.

In contrast, Chinese tourism is growing but remains modest compared to others and concentrated mainly in Palau (declining) and Fiji (growing). Chinese foreign direct investment (FDI) is similarly unexceptional; in 2016 being US\$2.8bn versus Australia's US\$12.7bn although comparing favourably with the US's \$2.4bn. Chinese FDI is concentrated mainly in PNG albeit Fiji is having a tourism resort investment spurt.

Away from these commercial arrangements, the Chinese state relationship becomes more ordinary. China has focused on its development aid to the Pacific islands being mostly given as loans not grants; the reverse of many others.

The Chinese state loans offer large financial advantages over market loans but are poor when compared to multi-lateral loans from the Asian Development Bank or the World Bank. The Chinese state loans though are quick to negotiate, have undemanding conditions and can be used as the recipient wishes, which in the Pacific Islands has often been on national infrastructure. In line with other island states' views, the Solomon Islands Prime Minister recently noted that:

“The [multilateral bank] focus on law and order, good governance and addressing corruption ... is welcomed but without a major infrastructure development program that will

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10 Huaxia, 'Commentary: The future is bright for China, Pacific island countries', *Xinhua*, 21 October 2019, <[www.xinhuanet.com/english/2019-10/21/c\\_138491033.htm](http://www.xinhuanet.com/english/2019-10/21/c_138491033.htm)> [Accessed 12 December 2019].

open up opportunities in the rural area, we are standing on a shaky ground.”<sup>11</sup>

Loans require paying back. A recent study of the issue found China’s state loans should be able to be repaid by most Pacific Island countries, although there are concerns about Vanuatu, Samoa and Tonga. The real difficulties arise if China continues making these rather laissez-faire loans across the Patiki Island region. Financial analysis suggests this will quickly lead to debt sustainability troubles.<sup>12</sup>

China is now marketing its Belt and Road Initiative (BRI) in the region and seeking Pacific Islands involvement. If this entails taking out Chinese state loans, concerns will deepen over ‘debt trap’ diplomacy. This can involve a country being forced to repay the loan through granting China control over a part of the country’s territory for an extended period. China appears to have become aware of the issue but is only tentatively starting to adjust its loan processes towards international best practices.

China has supported an IMF debt management training centre, committed to the G20 Operational Guidelines for Sustainable Financing and the G20 Principles for Quality Infrastructure Investment, and importantly issued a new BRI debt sustainability framework. However, the framework while issued under the imprimatur of the Ministry of Finance, is only designated as a “non-mandatory policy tool” and gives little tangible guidance to Chinese financial institutions making loans. If deemed expedient, the old practices can continue unconstrained.<sup>13</sup>

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11 ‘Statement by the Prime Minister Hon. Manasseh Sogavare On Switch to China’, *Solomon Times*, 20 September 2019, <<https://www.solomontimes.com/news/statement-by-the-prime-minister-hon-manasseh-sogavare-on-switch-to-china/9362>> [Accessed 15 December 2019].

12 Roland Rajah, Alexandre Dayant and Jonathan Pryke (2019), *Ocean of debt? Belt and Road and debt diplomacy in the Pacific*, Lowy Institute: Sydney, pp.16-17.

13 *Ibid.*, pp.18-20.

The debt trap matter creates deep concerns well removed from economics. The Pacific Islands leaders are only a generation removed from their predecessors who gained independence for their countries. Colonisation as an issue still rankles and is not some distant event in time. The debt trap matter with its subtext of China gaining control over island territory suggests damaging the new state's sovereignty, implicitly a return to colonisation. There is an element of 'not on my watch' concern. Leliana Firisua, a tribal chief and influential political figure in the Solomon's Islands, observed that:

"We see what happened there [Tonga], and in Sri Lanka and the Maldives — the huge loans, the debt trap. We need to be careful because we are very small, and we could lose our sovereignty."<sup>14</sup>

Away from the economic instrument, elite diplomacy revolving around high-level government leadership visits has been artfully practiced. This perhaps reflects that the Chinese Communist party prefers dealing with state and business elites rather than societal groups. However, China has only a limited diplomatic presence on-the-ground in the Pacific islands. Chinese companies are much more prominent and, while often State owned enterprises, they inherently have a profit making motive. Middle-ranking Chinese diplomats have also sometimes lacked requisite skills and created rancour.

The military instrument is less evident although elite military leader diplomacy again is employed. China has been making gifts to the few military forces in the region including military vehicles to PNG and Vanuatu, and the small hydrographic vessel, RFS Kacau,

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14 Kathrin Hille, 'Pacific islands: a new arena of rivalry between China and the US', *Financial Times*, 9 April 2019, <<https://www.ft.com/content/bdbb8ada-59dc-11e9-939a-341f5ada9d40>>

to Fiji.<sup>15</sup> There has also been Chinese engagement in HADR exercises, peacekeeping training and naval ship visits albeit relatively low scale. The highest profile recent military event was the 2018 voyage by the Chinese Navy's Peace Ark hospital ship which treated thousands of patients in Port Moresby, Vanuatu, Fiji and Tonga.<sup>16</sup> This is though more a soft power initiative than engaging Pacific militaries.

In the information domain, public diplomacy is increasing with more Chinese television programming, cultural exchanges, Confucius Institutes and large numbers of scholarships offered for media studies in China. Even so, an analysis of China's soft efforts in the Pacific Islands suggests that while islanders are impressed by China's economic aspects they are less so in other areas.<sup>17</sup>

China appears achieving its strategic objective of creating an economic institutionalist order with Pacific Island states. Some worry that this will translate in the future to political influence including in allowing Chinese military bases in the region. Indeed, Chinese strategic thought does have a strong strand relating to acting early to shape the environment so it is favourable if circumstances change.

On the other hand, an economic institutionalist order requires stability in national elites. Political or societal instability in Pacific Island nations may create problems that China feels necessary to intervene in to sustain its order. The Chinese economic institutionalist order by its very presence raises a range of uncertainties. At the

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15 'China supports Defence Force with K17.5 million gift', *The National*, 7 November 2017, <https://www.thenational.com.pg/china-supports-defence-force-k17-5-million-gift/> [Accessed 10 December 2019].

16 Atmakuri Lakshmi Archana and Mingjiang Li, 'Geopolitical objectives fuel China's Peace Ark', *East Asia Forum*, 13 October 2018, <https://www.eastasiaforum.org/2018/10/13/geopolitical-objectives-fuel-chinas-peace-ark/> [Accessed 12 December 2019].

17 Richard Herr (2019), *Chinese influence in the Pacific Islands: The yin and yang of soft power*, Australian Strategic Policy Institute: Canberra, pp. 31-32.

moment however, the strategic question is more about how the arguably successful Chinese economic-dominant strategy will interact with other nations – both external and internal to the Pacific island region.

## US REGIONAL STRATEGY

America's Pacific Island strategy is shaped by its 2017 National Security Strategy. This document stressed the geostrategic competition underway between the US and China (and several others), and the consequent need to create a favourable balance of power.<sup>18</sup> The 2019 Indo-Pacific Strategy Report operationalised this guidance into: "We are revitalizing our engagement in the Pacific Islands to preserve a free and open Indo-Pacific region, maintain access, and promote our status as a security partner of choice."<sup>19</sup>

If China wants its relationship with the Pacific Islands to support its economic growth, the US seemingly wants their Pacific Island relationship to support American security. This helps create perceptions that while the US's strategy for the Pacific Island regions is like China's comprehensive and employs diplomatic, information and economic means, the main thrust is the military instrument.<sup>20</sup> There is an argument of course that this plays to, and reflects, the US's remarkable strength in military power.

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18 The White House, *National Security Strategy for the United States of America*, Washington, D.C., December 2017.

19 The Department of Defense, *Indo-Pacific Strategy Report: Preparedness, Partnerships, and Promoting a Networked Region*, 1 June 2019, p. 40.

20 *Opening Remarks to the CSIS US-Pacific Dialogue "Strengthening the US-Pacific Islands Partnership"*, Cristelle Pratt, Pacific Islands Forum Secretariat, 4 March 2019, <<https://www.forumsec.org/opening-remarks-to-the-center-for-strategic-international-studies-us-pacific-dialogue-strengthening-the-us-pacific-islands-partnership-by-deputy-secretary-general-cristelle-pratt/>> [Accessed 30 July 2019].



In this, it's important to realize that the primary US focus in the Pacific Island region is on the northern tier states of Palau, the Federated States of Micronesia and the Marshall Islands. These states are in the Compact of Free Association with the US, which brings them considerable economic benefits in exchange for providing exclusive access to US military forces. The three states, termed the Freely Associated States (FAS), occupy key geography locations that as a RAND report dramatically declares gives the US a "power projection superhighway running through the heart of the North Pacific into Asia."<sup>21</sup> More prosaically, in addition to the major air and naval bases on Guam further west, the US also operates a intercontinental ballistic missile test site, space surveillance facility and nuclear waste dump in the Marshall Islands.

Unsurprisingly, the bulk of US economic support and aid assistance given to the Pacific Islands has historically been directed towards the three FAS countries. The scale of US support to the FAS takes the US to number five in the Pacific Island aid donor analysis undertaken by the Lowy Institute. Only Australia, New Zealand, Japan and China contribute more. The US stress on the FAS will presumably continue after the Compact's economic pillar is renewed in 2023/24.

The remaining 13 Pacific Island PIF states receive considerably less aid from the US. The US does not feature in the top five aid donors for 2017 for any of these nations in the Lowy analysis. This may change as USAID offices are now being expanded in Fiji and PNG. The largest new US development aid commitment to the region appears to be the

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21 Derek Grossman, Michael S. Chase, Gerard Finin, Wallace Gregson, Jeffrey W. Hornung, Logan Ma, Jordan R. Reimer, Alice Shih (2019), *America's Pacific Island Allies The Freely Associated States and Chinese Influence*, RAND: Santa Monica, p. ix.

collaboration with Australia, New Zealand and Japan to connect 70% of the population of PNG to electricity by 2030 (13% today).<sup>22</sup>

Beyond state aid, in terms of commercial trade in goods and services, the US is a valuable partner in its own right but unremarkable when compared to others. In contrast, in considering diplomacy there has been a recent upsurge of visits to the region, including by Vice President Pence. The recent establishment of the position of Director for Oceania & Indo-Pacific Security at the National Security Committee is also considered an indication of intensifying US strategic interest.

Considering the military part of the strategy, the US is committing US\$7m in Foreign Military Financing to PNG, Fiji and Tonga for training activities and equipment and will work with Australia in redeveloping the small Manus Island naval base in Manus Island. A defense attaché will be placed in PNG and representation in Fiji expanded.

In operational terms, the US Coast Guard is increasing its presence, periodically deploying major cutters, supporting PIF Fisheries Agency operations and exercising ship rider agreements it has with more than eleven Pacific Island states. These are all part of efforts to combat illegal, unreported, and unregulated fishing in the Pacific Islands. In that regard, the US also provides US \$21m each year under the South Pacific Tuna Treaty to build sustainable fisheries.

These efforts are counterbalanced somewhat by two areas where the PIF states disagree with the US. The first is the matter of climate change. The PIF states view of this as an existential threat (discussed further later) is at sharp odds with the US withdrawal from the Paris Agreement and the Trump administration's perceived dismissal of

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22 Shane McLeod, 'Plugging in PNG: electricity, partners and politics', *Lowy Institute The Interpreter*, 10 April 2019, <https://www.lowyinstitute.org/the-interpreter/plugging-png-electricity-partners-and-politics> [Accessed 15 October 2019].

the issue. China, a significantly greater carbon emitter than the US, is considered more favourably given its public acceptance of climate change and its taking actions to address it.

The second is the US stance on UNCLOS, considered central to the region's economic future. It's not just that the US refuses to ratify the treaty but it also rejects the treaty's handling of resources on and below seabed. The US wishes exploitation of these to be unconstrained whereas UNCLOS holds them to be part of a state's EEZ and so under their governance. The PIF nation's have some valuable seabed resources that may be important to them in the future.

The US and China both seek starkly different outcomes. It is unsurprising that their strategies are noticeably dissimilar. The US strategy though in seeking to preserve the defence status quo lacks the seeming dynamism that the Chinese strategy radiates of wanting to make a more prosperous future. In that, the US desire to be the security partner of choice for the Pacific Islands may perhaps be able to co-exist with China's evident desire to be the economic security partner of choice. The PIF states are planning on it.

## **CLIMATE CHANGE DISRUPTION**

The impact of global warming is to exacerbate many of the existing problems of the PIF islands. Many have small economies with some extremely small. Many have large percentages of their population experiencing poverty. Most already have food security issues with some particularly concerned about water supplies. Many have little land making internal relocation away from the ocean for any reason problematic. Moving well inland for safety from approaching cyclones, forecast storm surges or approaching tsunamis can be impossible. Moreover, this means that critical PIF state infrastructure and commercial centres are generally very vulnerable to such hazards.

The Pacific Islands vary greatly in size, geology, physical features and human population density. This means that the impact of the global warming varies significantly across the PIF states. In general the smaller the island, the less their adaptive capacity and the more costly the adaptation costs relative to GDP.

Global warming is however embryonic making the full impact of the carbon currently stored in the atmosphere uncertain. There is a scientific consensus though that global warming increases climate variability. In this, the emerging climate is different to that the historical records of a lower carbon concentration atmosphere describe. At the same time, it is difficult to fully separate the impact of global warming today from what would have transpired without it.

The most dramatic impact of global warming is considered the increasing intensity of tropical cyclones. The Pacific Island region typically experiences an average of 10 cyclones per season albeit there can be considerable variability. Three recent cyclones though have broken historical weather records and been very destructive causing significant damage at the national level. Cyclones Pam, Winston and Gita have come to symbolize the dangers of global warming to Pacific Island states.

Severe Cyclone Pam (Category 5) struck Vanuatu in March 2015, affecting four of Vanuatu's six provinces and killing 16. Pam destroyed 90% of Port Vila's infrastructure. The World Bank estimated total damage and loss from Tropical Cyclone Pam at around \$600 million, about 64% of the country's GDP. Pam was the second most intense tropical cyclone recorded in the South Pacific in terms of sustained winds

Severe Cyclone Winston (Category 5) struck Fiji in February 2016, killing 44 and causing damages estimated at F\$2 billion, or 20% of GDP. Winds reached 185 mph with gusts up to 200 mph. It is the strongest cyclone ever recorded in the Southern Hemisphere.

Severe Cyclone Gita (Category 4) struck Tonga's Tongatapu and 'Eua island groups in February 2018, killing 2. The total economic damage

was estimated to be about \$164.3 million, about 40% of Tonga's GDP. It was the most intense cyclone to hit Tonga since reliable records began.

Global warming also means increasing temperatures across the PIF states. The last decade was unsurprisingly the warmest ever recorded in the Pacific. Between 1961 and 2017, the average temperature increase was 1.0°C. The highest temperature increase has been in Tahiti in French Polynesia, with an increase of 1.7°C, while the lowest temperature increase has been recorded at Nadi in Fiji, with an increase of 0.25°C.

The steady rise means that the number of exceptionally warm days and nights is now between 45 and 80 per year, compared to fifty years ago when it was about 20 per year. Accompanying this is the reduced frequency but higher intensity of rainfall. This causes localized flooding with infrastructure such as airfields and roads needing repairs more often than previously.

Global warming is causing sea level rise but there is considerable variation across the Pacific, especially near the equator. The sea level near Vanuatu has risen by about 6mm/year since 1993 against the global average of 2.8-3.6mm/ year. Around Fiji the sea level rise has been about 5mm/year since 1993. The impact of this is rather complex.

The saltwater intrusion from coastal flooding destroys farmland, disrupting agriculture and forcing communities to move. In 2012, residents of Vunidogoloa in Fiji became the first to begin relocating due to the impact of rising tides, eroding agricultural lands and intensifying floods. Three villages have now been fully relocated, two partially relocated and two more are in the initial stages of relocation. Around 40 more communities are likely to need relocation in the next decade or so. The annual damages sustained to Viti Levu, Fiji's most populous island, are estimated at some \$52 million, 4% of Fiji's GDP.

In Kiribati, the sea level rise has only been 1-4 mm/year but problems are compounded by being only a few hundred metres wide and very low lying, with an average height of 1.8 meters above sea level. Seawater intrusion into freshwater lenses, soil salinization, and decline

in water supply will make some of Kiribati's' coral atolls uninhabitable well before being submerged by rising seas.

The two main external disruptors have quite different impacts on the Pacific Islands. Geostrategic competition is simpler in being a traditional issue that the Pacific Islands have seen before. This historical record though includes their being fought over and through, and the leaving behind of much unexploded ordnance that remains deadly today. History is not necessarily completely reassuring.

Conversely climate change is novel. Its solution is in the hands of others seemingly little concerned about the Pacific Islands. Such a problem has not been faced before but initial indications are that its full impact on the Pacific Island's human security will be most worrying. In that, neither geostrategic competition or climate change can be avoided. The Pacific Island states must respond to them. There is no alternative.

## 2. THE PACIFIC ISLANDS' RESPONSE

“Our political conversations and settlements must be driven by the well-being of our Blue Pacific continent and its people, not by the goals and ambitions of others.”

Dame Meg Taylor, Secretary-General PIF, 2018

The challenges China and global warming pose has helped create a new type of Pacific Island regionalism. The central core of this is the idea of Pacific Island self-determination: gaining control of the regional agenda and not letting it be dominated by external powers, including Australia and New Zealand. Under this construct, the Pacific Islands will chart their own destiny; they will have agency.

In 2017 this perspective gained new strength with the powerful ‘Blue Pacific’ strategic narrative. Such narratives tell a story that frames issues and policies, providing an interpretive structure that people can use to make sense of historical facts, current problems and emerging issues. They have a strong sense of time and progress through it, appealing to both rational and emotional elements of human cognition. In this case, the Blue Pacific narrative arose gradually over a couple of decades culminating in being advanced by the Samoan Prime Minister for PIF adoption in 2017:

“Pacific peoples have developed a unique relation with the ocean that has shaped their sense of place, their economies, and their culture. ...We are custodians of some of the world’s richest biodiversity and marine resources and recognise that this natural endowment is our greatest asset that must be sustainably

managed for the benefit of our present and future generations. ... Though separated by vast distances, the Pacific Ocean unites our islands in common purpose – it is our home, and our key to a future of infinite promise. Therefore as guardians of the largest portion of the Pacific Ocean, our leadership matters.”<sup>23</sup>

The Blue Pacific narrative creates an identity that sees a single Blue Continent not a multitude of widely separated, small, helpless islands. In so doing, it deepens the regional sense of solidarity, community and connectedness. The narrative gives islanders a new sense of the strategic value of their region; they now have strategic weight.

This identity combined with a structure of regional institutions best described as patchwork means that today the Pacific Islands can act as a united group on the world stage, particularly at the UN and in south-south forums.<sup>24</sup> This collective approach aims to counter any external great power divide-and-conquer strategies. Such collectivism is not simply to try and get the best deal from individual external powers, but rather to encourage them to work together and with the Pacific Islands to achieve the best regional outcomes.

The Blue Pacific identity embraces collective action but in so doing paradoxically reinforces an important part of each island's individual identity: their success in managing decolonisation to become independent nations. As young nations, there is both a pride in independence but also some uncertainty about if they will be able to build on this seminal achievement to realise future success. The Blue

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23 *Remarks by Hon. Tuilaepa Lupesoliai Sailele Malielegaoi Prime Minister of the Independent State of Samoa*, High-Level Pacific Regional Side Event, U.N Headquarters, New York, 5 June 2017 <https://www.forumsec.org/remarks-by-hon-tuilaepa-lupesoliai-sailele-malielegaoi-prime-minister-of-the-independent-state-of-samoa-at-the-high-level-pacific-regional-side-event-by-pifs-on-our-values-and-identity-as-stewards/> [Accessed 13 December 2019].

24 Fry, *Framing The Islands*, pp. 275-304.



Pacific identity supports national sovereignty through strengthening the sense of independent countries working together to carve out their own path free of the undue influence of others, in particular of the great powers. In the Blue Pacific narrative, national independence, sovereignty and collective action combine in a positive interlocking manner.

While the involvement of China and the US capture attention, there are now many other nations now taking interest in the Pacific Islands. These include Japan, India, Indonesia, South Korea, several EU states, Canada, Turkey, Chile, Malaysia, Russia and the Philippines. There is some truth in the description of the Pacific Islands as a “crowded and contested region”. Having a collective approach for working with a growing number of interested parties can make best use of the scarce resources in people, skills and money that Pacific Island states have.

Under the rubric of the Blue Pacific the PIF developed and adopted the Boe Declaration in late 2018. In considering regional security matters from the Pacific Island perspective this is a seminal document. Importantly, Australia and New Zealand both signed as well.

The Boe Declaration, so titled after the district in Nauru it which it was signed, updates the Biketawa Declaration of 2000 that ultimately led to RAMSI. Boe declares climate change is “the single greatest threat to...the people’s of the Pacific”; the security environment is characterized by “multifaceted security challenges and a dynamic geopolitical environment”; a collective approach to addressing threats is key; and that the Blue Pacific narrative underpins regional identity. To translate these broad decisions into more detailed planning, Boe sets out three main lines of advance:

1. An “expanded concept of security” is to be embraced. The human security concept is now the underlying framework upon which action plans will be devised and implemented.

2. Each nation should develop their own national security strategies and strengthen their national security capacity through training and other means.
3. Strengthening the existing regional security architecture including those of regional law enforcement secretariats and regional organizations to be able to implement the human security concept.

In Tuvalu in 2019 the PIF endorsed the Boe Declaration Action Plan that provided member states with a broad framework to guide implementation. The action plan sets out to positively shape the regional security environment by “progressing specific, achievable and targeted activities under [six] strategic focus areas....”<sup>25</sup> Five of the Strategic Focus Areas have self-explanatory titles: Climate Security, Environmental and Resource Security, Transnational Crime, Cyber-enabled Crime and Cybersecurity, and Creating an Enabling Environment for Implementation. However, Strategic Focus Area 2: Human Security and Humanitarian Assistance is more complicated. Importantly, it gets to the core of the new approach that the Boe Declaration and accompanying Action Plan has adopted.

Human security is a relatively new concept that may not be fully understood. The idea has been extensively developed and applied by the UN, an organization originally set up to address state security. State-centric conceptions of security focus primarily on the safety of states from military aggression. Human security complements this more dominant perspective by concentrating on the security of the individuals and communities. In this, human security does not replace state security. Instead “human security

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25 Pacific Islands Forum (2019), *Boe Declaration Action Plan*, Pacific Islands Forum Secretariat: Suva, p.8.

and state security are mutually reinforcing and dependent on each other. Without human security, state security cannot be attained and vice versa”<sup>26</sup> Human security is based on five fundamental principles<sup>27</sup>:

1. **People-centred.** Human security considers the broad range of conditions that endanger an individual’s survival, livelihood and dignity allowing a deeper understanding of how communities and social groups experience different types of threats and vulnerabilities.
2. **Comprehensive.** Human security develops multi-dimensional solutions, employing the efforts of many different state and non-state actors to address problems over the short, medium, and the long run.
3. **Context-specific.** Shaped by the assumption that no ‘one-size fits all’, human security aims to develop well-targeted, optimally effective and sustainable responses.
4. **Prevention-focused.** Human security focuses on preventing or mitigating risks. It advances locally tailored responses to protect and empower individuals and communities while strengthening early warning mechanisms and enhancing resilience.
5. **Protection and Empowerment.** Protection acts top down and is the prime responsibility of states. It refers to the norms, processes and institutions required to protect people from critical and pervasive threats. At its core, it is good governance. Empowerment acts bottom up and is the prime responsibility

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26 Human Security Unit (2009), *Human Security In Theory And Practice*, United Nations: New York, p.12.

27 Human Security Unit (2016), *Human Security Handbook*, United Nations: New York, pp 7-8.

of communities and individuals. It involves developing their resilience and capacity to respond to future crises. Protection and empowerment are mutually reinforcing and cannot be treated in isolation: “both are required in nearly all situations ...though their form and balance will vary tremendously across circumstances”.<sup>28</sup>

These generic principles formed the basis for the older Human Security Framework of the Pacific 2012-2015, which is now being further developed to align with the Boe Declaration. Areas of concern include health security, gender-based violence and Paris Agreement implementation. However, the major thrust in the Boe Action Plan is HADR with stress on strengthening reliance, improving disaster management frameworks (including through alignment to the Sendai Framework), and developing a regional coordination mechanism for HADR.

Regional coordination is seen as including developing standard operating procedures for responding to a HADR as a region; pre-approving state, non-state and commercial partners for quick reaction responses; pre-positioning of emergency stores and equipment; pooling of HADR resources; and identification of resources in member countries able to be deployed regionally or globally when necessary.

This stress on disasters reflect the realization that the more severe tropical cyclones now occurring as a result of global warming are creating significant damage that takes 2-3 years to repair. In that time, another natural disaster may occur, probably another cyclone of lesser strength, but also potentially earthquakes or tsunamis. There is the prospect of some states being in permanent disaster recovery mode. In such an event individuals will become stressed,

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28 Human Security In Theory And Practice, *op.cit.*, p.7.

communities will be destabilized and social cohesion may fragment. Successive disasters closely following each other may lead to civil conflict.<sup>29</sup>

Such a possibility becomes more concerning given the latest World Risk Index ranks Oceania as the region at greatest risk globally. The Index considers both exposure to natural events such as earthquakes or cyclones, together with a society's capacity to respond to such events. Under this assessment, Vanuatu is the country with the highest disaster risk of the 172 countries assessed. The remaining Pacific Islands assessed were Tonga (2), Solomon Islands (4), PNG (6), Fiji (10), Kiribati (15) and Samoa (76). By way of comparison New Zealand is ranked 113 and Australia 118.<sup>30</sup>

Such assessments raise deep worries. A recent New Zealand Defence Force report noted that in 2015 three Category 4 cyclones occurred simultaneously in the eastern and central Pacific; this is the first time this has been recorded albeit records date back only to 1970. The event raises for the NZDF the spectre of a nightmare scenario:

“As the frequency of disasters increases, or if they arrive simultaneously, relief efforts will outpace recovery processes and reconstruction phases. A regional severe weather event across multiple countries already challenges relief efforts and presents significant logistics challenges for first responders. Concurrent disasters in Pacific Island countries, Australia, and New Zealand could see relief

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29 Directorate of Future Force Development (2017) *Foresight Report: Oceania, the future security environment of the Pacific*, New Zealand Defence Force: Wellington, pp. 56-59.

30 *WorldRiskReport 2018 Bündnis Entwicklung Hilft*, pp 35-40, 48-51.

efforts significantly delayed, which is likely to result in a dire humanitarian crisis.”<sup>31</sup>

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31 Foresight Report, *op. cit.*, p.58.

### 3. AUSTRALIA'S PACIFIC STRATEGY

“My Government...is returning the Pacific to [be]...front and centre of Australia’s strategic outlook, [of] our foreign policy, [and of] our personal connections, including at the highest levels of government. ... We are more than partners by choice. We are connected as members of a Pacific family. ...This is not just our region, or our neighbourhood. This is our home.”<sup>32</sup>

Prime Minister of Australia,  
The Hon. Scott Morrison, 2018

Australia is the largest country in the PIF by almost any measure: size, population base, economy and so on. This makes it both an outlier and important in terms of what it potentially can do. Australia like other PIF members has agency and, similar to those others, this has varied across the decades, evolving over time as circumstances and the wider international system changed.

In the Cold War 1970s, Australia’s conception of its role was that of leading a regional security community—maintaining an ANZUS lake—within the broader Western global containment grand strategy. In the 1980s Australia adopted a regional stance, shifting towards developing a partnership with Pacific Island countries that promoted

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32 Scott Morrison, *Australia And The Pacific: A New Chapter*, 8 Nov 2018, Lavarack Barracks, Townsville <<https://www.pm.gov.au/media/address-australia-and-pacific-new-chapter>> [Accessed 29 November 2019].

stability through economic development and encouraged shared strategic and security perceptions.<sup>33</sup>

In the post-Cold War 1990s, Australia continued the economic development thrust but became more assertive, promoting regional economic integration through neo-liberalism. This was followed in the 2000s 'war on terror' period by a return to a stress on security driven by global concerns. The focus became countering hostile or criminal transnational groups that might seek to take advantage of the fragility and vulnerability of some Pacific Island states. Now regional integration was based around security and stability rationales.<sup>34</sup>

The circumstances of the early 2020 are very different to those earlier times. Climate change is a unique global threat of a type not previously experienced. There is little historical precedence for policymakers to draw on and shape their perspectives; it is *terra incognita*. In contrast, geostrategic competition might seem like the Cold War redux but there are many more differences than similarities. Australian policymakers have carefully avoided trying to perceive today's realities through a Cold War containment strategy lens framework. They have instead charted a new and arguably innovative course.

Even so, back in 1991, scholar Greg Fry saw a tension in how Australia perceived its role in the Pacific Islands: was it to be regional management or partnership?<sup>35</sup> Some experienced strategic commentators see this tension still lurking in the background today.<sup>36</sup>

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33 Greg Fry, *Australia's South Pacific Policy: From "Strategic Denial" to "Constructive Commitment"*, IR Working Paper 1991-8, Australian National University: Canberra, October 1991.

34 Fry, *Framing the Islands*, *op.cit.*, pp 217-304.

35 Fry, *Australia's South Pacific Policy*, *op.cit.*

36 Graeme Dobell, 'Framing the islands: of maps and minds', *ASPI The Strategist*, 16 December 2019, <<https://www.aspistrategist.org.au/framing-the-islands-of-maps-and-minds%5B>> [Accessed 31 December 2019].



## TODAY'S STRATEGY

Australia's contemporary Pacific Island strategy builds from what has gone before. This history is very long. Indeed Australians and the Pacific Island peoples both share ancient Melanesian roots reflected today in those Australians of Torres Strait Islander descent. As Prime Minister Morrison observes, Australians are in a very real sense Pacific family members.<sup>37</sup> This matter of identity definition and reinforcement forms part of Australia's strategy.

Australia cannot hope to match China's economic attraction; it is a gigantic market. Equally, Australia cannot match the US's defence strengths; it has enormous resources it can throw at problems when it so chooses. These larger countries though lack Australia's deep and enduring personal, historical and cultural ties. These are inherently unique and as a point of difference can potentially give Australia a relative strategic advantage.

Australia's 'Pacific Step Up' builds on and exploits the nation's long entangled relationship with the Pacific Islands, including in the half century of sustained engagement since decolonization. This envisioned glorious past, like the Blue Pacific narrative, then continues into an imagined future: "Our future is deeply intertwined with that of our Pacific family. We have an abiding interest in the sovereignty, stability, security and prosperity of the Pacific."<sup>38</sup> But this abiding national interest is background to the strategic objective of the Step Up itself.

Australia's Pacific Islands' strategy 'end' is the relationship itself. The Prime Minister sees this as "a relationship for its own sake". He

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37 Morrison, *op.cit.*

38 *Stepping Up Australia's Engagement With Our Pacific Family*, Australian Government: Department of Foreign Affairs and Trade, September 2019, <<https://dfat.gov.au/geo/pacific/engagement/Documents/stepping-up-australias-engagement-with-our-pacific-family.pdf>> [Accessed 19 December 2019].

declares that this enhanced relationship “must be genuine, authentic and enduring” for this will then “grow...our standing and influence in the Pacific”. The Prime Minister further elaborates on his vision for the relationship to be built as: “one based on respect, equality and openness.”<sup>39</sup>

In providing advice to those charged with implementing the strategy, the Australian Government’s Department of Foreign Affairs and Trade usefully emphasizes in bold font that: “How we engage is just as important as what we do.”<sup>40</sup> The instruments of national power are to be used in a manner that enhances Australia’s relationships with the Pacific Islands. Even if the tactical level outcome might be pleasing in itself to Australians, if it damages achieving the desired strategic relationship it should not be undertaken.

In crude terms, this approach stresses giving Pacific Islanders what they want, not what Australians might consider they need. At the 2019 Shangri-La Dialogue, Frances Adamson, Secretary of the Department of Foreign Affairs and Trade declared: “I want to be very clear about that. Australia’s ‘Pacific step-up’...is very much guided by what Pacific leaders and communities have told us that they would like us to do.”<sup>41</sup> Reflecting this imperative, the new Office of the Pacific has been created and designed to improve coordination of Australian engagement with the Pacific Islands with its head, Ewen McDonald, spending some 50% of his time in the Pacific Islands. This consultative approach makes good use of the Blue Pacific identity that gives islanders a sense of strategic value and independence. Ewen McDonald observes that:

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39 Morrison, *op.cit.*

40 Stepping Up Australia’s Engagement With Our Pacific Family, *op.cit.*

41 Frances Adamson, *Strategic Interests And Competition In The South Pacific*, Special Session 2, The International Institute For Strategic Studies Shangri-La Dialogue: Singapore, 1 June 2019.

“As I travel around the region, I hear an overwhelming message of pride from Pacific countries in their sovereignty and a determination to set their own priorities and realise their own ambitions.<sup>42</sup>

The Step Up strategy inherently means social interaction. In its implementation, the diplomatic instrument becomes particularly important as a means to understand others and build a better relationship. Under the strategy, more regular high-level meetings will be held between political leaders at the Prime Minister, Ministers and Senior Officials levels. More embassies and High Commissions will be established to ensure Australia has a post in every PIF country; the first country to do so.

In the economic domain, the advice from the Pacific Islands, supported by their earlier acceptance of specific Chinese loans, was that regional infrastructure needed development. The Step Up includes two new initiatives. Firstly, establishing the A\$2bn Australian Infrastructure Financing Facility for the Pacific that will combine grants and long term loans to support high priority infrastructure projects. Secondly, Efic, Australia's export financing agency, will be allocated an extra A\$1 billion in callable capital together with a more flexible infrastructure financing capability to better support regional investments.

In the information domain, usefully termed as people-to-people, there are several programs. There are obvious ones such as funding new sports programs, encouraging Australian commercial media operators to improve their Pacific Island programming and the Pacific Connect program using 'second track' non-governmental linkages to create self-sustaining networks of people. Less obvious perhaps as they

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42 Ewen McDonald, *Realising the Pacific's vision for stability, security and prosperity*, Department of Foreign Affairs and Trade, 7 June 2019, <<https://dfat.gov.au/news/speeches/Pages/realising-the-pacifics-vision-for-stability-security-and-prosperity.aspx>> [Accessed 16 January 2020]

are multi-domain, is the Pacific Labour Mobility Scheme and the Coral Sea fibre-optic communications cable between Australia, PNG and the Solomon's. These programs will all help build better people-to-people relationships through deeper connectivity.

In the security domain, several initiatives continue the theme of building better relationships. A new Pacific faculty at the Australian Institute of Police Management will help train the next generation of Pacific police leadership. The ADF will establish a Pacific mobile training team that delivers education and builds formal and informal people networks across the islands. A new Australia Pacific Security College in Canberra will provide strategic-level education appropriate to the organizations and agencies implementing the Boe Declaration. This college is being developed "in consultation with PIF members, who have identified training needs and priorities"<sup>43</sup> These three training initiatives will help build a community of practice on regional security issues and enhance Australia - Pacific Island relationships at the professional and personal levels.

Beyond teaching, Australia "in consultation with Pacific countries" as the Prime Minister's media notice careful notes, will hold regular Joint-Heads of Pacific Security Forces meetings in Australia every year. This will help generate a more intimate network of key regional security officials where all know each other. To support this Australia will also actively build an alumni network of emerging and senior police, civilian, and military leaders to create stronger ties and enhance understandings of regional security issues.

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43 Minister for Foreign Affairs, Senator the Hon Marise Payne, *ANU to lead Australia Pacific Security College*, Media release, 10 August 2019, <<https://foreignminister.govcms.gov.au/minister/marise-payne/media-release/anu-lead-australia-pacific-security-college>> [Accessed 21 October 2019].

## **AIR POWER MATTERS**

Australian air power has long operated across the Pacific Islands. Today it mainly works in two broad roles: HADR and maritime surveillance.

Australia has a significant and diverse military air transport fleet including the C-17A heavy, C-130J medium and C-27J light airlift aircraft and the NH-90 helicopter fleet that can be land or ship based. All can be deployed into the region at short notice to deliver supplies and skilled emergency service personnel to help natural disaster recovery. With disasters frequent in the Pacific, this role is well-practiced; there are well-trained personnel backed up by well-considered logistic support packages readily on-call.

In recent years C-27J aircraft have been involved in the French Armed Forces of New Caledonia's bi-annual Exercise Croix Du Sud (Southern Cross), the largest HADR training exercise held regularly in the South Pacific. The French Armed Forces operates five Dassault Falcon 200 Gardian maritime surveillance aircraft, four CN-235 tactical transport aircraft, four Puma helicopters and two Fennec helicopters split between air bases in New Caledonia and Tahiti. If jointly responding to a HADR event, cooperation between Australian and French air units, and those of New Zealand, would be undertaken under the FRANZ agreement.

The maritime surveillance role is somewhat different in continuing being developed. This surveillance is mainly focused on detecting illegal, unreported and unregulated fishing and helping police the Pacific Island EEZs albeit the aircraft are also available at short notice for search and rescue tasks if required. As part of Operation Solania, the ADF contribution to Pacific Region maritime surveillance, the RAAF periodically deploys KA350 King Air and C-27J Spartan aircraft into the region. The latest Solania in October 2019 involved a C-27J and a King Air operating together across the Federated States of Micronesia.

The long-standing RAAF commitment to Operation Solania is being joined by an Australian Department of Defence funded A\$69m contract to US company Technology Service Corporation to provide five years of maritime surveillance using two specially equipped King Air 200s. The aircraft will fly some 1400hrs each year across the Central and Western Pacific as part of the Australian Government's Pacific Maritime Security Program.<sup>44</sup>

Multinational fishery surveillance air operations are coordinated through the Pacific Quadrilateral Defence Coordination Group (Pacific QUAD or QDCG), that involves France, the US, Australia and New Zealand. The QUAD supports the four major regional maritime security operations run by the PIF Fisheries Agency: Rai Balang, Island Chief, Tui Moana and Kuru Kuru. Australia supports the participation of the Pacific Islands countries in these operations.

Australia's new Pacific Step Up strategy plays to the nation's strengths just as Chinese and US strategies play to theirs. In this, the Australian strategic focus on relationship building is quite different to the economic and security focus of the Chinese and US strategies respectively. Instead, it is in harmony with the PIF's strategy of building a stronger regional identity and addressing security issues collectively. This should not surprise. After all, Australia is a PIF member and signatory to the seminal Boe Declaration.

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44 Minister for Defence, Senator the Hon Marise Payne, *Commencement of aerial surveillance - Pacific Maritime Security Program*, Media release, 28 January 2018, <<https://www.minister.defence.gov.au/minister/marise-payne/media-releases/commencement-aerial-surveillance-pacific-maritime-security>> [Accessed 15 October 2019].

## 4. THE PACIFIC ISLANDS' 2040 AND THE IMPLICATIONS

Intuitively we know the future is always uncertain. Our predictions may or may not eventuate. A way around this dilemma is through using an alternative futures approach based on how uncertain the future is.

The big challenges for the Pacific Islands are climate change and geostrategic competition. Of the two climate change is a well-understood physical process that has been extensively studied. In simple terms, global warming varies with the amount of carbon on the atmosphere; less carbon less warming, more carbon more warming. This direct relationship means that climate change can be considered for broad-brush planning purposes a clear-enough future.

In sharp contrast, geostrategic competition is quite different with the term itself possibly misleading. Arguably the issue needs broadening when considering the longer-term future. It seems more accurate to say that the Pacific islands are impacted by changes in the wider international system rather than solely by the interaction of only two external players: China and the US. To a great degree, Chinese and US interest in the Pacific Island region waxes and wanes but against this the international system as an entity continues. In this, the brief discussion earlier of the history of Australia's strategies in the Pacific Islands revealed changes in the wider international system can alter a regional state strategies quite markedly.

The international system in 2040 may be characterised as featuring geostrategic competition. On the other hand, the system by then may have slipped into conflict and fragmented, reverted to being more cooperative or become a deep network of states, corporations and

non-government organisations. In being uncertain, it is unwise to base thinking about the future only on a single grand prediction: Chinese-US strategic competition. That would be heroic but fragile. A range of futures - not just one - is firmer ground on which to plan.

This chapter initially discusses the impact of global warming on the Pacific Islands in 2040. The second section then builds four alternative futures by applying the ADF's Future Operating Environment 2035 framework, now also being used by the UK. The final section addresses the 'now what' question in developing some high-level military strategic/ policy guidelines able to structure our thinking about developing future Australian air power in the Pacific Islands to support the Step Up strategy. To look ahead, the next chapter then uses these guidelines to devise a range of air power possibilities.

This chapter's first two sections on climate change and geostrategic futures are derived from Annex A. This annex provides much greater detail on the various issues and the four alternative future worlds discussed.

## **GLOBAL WARMING FUTURE IMPACTS**

The World Metrological Organisation most recent measurement of the rate of global warming was +0.2C per five years.<sup>45</sup> Accordingly, in 2040, the temperature change compared to pre-1961 is estimated to be about +1.9C. Global warming will cause changes in cyclone intensity, fish movements, rainfall patterns and sea level rise.

The Pacific is likely to experience about 10 cyclones per season. In general, there will be less medium-intensity cyclones but a higher

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45 *The Global Climate in 2015–2019*, World Meteorological Organization: Geneva, 2019, p.5.



frequency of low-intensity and high-intensity cyclones.<sup>46</sup> There is also expected to be more severe storms probably of the order of 15-20%.<sup>47</sup> In 2040, the Cook Islands, Fiji, Niue, PNG, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu are anticipated to experience more severe storms. The Marshall Islands, Federated States of Micronesia and Palau should experience fewer.<sup>48</sup>

Ocean warming will cause changes in where large pelagic fish stocks are located. These stocks are economically important with some Pacific Island governments generating 80% of their revenue from fishing licenses while some 25,000 people work in fish processing facilities in Fiji, the Marshall Islands, PNG and the Solomon Islands. As the western Pacific warms, fish are likely to move towards higher latitudes and further east.

In 2040 there are likely to be large decreases in the Maximum Catch Potential (MCP) in the EEZs of Kiribati, Tuvalu, the Cook Islands, the Marshall Islands, Micronesia, Solomon Islands, PNG, Niue, and Guam. However, MCPs may increase about 10-15% in the more southerly islands including Fiji, Vanuatu, New Caledonia albeit these

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46 François Gemenne, Bastien Alex and Alice Baillat, *Implications of Climate Change on Defence and Security in the South Pacific by 2030*, Observatory on Defence and Climate: Paris, May 2019, p.13.

47 *Warming seas may increase frequency of extreme storms*, NASA Jet Propulsion Laboratory: Pasadena, 28 January 2019, <https://climate.nasa.gov/news/2837/warming-seas-may-increase-frequency-of-extreme-storms/> [Accessed 1 October 2019].

48 Anna Gero, Juliet Willetts, John Daly, Jim Buchan, Michele Rumsey, Stephanie Fletcher and Natasha Kuruppu (2012), *Projected climate change impacts in the Pacific: A summary*. Report prepared for NCCARF by the Institute for Sustainable Futures, and WHO Collaborating Centre, University of Technology, Sydney.

later decline. The rare bright spot is French Polynesia, for which MCPs may noticeably improve across this century.<sup>49</sup>

In 2040 regional rainfall patterns will be changing. There will be an increase in wet season rainfall in PNG, Fiji, Niue, Samoa, Tonga, Vanuatu, the Solomon Islands, Tuvalu and the southern Cook Islands. Conversely there will be a decline in dry season rainfall in Fiji, Niue, Samoa, Tonga and Vanuatu. The outlier is Palau where rainfall increases across the year.

Irrespective of an island's rainfall pattern overall however, there will be more frequent extreme rainfall events with 20-year rainfall events possibly occurring every 10 years.<sup>50</sup> Some of these can be intense. In flash floods after heavy rains in Honiara (Solomon Islands) in 2014, 20 people were killed, thousands displaced, infrastructure destroyed and hundreds of homes were damaged; total cost was about US\$107 million, about 10% of the national GDP.

Sea level rise's major impact in 2040 is likely to be saltwater intrusions contaminating water supplies and making agriculture problematic. Sea level rises will also make the increasing number of storm surges more damaging, causing increased water salinisation and worsening existing issues of poor sanitation and disease. Coastal PNG, Kiribati and the Federated States of Micronesia may be the worse impacted.

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49 Rebecca G. Ascha, William W.L. Cheung and Gabriel Reygondeau (2018), "Future marine ecosystem drivers, biodiversity, and fisheries maximum catch potential in Pacific Island countries and territories under climate change", *Marine Policy*, Iss. 88, pp. 285–294.

50 François Gemenne et al, *op.cit.*, p.12.

## **GEOSTRATEGIC FUTURES**

In 2016, ADF planners imagined four alternative future international systems and published these in the Future Operating Environment 2035 (FOE 2035) document.<sup>51</sup> The UK now also uses these alternative futures.<sup>52</sup> In being derived using generic drivers, the futures are in broad terms date independent. With application of the appropriate context, the FOE 2035 alternative futures framework can be applied to different problems at different times.

The FOE 2035 framework is rather general, and this brings both advantages and disadvantages, but it is useful for situating the Pacific Islands' uncertainties. The framework derives four alternative future worlds based on two broad uncertainties: firstly, states in the future may have more or less power in the international system and secondly, states in the future may be cooperative or competitive towards each other.<sup>53</sup> These uncertainties lead to four possible worlds labelled: multilateral, networked, multilateral and fragmented.<sup>54</sup>

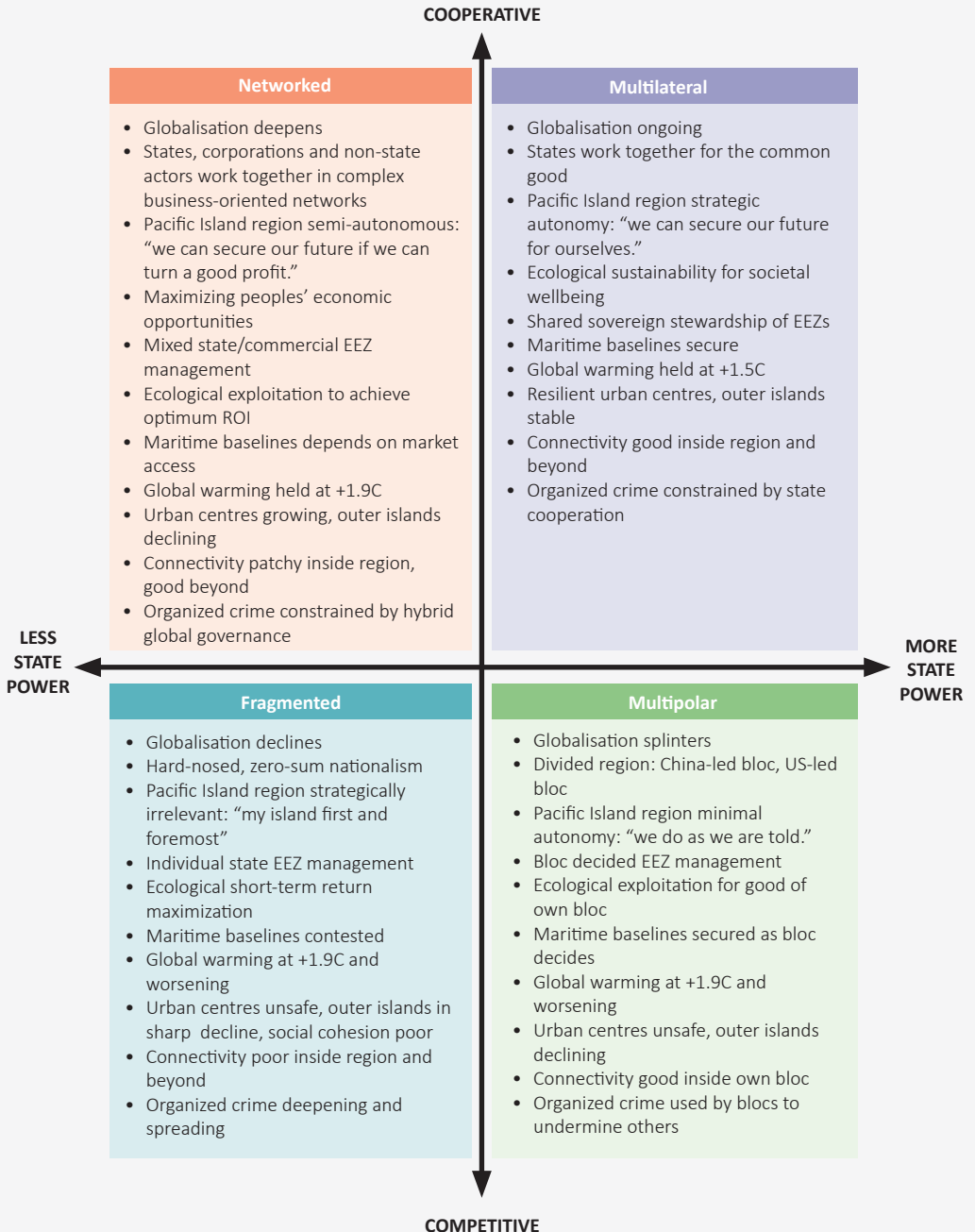
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51 *Future Operating Environment: 2035*, Department of Defence: Canberra, 2016, <<https://www.cove.org.au/wp-content/uploads/2017/03/Future-Operating-Environment-2035.pdf>> [accessed 23 May 2019].

52 *Global Strategic Trends: the Future Starts Today, 6th Edn*, UK Ministry of Defence: London, 2018, pp. 21-29.

53 These worlds were originally devised to provide strategic insights for the Netherlands Armed Forces policy development. See: *Future Policy Survey: A new foundation for the Netherlands Armed Forces*, Netherlands Ministry of Defence, 2010.

54 These worlds are explored in some detail in Peter Layton (2018), *Tomorrow's Wars: Insights From Our Four Alternative Futures*, Air Power Development Centre: Canberra.



*Figure 1: Pacific Island Alternative Futures*

These worlds are described in narrative form with more detail in Annex A. None of these four worlds is necessarily expected to emerge. Instead the hope is that the future that actually occurs is broadly captured somewhere within the wide span of possibilities all four worlds' cover. Ideally, these four alternative futures bracket the range of future strategic environments that may eventuate.

Importantly, no one world is considered more likely than the others. The worlds are so developed to allow the similarities and differences between them to be explored to inform how air power might be developed to be most useful in the Pacific Islands of 2040.

## **MILITARY STRATEGY/POLICY DEVELOPMENT GUIDELINES**

The four futures suggest that the Pacific Islands as a coherent region working together collectively is an idea that requires considerable effort to sustain. Across three of the four futures, disintegrative forces threaten to fracture such regional cohesion whether from economic causes (networked), nationalism (fragmented) or great power politics (multi-polar). This appears reinforced by global warming's more severe weather events causing significant national-level damage and long-term climate changes impacting economic fundamentals such as fisheries and agriculture. In its own way, geography works in parallel with such disintegrative forces given the widely scattered nature of the Pacific Islands and their considerable terrain differences.

The Pacific Island region as it is today may be an historical anomaly contingent on a particular international system, globalisation, favourable international laws of the sea and digital information technology that makes distance at times immaterial. The alternative futures combined with the impact global warming may have highlight that this sweet spot may not last. Such considerations further

emphasize that a particular international order requires deliberate and purposeful effort to maintain.

Providing explicit direction, Prime Minister Morrison informed Townsville-based 3rd Brigade soldiers that Australia “and our Pacific [PIF] partners have committed to work more closely to keep our countries safe, secure and more prosperous.”<sup>55</sup> Australia’s national interest is a Pacific Island region which is “secure strategically, stable economically and sovereign politically”.

The Pacific Island region accordingly needs to be robust so as to be able to survive and as importantly thrive in a world of shocks. However, robustness is more than just reacting to bad events. It also implies recovering from the damage inflicted. In this, the place of the human security concept advocated by the Boe Declaration has a role to play. The implementation of the concept envisaged the combination of top-down protection of the people by the state and bottom-up empowerment by making the people more resilient. To apply these two ideas though, both aspects need to be more deeply considered.

Across the four futures, having a state able to carry out its duties effectively and efficiently is essential. A poorly functioning state would be dominated by events and external forces. In contrast, a well-run state could provide the necessary levels of protection for its society in times of trouble. Such a state is not one simply strong in itself; authoritative states can be strong but they prey on their societies not protect them. Moreover, they tend to be brittle and prone to breaking under stress.<sup>56</sup> Greater robustness can be gained if the state provides good governance. This is a key attribute for top-down driven protection.

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55 Morrison, *op.cit.*

56 Most Pacific Islands use a hybrid governance model that tries to blend democratic processes with ethnic customs. This process can at times be unstable and lead to communal tensions. Foresight Report, *op.cit.*, pp. 54-55.

Bottom-up empowerment requires a different approach. Most island communities being small and widely dispersed possess only limited capabilities and capacities. They cannot in themselves acquire the required all-round resilience to be robust in the face of global warming and geostrategic changes. Accordingly, they need to have good connectivity so they can readily and reliably access support from others within the region or outside whenever and wherever needed. Such connectivity is not only the physical kind of airfields, ports, roads and information technology but also the intangible people-to-people links. Broad and deep connectivity brings not just physical robustness but also an enduring social cohesion critical to recovery from disastrous events.

Crucially, in the 2040 world the Pacific Island may be more alone than currently. They may need to rely on their own resources more. As earlier noted, there are growing concerns about concurrent events. If say, there was a major disaster in Australia, similar to the Christmas/New Year 2019/2020 bushfires or the early 2019 North Queensland floods, simultaneously with a severe cyclone similar to Winston in 2016 that hit Fiji, would Australia be able to help the affected Pacific Island as much as it did earlier? The same scenario could play out with an earthquake in New Zealand. Such a chain of circumstances might as the NZDF frets: “see relief efforts significantly delayed, [and]...result in a dire humanitarian crisis.”<sup>57</sup>

The second concern is one expressed within the PIF. The relentless rise of global warming will have impacts well beyond the Pacific Islands. By 2040, global warming impacts will be both much worse and more apparent. Other countries may decide to focus their resources internally rather than towards helping the Pacific Islands. Domestic demands might outweigh distant Pacific Island problems.<sup>58</sup> Both

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57 Foresight Report, *op.cit.*, p.58.

58 State of Pacific Regionalism, *op.cit.*, p.11.

concurrency and becoming relatively less important suggest building in a certain amount of self-reliance in terms of Pacific Island governance and connectivity would be prudent.

The exact nature of the future Pacific Islands region is inherently unknowable however there are approaches able to give an indication of the possibilities inherent in the present. Of these the impact of global warming is more certain than what changes might occur in the wider international system. To ensure the Pacific Island region can successfully navigate future challenges, robustness must be built in and for this governance and connectivity appear the key attributes. These can guide Australia's Pacific Island national air power possibilities.



## 5. PREPARING AIR POWER FOR THE FUTURE: GOVERNANCE

The Pacific Islands in 2040 may not be like today. Many different combinations of geostrategic change and global warming appear possible. The broad ranges of possibilities discussed in the previous Chapter suggest that the human security concept is a reasonable long-term approach to adopt. In this, focusing on the state level highlights that good governance is key.

Air power and human security may appear incompatible. Air power is seen by its critics as a somewhat technocratic way of war that sometimes downplays the human dimension. Australia's Step Up strategy that informs future air power thinking however stresses building enduring personal relationships across the Pacific Island region. The strategy then calls for a carefully nuanced approach to the development and application of Australia's future national air power. In considering governance there seems two major needs: enhancing maritime security and helping develop each states' defence and security capabilities, particularly as regards natural disasters. Both issues will be impacted by global warming and by the revitalized interest in the region by external powers.

### **MARITIME SECURITY**

Out to 2040, the movement of pelagic fish schools driven by global warming towards the eastern Pacific and higher latitudes will amplify the on-going impact of Illegal, Unregulated and Unreported (IUU) fishing activities. As the fish start to leave the currently well-managed EEZ areas, there is likely to be a rush to extract the maximum fish catch from the losing areas while they remain viable. Such a scenario has

played out elsewhere but seriously damages fish stock sustainability. In the end, all lose.

Air power can most support maritime security by providing air surveillance. Aircraft can see further and cover vast areas much faster than surface vessels. In an integrated maritime security system air surveillance detects, locates and then cues surface patrol vessels to intercept and check on suspected IUU activities. Such air surveillance can be broken up into EEZ, coastal and high seas.

In the EEZs the Pacific Islands have progressively developed a comprehensive fisheries management approach implemented through the Forum Fisheries Agency (FFA). Foreign fishing vessels are licensed to operate in the EEZs with compliance checked through a satellite accessed Vessel Monitoring System (VMS) backed up by occasional inspections including at sea by island patrol vessels. Australia is a major provider of regional patrol vessels under its Pacific Maritime Security Program scheme. The VMS derived picture of regional shipping activity is now being improved using information from the Automated Identification System (AIS) that features a ship-mounted electronic transponder.

Both systems require fishing vessels to correctly use the VMS and AIS making periodic enforcement necessary to ensure compliance. Air surveillance can play a major part in this but there is a deficiency as air surveillance is undertaken within regional EEZs only occasionally and then only for short periods. External countries are the principal providers during operations such as Solania and these typically only last 2-3 weeks at a time. This gap in coverage is being partly addressed by Australia's contracting to a US company for periodic King Air maritime surveillance for the next five years. One aircraft though can only achieve so much given the size of the EEZs across the Pacific Island region.

Contracting for maritime air surveillance is undoubtedly cost effective if judged on flying hours alone. However, such an approach has some shortcomings when considered alongside the Step Up

strategy of Australia building enduring regional relationships. Contracting is by its nature temporary; companies and staff come and go. Relationships are built but these may only be short-term and indeed not involve Australians at all. If funding allows, transitioning in five years time to a long-term Australian sovereign solution would seem more in keeping with the Step Up strategy. There are several options that could be considered.

Air Force is acquiring seven Triton long range, long endurance maritime surveillance unmanned air vehicles. This acquisition will provide an impressive new capability for maritime surveillance to detect and monitor unauthorised fishing activities across the whole Pacific Island region. If required, Triton's endurance would allow it to remain overhead to coordinate interception of any suspected IUU ship by regional patrol vessels. The Air Force however is only getting a limited number of Triton air vehicles, demand for their services could be high and they are expensive to operate. Using them for fisheries patrol is possible but probably restricted only to very specific circumstances. Tritons may be mainly so used only during preplanned Solania operations.

An alternative is the new MQ-9B Sky Guardian. Air Force is acquiring 12-16 air vehicles that would appear well-suited for EEZ surveillance where the area coverage required is contained. The Sky Guardian has an endurance of more than 45 hours but is relatively slow to transit to an operating area, and such transits also reduce time on station. The Sky Guardian would be most effective in the EEZ surveillance role if operating from an airfield within the region.

The Sky Guardian's employment concept envisages being flown from a homebase to a Forward Operating Base (FOB) where a small ground crew (around 5-7 people) can refuel and turn the aircraft for its operational mission. The aircraft is then taken off, flown, and lands back at the FOB using a satellite link to the home base control station. In operating from the Pacific Islands this process would be eased by the Sky Guardian's Automatic Take Off and Landing capabilities, being

certified to operate in civilian controlled airspace and being able to operate out of a 15-1800 metre runway. Many airfields in the Pacific Island region could accommodate a Sky Guardian deployment.

Thinking more broadly, with only a small number of people needed at an FOB, it appears practical to post them to a FOB for an extended period, if appropriate taking their families with them. The aircraft can then be flown in as necessary and rotated through with a new one from homebase on a regular basis. The FOB staff would be able to build up lasting relationships with islanders. It would be advantageous to have the FOB staff include ops personnel able to liaise with local agencies, including air traffic.

The counter is that the Sky Guardian system takes considerable personnel to operate and the air vehicle being unmanned has an attrition rate higher than manned aircraft. Additional staff and air vehicles might need to be acquired if Pacific Island EEZ surveillance becomes a regular role.

Inshore from the EEZ another IUU challenge is growing. Small boats are now targeting high-value coastal marine life such as lobsters, sharks, sea cucumbers and reef fish. Sea cucumber fisheries are estimated to be the second-most valuable fishery export for the Pacific Islands after tuna caught in the EEZ. More live tonnage in sea cucumbers is extracted and traded annually than all other reef fisheries combined. The main inshore challenge is from unregistered, unlicensed Vietnamese 'Blue Boats' without AIS or VMS, that being wooden are hard for radar to detect, and in being painted blue are hard to see visually.

A partial solution is being implemented in Palau where radars with integrated camera systems have been placed on tall towers giving about a 25nm range. These solar powered systems can be monitored by personnel to identify IUU activity close inshore. Each tower is relatively low cost but requires some nearby security presence and many such towers would need to be built to achieve adequate coverage across the many widely separated Pacific Islands.

An alternative solution would be using short-range commercial drones and providing these to the many communities across the Pacific Island regions. These would be useful for near-shore monitoring although less useful further out and at night. Moreover, many of the worst impacted islands are inhabited. Using the Sky Guardian offers perhaps an optimum solution, even if not low cost.

The air vehicle could cover large areas in a single patrol and with its integrated radar and imaging sensor systems employing ViDAR processing be able to detect small boats. Visual Detection And Ranging (ViDAR) is an Australian developed automatic detection system that offers wide area coverage up to Sea State 6. Even without radar cueing, the system on Sky Guardian could probably detect a 'Blue Boat' at about 20kms.

In extending this, the Sky Guardian's electronic systems, its off board crews access to considerable external data and the drone's ability (unlike Triton) to drop external stores indicate it may be very suitable for both inshore and EEZ Search And Rescue (SAR) roles. This role though would require acquiring some form of externally-carried air sea rescue kits and clearing Sky Guardian to deliver them.

Out beyond the EEZs, high seas fishing operates in a somewhat 'wild west' mode. Fishing vessels go dark, turning off AIS and VMS and ceasing communications. They do not wish governments, fishing agencies, competitors or environmental groups to know where they are.

The scale of these operations is only just becoming apparent with modern digital technology, artificial intelligence processing and big data. AIS signals combined with civilian wide area imaging sensors and machine learning is now progressively revealing the very large fishing fleets operating continuously across the Pacific. This open source information is proving very useful to maritime security enforcement agencies such as the US Coast Guard.

In a trial patrol in 2019 a USCG cutter, supported by a HC-130J surveillance aircraft as usual, produced a 344% increase in fishing vessel

boardings and an 867% increase in identified violations compared to a similar mission in 2018. In all, the cutter conducted 45 fishery boardings, with 68 violations assessed. The captain declared that:

“The difference was stark. The additional analysis provided by... near real-time satellite-tracking data gave us a whole additional layer of intel. It enabled us to focus on vessels that may have been engaged in transshipment activity, and to zero in on potentially questionable activities occurring at night.”<sup>59</sup>

These improvements suggest the considerable gains that could be made by Australia collaborating with the FFA and other interested regional parties in the employment of appropriate emerging technologies. Artificial intelligence and big data can extract the maximum value out of costly air and space surveillance activities. However, this is not an off-shelf capability able to quickly purchased; it would require some effort to develop an optimised system.

An important outcome of this would be an ability to reliably detect transshipment. Worldwide demand for wild-caught seafood could not be met without a global fleet of cargo vessels, known as ‘reefers’ or ‘carriers’ that pick up fish caught from the fishing boats operating in the EEZs. Operating well offshore, ‘reefers’ are hard to monitor and control, and create opportunities for illicit activities such as misreporting catch size and type, and trafficking in weapons, drugs and people.

To pick up ‘dark vessels’ though, the use of imaging sensors has proved necessary. Consistent boat detection has been achieved using a NASA/NOAA Visible Infrared Imaging Radiometer Suite (VIIRS) mounted on a polar orbiting earth resource monitoring satellite. While

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59 ‘On the frontline against illegal fishing in the world’s biggest ocean’, Sarah Bladen, 14 November 2019, *Global Fishing Watch*, <<https://globalfishingwatch.org/impacts/uscg/>>, [Accessed 30 December 2019].

VIIRS only detects brightly lit boats, lights are widely used to attract catch across Pacific region fishing grounds to attract fish. Regrettably, having just been proven, the use of this NOAA sensor is now becoming more difficult given budget cuts to US science programs. This is a capability that the emerging smallsats would appear well suited for. Australia could launch a polar orbiting smallsat that provided good Pacific Island region coverage at relatively low cost.

By 2040 if timely funding is provided, the Pacific Island region could be reliably monitored by using drone and space-based systems with analysis performed using artificial intelligence, machine learning and big data to produce a high quality near-real time picture. Crucially this would be a picture able to be widely shared allowing enforcement agencies to act. Governance of Pacific island fisheries would be greatly enhanced.

## **REGIONAL CAPABILITY AND CAPACITY BUILDING**

Under Australia's Step Up strategy an ADF Pacific Mobile Training Team is being established as part of 1st Division in Brisbane. This team will deliver regional nations with training packages that could include engineering, communications, surveillance, maritime security and medical training. The packages will be optimised to meet the needs of each nation. Defence Minister Linda Reynolds notes that the:

“...Pacific Support Force will employ a mobile training team approach to strengthen capacity, resilience and interoperability throughout the region in areas such as security operations, humanitarian assistance, disaster relief and peacekeeping”<sup>60</sup>

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60 Colin Packham, 'Australia to create new Pacific military unit in bid to woo the region', *Reuters*, 23 July 2019, <<https://www.reuters.com/article/us-australia-pacific/australia-to-create-new-pacific-military-unit-in-bid-to-woo-the-region-idUSKCN1UI0DM>> [Accessed 30 December 2019].

Some have suggested this team include a small Air Force element able to provide advice on air matters including maintenance and sustainability. This would have a considerable secondary benefit in developing in Air Force individuals with deep understanding of regional conditions and good personal working-level linkages across the islands.<sup>61</sup> The manning approach used for such an element may need careful consideration. Rapidly moving people into and out of such a unit would defeat the aim of building enduring relationships. Moreover, suitable people might need some language training. Such an element to get the maximum benefit for the Step Up strategy might need to be manned taking a long-term perspective.

The US Army has moved on from such an individual approach to a more unit-level approach. Under the State Partnership Program a long-term cooperative relationship is being established between National Guard units and selected Pacific Island counterparts. The Nevada National Guard is teamed with Tonga and Fiji with interest now coming from PNG and Nauru. Visits occur and information is exchanged and the smaller militaries can feel they are part of something larger that can help them in time of need. The National Guard units have a major advantage in that they – like the Pacific Island militaries - have considerable personnel stability, helping the making of long-term people-to-people linkages.

The Army-to-Army linkage makes sense as the Pacific Islands mainly have land forces and so a RAAF Reserve unit would seemingly have no one in a regional military force to link to. Stepping back though, the Pacific Islands all operate airfields, emergency services and medical facilities. All are crucial in a natural disaster such as a severe

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61 Sgt G., 'A Case for a Royal Australian Air Force Regional Mobile Training Team Capability', *The Central Blue*, 14 April 2019, <<http://centralblue.williamsfoundation.org.au/a-case-for-a-royal-australian-air-force-regional-mobile-training-team-capability-sgt-g/>> [Accessed 19 April 2019].



cyclone strike requiring skilled personnel and supplies to be quickly flown in. The good understanding that a RAAF Reserve unit might build up over several years of teaming like the Nevada National Guard does with particular islands or regions would then be invaluable. Such a defined HADR role would also be appealing to people joining and staying with the RAAF Reserve. This concept is explored further in the next chapter.



## 6. PREPARING AIR POWER FOR THE FUTURE: CONNECTIVITY

Good governance is necessary but not enough when considering implementing human security concepts in the 2040 Pacific Island region. The state needs to work with communities so that together they make their society robust. Governance at the state level needs to be paired with connectivity at the community level. The stress in Australia's Step Up strategy on building enduring personal relationships is especially important when thinking about connectivity and the potential development and application of Australia's national air power.

The Pacific Islands region is often affected by natural disasters and includes six of the top ten most at risk countries in the world: Vanuatu (1), Tonga (2), Solomon Islands (4), PNG (6) and Fiji (10). Kiribati sneaks in at number 15. With disaster vulnerability a major regional issue impacting all, HADR is a crucial capability in the Pacific Islands region. The problem is compounded in that the increasing number of severe cyclones annually means that some countries may end up being in a constant mode of recovery.

Most island communities are small and widely scattered with rather limited capabilities and capacities. They cannot in themselves possess the necessary resilience to be robust in the face of global warming or the possible geostrategic changes some alternative futures suggested. Instead the communities need to have good connectivity so they can readily and reliably access support from others within the region or outside whenever and wherever needed.

Importantly, this connectivity is not simply physical infrastructure such as airfields, ports, roads and information technology but also the more subtle people-to-people links. Good material and people-to-people connectivity brings not just physical robustness but also an enduring social cohesion critical to recovery from disastrous events.

Australian national air power can help create a robust connectivity across the Pacific Islands. In this however, the two concerns noted earlier about concurrent disasters and the region becoming less important to external powers imply building in a certain self-reliance to Pacific Island air power. Technology, and particularly drone technology advances, can help make that notion practical – arguably for the first time.

## **MANNED AIRCRAFT CONNECTIVITY**

There are only limited commercial air services into and within many Pacific Island states. Moreover, many airfields are quite short, less than 1000 metres. This constrains the connectivity in terms of passenger and freight movements the various countries have both in normal times and during HADR events. This shortcoming is in the main driven by commercial considerations. There is an insufficient estimated return on the investment necessary to appreciably expand the existing network.

There are obvious options if there are particular airfields across the Pacific islands that Australia considers crucial for HADR and which must be maintained. The airfields themselves could be subsidized or the air services into them – which by extension would see the airfields kept up. Subsidizing the air services means that both physical and people-to-people links are enhanced. In its own way, the US Civil Reserve Air Fleet (CRAF) is an example of subsidizing commercial airline services to maintain a certain air transport capability. CRAF's Stage I encompasses HADR requirements. Which Pacific Island

airfields might be worthy of supporting would depend greatly on the envisaged scenarios and anticipated use of C-27J, C-130J and C-17A aircraft.

In that regard, some Pacific Island regional airfields might be suitable to have a prepositioned cyclone-survivable airfield-in-a-box container that could be used in a HADR situation to quickly bring an out-of-action airfield up to an operational standard and then sustain it for a short period. Such a container might have equipment to clear an airfield of debris, emergency lighting, communication devices, generators, cargo handling and other potentially useful items. The container would then be accessed by local personnel working to make the airfield available for when the first HADR air transport flights arrived.

More expansively, the airfield-in-a-box container might include a small (1 metre wingspan) simple-to-operate mapping drone. This could take high-resolution aerial photos able to be converted on a laptop into orthomosaics and 3D models that reflected the damage the disaster has just inflicted.<sup>62</sup> These could then be digitally transmitted to HADR aircraft before departure or perhaps even while in flight enroute.

Such capabilities are however much more than the container hardware and would also need operating personnel to be trained and periodically exercised. This is a role that either the air element of the Pacific Mobile Training Team or a twinned RAAF Reserve unit could readily undertake and build excellent people-to-people relationships.

A major issue in operating aircraft across the Pacific Islands is fuel. Aircraft can only carry reduced payloads into islands without aviation fuel stocks as they need to be able to then fly to other islands that do. Fuel stocks however are problematical for smaller airfields being difficult to transport, store and then maintain at an adequate quality.

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62 SenseFly, *eBee Classic The Professional Mapping Drone*, <<https://www.sensefly.com/drone/ebee-mapping-drone/>> [Accessed 31 December 2019].

By 2040 the situation may be different given the significant work underway globally into electric aircraft. Ideally, the electricity needed to recharge the batteries of electric aircraft could be generated at the airfield or nearby using renewable means such as solar, wind or geothermal. An aircraft might arrive at a local airfield, be recharged and then turned.

Current expectations are that electric aircraft advances will mean that by 2022, small nine-seater passenger aircraft could be doing short-haul (500-1,000km) flights. Late in the decade, small-to-medium 150-seat planes could be flying up to 500 kilometres. Short-range (100-250 km) VTOL aircraft could also become viable in the 2020s possibly replacing helicopters in certain roles.<sup>63</sup>

On 10 December 2019, the world's first all-electric seaplane flew, beginning a two-year flight test program that aims to get the aircraft certified for commercial use. The program involves a Harbour Air DHC-2 Beaver floatplane with an electric engine developed by Australian company MagniX.

Harbour Air's ePlane project aims to electrify its complete commercial seaplane fleet beginning 2022, including de Havilland Canada DHC-3T Turbo Otters, DHC-6 Twin Otters and the Beavers. Harbour Air plans to electrify its Twin Otters with 750Hp MagniX engines, providing at least a 30-minute flight time (Harbour Air's requirement) plus a 30-minute reserve. A 30-minute flight is expected to require 30-minutes of battery recharging.<sup>64</sup>

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63 Jake Whitehead and Michael Kane, 'Get set for take-off in electric aircraft, the next transport disruption', *The Conversation*, 24 April 2019, <https://theconversation.com/get-set-for-take-off-in-electric-aircraft-the-next-transport-disruption-114178> [Accessed 17 May 2019].

64 Graham Warwick, 'Harbour Air And MagniX Claim First For Electric Aircraft', *Aviation Week and Space Technology*, 13 December 2019, <https://aviationweek.com/aerospace/harbour-air-magnix-claim-first-electric-aircraft> [Accessed 29 December 2019].

The Harbour Air fleet is similar in some respects to the small aircraft fleets currently used for local inter-island air movements in the Pacific region. Solomon Airlines for example has one Islander and two Twin Otters for its domestic services. Looking to 2040, if aircraft used domestically could be converted to electric power it might improve the commercial factors that presently constrain local inter-island air connectivity. Such a step would ensure airfields across the islands are developed and maintained assisting any HADR air operations that became necessary.

Downstream the prepositioned cyclone-survivable airfield-in-a-box container could include electric aircraft battery recharging equipment. Short-range flights could then bring in loads up to their maximum payload confident they could be recharged and fly out. However, such concepts may be most useful when drones are considered.

## **DRONE CONNECTIVITY**

Compared to manned aircraft, drones are semi-expendable, lighter, able to be of very unconventional design and, depending on type, be flown with less skilled pilots. This combination makes them dramatically cheaper to acquire and operate. There are some disadvantages however, including lower reliability, smaller payloads, shorter range, and sometimes a need for a larger ground infrastructure. Even so, for addressing the Pacific Island connectivity puzzle cargo drones offer much.

A variety of different cargo drones are being developed. In general they fall into two classes: a large cargo drone capable of carrying medium-sized payloads flying between secondary towns and small cargo drones capable of short range, low payload deliveries. In the Pacific Island case, it's possible to envisage a network where medium-sized communities on many different islands are interconnected through large cargo drones. Small cargo drones then would fan out

from these communities to the numerous smaller villages across the island. Somewhere in the network would be a major node with a conventional large airfield where manned aircraft flew in items, perhaps from international suppliers, for transshipment to the large cargo drones.

Importantly, at the moment cargo drones are for cargo only. There are numerous air taxi drones being developed but the technology involved at the moment seems inappropriate and too costly for Pacific Island usage. People movement in the Pacific Islands will continue to require manned aircraft for the foreseeable future.

The technology of large cargo drones is still quite immature albeit promising work is underway.<sup>65</sup> An indicative example is the Elroy Air Chaparral concept intended to enter initial service in 2021. The prototype hybrid-powered drone first flew in mid-2019 and features a 500km range and an ability be able to autonomously pickup and deliver a cargo pod with a 100-225kg payload capacity.<sup>66</sup> Separately, the Sabrewing company has signed an agreement with the Aleut Community of St. Paul Island off the Alaskan coast for drone cargo services starting in 2023 using 10 hybrid VTOL aircraft of two types, one carrying 350kg and the other 2000kg over ranges of several

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65 Jeremy Bogaisky (2019), 'Before Amazon Drops Packages On Your House From The Air, Drones May Start To Transform Air Cargo', *Forbes*, <https://www.forbes.com/sites/jeremybogaisky/2019/02/13/before-amazon-drops-packages-on-your-house-from-the-air-drones-may-start-to-transform-bulk-air-cargo/#d60773a72fa0> [Accessed 17 May 2019].

66 *Elroy Air, Elroy Air Successfully Completes First Test Flight of Large Unmanned VTOL Cargo Aircraft*, 28 August 2019, <[https://medium.com/@communications\\_71131/elroy-air-successfully-completes-first-test-flight-of-large-unmanned-vtol-cargo-aircraft-7abafcc815f4](https://medium.com/@communications_71131/elroy-air-successfully-completes-first-test-flight-of-large-unmanned-vtol-cargo-aircraft-7abafcc815f4)> [Accessed 19 December 2019].



hundred kilometres.<sup>67</sup> In Australia, the Defence Innovation Hub is exploring similar drone technologies that could undertake land force resupply missions with prototype demonstrations planned.<sup>68</sup>

In contrast, the technology of small cargo drones is considerably more advanced as a recent trial in Vanuatu highlighted. The requirement was to routinely transport cooled vaccines to nurses undertaking immunization programmes in remote areas, at times over high terrain.<sup>69</sup> Two drone types were trailed in early 2019: the German Wingcopter 178 on Pentecost Island and the Australian Swoop Aero Kookaburra drone on Epi and Erromango islands.

Broadly typical of such systems, the Kookaburra system is highly automated allowing ease of operation from a ground station of two laptops, a cellular modem/wifi station and a satcom connection. The VTOL air vehicle is electric powered and can deliver payloads of up to 2.5kg out to ranges of about 120km, fly in all-weather and in windspeeds up to 50kmph. The payload is normally delivered by landing meaning that a return payload can be placed in the drone, thus making the most of the two-way flight. The carbon-fibre air vehicle is designed to be made locally using 3D printers and fly using engines delivered in the mail.

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67 Woodrow Bellamy, 'Sabrewing Finds First Customer for Cargo EVTOLs in Alaska', *Avionics International*, 21 March 2019, <https://www.aviationtoday.com/2019/03/21/sabrewing-finds-first-customer-cargo-evtols-alaska/> [Accessed 18 May 2019].

68 Keirin Joyce (2019), '#SelfSustain – Breaking the (recent) paradigm', *The Central Blue*, <http://centralblue.williamsfoundation.org.au/selfsustain-breaking-the-recent-paradigm-keirin-joyce/> [Accessed 22 May].

69 Donald G. McNeil, 'An Island Nation's Health Experiment: Vaccines Delivered by Drone', *The New York Times*, 17 December 2018, <<https://www.nytimes.com/2018/12/17/health/vanuatu-vaccines-drones.html>> [Accessed 30 December 2019]

There are now an array of similar performance small cargo drones being trialled, mainly across Africa. The main discriminator seems to be overall system costs, complexity of the ground station, operator training required and the method of drone recovery, some simply drop their payload and then return to be caught in a complicated net. In this VTOL designs greatly simplify handling issues although with an impact on range. In Peru, trials have also been undertaken using off-the-shelf DJI hobbyist drones for medicine delivery. While very low cost and simple to operate, they are quite short range and capable only of low altitude flight.

A sophisticated drone network that incorporates different sized cargo drones implies that the nodes are droneports, hubs that handle large drones and from which small drones fly out and return to. Studies suggest medium sized communities could operate droneports that might feature suitable landing zones, drone 'piloting' facilities, recharging or refueling systems, maintenance and fabrication workshops, and cargo handling areas.<sup>70</sup> The Norman Foster Foundation which has examined droneport options in Rwanda advocates them becoming centres of local community life and including health clinics, post offices and an e-commerce trading hub.<sup>71</sup> Some droneports might also be suitable locations for Flying Labs, a local centre of excellence group involved in training drone operators, teaching STEM, supporting drone development, working with Civil

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70 'A look inside the world's very first droneport', *Liquid Telecom*, <<https://www.liquidtelecom.com/information-centre/innovation-blog/the-worlds-very-first-droneport.html>> [Accessed 24 December 2019]; J.M. Ledgard, 'Red Line Project: Cargo Drone Routes', *urbanNext*, <<https://urbannext.net/red-line-project/>> [Accessed 29 December 2019].

71 Ben Taub, 'Ideas in the Sky', *The New Yorker*, 16 September 2019, pp. 31-42, <<https://www.newyorker.com/magazine/2019/09/23/jonathan-ledgard-believes-imagination-could-save-the-world>> [Accessed 3 January 2020].

Aviation authorities and helping build local drone ecosystems. Flying Labs recently set up in Fiji and PNG.

Droneports and drone networks would considerably improve the poor connectivity many Pacific Island communities now have. In the Swoop trial a nurse in a remote village urgently needed medicine for a seriously-ill new mother. While only 40km away, given the difficult terrain this would normally be a taxing two-day trip but the medicine delivery took five minutes to approve and 20 minutes to arrive.<sup>72</sup>

In this example, the Swoop small cargo drones operated on a hub-and-spoke concept. Vaemali, where the hospital was located, was the hub for spokes emanating outwards to nine smaller communities. Adjoining Vaemali is the 900m-long Lampen Bay airfield where Air Vanuatu operates a Twin Otter into twice a week. This would seem a suitable location for a droneport although if a VTOL cargo drone was being used (like the Elroy system) it might be possible to locate it in the middle of the Vaemali community. In the late 2020s and certainly by 2040, it would seem possible for Epi Island to be part of a Vanuatu-wide large and small cargo drone network.

In the development and operation of such a network there would seem a place for the RAAF Reserve teaming concept briefly discussed in the last chapter. The node on each island would be a critical location for a HADR response to operate through. These nodes would have in place very useful logistic management processes, even if only small scale. The droneports might further feature a prepositioned cyclone-survivable airfield-in-a-box container to aid rapid node recovery. Moreover, the relationships built up on the island by the Reserve teaming approach would be invaluable in a crisis.

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72 Swoop Aero, New mother saved – critical medication delivery by self-flying aircraft, 20 September 2019, <<https://swoop.aero/2019/09/20/life-saving-emergency-delivery-autonomous-aircraft/>> [Accessed 29 December 2019].

In considering air power at the national level there is much that Australia could consider if seeking to enhance connectivity across and within the Pacific Island region. However, while manned aircraft and drone possibilities might be technically plausible, funding would be a major issue. The Australian government might need to advance sizeable sums and/or partner with other governments such as Japan or New Zealand.

Accepting funding issues, connectivity both physical and people-to-people is very important across all Pacific Island alternative futures. Improved connectivity is arguably in Australia's long-term national interest and could well be crucial in future HADR situations. Offsetting the costs somewhat would be that Australia's defence and aerospace industry in so devising droneports with integrated cargo drone networks would develop a commercially valuable product able to widely sold into markets worldwide.

National air power is the ability of a nation to achieve its objectives through the air domain and encompassing elements of civilian and military aviation.<sup>73</sup> Given emerging technology, bringing improved connectivity across the Pacific Island region is a strategically important objective that Australia's national air power could realistically achieve over the next two decades.

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73 The Air Power Manual, op.cit.

# CONCLUSION

The great disrupters of geostrategic competition and climate change have steadily pushed the Pacific Islands into embracing a new regionalism. Its central idea is that the islands should chart their own destiny; they must have agency. Driven by this, in late 2018 the 18 countries of the Pacific Island Forum signed the Boe Declaration. This seminal regional security document declares climate change is “the single greatest threat to...the people’s of the Pacific”; that the security environment is characterized by “multifaceted security challenges and a dynamic geopolitical environment”; that a collective approach to addressing threats is key; and that the Blue Pacific narrative underpins regional identity.

Australia, a Pacific Forum member, has seized the moment to focus on the region and implement a new strategy: the Pacific Step Up. This strategy’s objective, its ‘end’, is the relationship Australia has with the Pacific Island region. Australia’s Prime Minister sees this as “a relationship for its own sake” that “must be genuine, authentic and enduring” for this will then “grow...our standing and influence in the Pacific”. Reflecting this, Australia’s Department of Foreign Affairs and Trade advises those implementing the strategy that: “How we engage is just as important as what we do”. The instruments of national power are to be used in a manner that enhances Australia’s relationships with the Pacific Islands.

Australia’s new regional strategy plays to the nation’s strengths, just as the regional strategies of geostrategic competitors China and America play to theirs. In this, the Australian strategic focus on relationship building is quite different to the economic and security focus of the Chinese and US strategies respectively. Instead and

appropriately, it is in harmony with the Pacific Island Forum's Boe strategy of building a stronger regional identity and addressing security issues collectively.

Australian air power has long operated across the Pacific Islands with today's focus being Humanitarian Assistance and Disaster Relief (HADR) and maritime surveillance. For HADR, Australia has a significant and diverse military air transport fleet able at short notice to deliver supplies and skilled emergency service personnel to the Pacific Islands to help natural disaster recovery. With disasters frequent, HADR is well-practiced with large logistic support packages readily on-call. The maritime air surveillance role is somewhat different in continuing being developed, recently through outsourcing some activities to an American company. Today's surveillance is mainly centred on detecting illegal, unreported, and unregulated fishing and helping police the Pacific Island's exclusive economic zones. Aircraft are also available at short notice for search and rescue tasks if required.

In looking to the future, uncertainty usually dominates. Accordingly, in considering developing air power, stress is generally placed on investing in capabilities and capacities suitable for a range of possibilities not just a single scenario.

This designed-in adaptability is appropriate when thinking about how today's international system might have evolved by 2040. It may be the same but could also have fragmented, become more cooperative or developed into a complex network of states, corporation and non-government organisations. It seems unwise to base thinking about the future only on a single grand prediction – Chinese-US strategic competition. Instead four rather broadly conceived alternative futures seem plausible.

The same is not so for global warming which seems a clear-enough future for planning purposes. By 2040, the global temperature change compared to pre-1961 is estimated to be about +1.9C; it is about +1.1C now. Global warming will cause changes in cyclone intensity, fish movements, rainfall patterns and sea level rise.

The four futures suggest that the Pacific Islands as a coherent region working together collectively is an idea that will require considerable effort to sustain. Across three of the four futures, disintegrative forces threaten to fracture such regional cohesion whether from economic causes (networked), nationalism (fragmented) or great power politics (multi-polar). This appears reinforced by global warming's more severe weather events causing significant national-level damage and long-term climate changes impacting economic fundamentals such as fisheries and agriculture. Given the widely scattered nature of the Pacific Islands and their considerable differences, geography then reinforces these disintegrative forces.

The Pacific Island region will need to be robust to survive and as importantly thrive in a world of shocks. However, robustness is more than just reacting to bad events. It also implies recovering from the damage inflicted. In this, the place of the human security concept advocated by the Boe Declaration has a role to play. The concept envisages the combination of top-down protection of the people by the state and bottom-up empowerment by making the people more resilient. Both aspects need addressing.

Across the four futures, having a state able to carry out its duties effectively and efficiently is essential. Greater robustness can be gained if the state provides top-down good governance. Bottom-up empowerment is different. Most island communities are small and widely dispersed, possessing only limited capabilities and capacities. They need to have good connectivity so they can readily and reliably access support from others within the region or outside whenever and wherever needed. Such connectivity includes infrastructure like airfields, ports, roads and information technology but also the intangible people-to-people links. Broad and deep connectivity brings not just physical robustness but also the enduring social cohesion critical to recovery from disastrous events.

In considering governance from an air power perspective there are two principal areas: enhancing maritime security and helping

develop each states' defence and security capabilities, particularly as regards natural disasters. In looking to the future, the RAAF's new Sky Guardian unmanned air system offers considerable potential to better undertake inshore and exclusive economic zone maritime air surveillance roles, together with and search and rescue tasks. In this, using the Sky Guardian's unique forward operating base concept across the Pacific Island region could both significantly enhance system capabilities and build enhanced people-to-people relationships. There is though a revolution coming in peacetime maritime surveillance with the application to analysis of artificial intelligence, machine learning and big data. Australia could play an important part.

Beyond technology, an air element could be included in the new Australian Defence Force Pacific Mobile Training Team. Such an element could both advise and build relationships across the region. Such a concept could also be extended to RAAF Reserve units teaming with those organizations operating the airfields, emergency services and medical facilities that might be crucial in a HADR situation.

In considering connectivity, the two main alternatives relate to if the air vehicle is manned or unmanned. Manned aircraft operations in the Pacific Island region are constrained by limited adequate airfields, many of which are likely to be damaged in any disaster. They will need to be brought them back into service quickly to allow incoming HADR air transport aircraft bringing emergency personnel and supplies to land. For this, some Pacific Island regional airfields could have a prepositioned cyclone-survivable airfield-in-a-box container. Such a container might have equipment to clear an airfield of debris, emergency lighting, communication devices, generators, cargo handling and a small mapping drone.

In terms of aviation technology, electric-powered manned aircraft are being rapidly developed. The initial application might be in modifying aircraft types already in use for domestic services in the Pacific Island region. The use of electric aircraft for such services might



significantly lower costs, sharply improve inter-island connectivity and create a better regional airfield infrastructure.

Unmanned aircraft developments look promising. Looking to the 2030s, it's possible to envisage most Pacific Island countries having a domestic drone network where medium-sized communities on the many different islands most are comprised of are connected using large, medium-payload cargo drones. Small low-payload cargo drones would then fan out from these communities to deliver packages to the numerous smaller villages across each island. Large cargo drones are probably five years away but the individual island hub-and-spoke concept was recently demonstrated in Vanuatu by the Australian Swoop Aero company.

A sophisticated drone network that incorporates different sized cargo drones implies that the nodes are droneports, hubs that handle large drones and from which small drones fly out and return to. Studies suggest medium sized communities could operate droneports that might feature landing zones, drone 'piloting' facilities, recharging or refuelling systems, maintenance and fabrication workshops, and cargo handling areas.

Droneports and drone networks would considerably improve the meagre connectivity many Pacific Island communities now have. In the development and operation of such a network there would seem a place for the RAAF Reserve teaming concept. Connectivity both physical and people-to-people is very important across all Pacific Island alternative futures. Improving connectivity is arguably in Australia's long-term national interest and could well be crucial in future HADR situations.

The Pacific Island region has returned to the forefront of Australian strategic thinking with the new Pacific Step Up strategy. This refocus comes as Australia is reducing its two decade long efforts in the greater Middle East and US strategic doctrines are readjusting to China's rise. There is now much happening in the Pacific Island region with global warming, geostrategic competition, the new regionalism, the Boe

Declaration and more contending for attention. As today evolves into tomorrow and 2020 gives way to 2040 much will change. It is clear though that Australian national air power could play an important role for the better in such evolution. It's time to return the Pacific Island region to the forefront of Australian air power thinking.

## ANNEX A: THE 2040 PACIFIC ISLAND REGION - GEOSTRATEGIC FUTURES

In 2016, ADF planners imagined four alternative future international systems and published these in the Future Operating Environment 2035 (FOE 2035) document.<sup>74</sup> The advantage of using the ADF's framework is that the analysis can then be integrated easily with other studies using the same framework. Moreover, with the adoption by the UK MoD of the framework as well, this association can be extended internationally.<sup>75</sup> This utility flows both ways. As the framework is used more often for more studies these add extra complexity, depth and granularity to each of the four alternative futures. They then become more complete and much better described.

The FOE 2035 framework is rather general, and this brings both advantages and disadvantages, but it is useful for situating the Pacific Islands' uncertainties. The framework derives four alternative future worlds based on two broad uncertainties: firstly, states in the future may have more or less power in the international system and secondly, states in the future may be cooperative or competitive towards each

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74 *Future Operating Environment: 2035*, Canberra: Department of Defence, 2016, <https://www.cove.org.au/wp-content/uploads/2017/03/Future-Operating-Environment-2035.pdf> [accessed 23 May 2018].

75 *Global Strategic Trends: the Future Starts Today*, 6th Edn, UK Ministry of Defence: London, 2018, pp. 21-29.

other.<sup>76</sup> These uncertainties lead to four possible worlds labelled: multilateral, networked, multilateral and fragmented.<sup>77</sup>

#### MULTILATERAL FUTURE

In this alternative future, globalisation is on-going. States are the most important actors in the international system and are focussed on making absolute gains through cooperation. States are deeply engaged in strong regional and global multilateral institutions with the UN playing a particularly important role in global governance. There is a growing sense of global community with foreign aid, foreign direct investment and subsidies seen as preferred ways to help less developed countries. The emphasis on cooperation though means that to address problems there is a need to build consensus and this can be both difficult and time-consuming.

The Pacific Island region has strategic autonomy within a deeply inter-connected global system. It is a non-aligned region able to work with all. The PIF is now stronger and the region is now increasingly influential in a more important UN. The Blue Pacific collective identity is strong with the catchphrase being: “we can secure our future for ourselves.”

The Pacific Island's EEZs are managed under a shared sovereign stewardship concept that stresses ecological sustainability inline with traditional and spiritual wellbeing notions. The Islands have successfully secured their maritime baselines and outer limits of the

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76 These worlds were originally devised to provide strategic insights for the Netherlands Armed Forces policy development. See: *Future Policy Survey: A new foundation for the Netherlands Armed Forces*, Netherlands Ministry of Defence, 2010.

77 These worlds are explored in some detail in Peter Layton (2018), *Tomorrow's Wars: Insights From Our Four Alternative Futures*, Air Power Development Centre: Canberra.

Blue Continent under international law. The fisheries are delivering good employment and a useful national income stream albeit the equatorial islands now have noticeably smaller fish stocks because of their warmer seas. Countering this decline to some extent, undersea mining has been regulated to ensure fair access rights that financially benefit Island populations.

Unexpectedly, global warming has been held to 1.5C under a new international agreement.<sup>78</sup> This rise still brings considerable change to Pacific Island weather as the climate models predicted. However, plateauing at 1.5C has meant that the national and regional initiatives to adapt to climate change are succeeding. These cannot return the 'new normal' to that of the past, so there remain deep ongoing concerns over cyclone intensities, severe storms, saltwater intrusion and warming seas.

The cities and towns of the Pacific Islands are modernizing in a manner that makes them more resilient. The numerous communities on the remote outer islands remain vulnerable to natural disasters but manageably so, ensuring their populations generally feel safe and secure.

There is greater physical and virtual connectivity with the outside world and with each of the other islands that form the Blue Continent. Its citizens move freely, without passports, across a no borders oceanic continent. In this, the strong multilateralism both regionally and globally means that organized crime and its impacts is kept limited.

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78 It is worth noting that holding global warming to 1.5C could happen if a great power supported by its allies undertakes global geoengineering. This is another pathway to a 1.5C plateau rather than through international agreements, albeit geo-engineering has some significant issues. Adam Lockyer and Jonathan Symons, "The national security implications of solar geoengineering: an Australian perspective", *Australian Journal of International Affairs*, Vol. 73, Iss. 5, September 2019, pp. 485-503.

## NETWORKED FUTURE.

In the networked alternative future, globalisation is deepening. Non-state actors have become more important and now work with states to together make absolute gains. There are strong regional and global multilateral institutions, including a powerful UN. However, the participants are diverse and dissimilar ranging across states, large commercial organisations, civil society groups and non-government organisations. There is a broadly-based global governance regime, a strong sense of global community and a desire to solve problems through consensus.

Like most others, the Pacific Island region is semi-autonomous within a deeply inter-connected global system that features many consequential entities including states, corporations and dissimilar non-state actors. Profit not politics rule; economic growth is king. While the region is rhetorically non-aligned, this is now a somewhat obsolete term.

The PIF is now stronger and more powerful thanks to a greatly expanded membership that includes large corporations, NGOs and societal groups as full members not just observers. The Blue Pacific collective identity is strong as all see significant financial benefits arising from it. The PIF's focus is has shifted from islander wellbeing to giving islanders more economic opportunities. The catchphrase is "we can secure our future if we can turn a good profit."

The Pacific Island region has become noticeably wealthier but some complain that it is a harsher, neoliberal one with greater inequalities. The region is now economically well integrated including with Australia and New Zealand. Given the economic focus, the ecology is conceived as something to be exploited.

The EEZs are being made use of through shared partnerships that involve the Pacific Islands and the large corporations that can provide the necessary investments. This is proving efficient and effective in terms of maximizing the ROI for all involved. The Pacific Islands have

successfully secured their maritime baselines and outer limits of the Continent but this is conditional on allowing continued market access to resources. Undersea mining is underway under similar agreements that see market needs as dominant.

The networks involved across the Pacific island region are very complex and quite diverse. Many stakeholders and groups need to be onboard to allow new commercial ventures to proceed albeit the Island states are proving very good at negotiating amongst such networks. In contrast, managing networks composed of dissimilar state and non-state actors is challenging for China with its authoritarian political system. The regional economic dominance of China is declining.

The commercial imperative to halt the rise in global warming has motivated all but taking the required actions has taken time given all the actors involved. The climate in 2040 has reached +1.9C but is plateauing at that temperature and not increasing. The national and regional costs of adapting to climate change are high. There are noticeably more stronger cyclones and severe storms impacting all islands. For some, saltwater intrusion and warming seas are proving quite damaging albeit with a strong sense of global community useful foreign aid is being provided funding population relocation and for some islands land reclamation.

Cities and towns are quickly modernizing and including features to make them more resilient. They have greatly benefitted from better physical and virtual connectivity with world and with each other. Blue Continent citizens are able to move freely, without passports, across a no-borders oceanic continent.

There are worries however over the communities on the remote outer islands, which are noticeably poorer and less able to manage global warming. Without any commercial imperatives, the outer island communities have been economically left behind and have increasingly fragile communication links. Reacting to this, the outer islands of most states are quickly depopulating.

The hybrid global governance involving diverse entities has been able to limit the spread and impact of organised crime. Given the commercial focus, defence and security services are often contracted out. In general, the large corporations spread out across the islands have good self-interested reasons to take early actions themselves to dampen any emerging conflicts.

#### FRAGMENTED FUTURE.

In the fragmented alternative future, globalisation is declining. Conflict is persistent and widespread with non-state actors and states actively competing against other non-state actors and states. All see advantage in working with other states and non-state actors to advance their aims. The catchcry is 'the enemy of my enemy is my friend' with short-term, continually shifting alliances of convenience common.

The Pacific Islands are strategically irrelevant within a fragmented international system where only the most powerful count. The PIF is collapsing as each Pacific Island thinks only of itself. The Blue Pacific collective identity is replaced by a hard-nosed nationalism; the exhortation is 'my island first and foremost'.

In an international system characterised by zero-sum relationships, it has proven impossible to address climate change. National and regional initiatives to adapt to climate change have been helpful but insufficient. The climate in 2040 has reached +1.9C and remains increasing at the +0.4C/ decade rate.

The need to mitigate the impacts of the worsening global warming drives each Pacific Island towards those international partnerships and spheres of influence that can most help them individually. Each island state takes an unstructured and dynamic approach to foreign policy, prioritising gaining external resourcing over any collective interests. Resource extraction is accelerated to help support increasingly exposed and vulnerable economies. Bilateral agreements are favoured however,



most are short lived as countries chase better offers in pursuit of maximising their interests.

In this alternative future, each state tries to get from the Pacific Ocean as much as it can, if needs be by ignoring legal constraints. The Pacific countries all have unclear, imprecise and contested maritime baselines. The issues surrounding seabed mining in EEZs remains undetermined and so great powers are undertaking it regardless of the protests from small states. The per capita GDP of the Pacific Islands is in decline.

The region's towns and cities are unsafe and subject to rolling disasters with recovery prolonged and uncertain. The communities on remote outer islands are in sharp decline with people and businesses shifting to urban centres or, if they can in this time of strident nationalism, to outside the Pacific region. Many people are seeking refuge from the impacts of climate change and migrating to more habitable locations on other islands. This considerable population turbulence puts societal cohesion at risk across all the islands.

With the Pacific Island region now of little import, connectivity to the wider world declines. There are now fewer air services and decreased shipping making the movement of people and goods harder. There is increasing border control to limit people movements and restrict efforts at migration. Matching this in the virtual world, cyber connectivity globally and within the region is becoming increasingly fragile. Without adequate inter-state cooperation, organised crime is spreading and increasing in capabilities and capacities. In some small states, their monopoly on the means of violence is being eroded.

#### MULTIPOLAR FUTURE

In the multipolar world, globalisation is splintering, shaped by intense great power competition. Seeking security, small states and middle powers now cluster around these great powers in various types

of blocs and alliance structures. The great powers are focussed on improving their bloc's relative power, strength and influence. The great powers may then at times offer military, economic and diplomatic inducements to attract lesser states to leave existing blocs and join theirs.

The Pacific Islands have little autonomy, instead within a multi-polar world most decisions are made by the great powers running each bloc. The Pacific Islands have minimal agency, being expected to do as told and be grateful for external funding support. The PIF has fractured into several smaller regional organizations, each part of a competing bloc and lead by them. The Blue Pacific in terms of being a collective identity has collapsed. The catchphrase is now "we do as we are told."

In this alternative future, Pacific Countries emphasise bilateral relationships with specific global powers and become less able to leverage regionalism as a tool. These relationships define respective climate change responses with differing degrees of success. Some countries face pressure to accelerate their integration with global powers and act to align their interests.

Pacific countries have secured their maritime baselines and outer limits only on a bloc-by-bloc basis. The blocs determine the management of their Pacific Island members' EEZs. While intra-bloc trade is maintained, trading outside of the blocs is limited. Similarly, financial flows between the blocs is strictly controlled.

PIC economies are defined and influenced by their bloc relationships. A two-speed economy emerges within countries as distinct local and offshore business interests develop in parallel. Countries act as buffer zones for geopolitical interests and receive passive income in exchange of property rights. Some Pacific Island states do well; some do not.

The formation of the blocs, and the competition between them, prevents international efforts to address on global challenges. Measures to limit climate change are unsuccessful. The climate in 2040 has reached +1.9C and remains increasing at the +0.4C/ decade rate.

Adapting to global warming is seen as an individual state issue and not a bloc or global concern.

Pacific Island development is generally in accord with bloc needs. The urban areas grow as outer communities gradually decline as global warming worsens. Many Pacific islands become under-populated, with waves of migration of young people to the larger bloc countries. The Pacific Islands' demographically are rapidly ageing. Citizens of each bloc can move around their bloc relatively easily but much less so outside. Security has a high priority and consequently the free flow of goods, information and people is limited beyond the bloc borders. There is good physical and virtual connectivity within each island's own bloc but not so outside. Of real concern, organised crime is used by each bloc as an instrument of hybrid and covert interference, with the aim of exploiting vulnerabilities and undermining opposing blocs.





# Australia's New Regional Context

## Pacific Island Futures and Air Power Possibilities

In the Australian strategic consciousness the Pacific Islands loom very large. There is more than two hundred years of history including seminal moments such as capturing German New Guinea in World War I, fighting the Imperial Japanese Forces in World War II and the Regional Assistance Mission to the Solomon Islands in 2003.

Today there are three significant issues driving Australian strategic thinking about the Pacific Islands: geostrategic competition, climate change and a new Pacific Island regionalism. Australia has seized the moment to refocus on the region and implement a new regional strategy, the Pacific Step Up. This plays to the nation's strengths and is in harmony with the 2018 Pacific Island Forum's Boe Declaration on Regional Security.

This forward-looking paper moves from today's national and regional strategies to 2040 with its possibilities for myriad outcomes and alternative futures. The paper argues that emerging aerospace technologies, human security constructs and different organisational concepts could combine to enhance Australia's Pacific Step Up strategy in the future. Air power is not usually discussed in terms of human security. However, in the Pacific Island case reality intrudes and, perhaps surprisingly, air power has much to offer.

