

Being prepared for unprecedented times

National mobilisation
conceptualisations and
their implications

Peter Layton

82.4
821.21
235.654
789.05
3256.124
124.3258
455.287
747.258
159.387
483.218
553.3259
982.564
853.3269
95.524

0467-248
947-209
959-387

BEING PREPARED FOR UNPRECEDENTED TIMES

National mobilisation
conceptualisations and
their implications

Peter Layton

About the Griffith Asia Institute

The Griffith Asia Institute (GAI) is an internationally recognised research centre in the Griffith Business School. We reflect Griffith University's longstanding commitment and future aspirations for the study of and engagement with nations of Asia and the Pacific.

At GAI, our vision is to be the informed voice leading Australia's strategic engagement in the Asia Pacific—cultivating the knowledge, capabilities and connections that will inform and enrich Australia's Asia-Pacific future.

We do this by: i) conducting and supporting excellent and relevant research on the politics, security, economies and development of the Asia-Pacific region; ii) facilitating high level dialogues and partnerships for policy impact in the region; iii) leading and informing public debate on Australia's place in the Asia Pacific; and iv) shaping the next generation of Asia-Pacific leaders through positive learning experiences in the region.

Visit us at: www.griffith.edu.au/asiainstitute

About the publication

This paper has been developed with the support of the Directorate of Mobilisation, Force Design Division within the Australian Department of Defence. Mobilisation involves civil society, emergency services and all levels of government. The sharing of the research undertaken aims to encourage informed community debate.

Disclaimer: The views expressed in this publication are the author's own and do not necessarily reflect the views or policies of the Australian Government or the Department of Defence, or any part thereof. The Commonwealth of Australia will not be legally responsible in contract, tort or otherwise, for any statements made in this document.

'Being prepared in unprecedented times: National mobilisation conceptualisations and their implications'

© Griffith University 2021

ISBN: 978-1-922361-13-4 (print)
978-1-922361-12-7 (online)

Photography: Images sourced from Shutterstock and Defence Image Gallery <https://images.airforce.gov.au/>



ABOUT THE AUTHOR



Dr Peter Layton is a Visiting Fellow at the Griffith Asia Institute, Griffith University and an Associate Fellow at the Royal United Services Institute. 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.

Peter has a doctorate from the University of New South Wales on grand strategy and has taught on the topic at the Dwight D Eisenhower School for National Security and Resource Strategy, US National Defense University. For his academic work, he was awarded a Fellowship to the European University Institute, Fiesole, Italy.

Peter's research interests include grand strategy, national security policies particularly relating to middle powers, defence force structure concepts and the impacts of emerging technology. 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.

Peter's publications may be accessed at:

<https://peterlayton.academia.edu/research#papers>



CONTENTS

Executive summary	7
Introduction	9



Chapter One

THE MOBILISATION BIG PICTURE	12
Australia's mobilisation drivers	14
General mobilisation principles	17
Mobilisation timings	18



Chapter Two

AGENCY DRIVEN MOBILISATIONS	20
Agency driven mobilisation: Strategy conceptualisation	21
Conclusion	27



Chapter Three

EVENT DRIVEN MOBILISATIONS	28
Risk management conceptualisation	30
Resilience conceptualisation	35
Opportunism conceptualisation	37
Conclusion	39



Chapter Four

CONCEPTUAL COMMONALITIES AND FUTURE INVESTMENT POSSIBILITIES ..	40
Second horizon investment: Mobilising and protecting people	43
Third horizon investment: People-centred mobilisation planning	46



Chapter Five

A PAPUA NEW GUINEA PEOPLE EXCURSION	49
Mobilisation: Strategy conceptualisation	50
Mobilisation: Resilience conceptualisation	52
Conclusion	54
Notes and references	56

EXECUTIVE SUMMARY

2020 was a year of unprecedented problems that highlighted countries' need to improve managing their responses to crises and disasters. Part of doing so is to be better prepared, and for this the idea of mobilisation is useful. National mobilisation involves using a society's resources to achieve national objectives in a time of conflict, competition, crisis or disaster. Such a description by intent is all-encompassing, pitched at the national level and implies mobilisation could be used to seize opportunities, as much as to react to catastrophes. It is also a bit ambiguous.

At the lower-down, subordinate organisational level, this broad perspective translates into specific actions that usefully narrows down what mobilisation means in a functional sense. Mobilisation is the act of generating additional capability and capacity beyond an organisation's current scope and scale by redirecting its workforce, and re-allocating or re-purposing the organisation's, governmental, commercial or societal resources. Mobilisation is not about using power to solve a problem, but rather concerns increasing existing power to the higher levels needed in specific times of conflict, competition, crisis or disaster.

The future is always uncertain, and this makes mobilisation planning hard. There are many different problems for which Australian mobilisations might be undertaken, ranging from national security worries of major and minor wars, to human security issues of bushfires, floods and pandemics. Adding to the difficulties, the scale of future problems is unknown, with Australia's history and climate projections suggesting multiple problems will occur simultaneously in the future.

Conceptually, national level mobilisation problems can be addressed using four different problem solving methodologies: strategy, risk management, resilience and opportunism. Strategy is agency driven and involves purposefully taking actions to try to shape the future in some way; an example is Australia's Pacific Step Up. Risk management is event driven and aims to reduce the damage arising from a foreseen, potential event if it transpires; an example is bushfires. Resilience is also event

driven but aims to absorb the shock of an event and then expedite recovery; an example is post-cyclone recovery. Opportunism is again event driven and aims to take actions that exploit a window of opportunity, as in Australia's response to the 2011 Japanese earthquake. The mobilisation response needed in each is fundamentally different.



Royal Australian Air Force C-27J Spartan pilots from No. 35 Squadron, work in arduous conditions as they assist evacuees during the bushfires in Mallacoota, Victoria. (Defence Image Gallery | FLTLT Luke Georgeson)

One mobilisation approach does not fit all circumstances. However, strategy, risk management, resilience and opportunism when compared and contrasted, reveal commonalities, not just differences. Both are noted in the accompanying Table and in the brief discussion below.

In all approaches, the eight general mobilisation principles and the managerial and market practices (explained in the report) can be usefully used in planning. Similarly, all approaches can involve the whole-of-society, although with strategy and opportunism this is often only partial and as the government decides. Risk management and resilience are subtly different in that all Australians are exposed to risks irrespective of actions they take; the COVID-19 pandemic highlighted that no one has a choice in not participating.

In terms of the organisation of a mobilisation, the national government leads in strategy and

opportunism. This means that the organisational structure for mobilisation in both these approaches is centralised, vertical and guided from the top down. In contrast, mobilisations associated with risk management and resilience have a more distributed, horizontal and bottom up structure. These approaches concern nation-wide problems that are much larger than the resources easily available. Accordingly, burden sharing is embraced with responsibilities distributed across a range of lower-level stakeholders. For the national government, the primary responsibility in national risk management and resilience is the coordination down and across the various layers of government and the wider society.

Importantly, there is a distinct difference between the four conceptualisations concerning when Mobilisation-Day (M-Day) is. For strategy and risk management, it is before the event occurs and for resilience and opportunism it is after. This distinction however hides a significant issue. Strategy is agency-driven and thus a strategy's mobilisation timing is a government decision. Accordingly, in general terms, only risk management requires perpetual preparedness and related mobilisation planning and activities. Strategy, resilience and opportunism can be prepared for either as government requires, or as events dictate. Preparedness for them, and their associated mobilisations, can therefore be considered periodic not continuous and enduring.

Areas of commonalities become important when considering investing in mobilisation planning and implementation. A major commonality in a resource central to all mobilisations is people. Material resources are common to all but of such diversity as to be generally specific to the context of each particular mobilisation. The shared people aspect suggests areas where research, experimentation and limited investment might improve future mobilisation planning and execution. Three areas appear promising: societal mobilisation, population protection and a re-conceptualisation of mobilisation that moves from today's material-centred approach to a people-centred one.

In considering people as a resource, Australia has historically always been short of people for its workforce during periods of mobilisation. Papua New Guinea however has a fast-growing population, some of whom form part of today's Australian agricultural production workforce. The growing demand for military forces to undertake humanitarian and disaster relief operations suggests that Australia and Papua New Guinea could work together to improve regional resilience against natural disasters. The key mobilisation resource needed for this is people. Papua New Guinea, and to a lesser extent Fiji and the other Pacific islands, might potentially be able to address this shortcoming in regional preparedness in these unprecedented times.

Table 1. Mobilisation aspects

MOBILISATION ASPECTS							
Problem solving conceptualisation	Example	General principles and managerial/ market approaches relevance	Whole-of-society involved in mobilisation	Federal government role in mobilisation	Mobilisation organisational structure	Level deciding mobilisation resource allocations	Mobilisation Day (M-Day)
(M-Day)	Pacific Step Up	Yes	Selective	Lead	Centralised/ vertical	Federal government	Before event
Risk management	Bushfire	Yes	Yes	Coordinate and participate	Spread responsibility / distributed / horizontal	Distributed	Before event
Resilience	Cyclone	Yes	Yes	Coordinate and participate	Spread responsibility / distributed / horizontal	Distributed	After event
Opportunism	2011 Japanese earthquake / tsunami	Yes	Selective	Lead	Centralised/ vertical	Federal government	After event

Source: Peter Layton, Griffith University.

INTRODUCTION

*‘Unprecedented is not a reason to be unprepared.
We need to be prepared for the future.’¹*

Mark Binskin, Chair,
Royal Commission into National Natural Disaster Arrangements

In 2020 the word “unprecedented” was so often used as to become both grating and a word of the year.² It was a time of unprecedented trials and tribulations that highlighted countries in the modern era needed to get better at managing calamities. National policymakers have now become more interested in their nations being much better prepared for possible future misfortunes. The range of such possibilities is though dauntingly large. A conceptual framework is needed that is broad enough to cover the diversity of potential scenarios but narrow enough to be useable by busy, time-stressed policy makers considering disaster response options.

This report works through such a conceptual framework. This comprises four elements: strategy, risk management, resilience and opportunism. Such a framework is useful not just for being prepared to respond to disasters but also to be prepared to exploit crises. A nation would ideally come out of a crisis or disaster better placed, rather than worse.

The framework is accordingly useful both to react to events and to shape them. This has value given that there are overlaps in terms of preparedness between good and bad circumstances, and it is more efficacious for time-poor policymakers to use a single framework rather than multiple.

Preparedness can mean ‘arrangements to ensure that, should a crisis occur, the required resources, plans, capabilities and services can be efficiently mobilised and deployed’.³ Such a definition has some shortcomings when considering issues other than crises, seems aimed at the in-the-field level of response to a problem rather than at the national policymaking level, and implies a short term, quick reaction focus. Moreover, this understanding of preparedness is not meant to be all-encompassing, instead being simply one element in a continuum of prevention, preparedness, response and recovery.

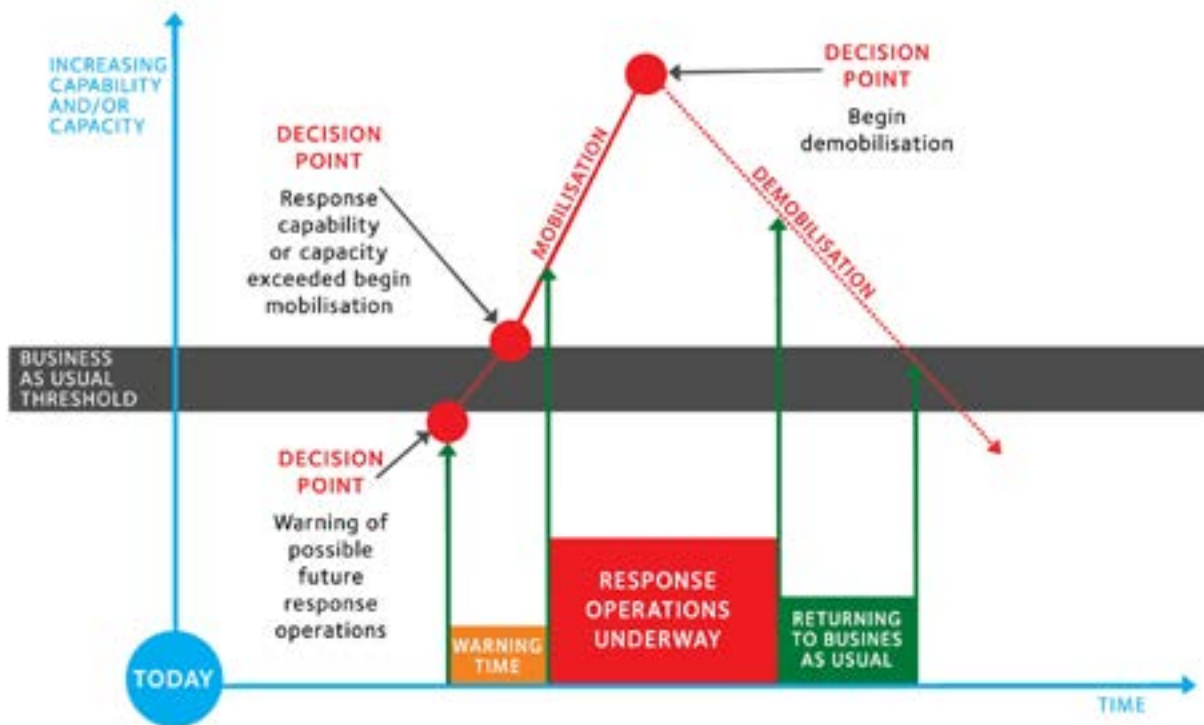
Accordingly, the term mobilisation is used instead in this report, and as modified by adding the adjective national. National mobilisation is defined as purposively using a society’s resources to support achieving national objectives in time of conflict, competition, crisis or disaster. This definition by intent is all-encompassing, directed at the national level and implies a mobilisation could be used to seize opportunities as much as react to catastrophes.



Royal Australian Air Force Medical Assistant from No. 1 Expeditionary Health Squadron explains the COVID test to a member of the public at the Melbourne Showgrounds. (Defence Image Gallery | LAC John Solomon)

A further, more specific understanding of “mobilisation” can be gained by stepping down from the national level to the subordinate, individual organisation level. At this level, the national mobilisation perspective translates into specific actions: mobilisation is the act of generating additional capability and capacity beyond the organisation’s current scope and scale by redirecting workforce, and re-allocating or re-purposing organisational and other governmental, commercial or societal resources.⁴ Figure One below illustrates this dynamic.

Figure 1. Specific mobilisation actions to generate additional capability and capacity beyond the organisation's current scope and scale



Source: Peter Layton, Griffith University.

Mobilisation accordingly involves building the additional power needed in times of conflict, competition, crisis or disaster. Mobilisation is not about using this power but rather about boosting the existing power to the higher levels needed in particularly dangerous and difficult times. In this, “power” involves the tangible and the intangible and is used here to simplify the argument; power in itself is a much more complex idea.⁵

Mobilisation is a generic term, however discussions can be more detailed, relatable and pertinent if a particular nation is the central focus. This report focusses mainly on Australia given its long experience of calamities of all shapes and forms, whether caused by natural or human means. Importantly, the year 2020 highlighted that such disasters can be overlapping and successive as catastrophe after catastrophe followed, one disaster after another. The impact of a severe drought was magnified by very large-scale bushfires; some were then doused by extreme rain events that brought wide-spread flooding; the COVID-19 global pandemic arrived impacting nation-wide and hindering disaster

recovery efforts and internationally China subjected Australia to focussed on-going economic coercion.

Such misfortunes are not unique. Australia lies within the most-disaster prone region in the world with almost half of the world’s natural disasters occurring within it. Moreover, the United Nations assesses that ‘the disaster risk gap between the Asia-Pacific region and the rest of the world is growing’.⁶ This was also the deduction of the recent Australian Royal Commission into natural disasters with its Chair declaring that ‘what was unprecedented is now our future’.⁷ Within the Asia-Pacific region, the South Pacific stands out as being particularly worrying.

The latest World Risk Index ranks the Oceania region at greatest disaster risk worldwide. Indeed, of the 181 countries assessed globally, Vanuatu is the country with the highest disaster risk. There were several others in Oceania also at considerable risk; compared against the world, the index placed Tonga (second), Solomon Islands (fifth), Papua New Guinea (eighth), Fiji (fifteenth) and Kiribati (eighteenth). By way of comparison, New Zealand is ranked 114 and

Australia 124.⁸ Such assessments raise deep worries with a recent study raising 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 efforts significantly delayed, which is likely to result in a dire humanitarian crisis.⁹

Such considerations make good national level policymaking on disaster management an imperative. National mobilisation is an important issue for all. In this, the Australian case is of special utility in covering not just natural disasters, but also man-made ones such as wars.

The first chapter sets the scene in examining the threats driving current mobilisation concerns, some general mobilisation principles and the relationship of time to mobilisation. The second chapter looks at mobilisation under certainty, that is when a mobilisation is pre-planned and undertaken to provide the resources necessary for a defined activity at a specified time. This type of mobilisation is a useful way to illustrate some general mobilisation issues germane to all types of mobilisations. The conceptualisation used to address problems of certainty is strategy. This chapter develops four generic mobilisation types appropriate to the strategy approach, differentiated by time and whether a managerial or market approach is used.

The third chapter discusses mobilisation under uncertainty, in particular risk management, resilience and opportunism. Each of these conceptualisations is different to strategy in reacting to events not shaping them. The choice of which to use to solve a problem is driven by the type of problem encountered. Importantly, each conceptualisation uses a different mobilisation approach.


Combined Chapter's Two and Three discuss the different mobilisation approaches used across strategy, risk management, resilience and opportunism. One mobilisation conceptualisation does not fit all however, the four approaches can be compared and contrasted to find commonalities and differences.

Chapter Five does this but goes somewhat further. In determining the major commonality of people, the chapter suggests areas where research, experimentation and limited investment might improve future national mobilisation planning and implementation. This chapter highlights three areas: societal mobilisation, population protection and the possibilities of taking a people-centred approach to mobilisation.



Royal Australian Navy personnel, use Computer Aided Design to develop ideas at the Centre for Innovation, Fleet Base East in Sydney. (Defence Image Gallery | POIS Yuri Ramsey)

Chapter Six takes an excursion into Papua New Guinea (PNG) from a mobilisation perspective. Australia once governed PNG and during World War II included the country in its national mobilisation, in particular in terms of people. PNG could be important again in a future Australian national mobilisation but in a different manner that the COVID-19 pandemic has highlighted: managing the enduring shortfalls in Australia's agricultural workforce. If that concept relates to the strategy conceptualisation, PNG and Australia could also, and arguably rather more importantly, work together to improve regional resilience, especially to natural disasters. In this way, the national mobilisation conceptual framework may, in a small way, contribute to addressing Oceania's greatest risk.



*Australian Army Commanding Officer
2nd Combat Engineer Regiment, inspects
a village being repaired by the Australian
Army engineers on the island of Koro, Fiji
as part of Operation Fiji Assist. (Defence
Image Gallery | LSIS Helen Frank)*

Chapter One

THE MOBILISATION BIG PICTURE

Across most of the 20th Century, with its two great hot wars and one major cold war, the dominant concern driving mobilisation was generally national security. After the Cold War ended and geopolitical tensions eased however, the concept of security broadened significantly so as to incorporate societal and environmental dimensions. There was shift of focus from security being solely about the nation state to now including human beings and humankind. Human security strove to become co-equal to national security.¹⁰

Importantly, the return of geo-strategic tensions over the last decade has not seen the human security concept depart and the national security model return to dominance. Instead, human security as a concept remains in use with a recent example being the 2019 Boe Declaration agreed to by Australia, New Zealand and sixteen other Pacific island states.¹¹

Human security's retention is because the perceived threat spectrum has broadened. National security fitted a time of discrete nation-states with hard borders, but deep globalisation has undermined this paradigm. Distinctions made in earlier times between the domestic and the international have broken down 'as a result of advances in technology, communications and finance; the rapid movement of data; the mass movement of people; ever-changing global supply chains; and much more besides'.¹² Moreover, some threats are now only solvable at the international system level rather than at the level of individual states, with global warming a major exemplar. Indeed, the broad impact of global warming across the South West Pacific significantly influenced the Boe Declaration's adoption of a human security framework.

Both national and human security are now mobilisation drivers, as combined they cover the full range of concerns. This goes beyond mere descriptive utility though, in also suggesting what national mobilisation encompasses in the modern era. It is all-of-society, from the individual level to that of the national government, and not just a concern of one or more departments of state.

Modern notions of mobilisation developed in the First World War. This was a new style of conflict that was not just between armies but rather between whole nations. This was a total war that necessitated

governmental direction, organisation and control of the societies and economies involved. The Second World War took this broad, cross-societal mobilisation and gave it depth. Ilya Ehrenburg called it "deep war", a time when the demands of making war went deep into the social fabric and into people's lives.¹³ Conflict, and the mobilisation it required in response, now impacted and involved not only the state but the people of the nation. The intermingling of national and human security is apparent.



Australian Minister for Foreign Affairs, Senator the Hon Marise Payne, and the President of French Polynesia, Édouard Fritch, leave commemorative handprints to mark the signing of the Boe Declaration for Regional Security Cooperation on 5 September in Nauru. (Minister for Foreign Affairs, Minister for Women | Nicholas Flack)

This history means that mobilisation in its modern meaning initially emerged associated with military issues, even if it principally concerned a military's parent society. In this, the role of the military in society has considerably broadened in recent years. Accompanying the end of the Cold War and the emergence of human security was a global increase in the use of military forces in domestic and international humanitarian assistance and disaster relief (HADR) missions. This trend has steadily deepened, some argue for not just humanitarian reasons but also for geostrategic rationales.¹⁴

Military forces are now as deeply involved in domestic and international crises and disasters as in their more traditional roles in conflict and geo-strategic competition. In the COVID-19 pandemic for example, many states have deployed their armed forces to support large-scale national health efforts. This military involvement in crises and disasters



Victoria Police and the Australian Defence Force work side by side during Exercise Austral Shield 2019. (Defence Image Gallery | CPL Jessica de Rouw)

seems likely to deepen, with some even suggesting middle powers acquire dedicated hospital ships for use by their navies in future HADR operations.¹⁵

Mobilisation may have been linked with the military initially, but the military's societal functions have shifted making the early military connotations of decreasing relevance. The civil and military domains are now more intertwined than ever before. This chapter's first section discusses national and human security with a particular focus on the Australian context; the second section lays out some general mobilisation principles derived from a historical analysis; and the third section considers mobilisation timings.

AUSTRALIA'S MOBILISATION DRIVERS

National security

National security in the Australian context was recently usefully defined by the Secretary of the Department of Homeland Affairs:

... national security has a particular meaning, insofar as it [is] concerned with a narrower but significant scope of security – namely the security and defence of the nation-state, whether against military attack, or actions by states and non-state actors which transgress the political independence, sovereignty and integrity (including the territorial integrity) of the nation-state. In this sense, a nation is secure when it does not have to sacrifice or compromise on its national interests in order to avoid war or armed aggression, and is able to protect those interests by engaging if necessary in the use of force.¹⁶

The focus being constrained solely to a state and its interests is notable. The unit of analysis is the single nation-state, rather than say alliances, domestic societal groups, local communities or individuals. Similarly, the stress on defending the state against military attack using force if necessary is central to the national security concept.

The lack of a plausible military threat to Australia has been constant in public governmental documents and classified strategic thinking for some fifty years, but no more.¹⁷ The 2020 Defence Strategic Update ominously declared that 'a ten-year strategic warning time for a major conventional attack against Australia...is no longer an appropriate basis for defence planning'.¹⁸ The Australian Defence Force (ADF) must now be prepared to meet short-notice crises that carry risks of major inter-state war. This possibility has clear implications for mobilisation.

Importantly, the ADF will now become involved in countering grey-zone activities, those antagonistic actions conducted below the threshold of armed conflict. In most circumstances, these may involve only single units for a brief period and so mobilisation will not be necessary, although there are definite risks of escalation that could alter this assumption.

Moreover, grey zone activities can also include cyber-attacks that can potentially cause significant disruption across society. There were, for example, in the first-half of 2020 large-scale malicious cyber intrusions across Australian society by a major state actor.¹⁹

Rising geo-political tensions may also cause economic disruptions on a national scale. These may include sudden supply chain interruptions or even severe economic turbulence arising from an armed conflict between the US and China. Regarding the possibility of the later, an investment analyst writing in the Australian Financial Review, and noting no one in 2019 forecasted a global pandemic, opined that:

Our central tail-risk ... is the possibility of a bona-fide military conflict between the US and our irritable trading partner up north. That probability has leapt from circa 10 per cent a decade ago to as high as 50 per cent in 2021 according to our internal estimates and those of our most accurate geo-political advisers.²⁰

Human security

Human security is a relatively new concept sometimes not fully understood. The idea has been extensively developed and applied by the UN. Such conceptions of security focus primarily on the safety of nation-states from military aggression. Human security complements this traditionally dominant perspective by concentrating on the safety of individuals and their communities. In this, human security does not replace national security, instead: 'human security and state security are mutually reinforcing and dependent on each other. Without human security, state security cannot be attained and vice versa'.²¹

The principal human security threats appropriate to Australian mobilisation matters are those concerning weather-related events like cyclones, floods and bushfires. A study found 94 per cent of Australian natural disasters across 1966-2017 were weather-related; other environmental threats such as earthquakes and tsunamis were comparatively rare.²²

Australia's natural disasters are most challenging, and by implication most likely to involve mobilisation, when they compound. The term "compound disasters" encompasses: two or more extreme disaster events occurring simultaneously or in close succession; extreme event combinations where the underlying conditions amplify the impact; or event combinations of non-extreme events that collectively have an extreme impact.²³

A historical analysis over almost 120 years determined that Australia has compound disasters on average every two years. On average, each compound disaster consisted of five component disasters with a maximum of 19, most impacted multiple Australian States and the time from the first disaster to the last averaged about three months. Importantly, about half the compound disasters occurred in conjunction with at least one longer-term stressor, that is war, pandemic or recession. War was the most frequent stressor.²⁴

Most compound disasters occur in the Eastern states, with NSW and Queensland the most frequent pairing. As seasonal conditions might suggest, most compound disasters occur during the November to January period. Some can be lengthy. The 2019-2020 bushfire compound disaster commenced in July 2019 and was not declared over until 31 March 2020. This was then immediately followed by the COVID-19 global pandemic.



The Honourable Marise Payne and Chief of the Defence Force, Air Chief Marshal Mark Binskin, AC, fly to HMAS Choules in an Army MRH-90 helicopter during Operation Queensland Assist 2017. (Defence Image Gallery | CPL David Said)

Looking to the future, the historical trendlines are expected to continue and probably worsen. Scientific assessments warn that global warming will exacerbate traditional weather-related natural disasters, not reduce them. Moreover, it will take a long period before global warming gases dissipate.

The CSIRO considers that regardless of any future efforts to reduce global warming gases it is now 'more a matter of stabilising rather than returning' to earlier climatic conditions.²⁵ The Australian Academy of Science and BHP independently consider that on present trends and under current agreements, global warming will plateau around +3°C by mid to late century.²⁶ In comparison, global temperatures are today about +1.1°C above the average in the late 19th Century.



Bushmaster Protected Mobility Vehicles from 3 Combat Engineering Regiment are parked at Lavarack Barracks in Townsville ready to be deployed to areas of Queensland affected by Tropical Cyclone Debbie. (Defence Image Gallery | CPL David Said)

Consequently, extreme weather is expected to become more frequent and intense, particularly as cyclones will now impact the east coast of Australia progressively further south. In this, catastrophic fire conditions may become more common, rendering traditional bushfire prediction models and firefighting techniques less effective.²⁷ The overall impact in human security terms is that there are likely to be natural disasters that are national in scale and consequence.

Importantly, compound disasters are likely to become more common, both due to global warming, but also from amplifying the recent changes in Australian society, population distribution and infrastructure interdependences.²⁸ Compound disasters impacting different locations can cause problems through fragmenting response and recovery capabilities into less-effective "penny packets". On the other hand, when compound disasters strike the same location, recovery is slowed. The disasters' impact is magnified due to already weakened support systems and in preventing response and recovery capabilities rapidly regenerating to meet the next disaster.²⁹ In both circumstances, mobilisation may be quickly needed to provide the scale of resources needed to address the situation.

National and human security threats

In the Australian case, a distinction between national and human security threats is more an abstract than real one. Both types of threats will at times inevitably overlap, compete for resources and require hard trade-offs. In this, the national security threats may in time wax and wane as they have done historically. For example, some perceive the danger of a US-China war will decline in the 2030s.³⁰ In contrast, the dangers from global warming to human security are expected to worsen into the foreseeable future.

Moreover, society is becoming more complicated with numerous interdependent essential services. Natural disasters and national security threats could potentially combine creating a cascading disaster. These are often described as toppling dominos, where once triggered, set off further events with impacts that can be both non-linear and distant to the triggering event.³¹ For example, a compound natural disaster occurring in conjunction with a wide-spread cyber-attack that interferes with Australia's food, water and energy networks could have wide-ranging consequences across communities, businesses, governments and the economy.³²



GENERAL MOBILISATION PRINCIPLES

As part of addressing national and human security threats, mobilisations of varying types and scale may be undertaken. While these future mobilisations will differ based on the context, there are some general mobilisation principles derived from historical cases that can inform thinking.³³

Mobilisation considers all national resources. The intent behind a mobilisation is the effective and efficient use of all resources available to the nation. In a conceptual sense, the nation has a certain total amount of resources that can be split between that needed for the civil sector and that needed to respond to an event. In times of crisis, disaster, competition and conflict more will be allocated than normally to the response capabilities and accordingly be transferred from the civil sector. In effect, mobilisation involves simply moving the resource boundary between the civil and the response sectors; one increases the other decreases. This means that the key mobilisation question that the political leaders of any country must answer is: how much of the civil sector's resources should be reallocated to responding to the event of concern?

These resources could include workforce, transportation, equipment, health support, facilities, the industrial base, expanded skills training, communications, legislative issues, and funding. The type and quantity of such resources allocated will vary depending on high-level decision-makers' assessments of the problem.

Mobilisation involves international resources. National mobilisation in no way implies autarkist policies. In a globalised world not all production can be or is undertaken within national borders. The international system is as much a potential source of mobilisation resources as the nation itself. Moreover, the scale and sophistication of the vast global marketplace that has developed in recent decades now gives governments access to much greater workforce, money and materiel resources than any single nation can ever aspire to.

Middle power nations such as Australia now have a vested national interest in overseas resources as these form a significant part of the overall mobilisation base. In a real sense, Australia has a strong investment in the health, growth, and advancement of these overseas sources of supply. Any economic downturns, civil disturbances or natural disasters in such countries that could impact Australian national mobilisation would be of concern.

Such considerations also apply along the lines of communications between Australia and its overseas sources; these need to be reliable and robust. For example, military forces used to rely on "interior" supply lines, all contained within the nation. Now these are complemented by important "exterior" supply lines, often manifested as a planet spanning web of complicated supply chain interconnections.



Holiday makers and residents of Mallacoota, disembark a Royal Australian Air Force C-27J Spartan after being evacuated over the 2019-20 Christmas holiday period. (Defence Image Gallery | LAC John Solomon)

Mobilisation and event response are interdependent. There is a direct relationship between event responses adopted and mobilisation. A balance must be struck between the demands of

the response required and the ability of the societal mobilisation base to meet these demands. This makes a major issue in national mobilisation one of coordination, but this is not a simple problem, as none of the factors involved remain static for any length of time. All are dynamic and constantly changing.

Mobilisation must use flexible controls. To best allocate national resources, governments can use a variety of direct and indirect controls ranging along a continuum from command to regulations, to indirectly manipulating market forces. Such controls need to be flexible to meet the changing needs as

the mobilisation evolves in response to changing strategic imperatives and pressures.

Mobilisation planning is always a deeply political issue. Mobilisation involves the allocation of scarce resources within a society. It is accordingly a deeply political process, not just vertically up and down the various government levels, but also horizontally across the multitude of government departments and agencies, and the whole-of-society. A mobilisation is commenced and controlled by the nation’s highest political leaders, but politics of many different kinds play out all the way down.

Mobilisation is an integrated activity. Mobilisation in bringing together whole-of-society and international resources requires taking an integrated planning approach. It cannot be a series of separate individual projects but rather must be an overall program. This does not imply that any specific mobilisation will necessarily involve all resources available. Instead, most are likely to be quite patchy with just the resources necessary mobilised and accessed.

Mobilisation must consider the pre- and the post-event. Mobilisations start and finish. Planning may continue indefinitely across peacetime, but societies cannot stay mobilised forever. Conceptually mobilisation does not end when the event has finished but rather when society is returned to a “normal” state.

Ideally, a nation would come out of a crisis, disaster, competition or conflict better, not worse, off. This should be the government’s goal, driving policy and decision making and shaping how a mobilisation is undertaken.



As part of Operation Fiji Assist, Australian Army soldiers from 2nd Combat Engineer Regiment together with Republic of Fiji Military Forces personnel and members of the Koro District Department of Infrastructure collect corrugated iron from Nasau Village on Koro Island, Fiji. (Defence Image Gallery | LSIS Helen Frank)



MOBILISATION TIMINGS

All nations have limited resources which, in the absence of concerns, they would prefer to use to build societal prosperity rather than create expansive security capabilities that then lie idle awaiting events. This makes a key mobilisation issue that of timings: when should the mobilisation begin?

This question is particularly significant as, given enough time, a nation can be mobilised to address almost any challenge. The key is having “enough time”, especially as this is time relative to the problem being addressed. To be effective, mobilisation efforts need to get in front of the rate of damage the problem is causing.

The two mobilisation options are to begin mobilising either before an event or after an event. Before the event, the reason for the mobilisation may be unclear, in which case it may prove unnecessary as the event may not occur. Moreover, a perfect prediction is rare, so the mobilisation is likely to be less effective and efficient than it could be, given that the problem before it has crystalized will present some unknowns. Mobilisation after the event however may mean the event inflicts disproportionate losses before it can be addressed, and recovery finished. These costs may then be higher than those of the mobilisation.

While a Mobilisation-Day (M-Day) decision may be made quickly, the implementation of a mobilisation plan is by no means instantaneous. When M-Day is declared, the various elements of a mobilisation plan will still take some time to be implemented and deliver tangible outcomes. Importantly, the multiple elements involved should ideally each deliver at the correct time and in the correct sequence as the overall crisis, disaster, competition or conflict response plan requires.

Mobilisation in a temporal sense is inherently a very complicated scheduling problem. Some mobilisation elements will need to work in conjunction and so will need to be developed in parallel; other

elements may be required individually and so can be developed in series. In this, some elements may inherently be able to be developed quickly while others may take decades. This is made more difficult as all the elements of a mobilisation will each start from a different baseline and therefore need varying amounts of time to provide the requisite capability and capacity. Throughout all of this there are differential rates of change.

Moreover, the international system is inherently dynamic. As the state is mobilising, the original situation is evolving in both a relative and absolute sense. Some aspects of this evolution will be helpful, some will not. In this sense a mobilisation is always forward looking; current circumstances are relevant only as a departure point.

Mobilisation might deliver forward in time, but this is into a future that is intrinsically unknown. This uncertainty continually hampers mobilisation planning and preparations.



A Royal Australian Air Force (RAAF) P-8A Poseidon aircraft, alongside No. 36 Squadron C-17A Globemaster III aircraft, ahead of its departure from RAAF Base Amberley near Ipswich in Queensland, on an aerial reconnaissance mission over Fiji. (Defence Image Gallery | CPL Nicci Freeman)





New Zealand Prime Minister, Jacinda Ardern speaks with Australian Prime Minister Scott Morrison in Funafuti, Tuvalu at the Pacific Islands Forum Leaders Meeting 2019. (AAP | Mick Tsikas)

Chapter Two

AGENCY DRIVEN MOBILISATION

A distinction can be made between “strategy” which aims to shape events and the three other conceptualisations—risk management, resilience and opportunism—that react to events. In the “strategy” conceptualisation, agency is privileged, with proactive steps taken even if the warning time is short.

Strategy as a concept has limitations. It is concerned with applying power but not with building power through mobilisation. For this, the deeply intertwined concept of grand strategy is important as this has an element concerned with building power. In illustrating the difference between strategy and grand strategy, J.F.C. Fuller noted that: ‘while strategy is more particularly concerned with the movement of armed masses, grand strategy... embraces the motive forces which lie behind ...’.³⁴

The idea of grand strategy includes the steps to build national power. It brings into high-level thinking, the mobilisation of the instruments of national power from the material resources of workforce, money and material, and the non-material resources of legitimacy and soft power.³⁵

This chapter principally discusses mobilisation in terms of the grand strategy building power

conceptualisation, that is, a mobilisation that is deliberate and purposeful. This chapter outlines four generic mobilisation types that could be considered depending on the context if using a strategy and thus an agency driven mobilisation. The time available to mobilise to the desired extent is a key determinant. Mobilisations that are reactive and driven by events are discussed in the next chapter.



Prime Minister Scott Morrison, MP, visited Lavarack Barracks to announce the formation of the Pacific Mobile Training Team, 2018. (Defence Image Gallery | PTE Kyle Canty)

AGENCY DRIVEN MOBILISATION: STRATEGY CONCEPTUALISATION

The term agency driven is intended to highlight that creating and implementing a strategy is a considered and measured choice. In this, strategy as used here accepts the simple oft-used model of ends, ways and means where the “ends” are the objectives, the “ways” are the courses of actions, and the “means” are the instruments of national power.³⁶ The “means” are used in certain “ways” to achieve specific “ends”.

An example of a strategy in the Australian context might be the Pacific Step Up.³⁷ In this the strategy “end” is the relationship itself. Prime Minister Scott Morrison sees this as ‘a relationship for its own sake’. He declared 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 elaborated on his vision for the relationship to be built as ‘one based on respect, equality and openness’.³⁸

In providing advice to those charged with implementing the strategy, the Australian Government’s Department of Foreign Affairs and Trade usefully emphasises in bold font that: ‘How we engage is just as important as what we do’.³⁹ The “means”, the instruments of Australian national power such as diplomacy, defence, economics and information, are to be used in a “way” that enhances Australia’s relationships with the Pacific islands. Even if a particular outcome might be pleasing in itself to Australians, if it damages achieving the desired strategic relationship with the Pacific islands it should not be undertaken. Frances Adamson, Secretary of the Department of Foreign Affairs and Trade stresses: ‘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’.⁴⁰

The Pacific Step Up strategy is then an agency-driven approach in being a well-defined and considered choice that sets out actions to begin at a determined time. It is not a reactive response to a sudden event where the timing is not under government control, such as a bushfire, cyclone or flood.



Australian Navy Able Seaman observes one of the Indonesian Navy patrol boats during a coordinated maritime patrol in waters between Australia and Indonesia to improve security along our shared maritime border. (Defence Image Gallery)

The mobilisation of the material means for an agency-driven strategy involves, as with all public policies, managing the finite resources of the society involved.⁴¹ Mobilisation inherently means making choices under material, social or political constraints. These characteristics are broadly shared with the economics discipline, often described as 'the science of allocating scarce resources'.⁴²

Robert Gilpin in a seminal work on political economy, determined the two very fundamental high level approaches to resource management: economic nationalism and economic liberalism.⁴³ Under economic nationalism the state actively manages the distribution of resources; economic liberalism by contrast involves the state manipulating market forces to distribute resources. These may be re-titled as a managerial approach and a market approach respectively to remove any ideological connotations.

In the managerial approach the state concerned becomes deeply involved in developing the necessary resources and in actively directing its society. In the market approach the state manipulates and exploits local and global market forces by using inducements,

incentives, regulations and rules to indirectly develop the resources the strategy needs.

While economic matters are fundamental, a mobilisation can be more efficacious if supported by the non-material resources of legitimacy and soft power. Legitimacy mainly concerns an assessment by individuals within a society of specific actions that their government is undertaking. If the government's actions are deemed legitimate, their implementation will be significantly easier. Persuading people to agree with a mobilisation, that inevitably will make demands of them, requires governments to cogently and convincingly argue the case. In contrast, soft power involves influencing people's background perceptions of a government and its supporting bureaucracy.

With little warning time, only limited mobilisation options may be possible. Moreover, that undertaking may be unable to significantly enhance the existing capabilities and capacities. In contrast, if there is longer warning time, many more mobilisation options may become practical including optimising the capabilities for the situation envisaged. Mobilisations may then be classified as having a short or a long warning time before the event.

Combining managerial and market approaches with short and long warning times creates four separate generic mobilisation strategies. These are briefly described below. For simplicity, the focus is on workforce and material; funding is not covered while the intangibles are left until Chapter 4 for further discussion.

Short-warning time, managerial approach mobilisation

This type of mobilisation is appropriate for situations of necessity, when the issue is vitally important and time-critical; urgent action is necessary. The mobilisation suits situations where the anticipated future is ominously near and clear. Use is made of what society can provide today, with much less attention given to preparing for longer-term issues. The mobilisation directs and guides society in the most suitable manner to meet the assessed compelling issue of national concern.

In terms of allocating labour, the population are actively managed through directing employment into the important sectors of the economy and society, if

necessary using various types of conscription. In this, the mobilisation's needs inform the type of targeted training individuals receive. The domestic workforce is seen as a resource to be exploited. Complementing this, the international labour base can be accessed through controlled immigration, driven by government assessments of the critical skills that the nation's mobilisation needs.

In material matters, the managerial approach is inclined to focus on making better use of existing domestic production through more intrusive and invasive state planning and control of the national economy. The national sector may grow in both scale and coverage, with a strong tendency towards nationalisation of key industries and a general in-sourcing of functions. The government, in being best able to command the economy for the national good, has primacy. In this regard, the main goal is increasing near-term outputs. The efficiency of production and the effectiveness of the goods produced are of less importance. Selective use would be made of international sources especially of technology not available onshore. In this, the government would also try to develop comparable on-shore sources as expeditiously as practical, so as to avoid any unwanted constraints imposed by off-shore sourcing.

This mobilisation is the most responsive to state needs and provides the greatest national independence. Using this approach, the state can gain considerable autonomy allowing greater freedom of action and an enhanced ability to choose its own course in international affairs, largely indifferent of others' wishes or concerns. This mobilisation suits those times when success is essential.

A major shortcoming is that there are real limits on the scale and sophistication of resources that the state can access from domestic sources alone; an over-reliance on these sources may be disadvantageous. Moreover, in making the state administration and bureaucracy responsible for resource allocation, there may be considerable inefficiencies introduced as this is a complex and complicated matter difficult to direct in detail from a position that is both disconnected and high-level. Over time, the emphasis on raising outputs regardless of cost will also lead to structural economic problems. Together, the combination of the growth of the state sector and the focus on near-term outputs is likely

to adversely impact long-term national economic and societal development. Over the longer-term, this is a high cost mobilisation, but in pressing situations where the state is forced to act there may be no other alternative.

Australia's mobilisation in 1942 when Japanese invasion threatened is an example of the short-warning time, managerial approach mobilisation type. Less stringent versions of this approach that offer insights include Australia's 1943-45 and 1951-56 experiences.⁴⁴

Long-warning time, managerial approach mobilisation

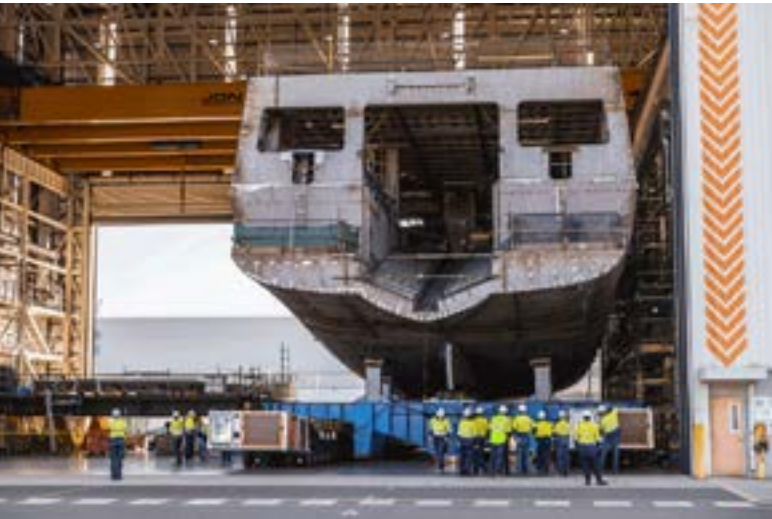
This mobilisation type is useful for circumstances when only a small number of alternative futures are considered realistically possible to eventuate. The long-warning time assumed means that there is time to prepare for these anticipated future challenges and opportunities.



A still from the 'Workforce behind the Defence Force Campaign' video depicting construction of a Thales Australia Bushmaster PMV. (Defence Image Gallery)

In terms of allocating labour, the national workforce and employment is actively managed. As part of this, corporatist management approaches based around high-level cooperation between government, business and labour groups may be adopted. In this regard, the population is viewed as a mass, rather than as a group of individuals, that needs to be trained to have the requisite skills in sufficient

quantity to meet national needs. The population is to be employed and trained for the greater collective good; the people are a resource to be shaped for the long haul. The international labour base can be accessed through controlled immigration driven by national skill needs.



In a further milestone for the Offshore Patrol Vessel (OPV) program, the two halves of the first of class ship, Arafura, built by Luerssen Australia and its partner ASC have been brought together and welded to form a complete hull.. (Defence Image Gallery)

In terms of material, this type of mobilisation may focus largely on carefully directed nation building, mainly in selected primary and secondary industries. The intent would be to pick winners by providing sizeable incentives to encourage the growth of specific desired industries. Some form of protectionist trade policies may be embraced to offset or deflect international competition in key or particularly vulnerable industrial sectors. As part of this, steps might be taken to encourage production by private companies of items required for the mobilisation to be kept onshore.

Economies of scale would be achieved through a rationalisation of domestic production sources and the favouring of those big business and large companies relevant to the mobilisation plan. This may lead to the creation of designated “national champions”. State-owned and operated industries may be created especially in those sectors with little private investment but important to the mobilisation. The reliance on long term mobilisation planning is likely to lead to a progressively larger bureaucracy, while the demands for greater information to inform

this planning can lead to the state becoming more invasive throughout the society.

As part of the long-term nation-building focus, access to the global technology base by the private sector may be deliberately constrained through tariff and taxation policies. The intent would be to shape the use of overseas technology by companies to that which best fits the mobilisation plan, is necessary, aids self-sufficiency and does not lead to unwanted dependence. While the domestic industry may be favoured, exports could significantly assist long-term mobilisation, given its nation building aspect. Exports can help improve economies of scale, make existing industries larger and build new industries.

This mobilisation type is suited for circumstances, including when the need for particular sovereign capabilities and capacities to survive and prosper in the future is clear; there is a desire for fewer constraints on possible future courses of action; or there is a need to lessen a nation’s dependence on the international system. Such a mobilisation progressively grows future national autonomy and self-sufficiency, albeit at some cost in short-term responsiveness to emerging challenges. The emphasis on long-term mobilisation planning tends to limit responsiveness to unforeseen circumstances as a certain rigidity and inflexibility is inherently built in. In particular, this mobilisation type may be particularly unsuited to times of great uncertainty. Moreover, the output focus of the managerial approach can lead to substantial inefficiencies with scarce resources being squandered. Accepting these shortcomings, this mobilisation type can significantly advance national independence and self-reliance.

China’s response to the competition emerging between it and multiple developed countries appears to be the long-warning time, managerial approach mobilisation.⁴⁵ An example of such a mobilisation in a conflict situation is Australia’s mobilisation in 1939–1941 during the early stages of World War II, before Japan attacked; at the time Australia was in the early industrialisation stage of development. Australia, some twenty years before, during World War I, offers a different example of a predominantly agricultural nation attempting to undertake some aspects of this mobilisation type, particularly in terms of war material and domestic manufacturing.⁴⁶

Short-warning time, market approach mobilisation

This type of mobilisation suits situations where the anticipated future is near and well-defined but is much less threatening than that where the earlier discussed short-warning time, managerial approach mobilisation is used. The market approach is instead appropriate for situations of choice, when the issue is of lesser importance and with fewer pressing time imperatives.

The matter is near-term however, so this mobilisation type must use what society can provide today. As the matter being addressed is not the most compelling issue, attention can still be given to other near-term and longer-term issues. In general, this mobilisation type seeks to manipulate the operation of the market and use it to allocate scarce resources as part of building power.

In terms of workforce, reliance is placed on manipulating market forces by increasing demand in sectors important to the specific mobilisation problem being addressed. There is an individual focus in the sense that individuals are expected to willingly and enthusiastically take advantage of the new opportunities that have been created. These opportunities may be made more attractive and compelling through the use of direct tax concessions and targeted financial incentives. The supply of labour and skills then automatically alters based upon the new priorities set by market forces. The demands of the mobilisation and the ambitions of individuals can be advantageously aligned at the micro-level.

Market forces can also be used to quickly access the international skilled labour base. Incentives can be put in place that attract offshore skilled workers for the time required. This may also be indirect through the hiring of foreign firms to supply skilled labour where and when the mobilisation requires. Market approaches intrinsically possess a considerable ability to take advantage of the global workforce when implementing mobilisations.

Concerning material matters, the primary reliance by government is on private industry and commercial sources, considered under the market paradigm as inherently more effective and efficient than state-

owned entities. The most competitive commercial sources, domestically or internationally, will be favoured although competitiveness will be framed more in terms of timeliness than efficiency or effectiveness. In this, increased demands on the private sector may necessitate a larger governmental administrative bureaucracy as the need to manage new contracts grows.

A major advantage of a market approach when mobilising is the ability to rapidly access the immense material resources of the international system, albeit at a price. These resources are not just on a large scale, but also some items can be expected to be of a quality and technological sophistication not available nationally.

The short-warning time, market approach mobilisation type allows access to considerable resources relatively quickly. Increased responsiveness is though offset by some loss of national autonomy and independence; off-shore suppliers will supply only as long as the company wishes to, and their national government agrees. Even so, in basing resource allocation on the market there is potential for high efficiency, although the situation's time pressures may mean less than optimum solutions are adopted.



Foreign workers do the installation of cement formwork frames at a construction site. (Shutterstock | Lemau Studio)

In this mobilisation type there is a premium placed on intelligent and sophisticated policymaking and administration, as success is dependent on both continuing market concurrence and high-quality implementation by commercial enterprises. This mobilisation type can quickly unravel if the market

perceives governmental policymaking as incoherent and contradictory. In combination, the various factors suggest the use of this mobilisation type in situations where there are some choices on where, when and how to act.

Short-warning time, market approach mobilisations underpinned the interventions in failing states many nations made in the 1990–2010 period. Australia has two recent examples of this type of mobilisation that each bring out different aspects: East Timor 1999–2000 and the Iraq Invasion 2003.⁴⁷

Long-warning time, market approach mobilisation

This type of mobilisation is appropriate for when a range of different futures are possible, accurate definition is problematic, and the future needs while unsure are bounded. There is time to mobilise and prepare to meet future challenges, although the precise future context is indeterminate. As in the short-warning type, this mobilisation type seeks to manipulate the operation of the market to achieve its objectives.



Boeing Australia has built the first of three Loyal Wingman aircraft, which will serve as the foundation for the Boeing Airpower Teaming System being developed for the global defence market. (Boeing | Maxx Bootz)

In terms of workforce, market forces can be manipulated by increasing demand in sectors deemed important over the longer-term. There is time to shape the domestic workforce as regards encouraging population growth and through national

skills development. Individually focused incentives can be used to persuade people to take up the new opportunities emerging. In this regard, the logic of the market impels the deregulation of labour markets to encourage labour flexibility and mobility, but also to support the use of all members of a society. Given enough time, the long-term market approach can make unimpeded use of all of the society.

In this situation, mobilisation focused immigration could be a useful option. Incentives can be put in place to attract the quantity and quality of individuals that best fit the long-term demands of the mobilisation. National population demand can be manipulated to drive the international supply of immigrants over a protracted period.

Considering material, this mobilisation type does not mandate that production should be onshore, preferring instead that it should be located where the domestic businesses can become most globally competitive. For example, a company's design capabilities may remain in Australia, but mass manufacture be out-sourced to China. Furthermore, exports need to be kept competitive. If subsidies are needed, they are likely to be targeted to advantage particular companies in certain industrial sectors central to the mobilisation outcomes sought.

This mobilisation type can feature less planning and state involvement so the bureaucracy and administration can be smaller and restricted to specific key mobilisation areas. In this type, there is a strong tendency towards outsourcing functions and to making the maximum use of private companies, as under the market approach these are considered inherently the most effective and efficient option. Accordingly, public-private partnerships and privatisation are favoured.

The state bureaucracy associated with this mobilisation type can be limited and subject to efficiency programs, fixed budgets and external reviews. Over time, the impact of this can be to make the state sector smaller, less capable and less competent. This may make the limited national policymaking expertise available unhelpfully restricted to narrow specific areas, rather than being broadly based and capable of taking a wider, more comprehensive perspective of the mobilisation underway. The governmental apparatus will be

more optimised, less flexible and adaptable, and less able to quickly handle changes in the domestic and international environment.

The long-warning time, market approach mobilisation type allows access to considerable resources in a timely manner although again the mobilisation options adopted are constrained to those that are acceptable to the markets. Gaining a high responsiveness to the needs of the mobilisation is balanced against some loss of national autonomy and independence.

In sustaining this mobilisation type over the longer-term, international and domestic markets must have retained confidence that the mobilisation's implementation will continue to favour the market. Considering the US defence mobilisation experience immediately prior to World War II, Secretary of War Henry Stimson observed that: 'If you are going to try to go to war or to prepare for war in a capitalist country, you've got to let business make money out of the process or business won't work'.⁴⁸

If there is some market uncertainty about the longer term, business may make unhelpful investments in only those industry sectors where flight can be both easy and quick. The national economy may then become progressively less balanced and robust, and become particularly sensitive to international shocks. In this, the mobilisation may be progressively more fragile over time.

The long-warning time, market approach mobilisation type has the lowest cost in that the least inefficiencies

should be introduced into the economy and society. This mobilisation though calls for consistent long-term high-quality governmental policymaking that successfully integrates political, economic and strategic decisions, and retains market confidence.

An historical example of aspects of this type of mobilisation is the US mobilisation across 1939-1941, before the country formally entered World War II.⁴⁹ A study undertaken for the Australian Government in 1990, the Wrigley Report, covers other pertinent issues and usefully situates such a mobilisation type in the Australian context.⁵⁰



In 2015, the Australian Government announced the purchase of 1,100 Hawkei protected mobility vehicles from Thales Australia. (Screen shot from Thales promotional video <https://www.youtube.com/watch?v=TsFTYVI6rUA&t=4s>)




CONCLUSION

Strategy seems an easy case for mobilisation planning. In being agency-driven, the mobilisation begins when the government considers it an appropriate time. This is mobilisation-by-choice not by necessity as it can be with event-drive mobilisations. Even so, coordinating the various aspects across society can be a very complicated problem.

Importantly, these problems can be compounded as strategy is a conceptualisation used when interacting with other states or non-state actors who will each

have their own strategies. This interaction can make major changes necessary to the original strategy for which the mobilisation was designed. The planned mobilisation is likely to need extensive adjustment in various stages of the implementation phase to address unexpected problems caused by other states strategic decisions. In planning mobilisation in a strategy case, it will be necessary to build in a high degree of flexibility and adaptability to allow for the inherently very dynamic context.

A soldier in military gear, including a helmet and camouflage uniform, is looking out of the side of a helicopter. The view outside shows a dense forest with a layer of mist or low clouds. The helicopter's interior structure and a tan-colored equipment box labeled "EYE SAFETY PW" are visible. A red diagonal graphic element is present in the bottom left corner of the page.

An Australian Army 5th Aviation Regiment loadmaster observes the area near Mount Ginini close to the New South Wales and Australian Capital Territory border, 2020. (Defence Image Gallery | SGT Brett Sherriff)

Chapter Three

EVENT DRIVEN MOBILISATION

Agency driven mobilisation is only suitable in certain situations. Strategy cannot solve all problems. Strategy requires an “end”, that is a clear objective, to be set out which informs the manner in which national capabilities are used.

For many problems however, an objective cannot be easily defined. The obvious examples are natural disasters such as floods, bushfires, cyclones or pandemics. Such events cannot be definitely solved once and for all by some clever stratagem. Instead these are events that will keep reoccurring, requiring continuing responses into the foreseeable future. There are also examples in the human domain. Domestic and transnational crime and terrorism are not problems amenable to final resolutions. Strategies can be devised to defeat specific criminal or terrorist gangs, but not to forever resolve criminality or terrorism.

There is a further discriminator. A crucial issue that defines a “strategy” is that it involves interacting with intelligent and adaptive others, whether friends, neutrals or adversaries. This social interaction is of a particular kind: each party involved continuously modifies their position, intent and actions based on the perceptions and actions of the others participating. These interactions ‘... are essentially bargaining situations ... in which the ability of one participant to gain his ends is dependent ... on the choices or decisions the other participant will make.’⁵¹ In operation, a strategy constantly evolves in response to the other actors implementing their own countervailing or supportive strategies.

If the problem does not involve such social interaction, then it is not “strategic” in this sense but is instead a plan. An example of a plan might be building a very-fast railway between two cities. This would be a complicated problem involving high costs and long-term construction and it might be assumed not everything will go according to the original plan; continual changes will almost certainly be necessary as circumstances change. Such a project though does not consider the plan’s object—the new railway—as a sentient being working against or even with the plan; the railway is not in itself “intelligent and adaptive” albeit the planning will be complicated and long-term.

In a similar vein, there cannot be a “strategy” to fight a bushfire or a virus, or to recover after a flood or a cyclone as these are not “intelligent and adaptive” entities.

For problems where sensible and achievable ends cannot be readily determined, and which do not involve battling with intelligent and adaptive others, there are other conceptualisations. These methods can be broadly split into risk management that deals with negative events and opportunism that manages positive events. The former concerns windows of vulnerability; the later windows of opportunity. Importantly, risk management has in the last two decades spun off the idea of resilience. This is conceptually different to risk management although there are some linkages. Resilience and risk management are most effective when used in conjunction.



Australian Army soldiers deployed on Operation NSW Flood Assist help community members remove debris from flood damage in Wisemans Ferry, New South Wales. (Defence Image Gallery | CPL Sagi Biderman)

This chapter will in turn discuss risk management, resilience and opportunism. Each section will examine the meaning of the term and then mobilisation issues that this understanding creates. Many of the concepts and principles are similar across all three approaches. According, the first examined, risk management has more detail, with the resilience and opportunism sections often referring back to the earlier risk management part.



RISK MANAGEMENT CONCEPTUALISATION

The word “risk” is used in many different contexts and so with differing understandings. In general, risk might be considered as ‘the probability that a particular adverse event occurs during a stated period of time, or results from a particular challenge’.⁵² In being a probability, a risk can be hard to empirically measure, relying as much on judgment or perceptions as any quantitative assessment.



Australian Army Major briefs Head Information Warfare Major General about the Accelerated Defensive Cyber Training program run by Fifth Domain in Canberra, 2020. (Defence Image Gallery | S20202785)

An alternative is not to look at the likelihood of an event, but rather what the impact of an event might be if it occurred. Examples of this approach include estimations of the financial costs if an unwanted event occurred. Reversing this line of argument suggests acting to reduce the costs involved if a feared event happens.

Risk management then moves from being an attempt to judge the likelihood of future events, to considering how to lessen the impact of any identified risks that actually eventuate. Risk management becomes all about loss control. If risks eventuate there will be losses and associated costs, but with careful risk management this can be limited to tolerable levels, albeit the acceptable damage levels are rarely elaborated upon.⁵³ States, societies and organisations will always be sensitive to certain stressors, but risk management aims to reduce their vulnerability to the external shocks that do occur.

While there are several types of risk management culture, loss limitation derives from an economic culture that weighs the vulnerability, the consequences and the likelihood of a risk eventuating against the cost-benefits.⁵⁴ The risk management approach of the economic culture has an investment logic. Although this is not an ends-means relationship in a resources prioritisation or allocation sense, as risk management assumes no likely future or desired end.

The implication of this understanding of risk management is that risks will continue indefinitely. The future will be just like the past, albeit with probably more risks being progressively added. The assertion that there have always been interstate wars, therefore there always will be, is an example.

Implementing risk management is then quite different to using strategies to achieve defined and specific ends, as the example of the 2010 Dutch National Safety and Security Strategy reveals. This risk management strategy was considered an instrument to be used by the Netherlands government to prepare the country to manage internal and external threats that could cause serious disruption. Wide-ranging human security threats were contemplated including climate change, transnational crime, Muslim radicalisation, societal polarisation, cyber-disruption, economic crises and terrorism.⁵⁵ These threats were assessed in terms of risks to vital interests, prioritised in terms of possible consequences and assessed likelihood, and incorporated into a national risk assessment. The Netherlands’ Government then determined which particular risks would be addressed through building and sustaining the necessary national capabilities to manage these risks should they eventuate.⁵⁶ The overall intent was to reduce the impact of the selected risks down to a level considered both acceptable and controllable if they eventuated.

Recent Australian defence policies have also adopted risk management approaches as a way of selecting specific investment options. The 2000 Defence White Paper handled uncertainty in the strategic environment by employing a strategic risk management concept that determined that the risks that ADF capabilities would be developed for

were a direct armed attack on Australia and intra-state conflicts in countries in Australia's immediate neighbourhood.⁵⁷ The 2009 Defence White Paper continued this approach explicitly noting that given uncertainty 'the key problem in defence planning is strategic risk'.⁵⁸ In implementing risk management, this later White Paper chose to concentrate available resources on addressing only one risk: a direct armed attack on the country.⁵⁹

These two Australian Defence White Papers focussed on creating and maintaining appropriate military capabilities; they did not try to shape a future in which the nominated risks could not eventuate. Instead the risks were seen as enduring, and against which the only option was to be able to limit the damage inflicted to a manageable level should they occur. What the acceptable damage levels were was not elaborated upon, rather the stress was on developing responses.

Mobilisation planning context

In considering mobilisation planning, the initial step is to determine which risks will be prepared for. Making this strategic choice is a key role of government.

A table can be created that lists risks, but this may simply be a lengthy register of possible threats that could occur at some indefinite future time. The likelihood of any particular event occurring is fundamentally a matter of informed judgement. In this, when assessing the impact of a disaster the tendency is for a "worse case" analysis to be recommended. Lord Salisbury in 1877 observed: 'If you believe the doctors, nothing is wholesome; if you believe the theologians, nothing is innocent; if you believe the military, nothing is safe'.⁶⁰ The selection of risk is accordingly a political decision and inherently a matter for judgment not quantitative assessment.⁶¹ This is fertile ground for debate, disagreement and bureaucratic manoeuvring.

Such debate continues and is refought when translating the assessed risks into resource prioritisation. In the Netherlands, the National Safety and Security Strategy based on the risk management approach improved inter-departmental awareness of risks but translating this into coordinated funding decisions that develop new capabilities proved problematic:

The [risk] assessment itself is broadly accepted, but translating priorities into capability requirements remains difficult – for reasons of methodology and bureaucratic politics ... The Netherlands ministries are independent, but security requires their interdependent action, even though they may secure national security funding for their issue areas. An overall need is for each ministry to trust the other as the Work Programme is implemented and be able to see the connections they all have to security instead of stove-piped responses to their own responsibilities.⁶²

The 2010 British National Security Strategy used a particularly sophisticated methodology to prioritise risks, but encountered similar implementation problems in the setting of resource priorities.⁶³ With only limited Ministerial buy-in to the National Security Strategy and budgets held by individual ministries, a major debate became 'how to relate resources to the strategy'.⁶⁴



7th Battalion, Royal Australian Regiment Reconnaissance and Snipers Platoon conducted Night Aerial Reconnaissance for fire mapping in support of the ACT Emergency Services Agency's (ESA) efforts against the Orroral Valley Fire in Namadgi National Park, ACT, 2020. (Defence Image Gallery)

It seems that in prioritising risks simply a new arena had been created:

... in which the traditional struggles and rivalries of defence politics can be fought out and regulated. ...the question of who gets to define what the risks are and how they should be prioritized has [now] become a defining issue for contemporary civil–military relations.⁶⁵

The need for agreement pushes risk assessments towards that which all can agree on. Indeed, with the balance between the various risks difficult to determine in any quantitative way, it may be politically, economically and societally easier to simply retain the status quo resource allocation. Staying with the current prioritisation may be the easiest and—given no one knows if a risk may eventuate or not—the most appropriate of all.



Army personnel from No. 5 Aviation Regiment Townsville, unload food and supplies from a CH-47D Chinook for flood affected residents of Mt Crosby South East Queensland. (Defence Image Gallery | FSGT Mark Eaton)

Resource Allocation. There are more possible risks than can be practically prepared for. A conventional approach is to make a list of threats, rank them and then fund the mitigation of those risks for which there are sufficient resources. As an intellectual exercise, the Homeland Affairs Secretary listed some 25 different major risks that an Australian risk register could include ranging from great power war to environmental disasters such as major oil spills.⁶⁶ Going even further, the 2020 UK National Risk Register determined 38 wide-ranging risks, each neatly quantified on a logarithmic scale in terms of probability and impact.⁶⁷

Such long lists of wide-ranging risks are hard to fully address. US Defence Secretary Bob Gates in addressing how large the American Defense budget would need to be to manage every risk observed: ‘Nobody lives in that world ... you are never going to get to zero threat. You could spend \$2 trillion and you’d never get to zero threat.’⁶⁸

At the other extreme though, without significant resource availability most risks will go unaddressed making the logic of this approach tenuous. In a somewhat poignant example, the previous UK National Risk Register published in 2017 determined a pandemic was the most significant risk but demonstrably this was ‘not translated into an adequate degree of preparedness’.⁶⁹

In making a decision to allocate resources, it moves risk management into meeting only a small defined set of assumed probable futures.

Risk Spreading. A way to partly square the circle of too many risks and too little resources is to make risk management everyone’s concern. For this, a national risk management approach initially needs to involve many different stakeholders so as to gain a good understanding of the risks jointly faced. Such stakeholders once identified can then be enlisted to assist in the management process. The risks can be spread across many different organisations and groups, in effect passing the capability and capacity resourcing problems to them. Cornish and Dorman write that:

Risk-sharing should take place on many levels: ... across government; with industry and the worlds of science and academia; within society at large; and with partners and allies. The purpose of this effort must be to create the greatest possible range of options, supported by [the limited] resource base, with which to meet an ever-widening spectrum of security challenges of varying intensity.⁷⁰

There are four significant implications of this deliberate involvement of all.

Firstly, there is an explicit allocation of responsibility for managing particular risks to specific areas of

and society. As noted earlier, the intent of such management is to reduce the losses suffered if a risk eventuates to an acceptable level. The activist management necessary could be undertaken using a managerial or market approach, as discussed in Chapter 2. Michael Pezzullo advocates for the former while noting the later:

within government, departments and agencies [now] have to be designed to be operational – able to plan, to prepare, and to undertake operational missions as directed. The age of the programmatic or regulatory agency (the 1980s–2010s) is passing. While of course they have their place, ... departmental operations which are focused on the pursuit of purposive outcomes as distinct from the supervision of arms-length processes are back in vogue, and not before time.⁷¹

However, the decision whether to use a managerial or market approach should not be a “one size fits all”, but instead be based on the problem faced. Indeed, blended alternatives at times may be the best. For example, an agency might devise regulations that require houses built in flood prone areas to have certain design criteria; mandate requirements of insurance companies; tender to have levee banks built; and then when a flood occurs become mission-oriented in terms of organising filling sand-bags and arranging rescue services.

Secondly, each responsible organisation or agency does have some leeway in their management of their assigned and accepted risk event. The capabilities and capacities needed can be a three readiness levels: those required to be ready for a rapid response to the risk of concern; those that can be kept in a residual form allowing reconstitution during a mobilisation; and those that no longer exist but which could be recreated if needed.⁷² Effective and timely mobilisation underpins the residual and regeneration readiness levels.

The various capabilities and capacities do not need to be owned by the coordinating organisation or agency. Instead, it is the availability and access to these capabilities and capacities when they needed which is important. In this, there are multiple concepts involving pooling and sharing resources between government, private companies, community groups and individuals.⁷³ Mobilisation in allowing timely expansion would remain important with the necessary planning guided by the responsible coordinating organisation and including all involved integrating their contributions.



Soldiers from 8th/9th Battalion, Royal Australian Regiment (RAR), and engineers from the 2nd Combat Engineer Regiment (CER), based at Gallipoli Barracks in Enoggera, clear the train line that runs through Grantham following the 2011 Queensland floods. (Defence Image Gallery | Petty Officer Damian Pawlenko)

Thirdly, the three readiness levels are only practical if supported by an all-hazards intelligence system. There needs to be adequate warning time to mobilise the capabilities and capacities kept at the residual and regeneration readiness levels. There is a case that this be a centralised government intelligence system that can draw on a much broader array of sources than any single organisation or agency.

Lastly, given the distributed responsibilities notion, the dominant aspect of national risk management becomes coordination across government and society.

Pezzullo helpfully gives an indication of the complexity of this in outlining a so-called “extended state”:

consist[ing] of the entire apparatus of the Australian Government, which convenes and coordinates; along with State, Territory and municipal governments; as well as the business sector, including finance and banking, food and groceries, health and medical services, transport, freight and logistics, water supply and sanitation, utilities, energy, fuel, telecommunications; the scientific and industrial research establishment; as well as non-for-profit and community organisations, including charities; and households as might be required.⁷⁴



A Royal Australian Air Force No. 36 Squadron C-17A Globemaster III takes off from RAAF Base Amberley with humanitarian aid for Vanuatu. (Defence Image Gallery | CPL Jesse Kane)

Such issues reinforce that conceptually, risk management is most appropriate for reasonably well-defined situations. Risk management needs to be optimised against a specific threat to be effective. For example, in a bushfire case, the risk management actions taken would not address floods. Similarly, in a conflict situation air defence capabilities could not handle a ballistic missile attack. The risk management approach has resource limits that constrain what it can accomplish.

Mobilisation planning overview

The risk management conceptualisation shifts mobilisation from being a matter for the highest government levels downwards and into a range of organisations or agencies. Their individual selection depends on their ability to coordinate actions that would reduce losses arising from each determined risk event. Mobilisation becomes a decentralised activity.

Even so, the seven principles articulated in Chapter 2 can be usefully applied to thinking about mobilisation at this sub-national lower level. In this, the risk being managed by these organisations or agencies is not a sub-national risk; rather they are managing the assigned risk for the nation.

An example of this risk management approach is that suggested in the Bushfire Royal Commission. To prepare for disasters on a national scale, the Commission considers there needs to be a “whole of nation” effort. The Federal government should now play a greater role than previously, in particular in coordination of the nations’ preparation activities and in achieving consistency across the country. There should be a single national approach, not numerous local approaches. The Federal Government should also play a greater role in assisting others with responding and recovering from disasters through provision of specialist and general capabilities and capacities that often only the Federal Government holds.⁷⁵

M-Day. Importantly, the M-Day is set by the risk management intent of limiting damage. M-Day must be before the event and sufficiently prior as needed to reduce the damage to the level desired. In this, the length of time before an event that M-Day must occur depends on the existing capabilities and capacities. If these are significant, then the mobilisation necessary to reach a level adequate to provide the damage limitation sought may be quickly accomplished. M-Day may then be only a short time before an event is anticipated. On the other hand, if the existing capabilities and capacities are insubstantial then M-Day will need to be considerably in advance of when a possible event is forecast. In either circumstance, the risk management approach offers a way to quantify the scale and rate of mobilisation required and to plan accordingly.

As is apparent, determination of M-Day is driven by judgements concerning when an event may occur. The advantage of risk management for mobilisation is that only planning needs to be undertaken so as to

be ready to activate when needed. Resources are not expended until considered necessary. On the other hand, the judgements made may or may not prove correct; uncertainty is omnipresent.

RESILIENCE CONCEPTUALISATION

Resilience reverses risk management. Instead of aiming to actively limit the damage an event causes, resilience aims to absorb an anticipated event and then recover. Resilience can be conceptualised as comprising:

- a. an absorption element, which comprises both resistance and buffers which reduces the depth of impact, that is the decline in functioning of the system impacted; and
- b. an adaptability element, which focuses on maximising the speed of recovery, that is when the system's functioning returns to a steady-state level.⁷⁶

The notion of what returning to steady-state means can range from: surviving a shock in some reduced form; continuing operation in the presence of a shock; recovering from a shock to the original form; or absorbing a shock and evolving in response.⁷⁷

Resilience as an idea is very topical and can appear as the ultimate answer to the complex and complicated range of threats many face. It has particular contemporary appeal when considering natural disasters where human security concerns loom large. The Australian bushfire Royal Commission is an example; its report asserts that: 'there needs to be a fundamental shift in strategic thinking about national natural disaster management. If there were one word that encapsulates this shift, it would be "resilience".'

However, the concept of resilience raises some concerns. The idea can be stretched too far. Human history is one of resilience in the face of many negative events, as the persistence of the human race demonstrates. However, if resilience is just survival it starts to become problematic. The idea of resilience has no lower boundary in that sense and when almost everything is resilient the term starts to lose usefulness.⁷⁸

If the depth of resilience is arguable, its breadth also creates issues. This is breadth according to two understandings. Firstly, there is the breadth of events that resilience is called to address. There can be expansive visions of these. The recent New Zealand national disaster resilience plan declares: 'In essence, it's about developing a wide zone of tolerance – the ability to remain effective across a range of future conditions'.⁷⁹ Immediately apparent is that the resource cost of being resilient will vary with the "range of future conditions" envisaged. The more envisaged, the greater the resource implications.



Australian Army soldiers from Joint Task Group 629.6 remove debris from St Mary's Primary School, Northampton, Western Australia in the wake of Tropical Cyclone Seroja. (Defence Image Gallery | LISIS Kieren Whiteley)

Secondly, breadth can also be conceived as how far across a society resilience will be built in. The earlier mentioned plan further advises that as: 'Disaster risk and disaster impacts reach all parts of society, so, to the greatest degree possible, disaster resilience should be integrated in all parts of society'.⁸⁰ Again this implies a significant resource commitment that

recalls Bob Gates' words in the previous section that '[y]ou could spend \$2 trillion and you'd never get to zero threat'.

Resilience is clearly not resource free and this leads to another criticism. Some see it as emanating from a neoliberal perspective that tries to shift the costs of natural disasters from the government, nation and large corporations onto individuals. In this discourse, resilience is seen as a personal responsibility but individuals are least able to meet the resource costs involved.⁸¹ Accepting this critique the New Zealand plan notes that: 'We need to work out how we build our resilience in a smart, cost-effective way, so it's realistic and affordable, and so is not a 'sunk' cost, like stockpiles for a bad day—but rather enables better living standards today'.⁸² The practical implementation of societal resilience remains a work in progress.



Australian Army soldiers during a chainsaw and tree felling course held near Wangaratta in support of Operation Bushfire Assist. (Defence Image Gallery | LSIS Kieren Whiteley)

Mobilisation planning context

Many of the mobilisation considerations applying in risk management have parallels in resilience. In this, moving from the abstract to the practical requires deciding a number of issues. The first involves deciding at the national level the what, where, when parameters including:

- a. what is to be made resilient;
- b. what is this to be made resilient too, that is what type of event is anticipated;
- c. what level of resilience is sought in terms of what is the desired steady state after the shock; and
- d. when and for how long is this resilience desired.

Resource allocation. Determining how resources should be allocated introduces the same range of problems as noted in risk management. These allocations are fundamentally a political decision as there are many anticipated events but only limited resources at hand. Judgement is all.

Burden spreading. As with risk management, the burden of resilience can be distributed and spread across many parts of society. In this there are some caveats. As the neoliberal criticism noted earlier implies, shifting the resilience resourcing burdens to individuals does not mean that national or local resilience is achieved to the desired levels.

Mobilisation planning overview

If resilience is important at a national level, it will require national level involvement to ensure it is attained. Such an activist stance could use the managerial or market approach, as discussed earlier and in Chapter 2. The market approach is frequently employed after a natural disaster when local governments suddenly generate and enforce much stricter rebuilding codes aiming to achieve enhanced future resilience albeit with costs to be met by individuals.

The notion of distributed responsibilities highlights that the dominant issue in national resilience planning is coordination by government of the appropriate societal activities. Accordingly, the organisational structures required would in general be similar to those discussed in the earlier risk management section.

M-Day. Temporally, resilience mobilisation planning can be broken into two periods. The first may involve a limited mobilisation undertaken before the foreseen event to reach the desired absorption performance. This phase may principally be the use of market measures like regulations to ensure resilience is built into systems as they are initially designed and constructed.

The second phase would be a much larger mobilisation, occur after the event and encompass the recovery phase. The greater the mobilisation undertaken the faster the recovery to the desired steady-state level. The second phase may use mainly managerial measures to acquire and direct resources as needed to recover. For meeting resilience requirements, mobilisation planning would then be mainly concerned about the post-event period.

Relationship to risk management: In broad terms, risk management mainly involves the pre-event period while resilience mainly concerns post-event. Given this, there is a clear connection between the two. Ideally, risk management would reduce the damage inflicted to a level that the resilience actions could readily handle. If the damage inflicted is too great, then resilience may be problematic. On the other hand, having adequate resilience may make risk management easy as the damage limitation needed can be reduced, confident a quick recovery can be achieved.

While the two are conceptually different, risk management and resilience should ideally work together to achieve the best outcomes. Realistically however, not all sections of a society can be protected at all times using risk management and resilience. Instead, society is likely to appear more like a patchwork where some areas are safeguarded by both, some by either and some by none. The design of the patchwork will vary with the resources available and the allocation decisions made.



Parks Victoria rangers, Australian Army engineers from 3rd Combat Engineer Regiment, Republic of Fiji Military Forces soldiers and Papua New Guinea Defence Force soldiers sit on a temporary medium girder bridge installed at Buchan Caves during Operation Bushfire Assist. (Defence Image Gallery | LSIS Kieren Whiteley)

OPPORTUNISM CONCEPTUALISATION

Events can be positive as well as negative.

Opportunism seeks to take advantage of situations that emerge. Used here, it is considered a technique that states may use and does not imply some moral judgement.

Opportunism focuses on the upside to a situation in seeking significant returns through exploiting unexpected new situations that emerge. This differs to both risk management that seeks to protect on the downside by limiting losses if bad situations arise and resilience that seeks timely recovery. Opportunism can be adopted at any time but is well suited to highly dynamic or complex circumstances characterised by a very large range of possible alternative futures that make planning truly impractical.

Crucial to using this approach is being sufficiently prepared and flexible enough to seize new opportunities as they emerge. The broader the capabilities available, and the deeper the capacities at hand, the wider the range of opportunities that may be taken advantage of. Intellectually, political

leaders and bureaucracies need to be sufficiently agile to adapt to the new circumstances and exploit the new opportunities presented before they close. The window of opportunity to act may be brief.

Opportunism implies moving quickly and so there is a premium placed on speed rather than methodical preparation and planning. Actions may need to be taken before fully understanding the likely consequences. The actions taken and the situation may then interact in novel and unexpected ways. This inherent uncertainty may make using an opportunist approach something of rollercoaster ride as the situation develops. Opportunism tends to be criticized for being short-sighted but this is implicit in its operation.

The opportunist approach in operation is well illustrated in the development of the British Empire from around 1830 until the start of the Boer War in 1899. British expansion had no master plan devised and run in Whitehall, instead expansion was driven erratically and episodically by jostling domestic

interest groups and their 'men on the spot'. Rather than grand designs imposed from the top, the Empire was expanded from the bottom-up; John Darwin writes that:

*Even to official agents in the field it often seemed that the best plan was to act first and wait for public opinion to rally behind. It was no good asking the Foreign Office for permission to advance, advised [Lord] Milner in 1895. The people on the spot must take things into their own hands, when, if the occasion of the decisive move is well-chosen, public opinion here will surely approve.*⁸³

A local example was the annexation of Papua. In March 1883, concerned that Germany might acquire New Guinea and consequently Queensland might then border a European nation of uncertain bellicosity, the Colony of Queensland independently annexed eastern New Guinea. The Premier, Sir Thomas McIlwraith, dispatched the Thursday Island Magistrate, Henry Chester, to take possession of all of New Guinea east of the Dutch border, and the adjacent islands between 141° and 155° E. Chester raised the flag at Port Moresby on 4 April and his Proclamation was read to thirteen Europeans and

about 200 Papuans. This opportunism set off a chain of events that saw Britain pushed to create a protectorate over the southern half, renamed Papua, while an upset Germany annexed the northern half, renamed Kaiser-Wilhelmsland (later New Guinea).⁸⁴

A more modern but less obvious example of opportunism is the heavy lift air transport support provided to Japan in the wake of the 2011 earthquake, tsunami and Fukushima nuclear accident. Australia provided all of its flyable large C-17 transport aircraft to assist Japanese HADR efforts. This was an effort that was not initially asked for by Japan but as opportunities arose the Royal Australian Air Force grasped them. This was an opportunity to help that arguably supported wider geo-strategic ambitions to deepen the Australian-Japan relationship.⁸⁵

Mobilisation planning context

Contemporary opportunism focuses on taking advantage of sudden, unexpected events such as the 9/11 attacks. Importantly, the opportunist state can decide to join or not. This is an act of choice, not necessity. This choice quickly becomes constrained as the opportunist state having committed itself becomes a part of another state's project and is responsive to that. The other more activist state sets the agenda and determines the framework cognisant of its own goals and capabilities. The opportunist state can only be ready to react as circumstances dictate; the ship of state in this approach is actually captained by another. The implication is that the opportunist state can only grasp opportunities that fit with its existing response capabilities and capacities.

Resource Allocation. Resource decisions depend on, and can be made at the time of, the event. The opportunist state can contribute simply what it wishes to from what it has available. Opportunism is inherently a matter of choice—not of necessity—so an opportunistic state can do as much or as little as it wishes in some particular situation depending on the outcomes it seeks. An intrinsic problem though is states usually find it difficult to disengage from a situation they have entered and instead generally prefer for political reasons to continue with their commitment, even if this is becoming steadily more expensive.



Australian Army soldier Sapper Logan Brownjohn, from 1st Combat Engineer Regiment, mentors a Timor-Leste Defence Force soldier on best practice when using plant equipment on site at Metinaro Military Base in Timor-Leste during Exercise Hari'i Hamutuk on 14 October 2016. (Defence Image Gallery | CPL Nunu Campos)

Mobilisation planning overview

The high levels of uncertainty associated with opportunism makes establishing optimised mobilisation structures and processes problematic. Instead, having broad mobilisation plans modular in design may be more useful. An example might be an overarching mobilisation plan containing assemblies and subassemblies packaged in sufficient completeness to be able to be combined to meet needs as they emerged.⁸⁶ Each package could plan to include the necessary whole-of-society resources pre-integrated within each assembly and subassembly. Such a process would allow each assembly to be designed based on consistent and common planning assumptions.

M-Day. M-Day begins when the opportunist state realises there is an event occurring which it could usefully exploit. Just-in-case mobilisation planning may be done prior to the event but its implementation would overwhelmingly be post-event. As with risk management, forewarning of an

event would be most beneficial. Importantly, the opportunist state needs to be mentally and politically agile when the time comes to act. The window of opportunity may be open for only a short time.



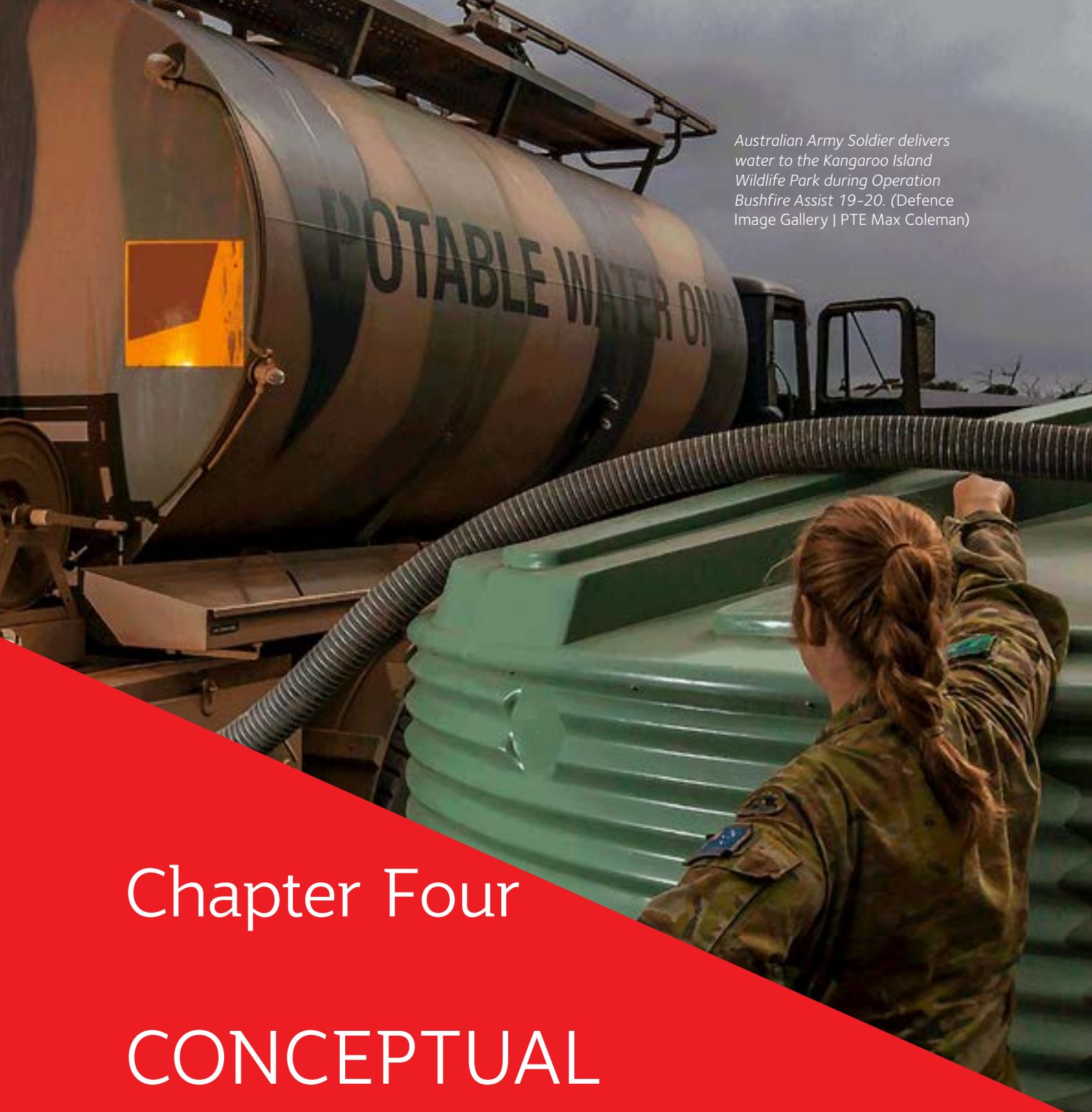
Members from No. 22 Squadron Air Movements Section load cargo onto a C-130J Hercules on a task to Western Australia following Cyclone Seroja. (Defence Image Gallery | CPL Kylie Gibson)

CONCLUSION

In all being event driven, risk management, resilience and opportunism have several similarities and overlaps when mobilisation is considered. These commonalities extend to issues discussed in earlier chapters concerning mobilisation principles, the managerial and market approaches, and the importance of M-Day timings. In the latter case, when M-day occurs in a conceptual sense varies. With risk management it is before the anticipated event whereas with resilience and opportunism it is after.

These differences are important in that while mobilisation planning can usefully always be undertaken before the event, the time when the plans' implementation needs to begin differs. Risk

management is the most challenging in this regard as its implementation must be undertaken based on a judgement the anticipated event will occur at a certain time in the future. In this case, good judgement and a certain moral courage in the leadership team are needed for, if the event does not eventuate, resources may have been expended that could have been better used elsewhere. To some extent, this lies behind enthusiasms for resilience as this involves mainly post-event resource expenditure when the situation is both certain and very well-defined. The difficulty is that relying on resilience may mean that the costs arising from an event may be much higher than they needed to have been.



Australian Army Soldier delivers water to the Kangaroo Island Wildlife Park during Operation Bushfire Assist 19-20. (Defence Image Gallery | PTE Max Coleman)

Chapter Four

CONCEPTUAL COMMONALITIES AND FUTURE INVESTMENT POSSIBILITIES

Mobilisation planning is a complicated area. The concept aims to make us better prepared for an uncertain future, but that very uncertainty makes planning problematic. Against this, the four approaches of strategy, risk management, resilience and opportunism all have several common features as related to mobilisation. Such commonality can alleviate some of the uncertainties as they remain applicable irrespective of the future context.

In all approaches, the eight general mobilisation principles and the managerial and market practices can be usefully used in planning. Similarly, all approaches can involve the whole-of-society, although with strategy and opportunism it is often only partial and is as government decides. Risk management and resilience is subtly different in that all Australians are exposed to risks irrespective of actions they take as the pandemic highlighted.

Importantly, there is a distinct difference between methodologies concerning when M-Day is. In broad terms, strategy and risk management mobilisation begins before the event occurs and for resilience and opportunism it is after. There is also a difference in terms of choice or necessity. Intrinsically, governments have a choice whether to mobilise for strategy and opportunism. In contrast for risk management and resilience it is much more a matter of necessity; actions need to be taken to limit damage and recover from disasters. Figure Two below illustrates these differences.

Figure Two: Strategy and risk management vs opportunism and resilience mobilisation



Source: Peter Layton, Griffith University.

This diagram reveals a significant issue. In general terms, the risk management conceptualisation explicitly means a lack of choice in mobilising and that this must be done before the event. To meet these key criteria requires perpetual preparedness.⁸⁷ Without perpetual preparedness there can be no effective risk management. This perspective highlights that governments can alternatively address risk by viewing it as an issue of uncertainty; it is uncertain whether particular events will occur, but they could.⁸⁸ Qualitative judgements of the probabilities of future events happening though provide little firm guidance for mobilisation planning. Accordingly, as explained earlier, in this report the risk management conceptualisation has adopted the economic approach to risk management that aims to limit losses caused by disasters to tolerable levels. This insurance style approach can underpin effective mobilisation planning.



Royal Solomon Islands Police Force Constable and Australian Army soldiers search for unexploded World War Two ordnance during Operation Render Safe 2019. (Defence Image Gallery | LSI Kieren Whiteley)

In sharp contrast to risk management, strategy, resilience and opportunism can be prepared for as government requires and/or as events dictate. Preparedness for these conceptualisations and their associated mobilisations, can thus be considered periodic not continuous and permanent. Softening this argument is that there can be very long lead times in developing the means to respond to situations calling for strategy, resilience and opportunism. It may be necessary to indefinitely sustain some response means, simply to have them available within reasonable warning times.

In terms of the organisation of a mobilisation, the Federal Government leads in strategy and opportunism. This means that the organisational structure for mobilisation in both these approaches is centralised, vertical and guided from the top down. In contrast, mobilisations associated with risk management and resilience have a more distributed, horizontal and bottom up structure. These approaches face nation-wide problems, much larger than the resources willing to be devoted to addressing them. Accordingly, burden sharing is embraced with responsibilities distributed across a range of lower-level stakeholders. For the Federal Government, the primary responsibility in national risk management and resilience then becomes coordination across the various layers of government and the wider society.



An Australian Army soldier deployed on Operation NSW Flood Assist drives through a community suburb that was damaged by floodwaters in Wisemans Ferry, New South Wales. (Defence Image Gallery | CPL Sagi Biderman)

To support government decision-making concerning M-Day across all four approaches, a centralised government intelligence system would be very useful. Such a system would be able to draw on a much broader array of sources than any single organisation or agency in its production of focussed assessments encompassing domestic and international matters. Susan Raine suggests that in Britain such a centralised system might be located in the Cabinet Office, a Department that directly supports the UK Prime Minister, to provide situational awareness, cross government coordination of risk assessment and analysis, and warning of emerging dangers, perhaps in real time.⁸⁹

The focus of this intelligence system would vary depending on which mobilisation approach was being assisted. For the event driven methodologies of risk management, resilience or opportunism, the system's gaze while wide-ranging, would need to be specifically focussed on meeting the defined need for relevant event forecasting. For strategy, such an intelligence system would be more tightly focussed, principally on supporting the strategy's needs.

Areas of commonalities become increasingly important when consideration turns from conceptualisations and abstract discussions to the more practically-focussed areas of mobilisation planning and execution investments. An investment in a common area of mobilisation would be useful regardless of what eventuates in the future and which method needs to be called on. Such no-regrets investments are always appropriate and always attractive.

In contrast are big-bets: full-scale commitments appropriate to one method and hence appropriate in one, maybe two, possible futures but of little use in others. To undertake these, there needs to be a high degree of confidence. In many respects, mobilisation is not that kind of subject area. However, in between no-regrets and big-bets are so-called real options. These involve postponing, phasing, making flexible investments or committing to small-scale capital equipment investments. When uncertain about a new concept and its possible implementation, real-options can be a most useful investment approach.

Two areas stand out when considering making investments that would be common across all mobilisations. The first common area is that of material, that is the equipment used to respond to an event. However, the specific material required can vary greatly between the national and human security challenges as these can range from a major war to a flood. The material needed for one situation is not necessarily useful for another. This is not a sharp distinction as some equipment is dual-use and has some cross-challenge application.⁹⁰ Such equipment is though relatively minor. While dual-use items could be usefully classified and considered from a mobilisation perspective, this would be a considerable undertaking and is not covered here.

The second primary area common to all kinds of mobilisation is people. Intuitively, people are the key

to mobilisation, without them little can be achieved. Given this criticality, people as a mobilisation area in itself might usefully be examined when considering future investments, analysis and conceptual evolution.

A useful concept to help guide investment thinking is the three horizons model. The first horizon is today's way of doing business and which forms the foundation for the future, the second is the medium term (2-5 years) that builds from today and represents achievable change while the third is

longer term (5-12 years) and envisions a new and different future.⁹¹

In mobilisation, reaching for the second horizon might build on and exploit the first horizon's present people capabilities and capacities. This might involve a blend of modest no-regrets moves and real options development. Overlapping this may be a push towards the third horizon using a diversification approach initially involving a re-thinking of the overall concept of mobilisation, some directed research and possibly some experimentation.

SECOND HORIZON INVESTMENT: MOBILISING AND PROTECTING PEOPLE

Australia already has considerable capabilities and capacities concerning people. In moving to the second horizon over the next five years or so, two areas might be enhanced. The first is a no-regrets option in the intangible area of social mobilisation where cyber contestation is becoming an increasing problem. The second is in the more tangible area of protecting people medically. The COVID-19 pandemic has revealed some shortcomings relevant to future mobilisations that might be usefully addressed.

Social mobilisation as used here involves persuading the people to actively back a national mobilisation. The ideal is not just to gain passive acquiescence but to also stigmatise free-riding.⁹² Gaining popular support may be as essential for a mobilisation's success as any material matter.

In a major change, the government's marshalling of the Australian people is now likely to be contested, perhaps seriously. Future governments could face purposeful interference when they attempt to convince the Australian people of the need to undertake mobilisation activities. Foreign powers and non-state actors might try to deliberately prevent mobilisation by meddling in Australian society.

The shift to a contested social environment reflects a revitalised appreciation of the importance of a nation's society to the nation's ability to defend itself.

"The people" are becoming reconceptualised as a centre of gravity that may be exploited by others to win future conflicts or competitions, potentially without any fighting at all.⁹³ Other states or offshore non-state actors may seek to mobilise Australians for its own purposes.



Able Seaman Medic administers the COVID-19 vaccine to a resident at Jonathan Rogers GC House in Nowra, New South Wales.. (Defence Image Gallery | Trooper Jarrod McAneney)

For example, the 2019/20 bushfire season in Australia was the subject of fringe right-wing websites and media figures based in the United States claiming they were caused by arsonists.

Intended as part of their domestic political war, these offshore conspiracy theories were picked up by Australians and spread, creating disinformation and confusion.⁹⁴ COVID-19 has similarly seen an accidental alignment between offshore and onshore conspiracy theorists distinctly unhelpful to national mobilisation during the pandemic.⁹⁵

Countering this can require not just technical cybersecurity actions but as importantly a “battle of ideas” that encompass foreground and background measures. The key foreground responses involve building legitimacy and crafting a strategic narrative. Legitimacy mainly concerns an assessment made by individuals of specific actions their government is undertaking. If the actions are deemed legitimate, people will at least passively support such actions and accept government demands made on them. Gaining legitimacy requires a focused and carefully structured approach.⁹⁶



Australian Army soldiers assist the Western Australian Police Force at a vehicle check point on Forrest Highway in Lake Clifton, Western Australia. (Defence Image Gallery | LSIS Ronnie Baltoft)

The second foreground measure involves crafting a strategic narrative to run in parallel with and support building legitimacy. The narrative provides an interpretive structure that people can use to make sense of historical facts, current problems and emerging issues. Such a narrative features a strong sense of time and of our deliberate progress through it, while including a consistent logic chain that appeals to both people’s rational and emotional cognition.⁹⁷ Katherine Manstead argues that such narratives need to also be dynamic and evolve through time; they

should not be simply “set and forget” but remain responsive to the changing circumstances.⁹⁸

In contrast, the background measures aim to favourably tilt the ideational battleground, actively complementing the foreground measures. Mobilisation issues that arose during World War II suggest these might include ensuring the people have an information source that gives a balanced perspective and that leadership groups base their public engagements on an assumption that most people are trustworthy and not inherently dishonest.⁹⁹

Mobilisation planning needs to include ways to gain public support in the event a mobilisation is required of whatever kind.¹⁰⁰ While the detail will depend on the context, mobilisation planners should develop relevant generic material and appropriate templates to allow timely use for societal mobilisation purposes during a crisis. Enhancing social mobilisation planning is a no-regrets option.

The second horizons improvements could also usefully focus on protecting the people. This idea is related to the human security concept that places the individual at the centre of the analysis. People are essential to all types of mobilisation in all contexts. Moreover, losses are unrecoverable or at least take many years to be replaced.

COVID-19 has suggested a range of medical institutional and infrastructure improvements that would enhance keeping Australia’s workforce and society functioning at the individual level during a mobilisation. These could include enhancing hospital surge capabilities, introducing national hospital surge standards, having regular mass-casualty/sickness drills for major hospitals to find capacity gaps, undertaking health sector mobilisation scenario exercises at the state–federal level and better integrating local government into national health security mobilisation planning.¹⁰¹ A program of real options could be laid out making flexible investments that trials on a small scale first, progressively develops each to an optimum level and then makes sizeable investments in each only when confident of their utility.

Beyond these direct medical enhancements, COVID-19 has further exposed serious medical supply chain matters germane to mobilisation. In

a second horizon focus on people at the individual level these could also be addressed again using a real options program. Marcus Hellyer usefully sets out the issues:

We'll need to adopt a combination of measures involving diversified sources of supply, greater stockpiles and enhanced domestic manufacture. Doing so will require a level of central planning that we haven't done outside of world wars, are not accustomed to and currently lack the capability to do. It will be hard work and needs to be part of a national resilience strategy. Working out who pays for it will be one of the hardest parts of the wicked problem to manage.¹⁰²

Mobilisation planning could include setting up bilateral or multilateral agreements with trusted partners to give great certainty of access to both medicines and key products in the medicine production process, such as active pharmaceutical ingredients. Even so, in times of international crisis such agreements may not be fully honoured. A practical answer to this is stockpiling goods of national strategic importance, such as PPE and medical equipment. Domestic manufacture is the final option; this could receive some form of government incentives such as targeted procurement practices.

In considering undertaking lower cost, real options investment, mobilisation planning activities could usefully examine how to repurpose existing production facilities at short notice. For example, during the COVID-19 pandemic, distillers quickly shifted to hand-sanitiser production; textile, clothing and footwear production facilities were repurposed for PPE; and some medical equipment manufacturers hurriedly started producing ventilators.¹⁰³ Mobilisation planning for repurposing might also include pre-planned Defence support.

In an example of what could be possible, Defence personnel aided Med-Con, Australia's only surgical mask manufacturer, to meet urgent demands. Engineering maintenance specialists from the Army

Logistic Training Centre and the Joint Logistics Unit helped repair and maintain a key piece of equipment in Med-Con's Shepparton plant. With defence support, Med-Con moved to 24/7 operations, resulting in face-mask production increasing from an output of 2 million to 200 million units per year.¹⁰⁴



Australian Army personnel from the 3rd Combat Service Support Battalion disembark from a Royal Australian Air Force KC-30A Multi-Role Tanker Transport at RAAF Base Townsville after returning from Operation COVID-19 Assist. (Defence Image Gallery | CPL Brodie Cross)

Repurposing is an area where small-scale capital equipment investments could be made to verify the concept and its implementation across a range of manufacturers and manufactured goods. Potentially, repurposing could be an excellent real options area to explore building manufacturing capabilities and capacities that were to be available just-in-case. The difficulty is that in being a just-in-case concept, the monies invested would need to be constrained to remain good value for money.

In looking beyond continental Australia, during 1942-45 Australia and New Zealand supplied goods and services to the Pacific islands when other international sources were cut off.¹⁰⁵ In a future international crisis this could happen again, with Australia playing a leading role as the stockpiling and distribution hub for the Pacific island countries. Medical supplies are amongst the most critical support that an Australia national mobilisation could provide. Repurposing may have a role to play in such a future circumstance, either using Australian facilities or perhaps Pacific island ones.



THIRD HORIZON INVESTMENT: PEOPLE-CENTRED MOBILISATION PLANNING

Many have an image of mobilisation as an activity involving smokestack factories and immense industrial complexes mass-producing tanks, aircraft and warships. There is some truth in such visions, but they are unhelpful and unintentionally place the focus of mobilisation on material matters, to the seeming exclusion of much else. As noted, people are essential across all mobilisation types and contexts; they are a constant, whereas the type of material required varies dramatically.



Australian Army soldiers from the 3rd Combat Service Support Battalion, based in Townsville, arrive in Melbourne to support Victoria Police on Operation COVID Assist. (Defence Image Gallery | LSIS Kieren Dempsey)

Moreover, technology is changing how material is manufactured. Robotics, advanced manufacturing and 3D printing are shifting manufacturing from being machine tooling dependent to being software driven. In the Second World War's smokestack mobilisation the first phase was to build or import the machine tools needed to build the machines of war. Accordingly in World War II, Australia took six months to "tool up" to mass produce a shell, 12 months for a rifle and about two years for an anti-aircraft gun. The technology of the day meant it took several years for a nation's industrial base to mobilise.¹⁰⁶

The 20th Century's second industrial revolution has given way to the fourth, making digital technology, robotics and in particular software central. Changing the output of a Fourth Industrial Revolution (4IR) production line is a software issue as much as, and

often much more than, any tooling concerns. In a broad sense, software is the 21st Century's machine tooling. If the right software is at hand, a production line can switch outputs relatively quickly and simply. Moreover, the functions of a machine of war are controlled by software. Just like in the factory, weapon performance is now often determined by software not hardware.

If material mobilisation is now becoming a software story, the creation of new software mainly lies with people. New digital tools may be necessary but being software, these have instant global access; a far cry from the months needed to import machine tools via ship as in World War II. The 4IR paradoxically makes people more important. Mobilisation may mean software needs changing or new software written. This deeply involves people.¹⁰⁷ These are highly skilled people, many in a group human resources have labelled as:

*pivotal people—those that contribute outsized ...value to their organisation. They will be hard to find and difficult ... to keep ... Organisations will need to pay careful attention to the employee value proposition—the reasons why these extraordinary people were attracted to working with them in the first place.*¹⁰⁸

The difficulty is, as the quote alludes, managing highly skilled people. However, this is not just an issue at the micro-level. Shifting focus outward to the much larger overall Australian workforce, in previous mobilisations Australia has always had too few people. They are always a scarce commodity needing careful management.

In general terms, the Australian workforce is numerically stable but with skills varying across it. Depending on the reason for the mobilisation, some sectors of civil society may be very busy while others less so, and perhaps such as during the COVID-19 pandemic, completely shut down. Drawing a workforce from these busy sectors will cut economic output and create problems in society that may well reduce the civil domain's capacity to contribute to the overall mobilisation effort. The ideal would be to swing people from the idle sectors of a society into the now busy mobilisation parts, even if this is only for a limited duration.

The key mobilisation workforce issue is accordingly allocation of people to tasks. In this, each mobilisation will call for a diverse range of skills, some found in large uncommitted workforces immediately available but with many other skillsets perhaps much less so. To be able to move more people into the new mobilisation areas, will require them receiving optimised education and training.

In a mobilisation, Australia's training and education system may not be fast enough to respond to the mobilisation's emerging skill needs. Time lags, poor information and complex projects may create new demands for skilled people that will materialise quickly and then rapidly evolve. There are already areas which in a mobilisation might prove problematic. For example, Australia has a shortfall in cybersecurity specialists and will need 18,000 more in just five years but nationally trains only some 500 people.¹⁰⁹

Taking a broader snapshot across engineering more generally, apparent shortfalls can be appreciated in the major specialisations needing to be filled by temporary migrant visa professional engineers. In 2015 -2016 these were software engineering (35 per cent), engineering managers (10 per cent), mechanical engineering (9 per cent), computer network and systems engineering (6 per cent), civil engineering (6 per cent) and electrical engineering (5 per cent).¹¹⁰ Conversely those major specialisations with the fewest temporary migrant visa professional engineers suggest areas in the Australian engineering workforce where supply and demand are reasonably balanced. In the period noted, these were naval architects, aeronautical engineers, materials engineers and agricultural engineers. As this suggests, normally overseas migration solves such issues, but in a mobilisation demand for people in relevant areas will escalate quickly, while the overseas people supply chain might stop almost completely as it has during the COVID-19 pandemic.

There is a second, less-apparent people supply problem that could impact a national mobilisation. Some 11 per cent of the Australian workforce are not Australian citizens and at least some of these may not be able to participate in a mobilisation. This may include some very highly skilled individuals with scarce but important abilities. Moreover, the COVID-19 pandemic highlighted that even less-skilled labour could suddenly diminish if access to the overseas workforce was denied. Parts of Australia's farming sector for example

could not find adequate numbers of people to work short-term during harvest time.¹¹¹ This repeated the World War II experience when troops needed to be sent to farms for harvest season duties; in the second half of the war, some soldiers were even demobilised to meet agricultural workforce shortfalls.¹¹²



Automation Engineer uses laptop for programming robotic arm. New era in automatic manufacturing industry. (Shutterstock | Gorodenkoff)

These issues emphasise that mobilisation in terms of people is to some extent a zero sum game, as the earlier general principles of mobilisation laid out. People can work within the sector being mobilised or the wider civil community that supports the mobilised sector, but not both. Menzies' 1951-56 peacetime defence mobilisation stalled due to a conflict between the workforce needed for the desired military expansion versus the demands of the civilian housing construction industry; the latter won out.¹¹³

Reconceptualising mobilisation

It may be time to reconceptualise mobilisation from the smokestack vista to one where people are at the centre of mobilisation models and planning. The current mobilisation paradigm tends to be material-centred. It is now time to consider moving to a people-centred mobilisation framework. The development of such a framework could draw on, and extend from, the Finish mobilisation planning framework.¹¹⁴

This implies, at some level, training and allocating the national workforce to meet the combination of the mobilisation's and the civil sector's needs, whether such action is done using managerial or market state methods. The latter is mainly used today, for example five years ago incentivising people in the mining industry to relocate to Adelaide to be retrained to build ships and submarines.¹¹⁵

Developing a mobilisation planning process for allocating workforce would be a difficult task. Previously it was done during wartime when the exigences of the moment helped ensure public acceptance. However, the COVID-19 pandemic again showed what is possible in lesser situations using a mixture of judicious managerial and market state approaches. Permanent and reserve Defence skilled and less-skilled personnel were deployed by government using a managerial state approach. Simultaneously using a market state approach, the government accessed volunteers from across the Australian Public Service and folded the private medical sector into the public system.

planning process and, in conjunction, considering what data needs to be collected to understand the workforce within the wider society. With this, it might be possible to use sophisticated artificial intelligence workforce planning and predictive analytics to plan for workforce allocations and skilled worker pipelines across multiple future scenarios.¹¹⁷ This initial stage of considering process, data and digital planning analytics would be a suitable field for integrated, directed research activities.

A parallel and related effort might investigate how to rapidly reskill people who the demands of the mobilisation required to shift occupations. Given 4IR this might be noticeably different to earlier times when classroom learning and hands-on trade training was dominant.

In the earlier industrial revolutions, manufacturing had an artisanal quality characterised by tacit knowledge and a high level of competence that employees developed through imitative learning on the job. In the 4IR, knowledge is contained within digital models of the product and manufacturing processes, not solely held by humans. The manufacturing process in being digitised is now highly structured and formalised. There is no longer need for an individual's artisanal prowess.

The 4IR production process is technologically more complicated than the process used in earlier industrial revolutions but paradoxically does not require as highly skilled workers. The digital avatar of the item being produced is the real director of the production process with its highly detailed instructions provided on call to all the production line staff through diverse digital media including tablets, virtual reality and augmented reality. This allows the linearity of the traditional production process to be sidestepped. Employees can now work across the item being created with different skills and roles working together simultaneously all coordinated and connected through the digital thread. This overall approach is compatible with the contemporary "gig economy" business practices that hires staff as needed and dismisses them when the piecework is complete.

A future mobilisation, if well planned, might be able to swing people from task to task much faster than in earlier times. Such opportunities might open through placing people at the centre of mobilisation practice. The idea however is unvalidated. It is an area where an experimentation program is needed that may give an inordinately large return on investment.



Emergency Management Commissioner for Victoria Andrew Crisp APM, meets Canadian fire fighters, DEWLP offices and Australian Defence Force personnel at the Incident Control Centre in Ovens, Victoria. (Defence Image Gallery | Private Michael Currie)

An important early part of any workforce planning system is broad data of varying depth. In this regard, earlier Australian national-level attempts at workforce planning during mobilisations were hampered by the data collected and statistical measures used being inadequate and inappropriate for such tasks.¹¹⁶ As noted earlier, in a mobilisation it would be advantageous to both shift a workforce from now-idle areas of society into areas made busy by the mobilisation, and to understand the sudden reskilling needs such a shift would recreate. Without adequate workforce data, understanding the practicality and implications of such options would be impossible.

A third horizon initiative to place people at the centre of mobilisation planning would take time to reach fruition. In the beginning, the initial stages might focus on developing the outline of an embryonic people





Chapter Five

A PAPUA NEW GUINEA PEOPLE EXCURSION

A key commonality across the four mobilisation conceptual frameworks is, as noted, people. Historically, Australia's mobilisations reached their limits mainly because of the limited population base. This issue has become apparent during the COVID-19 pandemic when the tenth of the Australian workforce that were not Australian citizens were asked to leave the country. This led to labour shortfalls, especially in agriculture.

The nature of Australia's mobilisation is changing as well. In a time of compounding catastrophes, mobilisations are likely to now include natural disasters. These fall mainly within the resilience section of the overall mobilisation framework of strategy, risk management, resilience and opportunism.

The combination of people shortfalls and the growing importance of resilience may be at least partly addressed by taking a more regional approach, that is including the South Pacific islands.

Most of the islands are small with correspondingly populations but a major outlier is Papua New Guinea (PNG). The country now has almost 9 million people, with 14 million predicted for 2050.

This chapter applies an Australian mobilisation perspective to the region and in particular PNG. For reasons of brevity the chapter is Australian-centric and accepts the shortcomings inherent in that approach. The first section discusses the history of PNG mobilisation during 1942-45, when governed by Australia and partly occupied by the Japanese Army. The possibility of a future mobilisation in terms of PNG assisting Australian agriculture is briefly discussed. The second section examines resilience noting the increasing frequency of compounding catastrophes across Australia and the South Pacific, and suggests a combined, permanent Humanitarian and Disaster Relief (HADR) force located within the Australian Defence Force (ADF) and half manned by Pacific islanders.

MOBILISATION: STRATEGY CONCEPTUALISATION

The grim World War II experience

On the 18th February 1942 Australian Prime Minister Curtin publicly declared "total mobilisation". The next day, Darwin was struck by its first Japanese air raids. A Government spokesman explained that total

mobilisation meant: 'everybody in this country who has anything or is anything can be ordered by the Government to do what the Government demands. All the possessions of all the people are henceforth at the Government's disposal'.¹¹⁸

Now somewhat overlooked in Australian history is that four days before, the Commonwealth Government suspended the civil governments of both the Mandated Territory of New Guinea and Australia's colonial state of Papua, and instituted military control. All the possessions of what would become PNG were not just at the Australian Government's disposal, but in particular at the Australian Army's disposal. By this stage Japanese forces controlled much of New Guinea and were advancing into Papua by land and sea.

Papua New Guinea remained under total mobilisation and run by the Army from 14 February 1942 until the end of the Pacific War in August 1945. Across that time, the territory was the most fully mobilised that any has been under Australian government control. Official historian Gavin Long writes that by



Members of the 8th Movement Control Group assisting local people aboard a Douglas C47 aircraft at Madang, New Guinea on 18 October 1944. (Australian War Memorial)

late 1944 'the burden of war was weighing heavily on the [Papuan and]New Guinea native - more heavily, man for man, than on the general run of Australian citizens'.¹¹⁹

The mobilisation of Australia across World War II saw the creation of an array of new governmental structures, departments, agencies and organisations managing the whole of society.¹²⁰ PNG's mobilisation involved only two: the Australian New Guinea Administrative Unit (ANGAU) commanded by Major General Morris and, after May 1943, the Australian New Guinea Production Control Board (ANGPCB), a quasi-military organisation chaired by Brigadier Donald Cleland. In the main, ANGAU mobilised people and ANG mobilised production of essential war materials, essentially copra and rubber.

The more important was ANGAU. This Australian Army unit was responsible for many tasks but germane to mobilisation was the recruitment, enlistment and allocation of local labour resources.¹²¹ Most indigenous workers were used as labourers, initially for carrying supplies into battle areas and bringing out the wounded in areas with no roads and very challenging terrain, and then later in establishing and maintaining bases. Peter Ryan, during the war a Warrant Officer with ANGAU, later wrote that 'an admiring Australian army saw the job they could do, and immediately its appetite for carriers and labourers became ravenous'.¹²²

At its peak about 55,000 indigenous personnel were serving with Australian and US forces, which from an assumed population of less than 1 million with many living in Japanese held territory, was a heavy burden. The withdrawal of large numbers of young men from often-marginal farming communities caused grave societal hardships including significant malnourishment in many villages.¹²³ Of the labourers, some 46 were killed by enemy action, but almost 2000 died of other causes. Post-war, the indigenous personnel's poor conditions of service and the sometimes draconian means of recruitment came in for criticism.¹²⁴

ANGAU was a part of the Australian Army, not a civilian organisation, and with the war effort taking precedence, 'if this involved sacrificing native interests, then so be it'.¹²⁵ The welfare of the indigenous population was deemed of secondary importance to military requirements.¹²⁶ Ian Downs

observed that the coastal Papua New Guineans and their families in particular 'suffered greater privations and disturbance to their lives than any section of the public on the Australian mainland'.¹²⁷

If local labour resources had not been mobilised, a large number of Australians would have needed to be deployed into such frontline tasks. Given Australia's difficulties in mobilising personnel as the war progressed, such substitution would have been problematic. From late 1943, the Australian Government was redirecting men from the armed forces into food production. The Australian Army gradually shrank but this shortfall was partly addressed by raising increased numbers of Pacific Island battalions. Long writes that 'these went most of the way towards replacing the Australian battalions disbanded in the last year of the war'.¹²⁸



Signing ceremony of the final Japanese surrender in New Guinea in World War 2. Australian Army Major General Horace Robertson holding the sword handed over by Lieutenant General Hatazo Adachi. (Wikimedia Commons)

The ANGPCB was less critical to the war effort. The Board promoted and controlled the production of primary products in the Territories.¹²⁹ As the Japanese retreated, plantations could be reopened with Australian managers with local workers recruited and allocated by ANGAU in line with military needs. The managers purchased their requisite goods and stores through ANGAU and then sold the rubber, copra and coffee to the ANGPCB.¹³⁰ The Board was part of the Department of External Territories and responsible to its Minister. This Department operated 1941-1951 but during the war had little power; the Army was predominantly in control in PNG.¹³¹

A future agricultural workforce mobilisation

A repeat of World War II's invasion of PNG looks highly improbable making that conflicts' mobilisation lessons seemingly of little value. However, such an assessment might be somewhat hasty. Australia remains short of people while PNG now has a much larger population. As in 1942-45, PNG's people might be a strategic mobilisation asset. Indeed, the COVID-19 pandemic



The first charter flight of farm workers from the Pacific Islands has arrived in Queensland under the restarted Seasonal Worker Program in November 2020. (ABC Rural file photo | Emma Brown)

has reinforced that Australian agriculture remains a problematic area just as it was during World War II.

In the 1939-41 period the rural workforce fell 30 per cent as people joined the armed forces or went to work in the expanded manufacturing sector. From 1942, soldiers and prisoners of war were used to try to make up the shortfall, but it could not be fully offset. The result was that Australia's agricultural productivity was poor throughout the whole war.¹³²

In the 2020/2021 pandemic, Australian farms were unable to exploit the foreign tourist workforce that normally performs short term harvest tasks so as to gain an extension of their visas. A large percentage of this in-country tourist workforce had left—at Government direction—early in the pandemic and not been replaced. The impact was that at harvest time, the agricultural sector needed some 30,000 workers than were available from the national workforce.¹³³

Depending on the context, future Australian mobilisations, may also face difficulties concerning an inadequate agricultural workforce. PNG workers may be able to fill such a gap. However, achieving this would undoubtedly require dedicated staff to make the linkages work between Australian agricultural needs and PNG workers. Adequate air transport support would also be essential.

MOBILISATION: RESILIENCE CONCEPTUALISATION

The human security issues concerning Australia were discussed earlier. These issues are growing in scale and complexity, with as noted with the problems created by compounding and cascading disasters now becoming more understood.

The 2019-2020 fire season was seminal in both impacting large areas and in being so protracted. The season was influential in changing perspectives on natural disasters in general and resilience in particular, given that that Australia is already relatively well prepared for natural disasters given their frequency. For example, the Rural Fire Service, in the state of New South Wales, is the world's largest volunteer fire

service, with about 75,000 people. Across Australia there are some 160 civilian firefighting aircraft, shuffled backwards and forwards as fires require.

However, in the long and unprecedented 2019/2020 bushfire season, some 6000 defence personnel, numerous aircraft and helicopters and two amphibious ships also needed to be deployed. In addition, several nations including PNG and Fiji sent military personnel to assist. The longstanding ways of managing disasters were demonstrably inadequate. Australia also has further resilience obligations to the South West Pacific, with the ADF often deployed on international HADR operations. The most common

regional HADR occurrence is post-cyclone relief and recovery operations.

In this, the region gets about ten cyclones each year. With global warming, these numbers are expected to stay the same, but the magnitude will vary, with more Category 1 and 2 cyclones, fewer Category 3 cyclones and more Category 4 and 5 cyclones. The large Category 4 and 5 cyclones can cause considerable damage. Cyclone Pam cost two thirds of Vanuatu's GDP with Cyclone Winston 20 per cent of Fiji's GDP.

In 2020, two Category 5 cyclones impacted the region. Cyclone Harold in April caused extensive damage in the Solomon Islands, Vanuatu, Fiji, and Tonga. Australia gave considerable aid in response, although the involvement of the ADF was unusually constrained due to worries over spreading COVID-19. In December, Cyclone Yasa impacted Fiji, causing further significant damage. The ADF responded with initial relief packages delivered by C-17 aircraft followed by a deployment of 700 personnel, an amphibious ship and some helicopters for almost a month.¹³⁴ In passing, there was also another Category 5 cyclone, Cyclone Niran, in February 2021 that caused limited damage in Queensland but more in New Caledonia.

It is notable that in this era of overlapping disasters that in the week the ADF deployment to Fiji returned, some 700-800 ADF personnel, several helicopters and an uncrewed air vehicle system had been deployed to undertake flood relief in New South Wales.¹³⁵ Germane to this discussion is that Fijian Army engineers also participated. At the same time, some 1,000 ADF personnel were also deployed around Australia supporting Operation COVID-19 Assist.¹³⁶ Simultaneously, C-17 and C-130J aircraft were delivering COVID vaccines, syringes, medical supplies and medical storage refrigerators to PNG.

The steadily increasing use of the ADF on HADR operations is a feature of the time and its frequent compounding disasters. Such operations though create organisational problems in terms of maintaining the ADF's warfighting skills. Personnel are unable to undertake necessary training as they are deployed on HADR tasks, and warfighting exercises are cancelled due to non-availability of units. There is readily apparent a steadily rising demand for ADF

personnel for HADR but against this, the ADF is presently structured and postured for warfighting not HADR. In addition, a long-term historical trend is that warfighting is involving fewer and fewer people but an increasing number of machines. Tomorrow's ADF will have fewer military personnel than today's.

The time has arguably come to restructure and re-posture the ADF to be able to undertake HADR on a full-time basis. This would involve adding a new HADR part to the ADF to replace the warfighting element of the ADF that is currently doing HADR. Allowing for training and overlapping deployments, this new HADR element might comprise around 5000 personnel.¹³⁷ Crucially, these 5,000 personnel would professionalise HADR in the ADF, including participating on international HADR exercises. These do not build warfighting skills but represent a positive international engagement, a specific concern in contemporary strategic guidance as laid out in the 2020 Defence Strategic Update.¹³⁸

Australia's current approach to the ADF contributing to HADR was developed last century and designed to manage periodic natural disasters. Today's compounding disaster problem is very different in scale, intensity, frequency, nationwide coverage and duration. It is time for the ADF to conduct HADR on a full time, professional basis.



Royal Australian Navy sailor Able Seaman Boatswains Mate from HMAS Canberra, helps carry timber that will be used to repair schools on Taveuni Island on the Eastern side of Vanua Levu, Fiji's second largest island as part of Operation FIJI ASSIST 2016. (Defence Image Gallery | LSIS Helen Frank)

The emerging continuous HADR problem involves not just Australia but the whole region. As noted earlier, Australia is always short of people in times of mobilisation. In considering HADR preparedness, regional nations, particularly PNG which has by far the largest population base in the South Pacific, should be involved. Instead of 5,000 Australians, perhaps half could be Pacific islanders.



A Royal Australian Navy Landing Craft carrying disaster relief supplies docks at Bekana Jetty in Vanua Levu, Fiji, during Operation Fiji Assist. (Defence Image Gallery | CPL Dustin Anderson)

Such a combined standing force would be rather busy on a continuing basis and costly in terms of resources and funding. However, the current approach is at least equally costly while imposing large opportunity

costs in denying ADF personnel their requisite warfighting training and preparations. These are becoming more important as noted earlier given the strategic guidance that requires the ADF now be prepared to meet short-notice crises that carry risks of major inter-state war. This concept would create a bifurcated ADF with today's force of almost 60,000 personnel dedicated to warfighting and thus state security, and the smaller 5,000 personnel part dedicated to HADR and human security.

There are reasonable arguments that such a HADR force need not be military. However, if it was it could leverage off the existing structures and organisation to a considerable amount including with training and support. If the HADR element was a stand-alone organisation, its logistic "tail" would be a more substantial part than if the ADF's logistics could be exploited.

There have also been arguments advanced about the potential issues involving Pacific islanders in being part of the ADF because they are not Australian citizens.¹³⁹ These arguments assume a warfighting role and thus issues about non-Australian citizens making war as dictated by the Australian government. It is reasonable to assume that Pacific island governments would have some real concerns about assigning their military personnel to be on-call for any and all future conflicts Australia may be involved in. Having a dedicated regional HADR role removes such concerns.



CONCLUSION

A nation will rarely have the luxury of being able to concentrate all of its efforts on a single mobilisation. Governments generally need to do more than one thing at a time. For example, in 1943–44, with major combat operations against Japan underway in Papua New Guinea, major bushfires broke out across Victoria, eventually killing some 50 people and causing significant damage. Many who would normally have fought such fires were absent because of the war. The Army joined in to help providing personnel and transport support.¹⁴⁰

Accordingly, any sharp distinction between the four different conceptualisations of strategy, risk management, resilience and opportunism is in reality more theoretical than practical. A government may have several different types of mobilisations running simultaneously. Indeed, this seems likely to be Oceania's future, given the rise of geostrategic turbulence and an expected increase in compound natural disasters.

Given this, the mobilisation area is a field where policymakers, leadership groups and planners need to be both prudent and meticulous. The four conceptualisations can assist this process, although how they are applied to the context encountered will be matter for the judgment of those involved at the time. The conceptualisations can give a common vocabulary and way of understanding the mobilisation problem but cannot have the granularity needed to provide specific solutions to problems unknown at this moment.

In all conceptualisations, the eight general mobilisation principles and the managerial and market practices (explained earlier) can be used for planning purposes. Similarly, all conceptualisations can involve the whole-of-society, although with strategy and opportunism this is often only partial and as the government decides. Risk management and resilience are subtly different in that all Australians can be exposed to risks irrespective of the actions they take as the COVID-19 pandemic highlighted.

In terms of the organisation of a mobilisation, the national government leads in strategy and

opportunism. This means that the organisational structure for mobilisation in both these conceptualisations is centralised, vertical and guided from the top down. In contrast, mobilisations associated with risk management and resilience have a more distributed, horizontal and bottom up structure. These conceptualisations face nation-wide problems, much larger than the resources that governments at all levels are generally willing to devote to addressing them. Accordingly, burden sharing is sought with responsibilities attempted to be distributed across a range of lower-level stakeholders. For the national government, the primary responsibility in national risk management and resilience then becomes coordination down the various vertical layers of government and across the wider society.



Royal Australian Air Force Squadron Leader reviews a map displaying the location of known fishing vessels during a brief held at the Forum Fisheries Agency, Regional Fisheries Surveillance Centre in Honiara, Solomon Islands, as part of Operation Solania. (Defence Image Gallery | SGT Christopher Dickson)

Importantly, there is a distinct difference between conceptualisations concerning when Mobilisation-Day (M-Day) is. For strategy and risk management, it is before the event occurs and for resilience and opportunism it is after. This distinction however hides a significant issue. Strategy is agency-driven and therefore a strategy's mobilisation timing is a government decision. Accordingly, in general

terms, only risk management requires perpetual preparedness. Strategy, resilience and opportunism can be prepared for as government requires or as events dictate. Preparedness for them, and the associated mobilisation, can thus be considered periodic not continuous and permanent.

Areas of commonalities become important when considering investing in mobilisation planning and



A Papua New Guinea Defence Force soldier proudly shows his nation's flag as he and fellow Task Group Dingo members board a Royal Australian Air Force KC-30 Multi-Role Tanker Transport aircraft at Melbourne Jet Base, Tullamarine Airport. (Defence Image Gallery | Major Cameron Jamieson)

implementation. There is a major commonality in a resource central to all mobilisations: people. Three areas appear promising: societal mobilisation, population protection and a re-conceptualisation of mobilisation that moves from today's material-centred approach to a people-centred one.

In addition, in considering people as a resource, Australia and Papua New Guinea may be able to cooperate to support Australian mobilisations under the strategy conceptualisation as regards the Australian agricultural production workforce. More importantly, the two countries could work also together to improve mobilisations under the resilience conceptualisation. A combined humanitarian and disaster relief operations force within the ADF but including Papua New Guineans, and possibly Fijians and the other Pacific islanders, could enhance regional preparedness.

Mobilisation clearly has a role to play in the future. The concept can bring depth, clarity and a practical perspective to considerations about how best Australia, and the Asia-Pacific more widely, can be prepared for the uncertain future. Mobilisation is an idea whose time has once again come. It is in tune with our unprecedented times.

NOTES AND REFERENCES

1. Binskin, M, 2020, 'Foreword' in *Royal Commission into National Natural Disaster Arrangements: Report*, 28 October, Canberra: Commonwealth of Australia, pp. 4-7.
2. Eubanks, O, 'Unprecedented' named People's Choice 2020 Word of the Year by Dictionary.com: The word received the most user submissions', *ABC News*, 16 December 2020, <https://abcnews.go.com/Politics/unprecedented-named-peoples-choice-2020-word-year-dictionary/story?id=74735664>.
3. Department of the Prime Minister and Cabinet, 2020, *Australian Government Crisis Management Framework*, Version 2.3, Canberra: Commonwealth of Australia, pp. 7-11.
4. Brodersen, A, 2020, *Defence Mobilisation Planning Strategy*, Canberra: Department of Defence, 17 December.
5. As an example see: Barnett, M and Duvall, R, 2005, 'Power in international politics', *International Organization*, vol. 59, no. 1, Winter, pp. 39-75.
6. Committee on Disaster Risk Reduction, 2019, *Summary of the Asia-Pacific Disaster Report 2019*, Economic and Social Council: United Nations, 2 July, p.4. https://www.unescap.org/sites/default/files/Summary%20of%20the%20Asia-Pacific%20Disaster%20Report%202019_English.pdf.
7. Binskin, 2020, p. 6.
8. *WorldRiskReport*, 2020, Bündnis Entwicklung Hilft, pp. 48-9, 58-60, <https://weltrisikobericht.de/english/>
9. Directorate of Future Force Development, 2017, *Foresight Report: Oceania, the Future Security Environment of the Pacific*, New Zealand Defence Force: Wellington, p. 58.
10. Günter Brauch, H, 2011, 'Concepts of security threats, challenges, vulnerabilities and risks' in Hans Günter Brauch et al (eds), *Coping with Global Environmental Change, Disasters and Security*, Berlin: Springer, pp. 104-5.
11. Pacific Islands Forum, 2019, *Boe Declaration Action Plan*, Pacific Islands Forum Secretariat: Suva.
12. Pezzullo, M, 2019, *Seven Gathering Storms: National Security in the 2020s*, Canberra: Australian Strategic Policy Institute, p.11, <https://www.homeaffairs.gov.au/news-media/speeches/2019/13-march-australian-strategic-policy-institute>.
13. Ehrenburg, I, 1964, *Men, Years-Life: Vol. V: The War 1941-45*, London, Macgibbon and Kee, p. 107.
14. Hofmann, C-A and Hudson, L, 2009, 'Military responses to natural disasters: last resort or inevitable trend?', *Humanitarian Exchange*, no. 44, pp. 29-31; Canyon, DV, Ryan, BJ, and Burkle, FM, 2019, 'Rationale for military involvement in humanitarian assistance and disaster relief', *Prehospital and Disaster Medicine*, vol. 35, no. 1, pp. 92-7.
15. Michaud, J, Moss, K, Licina, D, Waldman, R, Kamradt-Scott, A, Bartee, M, Lim, M, Williamson, J, Burkle, FM, Polyak, CS, Thomson, N, Heymann, DL and Lillywhite, L, 2019, 'Militaries and global health: peace, conflict, and disaster response', *The Lancet*, vol 393, no. 10168, 19 January, pp. 276-86; Newby, V, 2020, 'Pandemics and climate change mean it's time to consider ANZUS hospital ships', *The Strategist*, Australian Strategic Policy Institute, 30 March, <https://www.aspistrategist.org.au/pandemics-and-climate-change-mean-its-time-to-consider-anzus-hospital-ships/>.
16. Pezzullo, M, 2020, *Security as a Positive and Unifying Force*, Canberra: Australian National University, 13 October, p.8, <https://www.homeaffairs.gov.au/news-media/speeches/2020/13-october-security-as-a-positive-and-unifying-force>.
17. Frühling, S, 2009, *A History of Australian Strategic Policy since 1945*, Canberra: Defence Publishing Service.
18. Department of Defence, *2020 Defence Strategic Update*, Canberra: Commonwealth of Australia 2020, para. 1.13, p. 14.
19. Hitch, G and Probyn, A, 2020, 'China believed to be behind major cyber attack on Australian governments and businesses', *ABC News*, 19 June, <https://www.abc.net.au/news/2020-06-19/foreign-cyber-hack-targets-australian-government-and-business/12372470>.
20. Tail-risk refers to a very large investment loss of more than three standard deviations from the mean. See Christopher Joye, 'Seek an edge in the search for yield', *Australian Financial Review*, 29 December 2020-3 January 2021, p. 35.
21. Human Security Unit, 2009, *Human Security in Theory and Practice*, United Nations: New York, p. 12.
22. McAneney, J, Sandercock, B, Crompton, R, Mortlock, T, Musulin, R, Pielke, R and Gissing, A, 2019, 'Normalised insurance losses from Australian natural disasters: 1966-2017', *Environmental Hazards*, vol. 18, no. 5, October, pp. 414-33.
23. Gissing, A, Timms, M, Browning, S, Coates, L, Crompton R and McAneney, J, 2020, *Compound Natural Disasters In Australia: A Historical Analysis*, Melbourne: Bushfire and Natural Hazards CRC, p. 6.
24. *Ibid*, pp. 12-16.

25. Grose, MR, 'Commonwealth Scientific and Industrial Research Organisation, Transcript 2866', quoted in *Royal Commission into National Natural Disaster Arrangements: Report, 28 October 2020*, Canberra: Commonwealth of Australia, p. 61.
26. In the four scenarios developed, 3°C is the 'Central Energy View' future. Mike Henry, BHP Climate Change Report 2020, Melbourne: BHP Group Limited Australia, 2020, p. 14. Ove Hoegh-Guldberg (Chair), *The risks to Australia of a 3°C warmer world*, Canberra: Australian Academy of Science, March 2021, p. 8.
27. Royal Commission into National Natural Disaster Arrangements: Report, p. 22, 55.
28. Ibid, p. 22.
29. Gissing, 2020, op.cit., pp. 6-7.
30. Beckley, M and Brands, H, 2020, 'Competition with China could be short and sharp: The risk of war is greatest in the next decade', *Foreign Affairs*, <https://www.foreignaffairs.com/articles/united-states/2020-12-17/competition-china-could-be-short-and-sharp>.
31. Gissing, 2020, op.cit., p. 7.
32. Department of Home Affairs, 2018, *National Disaster Risk Reduction Framework*, Belconnen: Commonwealth of Australia, p. 5.
33. Layton, P, 2020, *National Mobilisation During War: Past Insights, Future Possibilities*, Canberra: National Security College, pp. 48-55.
34. Fuller, JFC, 1923, *The Reformation of War* (2nd Edition); London: Hutchinson and Co, p. 219.
35. Layton, P, *Grand Strategy*, Brisbane: CreateSpace, 2018, pp. 21-25, 52-66.
36. Yarger, HR, 2006, 'Toward a theory of strategy: Art Lykke and the Army War College Strategy Model', in Jr. J. Boone Bartholomees (ed), *US Army War College Guide to National Security Policy and Strategy*, Carlisle Barracks: Strategic Studies Institute.
37. Department of Foreign Affairs and Trade, 2019, 'Stepping up Australia's engagement with our Pacific family', *Australia's Pacific Engagement*, <https://www.dfat.gov.au/geo/pacific/engagement/Pages/stepping-up-australias-pacific-engagement>.
38. 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>.
39. Department of Foreign Affairs and Trade, 2019.
40. Frances Adamson, F, *Strategic Interests and Competition in the South Pacific, Special Session 2*, The International Institute For Strategic Studies Shangrila Dialogue: Singapore, 1 June 2019.
41. Moran, M et al, 2006, 'The public and its policies', in Michael Moran, Martin Rein, and Robert E Goodin (eds), *The Oxford Handbook of Public Policy*; New York: Oxford University Press, pp. 3-35, p. 21.
42. Quiggin, J, 2006, 'Economic Constraints on Public Policy', in Michael Moran, Martin Rein, and Robert E. Goodin (eds), *The Oxford Handbook of Public Policy*, New York: Oxford University Press, pp. 529-42.
43. Gilpin, R, 1987, *The Political Economy of International Relations*, Princeton: Princeton University Press International, p. 26-33.
44. Layton, P, 2020, *National Mobilisation During War: Past Insights, Future Possibilities*, Canberra: National Security College, pp. 22-31.
45. Sheng, A, 2021, 'Dual circulation is a strategic process, not a theory', East Asia Forum, <https://www.eastasiaforum.org/2021/01/20/dual-circulation-is-a-strategic-process-not-a-theory/>.
46. Leonard, M, 2021, *The New China Shock*, European Council on Foreign Relations, <https://ecfr.eu/article/the-new-china-shock/>.
47. Layton, 2020, op.cit., pp.13-20.
48. Ibid, pp. 33-6.
49. Secretary of War Henry L. Stimson quoted in Cuff, RD, 1984, 'Commentary', in James Titus (ed), *The Home Front and War in the Twentieth Century: The American Experience in Comparative Perspective*, Washington: United States Air Force Academy and Office of Air Force History, p. 115.
50. Layton, 2020, op.cit., pp.39-46.
51. Wrigley, AK, 1990, *The Defence Force and the Community: A Partnership in Australia's Defence: Report to the Minister for Defence*, Canberra: Australian Government Publishing Service; For a short overview see Layton, 2020, pp.38-39.
52. Schelling, TC, 1963, *The Strategy of Conflict*, New York: A Galaxy Book, Oxford University Press, p. 5.
53. London Royal Society, 1983, 'Risk assessment: A study group report', quoted in Adams, J, 1995, *Risk*, London: Routledge, p.8.
54. Hopkin, P, 2010, *Fundamentals of Risk Management: Understanding Evaluating and Implementing Effective Risk Management*, London: Kogan Page, pp. 148-52, 253-76.
55. An alternative actuarial culture based on the historical analysis of previous calamities and the spreading of costs across many underpins insurance calculations, but it is inappropriate for national security where risk events are unique, relatively rare and hard to predict. Lund Petersen, K, 2012, *Corporate Risk and National Security Redefined* Abingdon: Routledge, pp. 16-22.
56. National Coordinator for Security and Counterterrorism, 2019, *Dutch National Safety and Security Strategy*, Ministry of Justice and Security, Netherlands Government, <https://english.nctv.nl/topics/national-security-strategy>; Bergmans, H et al, 2009, *Working with Scenarios, Risk Assessment and Capabilities: In the National Safety and Security Strategy of the Netherlands*, The Hague: Ministry of the Interior and Kingdom Relations, pp. 11-12.

57. Netherlands Government, 2007, *National Security: Strategy and Work Programme 2007-2008*, Ministry of the Interior and Kingdom Relations, The Hague, p. 10.
58. The White Paper noted that the military forces developed to meet these two chosen risks could be used selectively and carefully for other tasks but force structure decisions were to be driven by these two risks. For the rationale behind adopting a Strategic Risk Management approach see: Department of Defence, 2000, *Defence 2000: Our Future Defence Force*, Canberra: Defence Publishing Service, pp. 6-7.
59. Department of Defence, 2009, *Defending Australia in the Asia Pacific Century: Force 2030*, Canberra, Australian Government, p. 27, para 3.7.
60. Ibid, p. 41, para 5.1 to 5.6.
61. Lord Salisbury quoted in Lady Gwendolen Cecil, 1921, *Life of Robert Marquis of Salisbury Volume II*, London: Hodder and Stoughton Ltd, p 153.
62. Edmunds, T, 2012, 'British civil-military relations and the problem of risk', *International Affairs*, vol. 88, no. 2, pp. 265-82. Hagmann J and Dunn Caveltly M, 2012, 'National risk registers: Security scientism and the propagation of permanent insecurity', *Security Dialogue*, vol. 43, no. 1, pp. 79-96, pp. 90-2.
63. Caudle SL and De Spiegeleire, S, 2010, 'A new generation of national security strategies: Early findings from the Netherlands and the United Kingdom', *Journal of Homeland Security and Emergency Management*, vol. 7, no. 1, p. 11.
64. Phillips, M, 2012, 'Policy-making in defence and security', *The RUSI Journal*, vol. 157, no. 1 February/ March, pp 28-35. Note that the discussion here relates to prioritising scarce resources not to the size a budget should be.
65. Caudle and Spiegeleire, 2010, p. 17.
66. Edmunds, 2012, op.cit., p. 273.
67. Pezzullo, M, 2020, *Security as a Positive and Unifying Force*, Canberra: Australian National University, p. 9-10, <https://www.homeaffairs.gov.au/news-media/speeches/2020/13-october-security-as-a-positive-and-unifying-force>.
68. Her Majesty's Government, 2020, *National Risk Register: 2020 edition*, p. 9-10, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/952959/6.6920_CO_CCS_s_National_Risk_Register_2020_11-1-21-FINAL.pdf.
69. Gates quoted in Ewing, P, 2012, 'Standing alone', DoD Buzz, <http://www.dodbuzz.com/2012/02/17/standing-alone/> [accessed 22 April 2012].
70. Raine, S, 2021, 'Half of the National Risk Register is missing', *RUSI Newsbrief*, 22 January, p. 1, <https://rusi.org/publication/rusi-newsbrief/half-national-risk-register-missing>.
71. Cornish P and Dorman, AM, 2013, 'Fifty shades of purple? A risk-sharing approach to the 2015 Strategic Defence and Security Review', *International Affairs*, vol. 89, no. 5, pp. 1183-202.
72. Pezzullo, M, 2020, *Security as a Positive and Unifying Force*, Canberra: Australian National University, p.11, <https://www.homeaffairs.gov.au/news-media/speeches/2020/13-october-security-as-a-positive-and-unifying-force>.
73. Cornish and Dorman, 2013, op.cit., p. 1196.
74. See: Givens, A, 2020, *Disaster Labs: How American States Use Partnerships to Manage the Unthinkable*, Quantico: Marine Corps University.
75. Pezzullo, 2020, op.cit..
76. Binskin, M, 2020, *Royal Commission into National Natural Disaster Arrangements*, pp. 23-4.
77. Minister of Civil Defence, 2019, *National Disaster Resilience Strategy Rautaki Ā-Motu Manawaraoa Aitu*, Wellington: Ministry of Civil Defence and Emergency Management, p.18.
78. Prosser B and Peters, C, 2010, 'Directions in disaster resilience policy', *The Australian Journal of Emergency Management*, vol. 25, no. 3, pp. 8-11.
79. van Bavel, B, Curtis, DR, Dijkman, J, Hannaford, M, de Keyzer, M, van Onacker E and Soens, T, 2020, *Disasters and History: The Vulnerability and Resilience of Past Societies*, Cambridge: Cambridge University Press, p.36.
80. Minister of Civil Defence, 2019, p.2.
81. Ibid.
82. van Bavel et al, 2020, op.cit., p.36.
83. Minister of Civil Defence, 2019, op.cit., p.23.
84. Darwin, J, 2009, *The Empire Project: The Rise and Fall of the British World-System 1830-1970*, Cambridge: Cambridge University Press, p. 91.
85. Overlack, P, 1979, 'Queensland's annexation of Papua: a background to Anglo-German friction', *Journal of the Royal Historical Society of Queensland*, vol. 10, no. 4, pp. 123-38; Johnson, DH, 1975, *Volunteers at Heart: The Queensland Defence Forces 1860-1901*, University of Queensland Press: St Lucia, pp. 88-89, 93.
86. McCormack, T, 2021, 'RAAF response to 2011 earthquake and tsunami led to closer Australia-Japan ties', *The Strategist*, Australian Strategic Policy Institute, <https://www.aspirstrategist.org.au/raaf-response-to-2011-earthquake-and-tsunami-led-to-closer-australia-japan-ties/>.
- McCormack, T, 2014, *Air Power in Disaster Relief*, Canberra: Air Power Development Centre.
87. Kreidberg, MA and Henry, MG, 1955, *History of Military Mobilization in the United States Army 1775-1945*, Washington: Department of the Army, p.426.
88. I am indebted to Joanne Nicholson et al for recognising this. See Nicholson, J, Dortmans, P, Black, M, Kepe, M, Grand Clement, S, Silfversten, E, Black, J, Ogden, T, Dewaele L and Garcia-Bode, PA, 2020, *Defence Mobilisation Planning Comparative Study: An Examination of Overseas Planning*, Canberra: RAND Australia, p. xvii.
89. Mazarr, MJ, 2016, *Rethinking Risk in National Security: Lessons of the Financial Crisis for Risk Management*, New York: Palgrave Macmillan, pp. 189-206.

90. Raine, 2021, op.cit., p. 3.
91. Nanthini, S, 2020, 'Re-evaluating the military's role in disaster response', *The Interpreter*, Sydney: Lowy Institute, <https://www.loyyinstitute.org/the-interpreter/re-evaluating-military-s-role-disaster-response>.
92. Coley, S, 2009, 'Enduring Ideas: The three horizons of growth', *McKinsey Quarterly*, <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-three-horizons-of-growth>.
93. Christensen, TJ, 1996, *Useful Adversaries: Grand Strategy, Domestic Mobilization, and Sino-American Conflict 1947-1958*, Princeton, New Jersey: Princeton University Press, p. 20.
94. General Valery Gerasimov, *Vectors of Military Strategy Development*, Speech at the Academy of Military Sciences, 2 March 2019, Translation by Google Translate, <http://redstar.ru/vektory-razvitiya-voennoj-strategii/?attempt=2#content> [Accessed 5 March 2019].
95. Thomas, E, 2020, 'Bushfires, bots and the spread of disinformation', *The Strategist*, Canberra: Australian Strategic Policy Institute, <https://www.aspistrategist.org.au/bushfires-bots-and-the-spread-of-disinformation/>; RMIT Fact Check, 'Some Coalition MPs say that arson is mostly to blame for the bushfire crisis: Here are the facts', *ABC News*, 15 January 2020, <https://www.abc.net.au/news/2020-01-15/is-arson-mostly-to-blame-for-the-bushfire-crisis/11865724>.
96. Thomas, E, 'How COVID-19 is driving a booming conspiracy industry', *The Sydney Morning Herald*, 27 May 2020, <https://www.smh.com.au/national/how-covid-19-is-driving-a-booming-conspiracy-industry-20200526-p54whn.html>.
97. Layton, P, 2019, *Social Mobilisation in a Contested Environment*, ACSACS Occasional Papers Series No. 9, Canberra: UNSW.
98. Layton, P, 2013, 'Strategic narratives, our defence white papers and their audiences', *The Strategist*, Canberra: Australian Strategic Policy Institute, <https://www.aspistrategist.org.au/strategic-narratives-our-defence-white-papers-and-their-audiences/>.
99. Discussion with Katherine Mansted, Senior Adviser for Public Policy, National Security College, Canberra, 3 February 2021; Mansted, K, 2020, *Adaptive Strategic Narrative: Preparing for Mobilisation in a Diverse, Digital Democracy*, Canberra: National Security College.
100. Layton, 2018, op.cit., pp. 13-15.
101. Reynolds K and Dunstone, E, 2020, *Defence Mobilisation: The Role of Group Psychology and Social Cohesion*, Canberra: Australian National University.
102. Barnes P and Bergin, A, 2020, 'Health preparedness and biosecurity', in John Coyne and Peter Jennings (eds), *After COVID-19: Australia and the World Rebuild (Volume 1)*, Canberra: Australian Strategic Policy Institute, pp. 61-64.
103. Hellyer, M, 2020, 'Creating resilient supply chains', John Coyne and Peter Jennings (eds), *After COVID-19: Australia and the World Rebuild (Volume 1)*, Canberra: Australian Strategic Policy Institute, p. 99.
104. Mulino, D, 2020, 'Securing critical supply chains', in Genevieve Feely and Peter Jennings (eds), *After COVID-19: Voices from Federal Parliament (Volume 3)*, Canberra: Australian Strategic Policy Institute, pp. 72-74.
105. Price, M, 2020, 'Defence industry rises to the challenge', in Genevieve Feely and Peter Jennings (eds), *After COVID-19: Voices from Federal Parliament (Volume 3)*, Canberra: Australian Strategic Policy Institute, p. 78.
106. 'South Pacific islands foodstuffs and other supplies', *The Narandera Argus*, Friday 10 September 1943, p. 2, <https://trove.nla.gov.au/newspaper/article/101536902>; Butlin, SJ and Schedvin, CB, 1997, *War Economy 1942-1945, Australia in the War of 1939-1945, Series Four: Civil*, vol iv, p. 108.
107. Mellor, DP, 1958, *The Role of Science and Industry, Australia in the War of 1939-1945, Series 4-Civil*, Canberra: Australian War Memorial, vol. v, p.34.
108. The reliance on people looks set to continue although in different forms. Sheong, S, 2020, 'Are machines going to replace programmers?', *Towards Data Science*, 16 July, <https://towardsdatascience.com/are-machines-going-to-replace-programmers-995072159365>.
109. Brown, J, 2018, *Workforce of the Future: The Competing Forces Shaping 2030*, PWC: United Kingdom, p. 31.
110. Sherrell, H, D'Souza, G and Ball, J, 2019, *Effects of Temporary Migration: Shaping Australia's Society and Economy*, Melbourne: Committee for Economic Development of Australia (CEDA), p. 18.
111. Kaspura, A, 2017, *The Engineering Profession: A Statistical Overview*, Thirteenth Edition, Barton: Engineers Australia, pp. 74-6.
112. Bolton, M, 2020, 'Farm worker shortage expected to worsen as industry body says 26,000 workers needed nationwide by March', *ABC Rural*, 11 December, <https://www.abc.net.au/news/rural/2020-12-11/farm-worker-shortage-expected-to-worsen-as-industry-crops-rot/12974250>.
113. Milward, AS, 1979, *War, Economy and Society 1939-1945*, Berkeley: University of California Press, pp. 276-7.
114. Layton, 2020, op.cit., pp. 30-31.
115. The Finnish Total Defence concept is discussed and usefully compared against several others nations including Australia in: Nicholson et al, 2020, pp. 20-31, 78, 108, 114-115, 118. See also: Peppi Vaananen, P, 2020, 'Lessons from Coronavirus: Is Finland's Preparedness as Stellar as its Reputation?', *RUSI Commentary*, 7 August <https://rusi.org/commentary/lessons-coronavirus-finland-preparation>.

116. Reporter, 2017, 'Defence avoiding mining and energy sector mistakes', *Defence Connect*, 25 May, <https://www.defenceconnect.com.au/maritime-antisub/732-defence-avoiding-mining-and-energy-sector-mistakes>.
117. Layton, 2020, op.cit., p. 20
118. Four alternative future scenarios concerning workforces are given in Justine Brown, 2018, op.cit., pp. 11-28.
119. 'Total mobilisation: Entire resources of nation to be regimented: Defence needs must prevail', *The Mercury*, 18 February 1942, p. 1, <https://trove.nla.gov.au/newspaper/article/25916121>.
120. Long, G, 1963, *The Final Campaigns, Australia in the War of 1939-1945, Series 1, Army Vol. VII*, Canberra: Australian War Memorial, p. 83.
121. Some of the more significant developments are detailed in Layton, 2020, op.cit., pp. 16-20 and 22-9.
122. Dennis, P, Grey, J, Morris, E, Prior, R and Bou, J, 2009, *The Oxford Companion to Australian Military History (2 ed)*, Oxford University Press, Oxford Reference Online.
123. Ryan, P, 1971, 'The Australian New Guinea Administrative Unit', in KS Inglis (ed), *The History of Melanesia, Second Waigani Seminar held at Port Moresby May 30-June 5 1968*, Canberra and Port Moresby: The Australian National University and University of Papua and New Guinea, p. 540.
124. Long, G, 1963, op.cit., p. 83; Penberthy Fry, T, 1946, 'Papua and mandated New Guinea today', *Pacific Affairs*, vol. 19, no. 2, pp. 146-64, 158-9.
125. Dennis et al, 2009, op.cit.
126. Gray, G, 2000, 'The Coming of the War to the Territories: Forced Labour and Broken Promises', *Remembering the War in New Guinea Symposium 19-21 October 2000*, Canberra: Australian National University, <http://ajrp.awm.gov.au/ajrp/remember.nsf/pages/NT00000C72>.
127. Sweeting, AJ, 1970, 'Appendix 2: Civilian wartime experience in the Territories of Papua and New Guinea', in Paul Hasluck, *The Government and the People, 1942-1945, Australia In The War Of 1939-1945, Series Four: Civil, Vol II*, Canberra: Australian War Memorial, p. 708.
128. Downs, I, 1980, *The Australian Trusteeship: Papua New Guinea 1945-75*, Canberra: Australian Government Publishing Service, p. 39.
129. Long, 1963, op.cit., p. 82.
130. Penberthy Fry, 1946, op.cit., p.148.
131. Special Correspondent, 'Planters Go Back to Papua', *Pacific Islands Monthly*, May 1943, p. 7.
132. Jinks, B, 1982, 'Australia's post-war policy for New Guinea and Papua', *The Journal of Pacific History*, vol. 17, no. 2, pp. 86-100.
133. Milward, 1979, op.cit., pp. 289-291.
134. Winning, D, 2021, 'Without tourists to put to work, Australia's farms are short on labor', *The Wall Street Journal*, 20 February, <https://www.wsj.com/articles/without-tourists-to-put-to-work-australias-farms-are-short-on-labor-11613828602>.
135. Department of Foreign Affairs and Trade, 2020, 'Tropical Cyclone Yasa' *Crisis Hub*, <https://www.dfat.gov.au/crisis-hub/tropical-cyclone-yasa>.
136. Department of Defence, 2021, *Operation NSW Flood Assist*, Commonwealth Government, 31 March, <https://news.defence.gov.au/national/operation-nsw-flood-assist-wed-03312021-1230>.
137. Department of Defence, Latest updates - Operation COVID-19 Assist, Commonwealth Government, 24 March 2021, <https://news.defence.gov.au/national/latest-updates-operation-covid-19-assist-wed-03242021-1500>.
138. Layton, P, 2020, 'Keeping the Australian Defence Force in the climate-change fight', *The Strategist*, Canberra: The Australian Strategic Policy Institute, 28 January, <https://www.aspistrategist.org.au/keeping-the-australian-defence-force-in-the-climate-change-fight/>.
139. Department of Defence, 2020, *2020 Defence Strategic Update*, Canberra: Commonwealth of Australia, pp. 24-6.
140. Ellery, D, 2019, 'Fiji's call for a 'Pacific Brigade' rejected', *Canberra Times*, 26 November, <https://www.canberratimes.com.au/story/6456041/no-plans-for-a-pacific-brigade-says-adf-brass/>; Lewis, R, 2019, 'ADF could open doors to Pacific military allies', *The Australian*, 22 October, <https://www.theaustralian.com.au/nation/defence/adf-could-open-doors-to-pacific-military-allies/news-story/3ea5567d3f0fa3b1617e8dff56dfff2e>.
141. Gamble, L, 2018, 'The Beaumaris bushfires of 1944', *Kingston Local History*, Kingston City Council, <https://localhistory.kingston.vic.gov.au/articles/319>.

475.321
659.325
888.236
45.32
1124.145
653.225
4452.2
857.326



ZDS-4512

SSQ-3298

ERB-5653

Griffith Asia Institute

Griffith University Nathan campus
Nathan Queensland 4111, Australia

Phone: +61 7 3735 3730

Email: gai@griffith.edu.au

LinkedIn: [griffith-asia-institute](https://www.linkedin.com/company/griffith-asia-institute)

Facebook: [griffithasiainstitute](https://www.facebook.com/griffithasiainstitute)

Twitter: [@GAIGriffith](https://twitter.com/GAIGriffith)

griffith.edu.au/asia-institute