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THE REGIONAL EMERGENCE OF STRATEGIC MISSILES: A FORCE OF ROOKS FOR A BLACK KING

By

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About the Author

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INTRODUCTION

Even since before Young Philip II of Macedon (382-336 BC) concerned himself with infantry tactics for his disciplined force of archers, slingers and javelin men, warriors have been in the business of missiles. With time and technology the reach has become intercontinental. Missile possession has afforded certain nations the ability to apply tremendous influence over immense distance. Strategic missile force has become as much an indication of power as an enabler.

In its most potent application, the fear-based deterrent value of strategic missile forces kept the world in a state of relative peace for over 40 years. While the Cold War has passed and the bipolar balance has been upset, the utility of the weapons born of that era still stands. Even as the weapons stockpiles of America and the former Soviet Union are dismantled, many nations of the world pursue the supplementation of their arsenals with strategic missiles. As the profile of missile utility continues to rise through proliferation and technological advances, the question must be asked as to what part that capability might play in the stability, or instability, of the future global power balance, especially as it concerns Australia.

The current trends in the evolution of global power balance suggest that 'regionalism is on the rise'.[1] Through the disengagement of superpowers the suppression of ancient animosities has been lifted in some areas (for example, the former Yugoslavia) and perceived regional power vacuums have occurred in others (for example, the Middle East) allowing the stronger of regional players to bid for local dominance.[2] Without the distraction of superpower alignments the focus of international outlook has been drawn back into regional neighbourhoods. Political, economic and military realignments are occurring worldwide, and the processes have been no less spectacular or uncertain for Australia. According to Professor Dibb, 'Asia will undergo a potentially dangerous transition period as a new regional strategic balance unfolds'.[3] Australia must monitor all the possible factors in that process in order to guarantee its continued security.

This paper is written in the strategic context of two coincidental global events: the rise in regionalism, and the proliferation of strategic missiles. In particular, however, the aim of this paper is to evaluate the chances for, and the likely responses to, the emergence of strategic missile capabilities in Australia's region.

This paper is not about particular weapons. It is about the possession and proliferation of a particular capability. That is, the capability to cause strategically significant damage and/or casualties, at low cost, over long distance, free of risk to aircrew, with little warning and with little vulnerability to air defence. Such a capability has as great a utility outside of war as within it. It is as much a weapon of governments as of

[1] Dibb, P., 'International Security and Australia' (presentation), RAAF 75th Anniversary Air Power Conference, National Convention Centre Canberra, 11 June 1996.
[2] Miller, B., 'International Systems and Regional Security: From Competition to Cooperation, Dominance or Disengagement', *The Journal of Strategic Studies*, Volume 18, Number 2, Frank Cass, London. June 1995, p 81.
[3] As quoted by Young, Peter Lewis, 'China and the Process of Transition in Regional Security Affairs', *Asian Defence Journal*, 6/96, p 75.

militaries. It is a unique capability with a distinctive history,[4] which warrants special attention in its modern potential applications. For the purposes of this paper, it will be called the strategic missile capability (SMC).

This paper will focus on surface launched missiles with at least 300 km range, with at least 500 kg weapons payload,[5] and with strategic targets.[6] While cruise and ballistic missiles have distinctly different principles of operation,[7] they share the same strategic utility, and as such will not be considered separately where practicable. While consideration of nuclear, biological and chemical weapons (NBCW) or weapons of mass destruction (WMD) is implicit to the SMC issue, it is the general strategic utility of the SMC with which this paper is concerned. Specific treatment of NBCW and WMD is therefore minimised or avoided where possible.

REGIONAL SMC: WHO IS THE BLACK KING?

The term 'region' is an arbitrary one, context dependent, which in its broadest sense might incorporate the entire planet. After all, through modern transport and communication, and through a proliferation of international organisations and agreements, the political and economic reach of nations now extends as far as national interests dictate, irrespective of geographic proximity.

For purposes of this discussion it might be said that strategic missiles, in a unique way, define their own 'region'. In simple terms, if either of two nations can reach the other, then they are both in each other's 'region'.[8] The relevance of this to Australia is

[4] The SMC described here has been used on three distinct occasions: firstly by Germany when it used more than 5000 V-1 and V-2 missiles against the Allies in 1944-45; secondly with the launching of 100s of ballistic missiles in the Iran/Iraq war between 1980 and 1988 (Navias, M., 'Ballistic Missile Proliferation in the Third World', *Adelphi Paper* 252, The International Institute of Strategic Studies: London, Summer 1990, p 33); and thirdly with Iraq's use of Scud missiles against Israel and Saudi Arabia during the Gulf War in 1991. While missiles were never launched in anger in Europe, the Cold War European theatre might also be considered a worthy example of strategic missile utility.

[5] These parameters have been arbitrarily chosen because they coincide with those above which the Missile Technology Control Regime begins to apply, and because they are around the minimum likely to be significant in the geographical context of South East Asia.

[6] Such targets include the likes of cities, government buildings, and industries of vital economic importance, as distinct from tactical targets involving specific military objectives.

[7] For the layman, ballistic missiles follow a ballistic trajectory, often exo-atmospherically, to their target. They are ground launched and are generally only propelled and guided during the initial phase of flight, arriving at their target by ballistic descent. This produces some inaccuracy, but the supersonic arrival speed carries significant advantage against countermeasures. Sophisticated terminal guidance systems can offer accuracy of less than 50 m CEP (circular error probable) but current Third World weapon accuracies are as poor as 1000 m (eg Scud B). Surface launched cruise missiles, by contrast, fly aerodynamically, generally at relatively low levels, and are propelled and guided throughout their flight, including terminally. Modern cruise missiles have accuracies of less than six metres CEP (eg Tomahawk TLAM) but Third World accuracies of 100 m CEP are more likely achievable. (Carus, W.S., 'Cruise Missile Proliferation in the 1990s', *The Washington Papers 159*, Center for Strategic and International Studies, Washington DC, 1992, chapter 1).

[8] As an aside, such a definition has interesting, and perhaps quite accurate implications. Firstly, it suggests that a given country might have in its region of security interest a great power at great distance, while excluding from its region a smaller one at closer distance. For example, on this basis Australia might consider the US to be 'regional', but not Afghanistan. Secondly, it implies that countries with strong force projection capabilities are burdened (or perhaps blessed) with very large

that, in the strategic missile context, customary interpretations of 'region' do not apply. With the concept of a self-defining region in mind, it is possible to see two routes for the emergence of a strategic missile threat: indigenous and exotic. An indigenous threat capability would arise through local acquisition of strategic missiles. An exotic threat capability would arise through improvements to missile range for non-local weapons holders (existing or prospective). So, for example, if one is to assume continued strategic missile proliferation, Australia's 'region' might be expected to progressively widen to encompass most of Asia and the Middle East.

Who Has What?

The current distribution of strategic missile capabilities in both the indigenous and exotic threat regions is shown at Table 1. A couple of observations can be made. Firstly, Australia is already within range of strategic missile forces within the region; namely China. India's latest missile project, if successful, will give that country the range to reach Australia and all of South-East Asia. Secondly, more than half the 16 countries listed are currently involved in missile development. Such a trend is self sustaining - especially through the undermining effect it has on the non-proliferation measures based on export control.[9] Thirdly, in every case, missiles under development offer an increase in range for each of their countries. This, linked with the distinct lack of any indication from missile makers about limits to range ambitions, indicates a likelihood that range capability will continue to grow into the future.

Despite non-proliferation measures, the overall trend for the region is one of missile proliferation and performance enhancement. This trend is not only regional, but global. There are around 50 types of ballistic missiles in use around the world with a further 13 new intermediate range and eight new intercontinental range ballistic missiles under development.[10] The industry is booming. The cruise missile business is equally brisk. There are more cruise missile types being either proposed or developed around the world than there are types currently in operation.[11]

'regions'; and conversely, that they are considered 'regionally' important by a large number of other nations. The US with its aircraft carriers might be a good illustration of this.

[9] The situation is further complicated by the feared distribution of Russian knowledge and technology, an export stimulated by internal economic pressure and a keen Third World market. For example, there is some concern over the possibility of a rogue nation acquiring one of Russia's SS-25 mobile launchers, which Moscow is trying to sell for space launchers. (Anselmo J.C., 'US Faces Growing Arsenal of Threats', *Aviation Week & Space Technology*, 24 February, 1997, p 46). In addition, Russian scientists are now selling nuclear weapons expertise to countries like Iran and North Korea via the Internet. ('Moonlighting by Modem in Russia', *US News and World Report*, 17 April 1995, p 45). Furthermore, a brain drain of Russian weapons expertise has been identified and countries such as China, Iran, Libya and North Korea are known to be actively recruiting. (Moody, R.A., 'Armageddon for Hire', *Jane's International Defence Review*, 2/1997, p 21).

[10] Lennox, D. (ed), 'Jane's Strategic Weapon Systems', *Issue 21*, Jane's Information Group, UK, April 1996, Foreword.

[11] *ibid*. There is some supposition that the low relative manufacturing costs of cruise missiles will lead to them become a greater threat, in numerical terms, than ballistic missiles. It is noteworthy, however, that the trends mentioned here include cruise missiles with ranges as low as 50 km.

Table 1 - Regional Strategic Missile Capability

COUNTRY	MISSILE	PAYLOAD (KG)	RANGE (KM)
Afghanistan	SS-1 'Scud B' (R-17)	985	300
China	CSS - 6 (DF-15 / M-9)	500	600
	M - 18 (Tondar-68)*	400	1000
	DF - 25*	2000	1700
	CSS -N - 3 (JL-1) (SLBM)	600	1700
	CSS - 5 (DF-21)	600	1800
	CSS - 2 (DF-3)	2150	2800
	CSS - 3 (DF-4)	2200	4750
	CSS - NX - 6 (JL-2) (SLBM)*		8000
	DF - 31*		8000
	CSS - 4 (DF-5)		11000
	DF - 41*		12000
Egypt	SS-1 'Scud B' (R-17)	985	300
	Vector*	450	600
India	Prithvi (SS-350)*	500	350
	Agni	1000	2500
	Surya*		12000
Iran	SS-1 'Scud B' (R-17)	985	300
	'Scud B' variant	985	300
	'Scud C' variant	500	550
	M18 (Tondar-68)*	500	550
	Iran 700 (Scud C)*	500	700
	Al Fatah (Condor 2)*	500	950
	Nodong-2 (Labour-2)*	1000	1500
	DF-25*	2000	1700
Iraq	SS-1 'Scud B' (R-17)	985	300
	Al Hussein	500	650
Israel	Jericho I (YA 1)	500	500
	Jericho II (YA-3)	1000	1500
	Jericho III*	1000	4800
Libya	SS-1 'Scud B' (R-17)	985	300
	'Scud C' variant	500	550
	Al Fatah (Condor 2)*	500	950
North Korea	SS-1 'Scud B' (R-17)	985	300
	'Scud B' variant	985	300
	'Scud C' variant	500	550
	Nodong -1 (Labour-1)	1000	1000
	Nodong-2 (Labour-2)*	1000	1500
	Taepo-Dong 1*	1000	2000
	Taepo-Dong 2*	1000	3500
Pakistan	Hatf 3*	500	600
Saudi Arabia	CSS - 2 (DF-3)	2150	2800

Table 1 (Continued) - Regional Strategic Missile Capability

COUNTRY	MISSILE	PAYLOAD (KG)	RANGE (KM)
Syria	SS-1 'Scud B' (R-17)	985	300
	'Scud B' variant	985	300
	'Scud C' variant	500	550
	CSS - 6 (DF-15/M-9)	500	600
Taiwan	Tien Ma (Sky Horse)*	500	950
UAE	SS-1 'Scud B' (R-17)	985	300
Vietnam	SS-1 'Scud B' (R-17)	985	300
Yemen	SS-1 'Scud B' (R-17)	985	300

* Denotes missiles under development

Notes:

- This table presents data collated from a variety of tables published in: Lennox, D., 'Jane's Strategic Weapons Systems', Issue 22, Jane's Information Group, UK, September 1996.
- As an arbitrary cut-off point, the table includes all missiles with greater than 500 kg payload and 300 km range (the minimum threshold for the Missile Technology Control Regime).
- The US and former Soviet states are not listed here but it is noteworthy that Russia has a significant intercontinental ballistic missile capability, and that states including Kazakstan and the Ukraine have at least Scud B capability.

The general state of the regional chess board regarding potential strategic missile payloads is also of interest.[12] With respect to nuclear payloads, China, of course, has the most significant regional capability. With its last nuclear test completed in 1995, China recently signed the Comprehensive Test Ban Treaty (CTBT)[13] but is considered likely to increase its holdings of Inter-Continental Ballistic Missiles fourfold from the present 14 (each new weapon having a 12000 km range). North Korea, India and Pakistan are considered likely to upgrade their nuclear capabilities, and their absence from a growing list of CTBT signatories is notable. Japan, South Korea, Taiwan and Indonesia are also considered to have the potential to develop nuclear weapons.[14] Thailand officially ruled out the nuclear option in September 1995.

Despite non-proliferation measures, the overall trend for the region is one of missile proliferation and performance enhancement. This trend is not only regional, but global. There are around 50 types of ballistic missiles in use around the world with a further 13 new intermediate range and eight new intercontinental range ballistic

[12] Thayer, C.A. 'Arms Control in South-East Asia', *Defence Analysis*, Volume 12, Number 1, April 1996,
pp. 79-82.
[13] On 25 September 1996 in New York.
[14] Although, as all but Taiwan (which lacks the necessary nation status) have signed the CTBT, the likelihood is now more dependent on either technology purchase or the future of testing by computer simulation.

missiles under development.[15] The industry is booming. The cruise missile business is equally brisk. There are more cruise missile types being either proposed or developed around the world than there are types currently in operation.[16]

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With respect to chemical and biological payloads, Vietnam and Laos were reported in the 1980s to have been involved in the use of such weapons. Vietnam, in particular, has been considered a 'probable possessor' of chemical weapons (possibly Saren) since 1991. Thailand was also considered to have been developing a chemical weapons manufacturing capability in the 1980s. Myanmar was reported in 1995 to have used biological weapons, although these reports have been denied. North Korean efforts with chemical and biological weapons programs continue.[20] In the Middle East similar levels of NBC proliferation to those detailed above are frequently reported. It suffices to say, the regional record is far from clean.

The Value of SMC

So what makes the strategic missile such a sought after asset? There is a host of factors. One of the underlying reasons relates to the post-Cold War unreliability of superpower intervention in regional crises. Self reliance has become an important issue.[21] Strategic missiles are being opted for because they are cheap and simple, and because they confer significant instant prestige and deterrent value.

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[15] Lennox, D. (ed), 'Jane's Strategic Weapon Systems', *Issue 21*, Jane's Information Group, UK, April 1996, Foreword.

[16] *ibid*. There is some supposition that the low relative manufacturing costs of cruise missiles will lead to them become a greater threat, in numerical terms, than ballistic missiles. It is noteworthy, however, that the trends mentioned here include cruise missiles with ranges as low as 50 km.

[17] Thayer, C.A. 'Arms Control in South-East Asia', *Defence Analysis*, Vol 12, No 1, April 1996, pp 79-82.

[18] On 25 September 1996 in New York.

[19] Although, as all but Taiwan (which lacks the necessary nation status) have signed the CTBT, the likelihood is now more dependent on either technology purchase or the future of testing by computer simulation.

[20] Anselmo J.C., 'US Faces Growing Arsenal of Threats', *Aviation Week & Space Technology*, 24 February, 1997, p 46.

[21] For example, 'South-East Asian militaries have moved from a counter-insurgency orientation to a more conventional self-reliant posture to develop capabilities which were once provided by the former colonial powers or the US'. (Thayer, C.A., 'Arms Control in South-East Asia', *Defence Analysis*, Vol 12, No 1, April 1996, p 78).

How cheap are missiles? North Korean Scud C missiles were sold to Syria for around USD$3 million per copy.[22] Scud B's were bought by Iraq for less than that - USD$1 million including operations and support costs for several years.[23] By contrast, advanced strike aircraft cost around USD$40 million a copy.[24] As missiles are expendable, high use situations (more usually against tactical targets) always favour the reusability of aircraft for cost effectiveness.[25] However, in a strictly strategic application, missiles represent a very cheap way to acquire a long range strike capability. As one informed observer commented about Iran's ability to become a regional power without destroying its economy, 'While building a bomb could cost billions, rebuilding its conventional military would cost tens of billions'.[26] The strategic weapons route may be, for many, the most cost-effective way to ensure international standing. With power conferred as much by possession as use, the cost-effectiveness is only increased.

Simplicity is another very important quality. Strategic missiles are relatively basic to operate, requiring a low level of technical skill and a simple infrastructure. In comparison to aircraft they have a simple command and control structure,[27] and a low maintenance requirement.

Strategic missiles offer significant prestige for governments, both internationally and domestically. They have a significant reputation as terror weapons. This may be due to the awesome levels of power they represented at the peak of the Cold War when the very survivability of the planet was in question. It may be due to their association with NBCW. It may be due to their history of use against civilian targets for psycho-political gains. Whatever the reason, the associated political status and deterrent value would appear disproportionately high for the investment made in strategic missile acquisition.[28] Domestically, there is nothing quite like a flag-waving, anthem-playing procession of 17 metre long, 5000 kg ballistic missiles on trucks to rally the population.

Strategic missiles also offer a miscellany of less strategically significant features. Tactically, for example, they offer the important qualities of excellent prelaunch survivability (as evidenced by the elusiveness of Iraq's mobile Scud launchers[29]), high air defence penetration and the removal of risk to aircrew. Logistically, since they offer a non-American alternative to strategic strike hardware, they can be more available and more supportable to a nation with non-American ideology. The

[22] Emerson, S., 'The post war Scud Boom', *Wall Street Journal*, 10 July 1991, p A12.
[23] Zagola, S., 'Ballistic Missiles in the Third World', *International Defence Review*, Volume 1, 1988, p. 1425.
[24] Which includes pilot training and several years of operations and support. (Nichols, T., and Rossi, R., *1990 Military Cost Handbook*, 11th ed., Data Search Associates, June 1990, p 2-1ff).
[25] Harvey, J., 'Regional Ballistic Missiles and Advanced Strike Aircraft', *International Security*, Volume 17, Number 2, Fall 1992, p 66.
[26] Gertz, B., 'Iran's Regional Power House', *Air Force Magazine*, Air Force Association, June 1996, p. 54.
[27] An attractive feature in some regimes affording politicians greater direct control over the asset and circumventing the judgement of other humans in the command chain. (Harvey, J., 'Regional Ballistic Missiles and Advanced Strike Aircraft', *International Security*, Volume 17, Number 2, Fall 1992, p 77).
[28] *ibid.*, p 77.
[29] *ibid.*, p 50.

importance of this consideration is well illustrated by Iran's difficulty obtaining F-14 parts.[30]

While some of the above rationale has dealt with aircraft/missile comparison, it should be noted that buyers may not always dwell on such a comparison; missile purchase can be as much a supplement to manned aircraft as a substitute, thereby offering diversity and redundancy in strike options. The pure utility of missiles, rather than their relative utility, is as often their selling point.

In summary, there is a logical, if not rational appeal to strategic missiles, and there is sufficient regional ownership to verify the attraction. The prerequisite thresholds of technology, finance and desire are being reached by an increasing number of countries and proliferation is rife. In a recent speech in Missouri, Margaret Thatcher identified the proliferation of WMD as 'the single most awesome threat of modern times', particularly in the context of rogue nations led by 'megalomaniacs of proven inhumanity'. She called for a new global anti-ballistic missile system in response.[31]

Given the logic, the evidence, and the 'expert-opinion', one does not, as they say, have to be a rocket scientist (although perhaps that would help in this case) to figure out that Australia will inevitably have to deal with SMC. Indeed, Australia should already be dealing with it if the focus of the Defence White Paper 1994 - *Defending Australia* 'on capabilities and not threats'[32] is to be applied literally in the context of China's arsenal. In the meantime, it is noteworthy that South-East Asia remains clear of such an indigenous capability.

AUSTRALIA'S MOVE

Given the substantiated prospect of Australia having to face a regional strategic missile capability, response options should be considered. The first option is to prevent the problem through non-proliferation measures. If non-proliferation fails, then Australia's entire defence strategy would require review. Basic tenets such as the 'air-sea gap' would become instantly obsolete. Broadly speaking, the options could be categorised as either defensive defence, or offensive defence.

Non-Proliferation and Arms Control

As at January 1997, Jane's listed a total of 32 international arms control treaties, of which 13 are new (within the last 10 years).[33] The treaties are not all mutually exclusive in the particular capabilities they control, nor are they all successful. The overall proliferation of control measures, however, seems as vigorous as that of the weapons themselves - perhaps this should be no surprise.

[30] Gertz, 'Irnas Regional Power House', p 53.
[31] Thatcher, M., Speech to Westminster College, Fulton, Missouri, as reported by Paul Routledge, London Independent, in 'Iron Lady sounds alarm in Churchill's shadow', *The Age*, Monday 11 March 1996, p A9.
[32] *Defending Australia,* Defence White Paper - 1994, Australian Government Publishing Service, Canberra, 1994, p 22.
[33] Lennox, (ed), 'Jane's Strategic Weapon Systems', Contents.

Defending Australia states, 'Effective controls on the proliferation of weapons of mass destruction and ballistic missiles contribute significantly to Australia's security'.[34] It fails to recognise cruise missiles as an equally potent threat, but more significantly, it does clearly commit Australia to the comprehensive support of non-proliferation and arms control initiatives.

Australia has, indeed, taken a very proactive international role in this area. For example, as at 8 May 1997, it has signed, ratified, acceded to, or otherwise come under the jurisdiction of no less than 25 arms control arrangements, disarmament treaties and other such instruments. [35]

According to an official of the Peace, Arms Control and Disarmament Branch (ACB) in the Department of Foreign Affairs and Trade (DFAT),[36] the best way to achieve Australia's aims is through subscribing to and promoting existing international instruments, and through ensuring that these instruments 'have teeth'. The instruments of particular current interest include the Treaty on the Non-Proliferation of Nuclear Weapons (1970) (NPT), the Missile Technology Control Regime (1987) (MTCR), the Biological and Toxin Weapons Convention (1972) (BWC), and the Chemical Weapons Convention (1993) (CWC).[37]

The key elements of the NPT include the prevention of 'the spread of nuclear weapons to nations not already possessing them', the provision of 'international safeguards relating to the movement of nuclear material and weapons', and the promotion of 'the peaceful uses of nuclear energy'.[38] The NPT is considered quite effective, and as such, Australia continues to support and promote it. The NPT safeguards, for example, have been effective in identifying problems over the memberships of North Korea and Iraq. The CTBT[39] is also worthy of mention in this

[34] *Defending Australia*, p 108.

[35] Printed information obtained from Treaties Secretariat, International Organisations & Legal Division, Department of Foreign Affairs and Trade, 8 May 1997. Note: Other particularly notable examples of proactivity include the 1988 initiative under Prime Minister Bob Hawke to put the Chemical Weapons Convention (CWC) on the regional agenda, which resulted in numerous 'regional initiative policy seminars' in Australia and the eventual CWC signing by all ASEAN countries and others (Thayer, 'Arms Control in South-East Asia', p 80). Similarly, in 1995 Prime Minister Paul Keating announced the formation of the Canberra Commission to develop realistic proposals for a nuclear free world ('Canberra Commission Off To A Good Start', *Peace and Disarmament News*, Department of Foreign Affairs and Trade, March 1996, pp 6-7). More recently, Australia successfully led international action to save the CTBT following the failure of efforts to achieve consensus at the Conference on Disarmament in Geneva in 1996 (DFAT Media Release, 'CTBT', Internet http://host.dfat.gov.au/pmb/releases/fa/fa92.html, 11 September 1996).

[36] Bird G., (Interview) Assistant Secretary, Peace, Arms Control and Disarmament Branch, Department of Foreign Affairs and Trade, Canberra, 5 July 1996.

[37] In addition to the treaties and conventions, other instruments of particular current interest to Australia include several technology transfer regimes and arrangements designed to impede proliferation. Besides the MTCR these include the Australia Group (a voluntary agreement to control chemical and biological weapon material transfers) and the Nuclear Suppliers Group (monitoring supply of nuclear materials). The International Atomic Energy Agency (IAEA) is also supported as essential in the implementation of safeguard systems to monitor treaty compliance.

[38] Lennox, (ed), 'Jane's Strategic Weapon Systems', Foreword.

[39] The CTBT opened for signature on 24 September 1996. It is scheduled to enter into force after the signatures of 44 specifically named countries have been gained. As at 18 February 1997, there were 142 signatures and two ratifications, including all but three of the 44 named countries (India, Pakistan

context. Its aim is narrowly directed at nuclear testing, but as such it is a significant contributor to the broader objectives of the NPT.

The MTCR is not actually a treaty, but a collection of provisions aimed at controlling the transfer of WMD (recently including chemical and biological payloads) and equipments and technologies thereof. The regime applies to a number of delivery platforms including both ballistic and cruise missiles.[40] Current ACB activity focuses on both supporting the regime and broadening its international subscription. The operative elements of the MTCR are the export control regimes.[41] An important aim of Australian MTCR advocation is to gain the confidence of all countries in the motives behind this export control. There is, for example, significant third world suspicion that export controls are about protecting markets; and in so doing, disadvantaging non-possessors as both customers and prospective exporters.

The BWC is intended to ban the development, production, transfer and stockpiling of biological agents or toxins for other than peacetime purposes. The convention also intends to ban all delivery systems for biological weapons and provides for the destruction of all agents and weapons.[42] The BWC has been ratified by Australia but is widely considered toothless, and Australia has been actively supporting current negotiations to strengthen it through a verification protocol. Ratification of the revised edition is not expected before 1998.

The CWC was signed in 1993 by 130 nations and entered into force on 29 April 1997. The convention bans the development, production, stockpiling and transfer of chemical weapons and provides for the destruction of all existing weapons and facilities within 10 years.[43] With the benefit of history, various sticking points to the agreement have been anticipated and the verification measures will be very stringent.[44]

Problems with Non-Proliferation and Arms Control

The four instruments listed above should largely guarantee the security of Australia with respect to SMC. The NPT should freeze the current disposition of potential nuclear threats; the CWC and the BWC should freeze, and progressively reduce, biological and chemical weapons holdings; and the MTCR should critically limit the proliferation of delivery systems as well as doubling the cover on biological and chemical payloads. The strategy would seem sound and quite complete. As demonstrated by the missile proliferation data at Table 1, however, the strategy does not work, a fact which begs the question, 'Why not?'.

The reason is that the instruments mentioned are neither universally subscribed to, nor completely watertight. Their more useful purpose is alluded to in one contention about MTCR, 'that the regime should be viewed as a "braking process" that seeks not so

and DPRK). (Klugman, K., (Interview) Peace, Arms Control and Disarmament Branch, Department of Foreign Affairs and Trade, Canberra, 1 April 1997).

[40] *ibid.*, Arms Control Treaties section.

[41] As distinct from the likes of the CWC which limits both possession and transfer of materials.

[42] Lennox, (ed), 'Jane's Strategic Weapon Systems', Arms Control Treaties section.

[43] *ibid.*, Arms Control Treaties section.

[44] Bird, (Interview), Department of Foreign Affairs and Trade.

much to prevent totally the proliferation of missiles, but to slow the process down ... breathing space allows time for political initiatives'.[45]

Complications which undermine the power of non-proliferation and arms control agreements include difficulties with verification, interpretation, bureaucratic obstacles to export controls, the need for complex and resource-intensive intelligence processes,[46] dual use technologies, technology changes after ratification and the intentional breaches of agreed standards. The options for punishing offending proliferators are also very limited.

An intuitively obvious problem of the whole non-proliferation process is that, as a natural casualty of compromise in negotiation, such agreements will never be perfect to any one party. Paradoxically, the wider the subscription, the greater the compromise, the weaker the instrument. Since a large subscription is critical in non-proliferation affairs, such arrangements are inherently vulnerable.

Where adequate compromise cannot be achieved, limited membership results. Suspicion of non-ratifying neighbours leads to further non-ratification or breaches. For example, there is a distinct absence of Middle Eastern countries in the 28-strong membership list of the MTCR. Given the highly proliferated state of that region, it is perhaps not surprising that non-possessor countries in the area are reluctant to limit their defensive options through this regime.

Defensive Defence

If non-proliferation does fail, what are the counter-proliferation options? Any idea of equipping Australia's public with NBC equipment, constructing urban 'aerospace-raid' shelters and hardening critical civil infrastructure would be complex, expensive, and of dubious acceptability on principle. This discussion is limited to the likely viability of strategic missile defence; a capability well outside Australia's current technological means.

In May 1996 Senator Bob Dole (the prospective US Republican presidential candidate of the time) caught the headlines with a call for a ballistic missile defence system to defend Asia Pacific rim countries from both North Korea and China. Dole is quoted as saying, 'With American leadership and American know-how we can create a Pacific Democracy Defence network that provides protection for people and territory from the Aleutians to Australia'.[47] Dole's suggestion reveals a US perception of a real possibility that ballistic missiles may threaten the US's Asia Pacific business partnerships.[48]

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[45] Navias, M., 'Ballistic Missile Proliferation in the Third World', *Adelphi Paper 252*, International Institute of Strategic Studies: London, Summer 1990, p 48.
[46] Scalingi, P.L., 'Proliferation of Arms Control', *Intelligence and National Security*, Vol. 10, No. 4, October 1995, p 151.
[47] *Asian Defence Journal*, 6/96, p 125. Further evidence that the post-Cold War US (or at least its Republican party) continues to be in the business of umbrellas when it comes to preserving its regional interests. As one observer has commented, 'US officials recognise the power of one region that will generate 60 % of the world's economic growth over the next decade and that is responsible for sustaining three million US jobs', *Jane's Defence Weekly*, Volume 25, Number 24, June 1996, p 31.
[48] Notwithstanding this, a more recent development has seen the vote for procurement of a national missile defence system cancelled by Republican leaders, allegedly due to a projected cost of $50

The US intelligence community has made an assessment that the USA faces no short-term intercontinental missile threat.[49] This is of interest, but it does not necessarily account for either Australia's specific prospects, nor indeed, anyone's medium to long term prospects. In a context of increasing missile range and proliferation, Australia's geo-strategic position is much more vulnerable than North America's; for example, the Australian homeland is closer to the Middle East, China and much of Asia than is the USA. Furthermore, a short-term assessment of the strategic missile threat would seem to be of little use or relevance when the response time necessary to mount a reliable national missile defence system is considered long.[50] The outlook needs to be long-term to provide the necessary warning.

Another reason for the irrelevance of the US assessment to Australia involves finance. A favourable short-term forecast may be of little comfort to a nation like Australia which lacks the massive economic resources which the US might muster in response to an unexpected short term threat. Even the modest national missile defence system envisaged for 50 US states would be very expensive for Australia (perhaps preclusively so) at about USD$10 billion.[51]

The underlying assumption to all this is that the implementation of area missile defence is technologically feasible. There has been a number of well published concepts including the Reagan era's Strategic Defence Initiative ('Star Wars'), and the more recent US Airborne Laser program involving the notion of a Boeing 747-mounted anti-missile oxy-iodine laser beam.[52] Many of the ideas have never gone further than the drawing board, and of those which have, very few yet show promise of success.[53] The suggestion of an area defence system adequate for whole Pacific rim countries would seem extremely optimistic given the current state of the art.

The performance of the US-deployed Patriot anti-missile systems in the Gulf War would appear to be much less impressive than first reported. Some analysts say that while Patriot was often successful in destroying Scud missile bodies, in many cases the warheads were not destroyed and continued to fall into the target area.[54] This

billion. (*Jane's Defence Weekly*, Volume 25, Number 22, 29 May 96). The original sentiment, however, still stands.

[49] *Jane's Defence Weekly*, Volume 25, Number 22, 29 May 96.

[50] The current aim is to 'position the US to respond to a strategic missile threat as it emerges'. It is expected to take three years for the US to be in a state of readiness whereby it could deploy the system within a further three year period. In other words, such a system could not be in operation before 2003, and probably later. (Paul G. Kaminski, Under Secretary of Defence for Acquisition and Technology, press briefing on national missile defence and other topics, 16 February 1996). Even then, the planned national missile defence system is constrained by the ABM Treaty and, as such, would be designed to destroy only 5-20 missiles. (Kandebo, S.W., 'US Pursues NMD (National Missile Defence) System To Prepare for 'Rogue' Threat', *Aviation Week & Space Technology*, 3 March, 1997, p 45.)

[51] Kandebo, S.W., 'US Pursues NMD (National Missile Defence) System To Prepare for 'Rogue' Threat', *Aviation Week & Space Technology*, 3 March, 1997, p 45.

[52] Proctor, P., 'Boost-Phase Intercept: Key to ABL Deterrent', *Aviation Week & Space Technology*, 3 March, 1997, p 67.

[53] Perhaps the brightest current hope for an exception to this observation exists in the joint US-Israeli Arrow ABM. While not an area defence missile, at least as a point defence system it has enjoyed recent test success. *Defense News*, 12-18 May 1997, p 3.

[54] Safire, W., 'The Great Scud-Patriot Mystery', *New York Times*, 07 March 1991, p A25. The US Government Accounting Office claims that the success rate in destroying the warheads was only nine percent. Conyers, J., 'The Patriot Myth: Caveat Emptor', *Arms Control Today*, Volume 22, Number 9, 1992, p 7.

deficiency would be critical against strategically targeted non-conventional payloads. The development of the Lockheed Martin Theatre High Altitude Area Defence (THAAD) missile as a successor to Patriot has also been producing poor results. With the fourth successive test failure occurring on 6 March 1997 the future of the multi-billion dollar THAAD program is reported to be in jeopardy.[55]

The bottom line is that, while the signals are mixed, the efficacy of existing missile defence systems is dubious and the development of large-area defence systems is years away. Even then, a highly effective terminal defence system destroying 90 per cent of incoming targets could hardly be called successful if any of the remaining 10 per cent hit their objective with nuclear or biological warheads.[56] Ballistic missiles aside, and to further discredit the viability of Australian strategic missile defence, cruise missiles are extremely hard to defend against. They are not vulnerable to SDI-type systems,[57] and state-of-the-art cruise missile designs already incorporate sophisticated defensive countermeasures including organic chaff, flares and towed decoys.[58] It is only a matter of time before cruise missile technologies proliferate. [59]

Even if the technological hurdles could be overcome, there would still be some significant political obstacles to the deployment of missile defences. Firstly, any missile defence system which might have an application against 'strategic missiles' (by the Cold War definition) would contravene the Anti-Ballistic Missile (ABM) Treaty (1972) between the US and the Soviet Union. This treaty was effectively designed to help prevent either country gaining a destabilising advantage in the Cold War nuclear stand-off. It is, however, still a very relevant arrangement. In considering defence against a third world SMC, the US would have to carefully weigh the disadvantages of violating an agreement upon which over 20 years of US-Soviet arms control is based.[60]

Additionally, the feasibility of a Pacific rim missile defence would be affected by the likely perceptions of China. By some assessments, if China perceives that the US is seeking to 'contain' it, as the US once sought to contain the USSR, this could create a 'new' Cold War.[61]

In summary, while area missile defence is a popular idea, there are still many significant technological and political hurdles to overcome before it becomes a realistic option.

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[55] *Flight International*, 12-18 March 1997, p 11. Furthermore, the tests currently failing are against short-range stable missile targets, with the greater challenge of targeting missiles which manoeuvre, deploy decoys and carry out other countermeasures yet to be seriously tackled. (Dornheim M.A., 'Missile Defence Soon, But Will It Work?', *Aviation Week & Space Technology*, 24 February, 1997, p 41).

[56] Fetter, S., 'Ballistic Missiles and Weapons of Mass Destruction: What Is The Threat? What Should Be Done?', *International Security*, Vol 16, No 1, Cambridge, Summer 1991, p 39.

[57] *ibid.*, p 39.

[58] *Jane's International Defence Review*, No 29, January 1996, p 37.

[59] Fetter, 'Ballistic Missiles and Weapons of Mass Destruction', p 40.

[60] *ibid.*, p 40.

[61] Young, P.L. 'Chain and the Process of Transition in Regional Security Affairs', *Asian Defence Journal* 6/96, p 76.

Offensive Defence

Given the extensive nature of Australia's participation in non-proliferation and arms control measures, strategic missile acquisition would represent a serious reversal in a direction to which it is heavily committed. Even if such an option were rational on other grounds, significant risks would have to be balanced; like the provocation value of such a move, and the idea that under such a regime any response to a misjudged threat could create a self fulfilling prophecy. Furthermore, for Australia to truly balance the missile force of China, it would have to 'go nuclear' rather than just acquire a SMC. The delicate, doomsday-toting, tension-based equilibrium of the Cold War may well be too fresh in the minds of Australians to let that happen.

Conventional deterrence is already an important bi-product of Australia's security strategy. Through defence force capabilities, Australia maintains the option to threaten for the purpose of preventing hostile action, or to punish or retaliate in order to compel an aggressor to desist. There is, however, a fundamental deficiency in Australia's existing deterrence posture regarding SMC - that is, one of inadequate deterrence range. As a point of logic in deterrence theory, 'capability' is a key determinant of deterrence validity.[62] The distant aggressors posing the potential threats are, in many cases, well outside the current reach of Australia.

The future extension of Australian deterrent range is likely. Royal Australian Air Force (RAAF) long term planning guidance, for example, currently incorporates a fully operational air-to-air refuelling capability, and enhanced stand-off and precision capabilities for air-to-surface weapons. Furthermore, a study to look at fitting Collins class submarines with stand-off weapons (cruise missiles) has already received funding of A$1.5 million.[63]

In any case, the utility of conventional deterrence against advanced delivery systems and WMD is dubious. 'Acquisition by any of Australia's neighbours of even a small number of such weapons (WMD) and the means to deliver them would to a large extent negate the value of Australia's deterrence strategy.'[64] The only dispensation here is that it is the WMD which is beyond deterrence, and not the delivery system. Long range strategic strike options (other than missiles) for Australia could well be used to deter conventional missile deployment. Would a belligerent party, making a conventional ballistic missile threat against Australia, be deterred by a Collins class submarine poised off its coast with strategically targeted conventional cruise missiles? Conventional deterrence is likely to have some utility.

Tiered Strategy

Any Australian response to the prospect of a regional SMC will need to be a tiered response - the multiple layers compensating for each single layer's weakness. The first level of a tiered approach might involve the continuation of current non-proliferation and arms control diplomacy, coupled with a search for new initiatives. The second element might involve the continued maintenance of the Australia/US

[62] Harvey, J.P., *Conventional Deterrence: A Continuing Role in Australia's Security*, RAAF Air Power Studies Centre, Paper No 39, December 1995, p 11.
[63] *Asia Defence Journal*, 6/96, p 131.
[64] Harvey, 'Conventional Deterrence', p 22.

relationship for purposes of more complete intelligence on relevant developments, and to ensure that the US nuclear deterrence umbrella would be offered if WMD threats were suddenly made.[65] The third might involve the acquisition of a longer range conventional strategic strike capability. Such a capability would carry the advantage of being relatively non-provocative in that it would be a mere extension of an existing capability. It might even be seen as an asset to the region, and it would also avoid the pollution of a relatively missile-free South-East Asian strategic environment.

REGIONAL PLAYS: THE TEAM APPROACH

There is an underlying sense of inadequacy in the tiered strategy mentioned above. Perhaps it is based on a realisation that none of the prevention and control measures available is, generically, any different to those that failed to prevent Cold War escalations.[66] In seeking a uniquely Australian solution, this country must search for and capitalise on the unique characteristics of its region and relationships. The analysis all leads back to a need for deepened and broadened regional engagement; continued transparency and confidence building, and cultivation of the perception of individual threats as regional threats. The aim must be to eliminate the indigenous threat by agreement, and deter the exotic threat by cooperation. Individual options in South-East Asia are likely to be as provocative and destabilising as they are deterrent. Collective options have much greater potential.

Forums and Treaties

There are indications of widespread agreement between South-East Asian states that at least WMD proliferation should be limited. All 10 countries[67] have ratified the NPT; all have signed the CWC; and all but Myanmar have ratified the BWC. The obvious deficiency lies in the total lack of South-East Asian subscription to the MTCR (and indeed in the lack of other dedicated missile control instruments to which South-East Asia might subscribe). There is nothing to stop any neighbourhood member buying conventional ballistic missiles tomorrow, except the supplier would have to be a non-MTCR party. As both a stand-alone capability,[68] and an important element in the greater WMD formula, delivery vehicles (and specifically the restriction on them) are currently receiving plenty of diplomatic attention. The region must come into line on such basic issues before there can be any talk of a more specific collective approach to the SMC problem.

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[65] In a 1988 survey, 77 per cent of the US public supported the American use of nuclear weapons if attacked by the USSR, but only 34 per cent supported such action in response to Soviet attack on US allies. (Mack, A., 'The Strategy of Non-Provocative Defence: The European Debate', in Ball D. and Downes C. (ed), *Security and Defence - Pacific and Global Perspectives*, Allen and Unwin, Sydney, 1990, p 164). Note: Australia should never take the nuclear umbrella for granted.

[66] That is at least until there were approximately 10 times more weapons than there were targets.

[67] South-East Asia is taken here as Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

[68] One of Australia's greatest planning preoccupations is with defence against insurgency in the north, and generally with the prospect of conflicts which are less than war. It could be argued that any strategic target vulnerable to such attacks in the north would be at least as vulnerable to a conventional SMC. For example, certain critical nodes in Australia's north-west mining district would cut GDP by 2 per cent if successfully targeted.

There are some good signs. Multilateralism and regional security are key foci of the ASEAN Regional Forum (1994) (ARF). This represents an established and popular forum[69] with an appropriate orientation to deal with the emergent threat. ARF is, however, very young as an organisation and is still largely preoccupied with itself, rather than with external challenges. Despite this, some positive and practical signs of influence relevant to the missile issue are apparent. For example, Asia recorded the highest participation rate in providing returns for the UN Arms Register in 1994, partly as a result of ARF urging regional participation.[70] Essentially, ARF is strong in potential but presently lacking maturity.

Initiatives

As deducted, the prospect is unfortunately strong for strategic missiles to become a regional concern. The one factor which the indigenous missile region has in its favour is the current absence of the capability within South-East Asia. This is a powerful advantage. There is ample literature on the complications and impossibilities of disarmament and arms controls. A tremendous proportion of the difficulties relate to controlling or reducing existing weapons holdings. At a personal level, the 'gun debate' in Australia offers, in a great many ways, a useful analogy to the issues facing international arms controllers.[71] The opportunity to tackle the problem with a 'prevention rather than cure' approach is a significant advantage afforded by an ever-diminishing number of regions in the world. It is absolutely imperative that Australia and its immediate region seize this opportunity. The moment any one South-East Asian nation acquires a SMC, the race will be on, and the complexion of the problem will totally change. All options must be explored. For example, the recent establishment of the South-East Asia Nuclear Weapons Free Zone under ASEAN may offer a useful example of what is possible in the containment of the SMC.

As for the exotic threat, the options appear much more limited. The one asset the region has in this respect is time; and that by its nature is constantly eroding. A collective deterrence stance for South-East Asia (establishing that 'an attack on one member is an attack on all and all would respond'[72]) has some merit against conventional strategic missiles, but its success would require much stronger joint resolve than is currently displayed.[73] If there is not enough time to gain that resolve, there will surely be enough time to cooperatively exploit existing non-proliferation measures, and search for alternative approaches.

[69] There are 18 members, and of the ten most local states only Myanmar is not a member.
[70] The Register provides for the declaration of arms exports and imports by each country. Missiles and missile launchers are included in its seven categories. (Thayer, 'Arms Control in South-East Asia', p 81).
[71] For example, international issues including sovereignty, the right of self defence, differential motives and imperatives for possession, and threat perception are all well illustrated at the domestic level of the 'gun debate' (which involves legislation to ban semi-automatic weapons in Australia and disarm the population of such weapons). One can only imagine how relatively simple and insignificant the whole gun issue would have been if no-one yet owned the type of guns being outlawed.
[72] Harvey, 'Conventional Deterrence', p 10.
[73] For example, Minister of Defence Mr McLachlan recently revealed that a tentative proposal to create a new Asia-Pacific forum of regional defence leaders failed to get the required support. ('Indonesia Scuttles Regional Defence Forum Plan', *The Australian*, 28 June 1996, p 2).

Australia has a proud history in regional leadership. Examples include its role in such arrangements as SEATO, IADS and ARF.[74] As Gareth Evans wrote in a statement about Australian creativity and persistence, 'In fluid or unformed situations of the kind that we confront, we have the capacity to creatively set the regional agenda'.[75] In transition, from one global regime to an unknown next, every political, economic, military, and diplomatic brick laid will contribute to the shape of the 'new world order' and the balance of regional power. Those who do not bid for a stake in the future are bound to have their courses dictated, as a matter of response, by those who do. If Australia has a preference regarding SMC in its region, now is the time to act.

CONCLUSION

Unless non-proliferation and arms control measures can be made to function more successfully than in the past, the emergence of strategic missile capabilities in Australia's region can be considered inevitable. The defensive options against the threat, should it arise from a regional capability, are limited. Area missile defence systems do not currently exist in more than conceptual form, and the prospect of an operational system is many years and many billions of dollars away. Even if the technology is developed, there are likely to be significant political problems with system deployment.

The offensive defence options are potentially provocative in the strain they would place on regional capability balances. Extensions to Australia's existing strategic strike options could offer viable deterrence against the conventional application of strategic missiles, but would offer little if WMD entered the equation.

The SMC, as defined in this paper, is formidable and unique. A regional possessor would have the potential to strike populations or vital infrastructure anywhere in Australia (within considerable range), at anytime, and be almost guaranteed of some success. Motives might range from the pursuit of political 'leverage' to assassination, and 'Western rationale' would not necessarily feature in the conduct of such a strike. In these respects there is a curious and alarming nexus between the natures of SMC and terrorism.[76]

A key concern about SMC lies in its part as an enabler for WMD. As Chief of Defence Force General Baker puts it, 'the penetration of weapons of mass destruction and their delivery systems into this region would so fundamentally change our own security that we would need to start again'.[77] WMD has the potential to radically degrade the regional security situation. There is insufficient historical precedent on WMD use to even begin forecasting the likely nature of a South-East Asia with a WMD presence. The only certainty is that any tension or fear-based peace would be

[74] For example, see note 30.
[75] Evans, G., *Australia's Regional Security*, Department of Foreign Affairs and Trade, December 1989, p 41.
[76] Perhaps the two are the same thing: the application of physical force by political groups in an 'other than war' environment. The only distinction between them, with exceptions, might be the empowerment level of their leadership.
[77] Baker, J.S., 'The Australian Defence Force Beyond 2000', in Stephens, Alan (ed.), *New Era Security*, RAAF Air Power Studies Centre, Canberra, 1996, p 61.

far inferior to the current peace of this region. Strategic missiles have the potential to become pivotal in regional relationships and power balances; the short notice WMD they facilitate has the potential to totally dominate. The power of strategic WMD would surely steal centre-stage, and the prospects for at least a regional 'Cool War' would hardly seem avoidable.

There is, then, an imperative to act. Substantial work is already being done but its effects have been to slow proliferation rather than stop it. Committed regional collaboration may offer the best hope of preventing a strategic missile presence. As substantiated above, the aim must be to eliminate the indigenous threat by agreement, and deter the exotic threat by cooperation. It is only through a shared understanding of the spirit of intent, and not through the letter of the law, that such an aim will be achievable. International agreements, by nature, are not foolproof. They are only as strong as the will and loyalty of their individual signatories. The strongest agreements are those in spirit, often captured in only the most general terms on paper.[78] Absolute freedom from strategic missiles will only happen after an intimate level of regional concurrence on the issue. The chances of success will only be as strong as the relationships of those parties which jointly pursue it.

Australia and its South-East Asian neighbours have the advantages of time and a significantly clear record of missile possession. Both advantages are vulnerable and there is a need for haste. Australia has the credentials to lead an initiative, and might start by recruiting as many imaginations to the problem as possible. It is time to sell the grim potential of regional strategic missiles to the neighbourhood, to generate some urgency, and with *this* imperative on top of all others, continue to strive for more depth in regional relationships.

[78] The military alliance between Australia and the US is an example.