



# Arming the Singapore Armed Forces

*Trends and  
Implications*

**Bilveer Singh**





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## ABSTRACT

Many have written on the issue of an arms race within the Association of Southeast Asia nations (ASEAN)<sup>1</sup>. The Asian financial crisis (AFC) in 1997 forced many ASEAN countries to halt plans of ambitious military build-up and arms modernisation. Instead, cuts in defence budgets were the norm, except for Singapore.<sup>2</sup> Both Singapore and Malaysia rode out of the AFC relatively well and now that the financial storm is over, there are signs of a revitalisation in the arms build-up between them.<sup>3</sup> The trend of introducing highly advanced and offensive weaponry into the region is more disturbing than uncomfortable, especially at a time when ties between ASEAN countries are volatile, and even hostile at times.

This paper does not attempt to deal with issue of "arms race" in the region, something already dealt with extensively. Instead, it aims to trace the trend of recent arms procurements of Singapore and discuss its implications. This paper also describes that, far from being merely a modernisation exercise, Singapore's arms procurement programmes are part of a concerted effort to enhance its defensive and offensive capacities, especially in the face of heightening tensions in the region. What are the implications for Singapore and Malaysia as both countries become more heavily armed with advanced weaponry? How will the "precarious balance" be managed? How will this interactive arms-relationship end? This paper aims to explore the essence of these questions and hopes to serve as an update to the existing literature on the Singapore military build-up.

Organisationally, the study is divided into a number of parts. First, it revisits historical facts and current events to provide a basis for Singapore's threat perception and explain how Malaysia is so deeply entrenched within Singapore's security planning. Second, it will trace the trend of recent arms procurements by the Singapore Armed Forces (SAF). The final part will reveal the various implications of the growing military imbalance between Singapore and Malaysia.

1. For the purpose of this study, even though all ten countries are members of ASEAN, the focus will be on Indonesia, Thailand, Brunei, Malaysia and Singapore.
2. For example, Malaysia's plan to acquire submarines was shelved mainly because of the financial crisis in 1997. See Richard Scott, "Slowly Surfacing," *Jane's Defence Weekly*, 27 Mar 2002, pp. 34-6. In contrast with many countries in the region, Singapore's defence budget and actual spending has increased annually since 1997. See *The Military Balance* (Various years), (London: International Institute for Strategic Studies); *SIPRI Yearbook 2002*, (Stockholm: Almquist & Wiksell; New York: Humanities Press, 2002); *Financial Statements* (for various years), (Singapore: Ministry of Finance); *Ministry of Finance* website <<http://app10.internet.gov.sg/scripts/mof/index.asp>>
3. Robert Karniol, "Asia-Pacific Arms Trends," *ibid*, 28 Nov 2001, pp. 25-27.





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His latest work (October 2003) is entitled *ASEAN, Australia and the Management of the Jemaah Islamiyah Threat* (SDSC Canberra Papers on Strategy and Defence, No. 152).





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## ACRONYMS AND ABBREVIATIONS

AA	Anti-Aircraft
AAM	Air-to-Air Missile
Ac	Aircraft
ADSD	Air Defence Systems Division
AEW	Airborne Early Warning
AFC	Asian Financial Crisis
AFV	Armoured Fighting Vehicle
AMRAAM	Advanced Medium Range Air to Air Missile
APC	Armoured Personnel Carriers
APV	Anti-submarine Patrol Vessels
ARF	ASEAN Regional Forum
Arty	Artillery
AS	Anti-Ship
ASEAN	Association of Southeast Asia Nations
AshM	Anti-Ship Missile
ASW	Anti-Submarine Warfare
ATCCS	Artillery Tactical Command and Control System
ATGW	Anti-Tank Guided Weapon
ATTC	All Terrain Tracked Carrier
BVR	Beyond Visual Range
CBRE	Chemical, Biological, Radiological and Explosive
COMLOG WESTPAC	Commander, Logistic Group, Western Pacific
CPF	Central Provident Fund
CRISP	Centre for Remote Imaging, Sensing and Processing
C <sup>3</sup> I	Command, Control, Communications and Intelligence
C <sup>4</sup> I	Command, Control, Communications, Computer- processing and Intelligence
DCN	Direction des Constructions Navales
DSO	Defence Science Organisation
DSTA	Defence Science and Technology Agency
EW	Electronic Warfare
FCR	Fire Control Radar
FCS	Future Combat System
FPDA	Five Power Defence Arrangements
FTA	Free Trade Agreement
GPS	Global Positioning System
Helo	Helicopter
IFV	Infantry Fighting Vehicle

ICJ	International Court of Justice
JDAM	Joint Direct Attack Munition
Ji	Jemaah Islamiyah
JMSDF	Japan Maritime Self-Defence Force
JSF	Joint Strike Fighter
KL	Kuala Lumpur
LANTRIN	Low Altitude Navigation and Targeting Infrared for Night
LIC	Low-Intensity Conflicts
LST	Landing Ship Tank
LSV	Light Strike Vehicle
LWSPH	Lightweight Self-Propelled Howitzer
MAF	Malaysian Armed Forces
MBT	Main Battle Tanks
MCMV	Mine Counter Measures Vessel
MCP	Malayan Communist Party
Mindef	Ministry of Defence
MLRS	Multiple Launch Rocket System
MoU	Memorandum of Understanding
MPA	Maritime Patrol Aircraft
Nav	Navigation
NA	Not available
NAM	Non-Aligned Movement
NDU	Naval Diving Unit
NG	New Generation
NGF	New Generation Fighter
NPT	Non-Proliferation Treaty
NS	National Service
NTU	Nanyang Technological University
NUS	National University of Singapore
OPV	Off-shore Patrol Vessel
PSTAR	Portable Search and Target Alert Radar
RMA	Revolution in Military Affairs
RMAF	Royal Malaysian Air Force
RMN	Royal Malaysia Navy
RSAF	Republic of Singapore Air Force
RSN	Republic of Singapore Navy
RSS	Republic of Singapore Ship
SAF	Singapore Armed Forces
SAM	Surface-to-Air Missile
SAR	Singapore Assault Rifle
SEAL	Sea, Air and Land

SEANWFZ	Southeast Asia Nuclear-Weapon-Free Zone
SHORAD	Short-Range Air Defence
SIGINT	Signals Intelligence
SingTel	Singapore Telecom
SLOC	Sea Lines of Communications
SOF	Special Operation Force
SP	Self-Propelled
SPH	Self-Propelled Howitzer
ST	Singapore Technologies
SWBTA	Shoalwater Bay Training Area
syst.	System
UAV	Unmanned Aerial Vehicle
UN	United Nations
US/USA	United States of America
Veh.	Vehicle
WMD	Weapons of Mass Destruction





# ARMING THE SINGAPORE ARMED FORCES (SAF): TRENDS AND IMPLICATIONS

*Bilveer Singh*

## Introduction

Singapore and Malaysia have never taken their security for granted since the Second World War (WW II) with both learning it the hard way. The Imperial Japanese Army's brutal invasion *through* Malaya to Singapore saw the beginning of the end of the British Empire in Southeast Asia. The 70 days of constant retreating and futile fighting by the British forces were described as the "worst disaster and largest capitulation in British history."<sup>1</sup> What followed were more than three years of torture and atrocity on the populace of both countries.

The emotional scars left behind by the Japanese had such profound repercussions on the British leadership that it conceded that they could not restore the *status quo ante* and, accordingly, pledged that "it would seek to prepare Malaya and Singapore for eventual self-government within the British Empire."<sup>2</sup> The political scene in Singapore then changed dramatically and, for the first time in history, the locals governed the island after it achieved self-government in 1959.

The threat of the Malayan Communist Party (MCP)<sup>3</sup> eventually led to the Tunku's agreement to form the Federation of Malaysia to include Singapore, albeit very reluctantly.<sup>4</sup> Upon the formation of Malaysia, neighbouring Indonesia launched *Konfrontasi* (Confrontation) against the newly formed federation. Indonesia's *Konfrontasi* campaign was an additional security threat on top of the subversive communist problem. Simultaneously, political differences and antagonism between Singapore and Malaysia erupted into furious political hostilities and heated arguments, which led to two bloody racial riots and the eventual expulsion of Singapore from the federation.<sup>5</sup> Amid regional insecurity and hostilities, the British dealt yet another blow by announcing the intention to withdraw its military presence in Singapore by 1970-71.<sup>6</sup> All this happened against the backdrop of a war in Vietnam.

Both newly independent Singapore and Malaysia were born into a harsh and dangerous geopolitical situation and were defenceless against all the imminent security threats. This paramount sense of vulnerability was felt strongest by Singapore. With boiling tensions with Malaysia up north and *Konfrontasi* with Indonesia down south, Singapore was, indeed, a "Chinese

nut in a Malay nutcracker.”<sup>7</sup> This sense of vulnerability had a deep-seated influence on Singapore’s defence and foreign policies which continues to this day (see Appendix I).

During the Cold War, the bi-polar state of the world made it more predictable and stable, and it offered a pacifying effect in the region.<sup>8</sup> The power play between the two opposing superpowers allowed ASEAN countries to develop quietly and at the same time converged their threat perceptions—the spread of communism into the region. The American *fiasco* in Vietnam, and the latter’s invasion of Cambodia in 1979, united ASEAN countries to face a common enemy — Vietnam and, in certain ways, China. Although Singapore and Malaysia were, and still are, members of the Non-Aligned Movement (NAM), it was clear both were leaning more towards the Western side of the dichotomy and had a common interest in having American military presence nearby.

The ending of the Cold War did not usher in a “peace dividend” in the region. Indeed, the region became less predictable and more volatile with the passing of the balanced bi-polarity and the expectations of a multi-polar strategic environment. The US military vacated Clarke Air Force Base and Subic Air and Naval Base in the Philippines in 1991 after the Philippines Senate refused to renew the agreement for any US military presence in the country. It was feared that regional powers such as China, Japan and India might seize the vacuum left behind by the departing US troops and assert greater influence in the region affecting the *status quo*. The diminishing presence of superpowers in the region — the US from the Philippines and the Soviet Union from Vietnam — created a “decompression effect” that led to the surfacing of intra-ASEAN conflicts.<sup>9</sup>

# CHAPTER 1

## ASEAN – NO FAREWELL TO ARMS?

### Introduction

Since the Second World War, the Southeast Asian region has been a theatre of continuous warfare of one form or another. From the end of the Second World War in 1945 to 1990, Southeast Asia was engulfed by the Cold War. The political, economic and strategic architecture that existed in the region reflected the global system with Southeast Asia being bifurcated into a generally 'Western' and 'Eastern' bloc. This 'order' continued with minor changes until 1990. The build up of conventional armaments in the region should be understood against this backdrop, something that was worsened by political, economic, ideological and territorial conflicts in the region.

### Conventional Arms Proliferation in the ASEAN Region

Arms build up in the region has been through two main sources, external transfers and domestic production. A number of phases can be delineated in the procurements of conventional arms in the region. Without exception, all countries in the region undertook their respective defence build-up on gaining independence from their colonial masters. As some achieved independence through armed struggle, as in the case of Indonesia and Vietnam, it was natural to expect these countries to have a mass of armed personnel; hence, the need to have commensurate armaments. Even for countries that received their independence on a 'silver platter' such as Malaysia, Singapore and the Philippines, the need to take over the responsibility to defend national sovereignty and territorial integrity from the former colonial masters compelled them to undertake, at least minimally, a defence build up that created the necessary trappings to defend the country. This represented the first phase of defence build up in the region.

The second phase was linked to the various post-independence 'colonial struggles' that a number of countries in the region were embroiled in. The two main cases involved Indonesia and Vietnam. The first involved Indonesia's struggle with the Dutch for the return of West Irian and the second involved North Vietnam's attempt to unify the country with South Vietnam by force. Both struggles saw a massive arms build up in their respective countries with both countries procuring arms from the USSR and PRC, the West's key antagonists in the ongoing Cold War. In many ways,



these struggles came to be identified with the global Cold War, with Washington viewing these struggles as nothing more than the 'regionalisation' of the ongoing Cold War, thereby further complicating the security situation in the Southeast Asian region.

The third phase of the arms build-up in the region was a direct function of the British decision to withdraw militarily from Southeast Asia. As both Singapore and Malaysia were dependent on the United Kingdom for their national defence, they were most directly affected by London's decision; hence their decision to embark upon a defence build-up in order to take up the role that was being abandoned by London. This was, however, somewhat mitigated by the establishment of the Five Powers Defence Arrangement (FPDA), a loose multilateral defence pact involving Britain, Australia, New Zealand, Malaysia and Singapore.

While the third phase affected both Singapore and Malaysia, the next one was the direct consequence of the communist victories in Indochina. This affected all non-communist countries within the region then part of ASEAN, namely Thailand, Malaysia, Indonesia, Singapore and the Philippines. As the Americans retreated from the region in April 1975, most countries in ASEAN were compelled to undertake self-reliant measures to protect themselves in what appeared to be the emergence of a balance of power that favoured the communist forces. Through the Nixon and Ford Doctrines, the US opted for an offshore military presence, relying more on its Seventh Fleet and other assets to maintain its military presence in the region.

The fifth phase was spurred on by Vietnam's invasion of Cambodia in December 1978, as well as the formalisation of the Soviet-Vietnamese military axis a month earlier. All ASEAN countries began investing heavily in upgrading their military capabilities in view of the emergence of Vietnam as the dominant military power in the region, now bordering Thailand in occupied Cambodia. The fact that, for the first time, the USSR also gained a military foothold in the region, also complicated the regional security equation. This state of affairs lasted until the end of the Cold War in 1990.

The sixth phase, essentially coinciding with the emergence of a post-Cold War order, lasted until the Asian Financial Crisis in 1997. Following the end of the Cold War, while NATO and former Warsaw Pact members undertook cutbacks in defence expenditures and arms procurements, the Southeast Asian region continued to undertake an arms build up due to the emergence of various security concerns, caused mainly by the 'decompression' of the Great Powers from the region and the perception



that the region was experiencing greater threats from within caused by territorial and other claims. Also, as the Great Powers began looking inward to benefit from the 'peace dividends', countries in the region had to increasingly shoulder their defence responsibilities in an era of greater uncertainty. This defence build up continued until the Asian Financial Crisis struck the region. This halted the defence modernization of countries in the region, all except for Singapore.

The Asian Financial Crisis dealt a severe blow to the arms procurement and modernisation programmes of most ASEAN countries. Most ASEAN countries had their defence budgets severely slashed by 30 to 60 percent during 1998-1999. As a result, most countries decided to scale down or totally cut back their various arms modernisation plans. Thailand, for example, cancelled plans to buy 8 F/A-18 fighter planes from the US. Malaysia also abandoned plans to buy new weapon systems such as attack helicopters and fighter aircraft. Indonesia, probably the worst victim of the Asian Financial Crisis, delayed plans to purchase US\$1 billion worth of weapons from Russia.<sup>10</sup>

However, by 2000, the Southeast Asian countries began showing renewed interest in arms purchases. This was in part due to the partial recovery from the Asian financial meltdown coupled with growing concerns over various threats emerging in the region, especially following the financial crisis. The emerging strategic uncertainty, the lack of transparency in Asian defence procurements, the growing assertiveness, as well as the aggressive and outward-oriented defence policies of China and India, the rising concern over instability in Indonesia and fears of its possible Balkanisation, the threat posed by international and regional terrorism, the rising threat posed by regional piracy, as well as traditional suspicions of the immediate neighbours, were key drivers of the immediate post-Asian Financial Crisis arms purchases in the ASEAN region. This new outlook was evident from Thailand's purchase of 18 US's built F/A-18 fighter aircraft and Indonesia's announcement of its purchase of Russian aircraft with gunship and anti-submarine capabilities. However, the 'star' buyers were Malaysia and Singapore, the two ASEAN states that resumed their defence build up in a big way.<sup>11</sup>

### **Explaining Southeast Asia's Arms Build-Up**

As long as war is a probability, the question is not whether states will arm themselves, but rather by what means and by how much. In this regard, David Singer has argued that countries arm themselves for a whole array of reasons, of which national defence and security is only the most obvious.

Countries also arm themselves “for aggrandizement, to exercise clout in world arena, to maintain or expand a sphere of influence, to inhibit other nations’ efforts to encroach on their turf, to support their colonists, to help defend friendly regimes and so forth. Then there are the essentially domestic incentives to absorb the unemployed or other potential troublemakers, to stimulate the economy, to aid certain industries, to develop a lucrative export activity, to maintain political order, and to perpetuate a given regime. More important, of course, is the fact that each incremental addition to a nation’s military establishment or arsenals will increase the political and economic power of those who favour such arming”.<sup>12</sup>

With this in mind, since the 1990s, analysts have assessed different causes and motivations to try to explain the arms build up in the Southeast Asian region. Dewi Fortuna Anwar, for instance, attempted to do so by examining the following propositions: presence of security threats, economic capability, ease in obtaining weapons, shift in defence posture, rise in local defence industry and being spurred by a regional arms race.<sup>13</sup> Explaining the arms build up in the Southeast Asian region, Desmond Ball and Andrew Mack listed the following factors as being key drivers : the perception of a probable American withdrawal and relative decline; fear of Japanese military resurgence; unresolved territorial disputes; EEZ protection; a new maritime vision; as well as various non-military causes of regional arms proliferation, including supply-side pressures.<sup>14</sup> In the same vein, Amitav Acharya listed the following factors that could explain the arms build up in the region, including the drive towards modernisation, the need to secure capabilities beyond coastal defence, due to the state of intra-regional relations, the shift from counter-insurgency to conventional warfare, considerations of prestige and extra-regional factors involving the changing of balance of power in the region.<sup>15</sup> Prior to the outbreak of the Asian Financial Crisis in 1997, the arms build up in the region can also be analysed by differentiating the external and internal imperatives in driving the arms acquisition programmes in the region.

## **The External Imperatives**

### **The Perceived Decline of the United States and the Evolving Security Environment**

The security context in which defence expenditure was undertaken played a crucial role in influencing the nature of defence outlays in the Southeast Asian region. Prior to the emergence of Mikhail Gorbachev as the Soviet leader in March 1985 and the eventual break-up of the Soviet Union in December 1991, the world was essentially bipolar in character. Conflict



and cooperation between the two superpowers set the framework for interstate relations and determined, to a considerable extent, the nature of threat perception at both the local and global levels. Although security was never overtly expressed as the justification for ASEAN's formation, it was the threat of communism in and around Southeast Asia that precipitated its formation.<sup>16</sup> Circumstances have since changed dramatically, forcing the reconsideration of the regional organisation's *raison d'être*, including its security role.

ASEAN's predicament could not have arisen had it not been for the actions and policies of Gorbachev, who, through *glasnost* and *perestroika*, eased Superpower tensions, brought an end to the Cold War and, ironically, to the USSR itself. The importance of this cannot be underestimated as it fundamentally altered world opinion on the premise of survival — from one based on military competition to one obtained through economic development and cooperation. This provided the US with the impetus to scale down its military presence worldwide and redirect its attention to domestic concerns. Evidence of this could be seen from its military withdrawal from the Philippines, albeit one forced upon it by the Philippines Senate's refusal to ratify the new bases agreement signed between Washington and Manila. Uncertainty with regard to the US's future forward basing cast doubt on the credibility of the West's strategic umbrella which had traditionally guaranteed stability and security in the region.<sup>17</sup> In this regard, the loss (or perceived loss) of American security protection in the region had a great impact on the defence and security outlook of countries in the Southeast Asia, exuding in general, a greater sense of insecurity and vulnerability.

ASEAN countries had argued that the US security role in the region remained relevant due to four key factors: the continued danger posed by Russia to countries in the region, the danger of a war on the Korean peninsula, the possible scramble among the other great powers to fill the void left by the US, and the general unpredictability of security threats in the region that required the US to remain militarily entrenched in Southeast Asia. Various Southeast Asian countries also argued that an American presence in the region was also self-serving for the sole superpower. The US stood to gain from the following: as it was a global superpower, its military presence in the Asia-Pacific was both logical and a necessity; the Southeast Asian region could not be ignored or downgraded as it was an important economic partner for the US; Washington had treaty obligations with countries in the region, particularly Thailand and the Philippines; and finally it was in the interest of the US to promote peace and stability in the region; hence the need to be

proactive in creating a stable security order that could lead to a stable and prosperous Southeast Asia.<sup>18</sup>

### **Growing Fears of Asian Great Powers**

The end of the Cold War did not bring the anticipated 'peace dividends' to the Southeast Asian region. Instead, new uncertainties and insecurities were in vogue.<sup>19</sup> Japan, remembered in the region for its past imperialism and brutalities, was being coaxed by the US to assume a greater burden of ensuring security in the region through the expansion of its military capabilities.<sup>20</sup> Although still within the stipulated constitutional limit of less than one percent of the Gross National Product (GNP), Japan's defence spending had been increasingly markedly. In 1990, this was in excess of US\$30 billion, with more than US\$8 billion expended on arms procurements. The defence budget for the next half decade was more than US\$166 billion, with sizeable amounts earmarked for the acquisition of modern weapon systems including Mitsubishi SH60J helicopters, F-151J Strike Eagle fighter aircraft, the development of the FSX aircraft, its second Aegis-class destroyer, a new 8,900-tonne landing craft capable of launching helicopters and hovercrafts, a diesel-powered submarine, 13 new aircrafts, submarine hunters, Type 60 tanks, self-propelled Multiple Launch Rocket systems, Patriot and Stinger missiles. Similarly, the Chinese have made vast advances in their military capabilities. Its rapidly growing economy has permitted more resources to be expended on defence, especially since 1990. This has witnessed all-round qualitative and quantitative improvements in Chinese armaments, including its ballistic missile and nuclear capabilities. The same is true of India, which already endowed with a massive conventional capability, has now joined the nuclear club.

While it was inconceivable that Japan, China and India would militarily threaten and intervene in the ASEAN region, these are Asian Great Powers with varying degrees of hegemonic objectives in the region and their ambitions are something that Southeast Asian countries would always have to bear in mind. Already, most ASEAN countries are increasingly wary of Chinese intentions, especially since Beijing has been prepared to flex its muscles in the South China Sea region since 1974. All these concerns, against the backdrop of lessening American interest in the region since 1990, provided an important driver in the ASEAN countries' quest for military modernisation.



## **Inter-Regional Threats and the Continued Concern with Vietnam**

Even though ASEAN's concern with Vietnam declined following its troop withdrawal from Cambodia in September 1989, fear of the Vietnamese continued unabated for quite some time. Vietnam continued to possess the largest and most tested military capability in the region and continued to be considered a latent threat to countries in the region, especially to Thailand. Vietnam's massive military power, including an army of over 900,000, navy of 31,000 (including 31,000 marines), air force of 10,000, air defence force of 100,000 and a paramilitary force of more than 2.6 million, outstripped the total military power of all the then ASEAN members combined. The fact that Vietnam was involved in territorial disputes with Malaysia, Thailand, Brunei, Indonesia and the Philippines in the South China Sea heightened the concern with Vietnam.

Despite the invasion and occupation of Cambodia that showed the limits of Vietnamese military power, it continued to be considered a threat to Thailand, a country that had traditionally viewed the land threat from the east to be its primary security concern. The long war and conflict with Vietnam since the Second World War meant that the end of the Cold War did not bring immediate 'peace dividends' for Thailand as far as Vietnam was concerned. This was evident from the then Thai Armed Forces Chief, General Suchinda Krapayoon, who argued in early 1992 that Vietnam remained his country's primary security concern. Thus, from the late 1980s through to the mid-1990s, Vietnam remained a security concern. A major attempt to engage the Vietnamese, particularly by Thailand, so as to remove them as a military threat, eventually resulted in Hanoi's accession to the Treaty of Amity and Cooperation in July 1992 and, later, its membership into ASEAN.

## **Intra-ASEAN Insecurity**

Enhancing a state's security has been the primary motivation for armament. This has been particularly true of ASEAN members, as many security concerns have emanated from the members themselves. Traditionally, for ASEAN, the threat from external actors prevailed over that from other members of the grouping. The ASEAN region is characterised by its complexity and diversity. The differences in geographical size and location, differing colonial experience, ethnic, religious and racial makeup, ideological outlook, political and economic systems and thus interests and orientations, have accounted for the differing threat perceptions of ASEAN member-states. Past experiences and historical baggage continue to colour present-day relationships and fears. The Indonesian Confrontation against



Malaysia and Singapore, for instance, was and is very much alive in the minds of the security planners in Kuala Lumpur and Singapore. In the same vein, the fact that Malaysian and Singapore territories had been used in the past by outside powers to support separatist movements in Indonesia had also led to concerns about the presence of foreign powers in the region, especially on territories adjoining Indonesia.

The different levels of relationships and linkages of ASEAN member-states with the great powers also created intra-ASEAN difficulties, with resultant implications for regional security. For example, Singapore's quasi-alliance status in its relations with the US has not been warmly accepted by Malaysia and Indonesia. Due to the nature of overlapping ethnicity across territorial boundaries, intra-ASEAN relations have often been complicated by one country fuelling insurgency movements in a fellow ASEAN country, as was the perception of Thailand that Malaysia was wittingly and unwittingly helping Muslim separatists operating in southern Thailand. A similar perception in the Philippines existed with Manila believing that Kuala Lumpur was assisting and providing sanctuaries to the Moro National Liberation Front in its secessionist struggle to create an Islamic Mindanao. This was further aggravated by the existence of overlapping territorial disputes among the ASEAN countries.

The existence of conflicting land and maritime disputes played an important role in souring ties in the Southeast Asian regional organisation, as well as helping to spur arms purchases. The existence of territorial disputes over Sabah between Malaysia and Philippines, over Pedra Branca between Malaysia and Singapore, over Sipadan-Ligitan between Malaysia and Indonesia (resolved by the ICJ in 2003), over land border delimitation between Thailand and Malaysia, over Limbang between Brunei and Malaysia, and over the continental shelf and the Extended Economic Zone among most of the ASEAN states, was a testimony of the insecurities that existed in the region.

Primarily due to past differences and experiences, as well as the existence of continuing conflicts, many ASEAN member-states viewed each other as a threat and this provided an important impetus and motivation for arms procurements programmes in the region even though this was never stated publicly. This factor also accounted for the generally low-level defence cooperation among the ASEAN members, especially in sensitive areas such as land forces cooperation or the exchange of high-level intelligence. The lack of transparency in military cooperation among the ASEAN states was a good indicator of the lack of trust even though, compared to the 1960s and 1970s, some progress had been made in mostly non-sensitive areas.

## **Regional Disputes**

The existence of regional disputes was a major source of insecurity in the region. In many ways, this has continued to be the case. When the Vietnamese invaded and occupied Cambodia in December 1978, it immediately raised concerns that other countries in the region could suffer the same fate. This fear was especially acute among the smaller regional states. Singapore's high profile diplomacy on the Cambodian issue during the years 1979 to 1988, aimed at reversing the Vietnamese occupation, had to be understood from this perspective. The same concern also explained Singapore's initial opposition to Indonesia's military intervention in East Timor in December 1975. Singapore's readiness to host American military facilities on its shores, and support an American military presence in the region, also stemmed from the same motivation.

In many ways, Vietnam's invasion and continued occupation of Cambodia until 1989 were primarily responsible for many arms procurement programmes in the region. The danger was that Vietnam was being used both legitimately and as an excuse to arm the militaries of the region. It was always convenient and politically cheaper to point to a common identifiable threat than one that was near but could not be identified for obvious political and diplomatic reasons. In this context, the Paris Peace Accords in 1990 helped to remove Cambodia as a major security concern in the region, even though the country's internal instability continued to be a source of concern. For many ASEAN countries, this meant that the Vietnamese threat could no longer be used as a rationale for their procurement of arms.

However, the other major regional dispute, and one with a longer history, continued to loom large and shaped the directions of arms procurements in the region, namely the dispute in the South China Sea region. The dispute, involving China, Taiwan, Vietnam, Malaysia, Indonesia, Brunei and the Philippines, was over the ownership of islands and the continental shelf. Prior to the mid-1990s, the region recorded a number of armed clashes, mainly between China and Vietnam. In January 1974 and in March 1988, the Chinese successfully dislodged Vietnamese military personnel from a number of islands in the zone of dispute. The Chinese determination to claim the whole of South China Sea as its sovereign territory, and the determination of the other claimants to contest this, had created a dangerous situation in the region. The increased militarisation of the islands by different claimants, coupled with China's preparedness to project its air and naval power in the region, have provided a major impetus for the acquisition of arms in the ASEAN region. There are also other territorial disputes in the region, including over the delimitation of the Gulf of Thailand



between Malaysia and Thailand, as well as the continental shelf in the Natunas between Vietnam and Indonesia and also between China and Indonesia.

### **Suppliers' Pressures and Incentives**

The arms industry is extremely competitive, and increasingly so following the achievement of the peace dividend by the West with the end of the Cold War. This event created added pressure to sell arms in order to be competitive or even simply to survive. This led to suppliers putting immense pressures on buyers by providing all kinds of incentives in order to ensure that purchases took place. In many ways, it had become a buyers' market with sellers providing a range of competitive packages to outbid each other. For every weapon system that a country needed, there were a few alternatives and, for every rejection, there were many others who came forward with more attractive offers. To that extent, suppliers' pressures and incentives have been an important factor in persuading many ASEAN governments to enter the arms market, as it has made economic sense to do so. The availability of counter-trade packages has been critical in this regard and, with abundance of resources, ASEAN in the 1990s became one of the world's leading arms market. The entry of the former USSR into the arms business further fuelled competition in the region.

### **New Technology**

When the ASEAN countries first started defence procurements, most purchases were second hand or second-generation equipment from either the colonial powers, as was the case with Malaysia, Singapore, Brunei and the Philippines from Britain and the US, or generally low quality and unsophisticated equipment procured from the West. As the defence requirements of the armed forces became more demanding in technology and, since these were available at affordable prices, new equipment has been increasingly acquired. The need to respond to technological superior military capability in the ASEAN region, on the one hand, and the rise of adversaries with high technology weapons on the other also made acquisitions of such weapons both vital and necessary. The demand of the modern battlefield for state-of-the-art technology has also provided a major impetus to acquire increasingly sophisticated weapons from both West and non-Western countries.

### **New Security Responsibilities**

ASEAN arms procurements have been directed not merely at addressing old needs and responsibilities. Rather, since 1981, the maritime states have

had their security responsibilities vastly expanded. This was the function of the expansion of maritime boundaries to 12 miles, as well as the acquisition of the 200 miles EEZ following the conclusion of the United Nations Conference on the Law of the Sea. Thus, in order to protect their newly acquired maritime riches and responsibilities and air spaces, many ASEAN countries were compelled to enhance their air and naval wherewithal to safeguard their new riches and responsibilities. That many ASEAN states such as Indonesia, Malaysia and Brunei are dependent on vital offshore oil and gas resources, with their EEZ containing fossil fuels, minerals and fisheries, have also made the states invest in arms to protect the resources therein. Additionally, the expansion of jurisdiction over new land and maritime territories had thinned out the already over-taxed security forces in the region and arms procurements were purchased in part to equip the armed forces to adequately defend these newly acquired territories and responsibilities.

### **ASEAN's 'Collective Strength' System**

Technically, ASEAN is not a military pact. In fact, ideologically the ASEAN countries have rejected any regional military alliance as an instrument of regional security due to a number of factors: lack of confidence in military pacts *per se*; ASEAN's lack of military capability; the belief that Vietnam should not be antagonised as it will perceive the alliance to be directed at her; the belief that ASEAN should not become embroiled in great power rivalries, that internal threats, the main concern of ASEAN states, cannot be resolved by military force; the difficulties arising from differing threat perceptions; and finally, the fact that members continue to view each other in suspicious terms. All these have made the operation of ASEAN as a military alliance impractical.

Yet, many observers have noted the emergence of some semblance of informal regional military cooperation, especially since the 1970s. This can be seen from the standardisation of some major weapon systems among the ASEAN armed forces. For instance, the F-16 and Hawk combat planes have been commonly used by most air forces in the region. In this regard, it has been argued that, while there are many external variables at work, one involves the implicit understanding that national military resilience would lead to regional military resilience and, thus, ASEAN's arms purchases should be encouraged, given the result would be the collective strengthening of ASEAN as an organisation. This could lead to the rise of an organised military network within ASEAN able to cooperate at the regional level. The then Indonesian Defence Minister and Armed Forces Chief, General Benny Moerdani and Try Sutrisono referred to this framework as the 'regional



spider web'. In a way, this would represent some form of burden sharing among the ASEAN member-states whereby greater responsibility for regional security would be undertaken by those capable of doing so, especially in the face of growing insecurities and uncertainties.

This idea has gained prominence, especially with respect to ASEAN's Maritime Surveillance System (AMSS). Introduction of the AMSS involved all the ASEAN navies (and air forces to some extent) looking after their respective security zones, especially along the major sea-lanes of communications (SLOCs). Securing these SLOCs nationally and regionally would reassure the great powers that their maritime traffic and interests would not be jeopardised or threatened. At the same time, it deterred the great powers from competing with each other to dominate the region, especially following the US drawing back from the region. In this manner, ASEAN would be able to act collectively as a 'military power', although being devoid of a formal regional military structure.

### **The Internal Imperatives**

There are also a number of internal imperatives that played a part in influencing various ASEAN members to undertake arms purchases. Among others imperatives, it was affected by the availability of funds, the need to modernize existing equipment, the need to change from a counter-insurgency military force into one oriented toward conventional warfare, the need to respond to specific internal threats (including corruption), the level to which weapons could compensate shortages of manpower, and other psychological factors such as prestige, and the role of personalities.

### **Availability of Funds**

An important factor explaining the willingness of various ASEAN countries to go on an arms purchasing spree was due to the availability of funds for defence expenditure. Aside from the Philippines, all the original ASEAN economies, including Brunei, were performing well, registering more than 5 percent of growth from the late 1970s through to the 1990s when the region was devastated by the Asian Financial Crisis. This allowed the Southeast Asian countries to spend a sizeable amount on defence, including the procurement of new weapon systems. In many ways, with defence expenditure rising steadily since the 1980s, the healthy economic situation of the region made ASEAN a major arms market.

The Anglo-Malaysian Memorandum of Understanding (MOU) was a good indicator that countries in the region were flush with funds. Malaysia's defence expenditure rose dramatically in the late 1980s and into the 1990s,

when it rose from M\$2.69 billion in 1990 to M\$3.80 billion in 1991. In 1992, this further increased to M\$4.31 billion. Among others outcomes, the 1988 MOU led to the purchase of the GEC Marconi radar for US\$309.75 million, the GEC Marconi DOR for US\$377.01 million and Hawk aircraft from BAE for US\$711.54 million. The Sixth Malaysian Plan had an important defence component, with some 11 percent being earmarked for defence. Thailand's defence expenditure had already been rising: 50,605.5 million Baht in 1989, 59,552 million Baht in 1990 and 68,401.9 million Baht in 1991. In the same vein, Singapore's defence budget grew rapidly in the 1990s despite it being capped at 6 percent of the nation's GNP. Hence, due to the healthy economic situation, ASEAN countries were generally able to free resources for arms purchases without unduly hurting other sectors of the economy, especially in sectors such as education and social services.

### **Modernisation of the Defence Forces**

The need to modernise the armed forces of the region was also an important contributory factor. The need to both replace obsolete weapons and upgrade weapon system in general in order to prolong the associated military capabilities was, in part, responsible for the increased defence outlay in the ASEAN region, especially during the 1990s.

### **Shift from Counter-Insurgency to Conventional Warfare**

The need to contain (and counter) insurgents had dominated the missions of ASEAN armed forces since the Second World War. This resulted in ASEAN's armed forces being equipped with weapon systems that were suited for limited types of warfare, basically trying to contain and wipe out communist and religious insurgents that were operating in the tropical jungles. This also led to the concentration on the infantry element, with the army being the backbone of the armed forces in the region. In many ways, there was the natural evolution of a lop-sided force structure in the region.

The successful resolution of the insurgency problem, and the rise of the Vietnamese threat after 1975 and particularly in 1978, led to a major reorientation in the mission and structure of the armed forces in the ASEAN region. The new goal was for the armed forces to be in a position to conduct an externally oriented conventional war, with emphasis being laid on the creation of a balanced force structure. This led to the growth of the artillery and armoured components of the army as well as the build up of regional navies and air forces.



## **Internal Threats**

Without exception, all the ASEAN countries were threatened by internal military threats, although the severity of this had dramatically been reduced. Both Singapore and Malaysia were threatened by the armed struggle launched by the Communist Party of Malaya. The Communist party of Thailand and the Muslim separatists in the south challenged Thailand. Indonesia was confronted by a whole array of threats in its far-flung provinces, including in Aceh, East Timor and Papua. Even though Brunei was relatively secure, the People's Party continued to pose a threat to the Kingdom's leadership. Of all the countries, the Philippines faced the most serious insurgency threat, with the New People's Army and the Moro National Liberation Front seeking to overthrow the government in Manila. These internal threats provided a ready explanation for many arms procurements, especially those purchased for army and land forces.

## **Manpower Replacement Strategy**

While most ASEAN member-states were well-endowed with manpower and tended to be labour-intensive, both Singapore and Brunei, due to the shortage of manpower, adopted policies aimed at compensating for their manpower shortage with the acquisition of weapons with enhanced firepower. This led to a policy of weapon acquisitions that were not only sophisticated but also deliberately aimed at reducing the number of personnel deployed to operate those weapons.

## **Prestige, Personality and Corruption**

The role of leaders and personalities as a key drivers behind arms procurement in ASEAN cannot be underestimated. The role of Prime Minister Mahathir Mohammad of Malaysia, Deputy Prime Minister Lee Hsien Loong of Singapore and the then Indonesian Minister of State for Research and Technology, Dr Bacharuddin Habibie, in pushing their respective countries toward acquisition of sophisticated technologies both in the civilian and military arenas, has brought about a growing modernity and sophistication in the armed forces of the three countries.

Added to personality, the prestige obtained through the acquisition of costly and sophisticated weapons also played an important part in the weapon acquisition programmes of various ASEAN countries. Finally, the opportunities provided to officials to make financial gains through arms deals also contributed in determining the type of weapons to be acquired. Often, what influenced the decision to purchase a particular weapon system was not simply because it was the best for the armed forces of a country but

rather due to the bribes being offered by various arms dealers to those high ranking officials in a position to determine the purchase of their country's weapons. While not widespread, this factor cannot be completely discounted as a determinant in a number of weapon purchases, especially in Malaysia, Thailand and Indonesia.<sup>21</sup>

### **Regime Security**

Third World states have been observed building up their military power in order to protect the regime in power from challenges from within. Unlike the internal threat posed by insurgents, these instances represented the existence of a regime that suffered severely as far as legitimacy was concerned, and only managed to retain power through its control of the military and police apparatus. This was usually the case in military autocracies and Myanmar is the classic case in Southeast Asia. The junta there has remained in power through its ability to suppress its people and, despite losing domestic and international credibility, it cannot be dislodged from power because of its control of the power apparatus, especially the military instrument.

In the case of Myanmar, in order to increase the power of the state control apparatus, the size of the armed forces has been dramatically increased and more than US\$1 billion worth of weapons imported, mainly from China. In this instance, weapons imports are partly a function of problems related to regime security, where the military junta hopes to make its control of the populace more effective rather than to protect the country from external threats. Thus, when the people become the biggest enemy of a particular regime, it can also lead to arms purchases where the guns are turned against its own people in order for the regime to maintain power. In Southeast Asia, this is fortunately the exception rather than the rule.

## CHAPTER 2

### SINGAPORE AND THREAT PERCEPTIONS

If lessons can be learnt from history, Singapore made a conscious effort to ensure that history will not repeat itself; that Singapore will not rely entirely on others for its own defence and will not be defenceless in the face of security threats. The expulsion from Malaysia in 1965 was a watershed in Singapore's security perception. The undisguised threat from the Tunku to turn off the water supply to Singapore on the very first day of its independence reinforced Singapore's paranoid sense of insecurity.<sup>22</sup>

Before 1965, Singapore was defended for the most part by the British, either directly or under a defence umbrella that spanned almost all British territories in the region. An indigenous defence force was virtually non-existent. Given Singapore's complete lack of natural resources or large population, it would be economically unfeasible and suicidal to maintain a vast core of competent full-time armed defence forces. Thus, the Singapore Armed Forces (SAF) was formed in 1967 as a citizen army, drawing male conscripts from the population to defend their country. National Service (NS) was deemed the only viable solution to sustain a credible defence force yet, at the same time, free up young men to power the economy.

Since independence, Singapore has guarded its independence jealously and upheld its sovereignty sacredly. It also faced tremendous difficulties and vulnerabilities during its early days of independence. The immediate external security threats Singapore faced upon independence were from its closest neighbours — Malaysia and Indonesia. The two Muslim-dominated neighbours continue to pose a significant security concern for Singapore.

#### **ASEAN and Beyond**

A new security landscape followed in tandem with the post- Cold War era. Vietnam, as a threat to Southeast Asia's peace and stability, slowly diminished with the withdrawal of a Soviet military presence and Vietnam's desire to integrate itself into the ASEAN trade circuit. The end of the Cold War brought about a reorientation of Singapore's threat perception. Without a common foe, intra-ASEAN territorial disputes were more prevalent<sup>23</sup> and inveterate tensions were more conspicuous. China's emergence as a regional power, Japan's influence and its increasingly militaristic stance<sup>24</sup>, together with the possibility of Indian and Russian involvement in the region, were



viewed as potential extra-ASEAN power struggles that could destabilise the region's balance of power and stability.<sup>25</sup> Without the presence of a benign superpower such as the US to "watch over" the behaviour of the increasingly active players, Singapore feared that its immediate neighbours would exploit the anarchic situation to advance their political agendas and infringe on Singapore's sovereignty or national interest. The presence of US troops in the region to serve as a counterweight to the rising uncertainty was thus deemed important for Singapore's security and the region's stability. Therefore, for fear that the US might unplug entirely from the region, Singapore steadfastly offered to allow the US expanded use of local military facilities in a memorandum of understanding (MoU) signed in 1990. Soon after the Philippines Senate's refusal to extend US military presence in the country, Singapore promptly allowed the COMLOG WESTPAC (Commander, Logistic Group, Western Pacific) to establish its headquarters in Singapore in order to provide logistic support for the US Seventh Fleet, which was based in Japan. Subsequent to this, more mutually beneficial agreements between Singapore and the US led to closer military and economic cooperation. Indeed, this defence relationship has been described as a "quasi-alliance" despite there being no mutual defence treaty between the two countries.<sup>26</sup>

This Singapore-US link is one of paramount importance to the security well-being of Singapore. The US provided Singapore with advanced military weapons and weapon systems, together with training facilities in the US. Singapore's geographical limitations prohibits a realistic training regime for the SAF, and the US offer of its vast airspace to the Republic of Singapore Air Force (RSAF) detachments provides realistic training that enhances the RSAF's operational capabilities. In return, the US is able to use Singaporean facilities, including a deep-sea dock specifically built for an aircraft carrier in the recently completed Changi Naval Base. Singapore's strategic geopolitical location is also an important consideration for the US. For instance, Singapore was a key transit point for American ships and aircraft during the Gulf War.<sup>27</sup> Following the September 11 events and the Bali bombing, there was increased appreciation for the Singapore-US partnership.<sup>28</sup> This relationship is expected to deepen following President George Bush's recent visit to Singapore in October 2003. Both countries are expected to enter into negotiations for a Framework Agreement for the Promotion of a Strategic Cooperation Partnership in Defence and Security. This will expand the scope of bilateral and multilateral cooperation in areas such as counter-terrorism, counter-proliferation of weapons of mass destruction, joint military exercises and training, policy dialogues and defence technology.

It is clear that Singapore will strive to persuade the US to maintain its presence in the region for the foreseeable future in order to balance the rising power of China and, to some extent, to thwart the escalation of tension in the Korean Peninsula, Kashmir and across the Taiwan Straits. Following the September 11 terrorist attacks and the resultant US-led war on terrorism, US presence in the region was more pronounced than in recent times.<sup>29</sup> It should also be somewhat of a relief to Singapore that ASEAN's strategic importance has regained the interest of major powers, including the US, in the aftermath of the September 11 events.<sup>30</sup>

In recent years, Singapore has been actively engaged in substantial military ties with many countries from different continents. Singapore now maintains military training detachments in a dozen or so different countries and conducts regular military exercises with many others. Long term training detachments for the RSAF include F-16C/D Fighter Squadrons in Arizona and New Mexico, CH-47D (*Chinook* transport helicopter) in Texas, KC-135R (mid-air refuelling) in Kansas, A-4SU and TA-4SU (fighters) in Cazaux, Flying Training School in Western Australia, Air Grading Centre in New South Wales, AS332M and AS532UL (*Super Puma* and *Cougar* helicopters) in Queensland and UH-1H (*Huey*) in Brunei. The RSAF also deploys regular short-term training detachments in Darwin, Amberley, Richmond and Rockhampton in Australia, New Zealand, Indonesia, Thailand, Bangladesh and Malaysia (under the aegis of the FPDA).<sup>31</sup>

The Army maintains training facilities in Taiwan, Shoalwater Bay Training Area (SWBTA) in Australia, New Zealand, Thailand and Brunei. The Army also conducts regular exercises with various armies and frequently sends regular personnel to elite Special Forces training courses such as the US Navy SEAL, Green Berets courses and the Army Special Forces Weapons Sergeant Course in the US.<sup>32</sup>

The Republic of Singapore Navy (RSN), however, has relatively less overseas detachments, with only one submarine training detachment in Sweden. However, the RSN, like the other services, also holds regular exercises with various navies including India and Japan, with a recent emphasis on submarine warfare.<sup>33</sup>

Not only do these military links with other countries enhance the SAF's operational capabilities by providing "realistic overseas training... [and] widespread exposure to combat-experienced Western armed forces' operational doctrine,"<sup>34</sup> they also open up doors for the transfer of defence technology and also economic cooperation.<sup>35</sup> In the words of Defence Minister and Deputy Prime Minister Dr. Tony Tan:



Training and exercising with advanced militaries, for instance, the various services of the US armed forces, allows the SAF to benchmark itself against the best. ... Our cooperation with foreign armed forces also allows for collaborations in defence technology, and we have had fruitful collaborations with countries such as the US, France, Sweden and Israel.<sup>36</sup>

Close military ties with many countries also "helped to anchor these friendly powers' regional security presence in Singapore, thus improving the city-state's security by complicating the calculations of likely aggressors."<sup>37</sup>

Zooming in more closely on the Southeast Asia region, Singapore finds little comfort *vis-à-vis* its security concerns. The Spratly Islands are a group of small islands with a total land area of only 10 square kilometres dispersed over 250,000 square kilometres of the South China Sea. Believed to possess significant oil reserves, they have been claimed in their entirety by China, Vietnam and Taiwan; and in part by Brunei, Malaysia and the Philippines.<sup>38</sup> The complex nature of the dispute, involving many parties, reinforces the call for concern *vis-à-vis* the use of military coercion to advance each party's claim.<sup>39</sup> It is clear that the placid situation could deteriorate rapidly and mounting tension worsen in a chain reaction if there is a single miscalculation by any claimant state.

The effect on Singapore of any conflict in the South China Sea is multifaceted. The fact that the Spratly Islands are in close proximity to Singapore is enough to justify its concern with the dispute even without its direct involvement. Also, the Spratly dispute involves many of Singapore's neighbours. Any conflict in the South China Sea would almost definitely cause serious repercussions to Singapore's economy, as the South China Sea is an important waterway for international trade. Lastly, a prolonged standoff between the claimant states would also impinge on the training schedules of the RSAF and the RSN, both of which are known to conduct military exercises regularly in the South China Sea. This disruption in training could potentially strain the overall operational capabilities of the SAF.

As an open city-state, Singapore is exposed to events beyond its control but which affect its security. However, Singapore's excellent relationship with the wider world and its image as a responsible global citizen help to make the world a more conducive place for Singapore to advance its interest. Also, being at the forefront of the globalisation bandwagon will ensure that



Singapore's interests are intertwined with the world at large. Indeed, Defence Minister and Deputy Prime Minister Tony Tan has said:

We have limited influence on the policies and actions of the big powers. But we can enhance our security by developing cooperative and mutually beneficial relationships with those countries which share common strategic interests with Singapore, as well as by drawing the heavyweight countries into playing a more active and constructive role in multilateral forums which can help stabilise the regional security environment – such as the ASEAN Regional Forum, or ARF.<sup>40</sup>

## Domestic

One of Singapore's most sensitive internal security concerns is the innate racial divide inherited from its British master. Singapore had the delicate task of maintaining the precarious communal equilibrium after the two devastating racial riots prior to independence. Although communal tension was very much an internal affair, it was evident how easily neighbouring countries such as Malaysia could fan up the brewing smoulder to heat up racist sentiments in the tiny Republic.<sup>41</sup> There was also the fear that communal violence against the minority indigenous Chinese populations in neighbouring countries would spill over and spark similar racial unrest in Singapore or cause an influx of refugees fleeing to Singapore. The 1969 riots in Kuala Lumpur (KL) and the anti-Chinese mayhem in Indonesia in May 1998 doubtless sent jitters through the Singapore security apparatus.

Singapore had initiated many social programmes to foster a cohesive, multi-racial and multi-religion population. However, the revelation of the planned, and failed, terrorist attacks on Singapore targets, assisted by local members of a regional terrorist group, *Jemaah Islamiyah* (JI), undid much that had been done previously. In the post-September 11 security landscape, Muslims in Singapore cannot help but feel uncomfortable with the spotlight on them and the sense of suspicion towards them by the other communities, given all the detained would-be terrorists are Muslims. However, damage control programmes to prevent further deterioration of racial ties were swiftly shifted to high gear.<sup>42</sup> These education and confidence building programmes, and the government's objective handling of the issue, helped to restore the fragile social fabric. As long as Muslim fundamentalism remains in the region, the tension remains. How the population will react to a Muslim-sponsored terror attack that inflicts significant casualties remains an unknown.

Singapore would have to adequately manage its race-related issues to complement its wider security outlook. With a divided and mutually suspicious population, Singapore may find itself exposed to severe security threats, exploiting its wavering racial balance. An adversary state could sponsor an imploding terrorist attack in Singapore to create chaos and then advance its agenda when Singapore was in total turmoil.

### Malaysia - the biggest threat?

Malaysia is perhaps the most conspicuous factor in Singapore's security calculations. Singapore-Malaysia relations can be deemed the most tempestuous and unpredictable amongst all countries in the ASEAN region. Geographical proximity and, indeed, physical linkages fail to bridge the vastly different and disjointed political realm between the two neighbours. Every so often, something somewhere will somehow irritate somebody and start another war of words across the narrow Straits of Johor. The perpetual bickering and perennial antagonism across the causeway are the result of historical events, epitomised by dramatic personality clashes, ideological incompatibility, mutual mistrust and suspicions, and increasing political, economic and diplomatic competition.

Since Singapore's unexpected independence, there has been almost consistent bickering across the causeway. As Senior Minister Lee (SM Lee) aptly summed up, "there was never a dull moment in our relations with Malaysia."<sup>43</sup> Because bilateral ties between Singapore and Malaysia since separation have their basis entrenched in historical politics, the media on both sides periodically hurl at each other verbal missiles dug out from history. It almost seems like there is a conscious effort to regularly spite each other. There have been many contentious issues for conflict between Singapore and Malaysia since the separation, including Singapore's long-term water supply, Singapore Malays in the SAF, Central Provident Fund (CPF) savings of Malaysians working in Singapore, the railway land and, recently, the land reclamation project.<sup>44</sup>

However, as of recent times, the chronic bickering took a turn for the worse, with some Malaysian political leaders carelessly and thoughtlessly introducing the notion of war in the argument over the price of water Malaysia is supplying Singapore and the ownership of a rocky lighthouse outpost, called *Pedra Branca* by Singapore and *Pulau Batu Putih* by Malaysia. Although linkages between Singapore and Malaysia have brought highs and lows in the past, the mention of war was never as blatant. The Malaysian government was *always* viewed as pragmatic and rational. Despite many calls from different quarters to turn off the water supply to Singapore



whenever bilateral relations turned sour, the government has never done so, or even appeared to contemplate the option, as it is aware of the serious consequences that will follow such an action.<sup>45</sup> The threat of turning off Singapore's water supply is a constant feature in bilateral disputes, but it is an empty threat. It is clear that Singapore views water as a security issue that would probably trigger a military response. This is especially the case since the water agreements were stipulated in the Independence of Singapore Agreement of 1965, which was endorsed by the United Nations (UN). Any unilateral action to change the water agreements is equivalent to a violation of the Separation Agreement and, thus, raises the question of Singapore's sovereignty. According to Singapore's Foreign Minister S Jayakumar:

The 1961 and 1962 Water Agreements are enshrined in the Separation Agreement and registered at the United Nations. They are fundamental to its very existence as an independent nation. Neither Singapore nor Malaysia can unilaterally change them. ... Both countries have to honour the terms of the agreements and the guarantee in the Separation Agreement. Any breach of the Water Agreements must call into question the Separation Agreement and can undermine our very existence.<sup>46</sup>

Accordingly, with reference to a candid exchange with Malaysia Prime Minister Mahathir, Senior Minister Lee bluntly expressed Singapore's uncompromising stance on the water issue:

If this [the water agreement, which is enshrined in the Separation Agreement] were breached, we would go to the UN Security Council. If water shortage became urgent, in an emergency, we would have to go in, forcibly if need be, to repair damaged pipes and machinery to restore the water flow. ... I said I believed that he would not do this, but we had to be prepared for all contingencies.<sup>47</sup>

Since independence, Singapore has had a Damocles' sword hanging over its head. It was this paramount sense of vulnerability, against the backdrop of an uncertain and potentially hostile environment that conceptualised Singapore's worst-case scenario planning and its heavy investment in the SAF.<sup>48</sup> The supremacy of the SAF, and the proclaimed willingness to unleash its prowess in times of need, are key factors that have stayed Malaysia's hand. The super-sensitive water issue has thus always been handled carefully. Both countries recognised the disastrous impact of any armed conflict over the issue and hence, the notion of war *was* consciously avoided. So, why the sudden bold change in the attitude

towards war across the Straits of Johor? Does it imply a more adventuresome posture of the Malaysian Armed Forces (MAF)? Or is it merely a publicity stunt aimed at domestic audience for political dividends? Whatever the reason behind Malaysia's recent rhetoric, the mention of war by high-ranking Malaysian officials definitely sent shivers up the spine of Singapore's security planners.<sup>49</sup>

The availability and overwhelming public support of NEWater represents, for better or worse, a new factor in the hydropolitics equation. With self-sufficiency, the water issue may be desecuritized and Singapore may lose its legitimate *raison d'état* to launch a *blitzkrieg* against Malaysia in the event of the water supply being turned off. In addition, with the high trade volume between the two countries at stake,<sup>50</sup> Singapore may consider the cost of invading Johor too high now that it has the capacity to produce enough water for its own demand. However, even if the water issue loses its sensitivity as a security issue, it is still going to be a major obstacle in the conduct of bilateral relations if recent history is any guide.

Besides the water issue, the recent deteriorating relationship between Singapore and Malaysia also turns on the issue of *Pedra Branca*. Even though both countries have signed the Special Agreement to refer the *Pedra Branca* dispute to the International Court of Justice (ICJ), both are vastly apart in their definition of a *status quo*. For Singapore, the *status quo* means that Singapore owns the island until proven otherwise by the ICJ. However, Malaysia insists that, as long as the ICJ has not made any decision and the issue is thus an on-going dispute, the island belongs either to both nations or to neither. Malaysia claimed that the RSN refused to allow Malaysian boats into the waters around *Pedra Branca* and Singapore repeatedly accused Malaysia of intruding into its waters.

The untimely accident of an RSN anti-submarine vessel, RSS *Courageous*, on 3 January 2003, near the waters of *Pedra Branca* that resulted in the death of four servicewomen, made the already tense ambient surrounding *Pedra Branca* even drearier. In his condolence statement after the tragedy, Malaysia Foreign Minister Syed Hamid Albar used the opportunity to suggest that joint patrols by the navies of both countries around the waters of *Pedra Branca* would have prevented the accident.<sup>51</sup> Singapore saw his words as a cheap and insensitive attempt to justify the presence of Malaysian vessels and promptly rejected the suggestion. It was evident that Singapore was offended by Malaysia's insensitivity *vis-à-vis* the *Courageous* collision when Singapore thanked Indonesia relentlessly for its help in the search and rescue operation but was indolent towards Malaysia.



The *Pedra Branca* dispute will go on for the next two to three years, until the ICJ makes its judgement. Meanwhile, Malaysian navy vessels repeatedly intruded Singapore waters around *Pedra Branca*.<sup>52</sup> This *Pedra Branca* dispute is as serious as the water issue, if not indeed more dangerous. There were several tense incidents in the past that nearly led to unintended consequences. In 1989, Malaysian marine police boats conducted provocative acts in the waters near *Pedra Branca*.<sup>53</sup> In May 1992, Johor marine police detained two Singaporean fishing boats near *Pedra Branca* and, in April 1993, an unidentified vessel allegedly opened fire at three Singaporean trawlers in the waters of *Pedra Branca*.<sup>54</sup> The frequent confrontation between RSN and Malaysian vessels increased the probability of accidents and heightened tension. Any misfire during the confrontation would result in a shooting war, igniting a disastrous chain reaction.

What makes Malaysia the principal threat to Singapore's security has been the slow but steady development of the Malaysian Armed Forces over the last two decades. In its own right, the MAF has grown into a highly modern, mobile, technologically capable and experienced force. Its participation in various United Nations 'peace-keeping operations' has brought about various multiplier effects that have strengthened the MAF's conventional capability. This has been further enhanced by the force modernisation undertaken by Kuala Lumpur. Although the AFC did slow this, beginning in 2002, the Malaysian Government continued its modernisation programmes, best evident in the various purchases and contracts that it signed, including Pakistani-made Anza Mark II anti-aircraft missiles and Baktar Shikan anti-tank weapons; Jernas short-range radar guided missile system from MBDA (a European consortium); IGLA air defence system from Russia; at least 3 *Scorpena* submarines from France; mobile military bridges from France and UK; combat tanks from Poland; new command and control system for its Corvettes; surveillance aircraft from UK; and possibly new fighter aircrafts (either F/A 18s from the US or Sukhoi SU-30 from Russia).<sup>55</sup> It is the combination of various issues on the one hand - and the growing military capability of Malaysia on the other - that, aside from other factors, largely explains the arms procurements of the SAF.

### **Singapore's Defence Doctrine**

In view of many difficulties with Malaysia, Singapore employs a flexible defence doctrine that runs parallel with the development of the SAF and its economic development. During the 1970s, Singapore's defence doctrine was that of a "poison shrimp."<sup>56</sup> — easy to swallow, but impossible to digest. As Singapore's economy boomed, the SAF — with an increased annual



defence budget — acquired more modern defence weaponry and systems, slowly the poison shrimp was replaced by a pre-emptive, first strike doctrine. It is natural that a tiny island state like Singapore would develop a defence doctrine similar to that of Israel's since both are relatively small compared to their immediate neighbours and both lack strategic depth. To live up to this deterrence through pre-emptive strike doctrine, Singapore has to ensure that the edge of its sword is the sharpest in the region. To this end, Singapore has invested heavily in defence and the SAF is consistently recognised as the best-trained, best-equipped and most professional armed forces in the region. Since the 1980s, there is no doubt that the SAF is the leading armed forces in the region and is able to protect Singapore's interest should diplomacy fail.

Towards the 1990s, Singapore's defence doctrine seemed to have shifted slightly as the SAF developed more capabilities. With the hardening of airbases and a strong emphasis on civil defence, Singapore seems to be preparing itself for a first strike from an aggressor, with the ability to retaliate with a knockout blow.<sup>57</sup> Such a pre-emptive doctrine might portray Singapore as an aggressor rather than a victim and might result in serious repercussions from the Muslim world. Indeed, Singapore might then be called the 'Israel of Southeast Asia' in any armed conflict between Singapore and its Muslim neighbours. The shift to the new doctrine of absorbing the first blow is aptly designed to address the shortfall of the pre-emptive strike doctrine. However, there is no evidence that defence planners are foregoing the pre-emptive doctrine entirely given that different situations require different responses. As such, Singapore's defence doctrine is highly flexible and adaptable. The 11 September 2001 events did not cause a drastic change in the defence doctrine, but the role of the SAF was enlarged to include counter-terrorism and low-intensity conflicts (LIC) capabilities. With the inception of the National Security Secretariat, the SAF now plays a more active role in homeland security and intelligence sharing between the various security agencies.

## CHAPTER 3

### THE ARMING OF THE SAF

#### Introduction

With the goal of establishing a balanced force structure, the SAF has been attempting to build a relatively small but lethal, military capability. In line with its concept of Total Defence, in addition to building up its social, political, economic and psychological capabilities, efforts have been made to enhance the power and capabilities of its Air Force, Navy and Army. This is clearly evident in the armament policy of the Singapore Government since 1967 but has been notable of late, especially after the 1997 Asian Financial Crisis (see Appendices II and III).

#### Air Force

Although Singapore was not the first country in Southeast Asia to procure the advanced multi-role F-16 fighter, it now has the largest and most advanced fleet in the region, including Block 52s. The RSAF is widely regarded as Singapore's first line of defence and will play an important role *vis-à-vis* Singapore's defence strategy. Many defence analysts such as Tim Huxley believe that the RSAF would assume air superiority in the first few hours of any armed conflict with Malaysia, with the F-16s leading the onslaught to eliminate the sporadic air defence systems deployed around Malaysia.<sup>58</sup> Also targeted in the first wave of any attack would be the Royal Malaysian Air Force (RMAF) bases in Keluang, KL, Kuantan, which houses the MAF's MiG-29s and Butterworth, which houses the MAF's F/A 18Ds to thwart any serious retaliation from the RMAF. The multi-role F-16s would be engaged essentially in air-to-air and some air-to-ground combat, while the A-4SU *Super Skyhawks* would play mainly a ground attack role in support of the advancing ground troops. With a range of around 500 miles (or 860 kilometres), the F-16s can cover the entire Malaysian Peninsula and some parts of East Malaysia. The RSAF would secure the airspace in Malaysia and heli-borne Guards would follow to secure the ground for an armour and infantry invasion. The RSAF is highly capable to fulfil its role and recent trends in weaponry procurement reinforce this view.

The latest addition of F-16C/Ds equipped with Low Altitude Navigation and Targeting Infrared for Night (LANTRIN) pods would allow the RSAF to conduct combat missions during adverse weather conditions with great precision. The navigation pods contain a terrain-following radar that

enables the pilot to fly along the contour of the terrain at high speed, while the targeting pod contains a forward-looking infrared sensor for precise delivery of laser-guided munitions. The RSAF is also the first air force in the region to be armed with the AIM-120 AMRAAM (Advanced Medium Range Air to Air Missile). However, these advanced missiles are kept in storage in the US until they are needed in times of crises. The AIM-120 is an all-weather, day and night Beyond Visual Range (BVR) air-to-air missile. Armed with the LANTRIN pods and AIM-120s, the RSAF doubtlessly has the most lethal fleet of F-16s in the region that can operate in all-weather conditions, day or night.

The RSAF is currently evaluating different aircraft from several manufacturers to replace its ageing A-4 fleet. Possible choices include the *Rafael* from France, the *Eurofighter* or *Typhoon*, the Su-30 from Russia, F/A 18E/F *Super Hornet*, F-15E or F-16C/D Block 60 aircraft.<sup>59</sup> The European manufacturers are posing serious competition for their American counterparts as they are more willing and likely to agree on technology transfer as a purchase package, which is one of the major deciding factors.<sup>60</sup> It has been reported that the Ministry of Defence (Mindef) has shortlisted three contenders and will make its final decision by 2004, with the new generation fighter (NGF) entering service by 2007.<sup>61</sup> Once the decision is reached, orders for the NGFs would number about 58 if a one-to-one replacement was to take place.<sup>62</sup> The RSAF would then have the largest fleet of modern, advanced fighter planes in the region, further consolidating its quantitative and qualitative advantage and, thus, its strategic edge.

It is believed that, after replacing its A-4 fleet, the RSAF would turn its attention to its ageing F-5 *Tiger* squadrons. In service since 1979, the F-5s were recently upgraded by Singapore Technologies (ST) Aerospace. In 1991, with assistance from the Israeli Elbit company, 40 F-5E/Fs were fitted with the more effective FIAR Grifo F radar and an up-to-date navigation/attack system. In 1993, eight F-5Es were converted to RF-5E reconnaissance aircraft.<sup>63</sup> According to Defence Minister Dr Tony Tan, "The upgraded F-5S has a new radar, weapon delivery and navigation system, and cockpit management system which rival that of some later generation fighters."<sup>64</sup> The upgrades extended the life of the F-5s, but they will almost certainly be replaced in the near future. When it becomes operational in 2008, the Joint Strike Fighter (JSF) is one of the top contenders to replace the F-5s. Singapore is involved in the system design and development phase and it is the first and only Asian country to join the programme as a sales participant.<sup>65</sup> The JSF, or F-35, will be the world's most advanced multi-role stealth fighter and cost 40 to 50 percent less to operate compared to present generation fighters.<sup>66</sup>



The RSAF is the only air force in the region to have a substantial attack helicopter capability and is the first in the region to operate "the world's most advanced, dedicated heavy attack helicopter," the AH-64D *Apache*.<sup>67</sup> The AH-64D is a twin-engine, multi-mission attack helicopter that is designed to operate during the day, at night and in adverse weather conditions.<sup>68</sup> Equipped with the new and highly sophisticated *Longbow* Fire Control Radar (FCR), the AH-64Ds are able to detect, classify and prioritise stationary and moving targets both on the ground and in the air. Packed with the latest technology, the *Longbow Apaches* are also armed with "fire-and-forget" *Hellfire* 2 laser-guided anti-armour missiles and will play a key role in supporting advancing ground troops by attacking enemy tanks and armour, and providing reconnaissance intelligence. Out of the 20 *Apaches* ordered, only eight will be the *Longbow* version while the rest are the earlier generation AH64A without the *Longbow* FCR. Washington's reluctance to introduce such new technology into the region has resulted in close collaboration between Singapore and Israel to remanufacture Singapore's AH-64As to the AH-64D *Longbow* versions.<sup>69</sup>

Besides being the first air force in the region to operate attack helicopters, the RSAF is also the only air force in the region to have extensive reconnaissance and airborne early warning (AEW) platforms such as the E-2C *Hawkeye* and *Searcher Mk. II* unmanned aerial vehicles (UAV). Delivered during the mid-1980s, the E-2C's mission control system was extensively upgraded by the Defence Science and Technology Agency (DSTA) to improve its computer hardware and software in order to enhance tactical exchange of data with RSAF aircraft in real time. Its dish-shaped APS 138 radar is capable of detecting and tracking targets on land or sea for up to 200 nautical miles (nm) or 370 km, which is beyond the fringe of Kuala Lumpur (Kuala Lumpur is about 310 km from Singapore). It is also able to distinguish between friendly and unknown aircraft from as far as 250 nm or 463 km, which is a radius extending to Ipoh, the main town north of the Malaysian capital.

Singapore's interest in UAVs began in the 1980s when it purchased its *Scout* UAVs from Israel. Subsequently, during the mid-1990s, Singapore purchased about 40 *Searcher Mk. II* UAVs to replace the obsolete *Scouts*.<sup>70</sup> The *Searcher Mk. IIs* are able to provide day and night real time imagery data for up to a maximum endurance of 12 hours and have a mission range of up to 120-200 km, which means that the *Searchers* can provide real time photo or video feed of the entire state of Johor.

In a recent development, Singapore signed a \$14 million contract with Israel's Emiy Aviation Consultancy to produce the *Blue Horizon* UAV under



licence to ST.<sup>71</sup> The *Blue Horizon* is reportedly equipped with infrared capabilities that allow it to detect people in jungles and enclosed places even at night and is already operational and in production.<sup>72</sup> At the recent Asian Aerospace 2000, ST unveiled an improved version of its *Blue Horizon* UAV — *Blue Horizon 2* — that is reported to possess a stealth capability, have an increased endurance of 16 hours and a maximum datalink range of up to 150 km.<sup>73</sup> It is not clear if the *Blue Horizon 2* is the result of ST's research and development of its *Firefly* UAV.<sup>74</sup>

Besides having specific platforms such as the E-2Cs and UAVs for reconnaissance missions, the RSAF has of late begun to improve its Signal Intelligence (SIGINT) capability. The *Fokker 50 Maritime Enforcer Mk2S* aircraft are believed to have a SIGINT capability besides being a maritime reconnaissance platform.<sup>75</sup> Also, it was reported that at least one of Singapore's fleet of C-130 transport aircraft was converted for SIGINT purposes.<sup>76</sup> Coupled with land-based SIGINT facilities already in place such as the several Signals battalions and the SingTel radio receiving station at Yio Chu Kang, Singapore's SIGINT and electronic warfare (EW) capabilities can be considered the best in Southeast Asia.<sup>77</sup>

There is also a keen interest in satellite imaging in Singapore and, in 1995, the Centre for Remote Imaging, Sensing and Processing (CRISP), set up in the grounds of the National University of Singapore (NUS), became operational. Although CRISP's official mission is to "to develop an advanced capability in remote sensing to meet the scientific, operational and business requirements of Singapore and the region,"<sup>78</sup> its ability to generate useful military information cannot be discounted. Singapore's billion-dollar collaboration in satellite technology with Israel may see Mindef operating advanced versions of the *Ofeq* series of satellites in the future.<sup>79</sup> Singapore, under the name of SingTel, also jointly operates "one of the most powerful telecom satellites in orbit over Asia" with Taiwan.<sup>80</sup> Singapore's Nanyang Technological University (NTU) is also actively involved in satellite technology in partnership with Defence Science Organisation (DSO) National Laboratories to launch its first wholly made-in-Singapore satellite.<sup>81</sup>

The RSAF has also recently increased its power projection ability with the acquisition of four KC-135R long-range tanker aircraft from the US. With these KC-135R tankers, "the RSAF is now able to enlarge the operating envelope of its fighter force in overseas training, deployments and exercises."<sup>82</sup> Indeed, the return of two F-16C/Ds from the US to Singapore was supported by KC-135s.<sup>83</sup> The KC-135s would enable the RSAF's fighter force to fly further, longer, thus increasing the RSAF's reach. As

demonstrated, the RSAF can fly non-stop from the US to Singapore with this new capability. Aircraft based in overseas training detachments can now scramble back to Singapore without stopping in times of need or crisis. With the KC-135s, the RSAF is no longer constrained by the range limit of its aircraft but can instead strike at any part of the region. The KC-135s, first purchased in 1997, achieved Initial Operating Capability in December 2000, while the 112 Squadron of KC-135s attained Full Operational Capability in August 2002.<sup>84</sup>

Singapore's land-based FPS-117 radar, located near Bukit Gombak in peacetime, can detect hostile aircraft in a 250 km radius. The Air Defence Systems Division (ADSD) provides the teeth to bite what the eyes can see. Its arsenal includes *I-Hawk* surface-to-air missile (SAM), *Rapier* SAM, RBS-70 SAM, *Oerlikon* 35mm anti-aircraft gun and, in tandem with a recent trend on portability, *Mistral* and *Igla* shoulder-launched SAM. The ADSD is also equipped with customised US-supplied Portable Search and Target Alert Radar (PSTAR).

### The Army

Weapon acquisition in the army is usually less glamorous than that of the air force or the navy partly because cost is relatively lower, but that is not to suggest that it has ever been neglected. The army, being the backbone of the SAF's defence strategy, has in recent years undertaken significant military procurements that will enhance its capabilities and firepower from command right down to the individual level. There is also an evident increase in the deployment of locally designed and produced weapons and weapon systems. Mindef's endorsement of indigenous equipment demonstrates the maturity of Singapore's defence industry. In the wake of a rise in global terrorism, the army has also stepped up its efforts to deal with non-conventional threats and LICs.

In 1999, Mindef announced that it would phase out the M-16 rifles and start replacing it with the locally designed and produced Singapore Assault Rifle (SAR) 21. The SAR 21 is a highly accurate rifle that comes with a built-in 1.5X optical sight and a laser-aiming device for use in low-light conditions. There are several variants of the SAR 21 such as the SAR 21 Light Machine Gun, SAR 21/40mm Grenade Launcher, SAR 21 P-Rail and the SAR 21 Sharp Shooter. The SAR 21 also has the unique feature of not requiring any zeroing and has been described as one of the world's best combat rifles.<sup>85</sup> It is obvious that the SAR 21 is designed to enhance a soldier's marksmanship with its optical and laser sight, thereby increasing the combat efficiency and confidence of the individual soldier.



The army also purchased *Spike*, the new generation, electro-optical, medium to long-range anti-tank missile, in the late 1990s.<sup>86</sup> *Spike* is a “fire and forget” missile and reportedly effective against even advanced Main Battle Tanks (MBTs). After firing, the missile either automatically homes in to the target for a kill or the gunner can choose to guide the missile during mid-flight for a redirection via a fibre-optical link that trails behind the speeding projectile.<sup>87</sup> *Spike* is portable and can be operated by a 3-man crew or mounted on a jeep or the Light Strike Vehicle (LSV).

Produced in Australia, the LSV was purchased in 1997-98 to serve as an anti-tank platform.<sup>88</sup> It is currently deployed mainly with the Guards battalions. With a maximum speed of up to 110 km/h and a range of 350 km, the Guardsmen can move further and faster with more firepower. Weighing only 1.5 tonnes, the LSV can also be rapidly deployed by underslinging it to a helicopter and inserting it into enemy territory.<sup>89</sup>

In 1995, the SAF became the first in the world to field a battalion of 52-calibre 155mm howitzer with the commissioning of the locally produced FH2000 self-propelled howitzer (SPH).<sup>90</sup> Manufactured by ST Kinetics, the FH2000 is a lightweight, highly mobile field artillery with a maximum range of up to 40 km. It can be airlifted by C130s or CH47Ds<sup>91</sup>, both of which are in the current RSAF inventory, and can be deployed or displaced in less than two minutes by a crew of six. ST Kinetics has recently unveiled a new and lighter 155mm lightweight self-propelled howitzer (LWSPH), which would weigh only about 7 tonnes as compared to the 13.5 tonnes FH2000.<sup>92</sup> Singapore has also reportedly purchased 54 United Defense LP M109-series SPH chassis as a basis for a new full-tracked self-propelled artillery system.<sup>93</sup>

It is clear that there is a trend in acquiring lightweight systems for rapid deployment. In addition to lightweight SPH, ST Kinetics has also developed the Super Light Weight Grenade Launcher. This interest in lightweight systems is in line with the formation of the 21<sup>st</sup> Division — a semi-elite rapid deployment force that is “built around three Guards brigades ... one [of which] trains in an airmobile role with air force helicopter units and another in amphibious operations with naval fast transport craft.”<sup>94</sup>

In 1999, the army began to replace its ageing US-made M113 armoured personnel carriers (APC) with ST Kinetics’ *Bionix* infantry fighting vehicles (IFV).<sup>95</sup> Developed and manufactured locally, the *Bionix* is fully amphibious and capable of day and night operation with its thermal sight.<sup>96</sup> It is built on a modular system that allows flexible weapon system configurations to suit different needs and is available in a number of variants like the *Bionix* Recovery Vehicle, *Bionix* Advanced Vehicle Launched Bridge and the *Bionix* Infantry Carrier Vehicle, in which the US Army has expressed interest.<sup>97</sup>

Another recent addition to the armour family is the fully armoured *Bronco* All Terrain Tracked Carrier (ATTC). In line with the trend of recent army acquisitions, the *Bronco* is fully amphibious and can be air transported by C-130 for rapid deployment.<sup>98</sup> Also designed and manufactured indigenously, *Bronco* has several variants "such as a General Troop Carrier in combat missions, a Combat Engineer Vehicle to breach mines and clear obstacles in combat support missions, a Logistics Carrier to re-supply ammunition and fuel and an Armoured Ambulance to recover casualties from the field."<sup>99</sup>

Less visible, but equally vital, is the Command, Control, Communications, Computer-processing and Intelligence (C<sup>4</sup>I) facilities within the SAF. Commissioned in 1995, the Artillery Tactical Command and Control System (ATCCS) is a battalion-level tactical command and control system that fully-automates and computerises the management of firing data.<sup>100</sup> Mindef has also expressed interest in a "Singapore-wide C<sup>4</sup>I network, based on microwave and fibre-optical channels and including links to air and maritime surveillance assets."<sup>101</sup> The SAF operates as an integrated tri-service configuration that combines the three services into one single fighting unit. The exploitation of advanced C<sup>4</sup>I facilities will ensure that the SAF is able to fight as a coherent force.

In 1991, the SAF began its individual Chemical Defence familiarisation training for its servicemen and women.<sup>102</sup> In view of the heightened terrorism threat following the 11 September 2001 events and the arrests of local terrorist cell leaders, chemical defence has been given higher priority, evidenced by the establishment of a team called the Chemical, Biological, Radiological and Explosive (CBRE) Defence Group to deal with terrorist threats.<sup>103</sup> It is known that extensive chemical defence training was conducted widely throughout the SAF, including air force technicians in air bases. Exercises with a chemical defence dimension were conducted in secrecy, where soldiers were dressed in thick chemical suits and equipped with gasmasks during the entire exercise. These exercises aim to condition the soldiers to the discomfort of donning thick layers of clothing in hot and humid tropical weather for extended periods of time and to identify problems that may arise. One problem identified in these exercises is that the vision of a bespectacled soldier is seriously impaired when they exchange their glasses for their gas mask.



## The Navy

Famed as “the best little Navy in the world”, the RSN plays an important role in defending Singapore’s territorial waters and keeping the Sea Lines of Communications (SLOCs) open in time of war.<sup>104</sup> With only about 4500 personnel under its command, the RSN is generally regarded as “the best-equipped, -trained and -supported naval force in Southeast Asia.”<sup>105</sup> As with the case of the air force and army, the navy has upgraded its hardware extensively and procured several platforms to enhance its operational capabilities.

In mid-1995, Mindef announced that it was exploring the possibility of acquiring submarines. In early 1996, RSN personnel began submarine training in Sweden following an agreement with Sweden to purchase four Type A12 *Sjöormen*-class submarines.<sup>106</sup> The acquisition of these submarines marks a new level of capability for the RSN. According to the Chief of Navy, Rear-Admiral Lui Tuck Yew, “Submarines form a key component in the RSN’s overall strategy to build a balanced, capable and technologically advanced Navy... the submarines have helped to greatly enhance our proficiency and knowledge in ASW [Anti-Submarine Warfare].”<sup>107</sup>

The RSN’s acquisition of the *Sjöormen* submarines will not be its last and navies in the region are also likely to pursue a submarine capability. In view of a possible proliferation of submarines in the region, the RSN, in collaboration with the Defence Material Organisation and ST Marine, designed and built six anti-submarine Patrol Vessels (APVs) to enhance its ASW capabilities.<sup>108</sup> These six APVs, belonging to 189 Squadron, were launched in 1995 and commissioned in 1997.<sup>109</sup> These highly sophisticated vessels are equipped with modern Command, Control, Communications and Intelligence (C<sup>3</sup>I) navigation systems and are propelled by a unique water jet propulsion system, making them highly manoeuvrable.

In 1991, Mindef ordered four Swedish-designed *Landsort* class Mine Counter-Measure Vessels (MCMVs), which were commissioned in 1996. Then, in 1996, an order was made for four new *Endurance*-class Landing Ship Tankers (LSTs) to replace its ageing fleet of ex-US Navy County-class LSTs.<sup>110</sup> Commissioned on 18 March 2000, these LSTs, built by ST Marine, are the largest vessels in the RSN. The RSS *Endurance* also made history by becoming the first RSN ship to circumnavigate the globe.<sup>111</sup> Its major features include a well dock, a hangar and a large flight deck for day and night landings and take-offs operations for two 10-tonnes helicopters.<sup>112</sup> Sophisticated C<sup>3</sup>I and radars facilities and equipment reduced the crew to just 65 officers and men. The helicopter platform and well dock further enhance the SAF’s amphibious and rapid deployment capabilities.

In 2000, Mindef signed a US\$1 billion contract with France's Direction des Constructions Navales (DCN) to purchase six new stealth frigates.<sup>113</sup> According to the agreement, DCN will design and build the first frigate, while ST Marine will build the remaining five locally. The first ship is scheduled to sail to Singapore in 2005 and the remainder are expected to be fully operational by 2009.<sup>114</sup> The new frigates would give the RSN its first real blue-water capability and its first experience of naval helicopters.<sup>115</sup> The RSN is also currently evaluating several naval helicopters to complement these frigates.<sup>116</sup> It is widely reported that the new frigates are being purchased to replace the RSN's six ageing *Sea Wolf*-class missile gunboat.

The RSN has also been arming its existing fleets with advanced air defence missiles. In 1993, the RSN bought the *Matra Simbad* launchers and *Mistral* missiles. In 1996, it purchased the more capable and fully automatic Israeli *Barak 1* system, which is reportedly effective against anti-ship missiles and aircraft.<sup>117</sup>

## CHAPTER 4

### TRENDS AND IMPLICATIONS OF THE SAF'S ARMS PROCUREMENTS

It is clear that the trend in the SAF weapon acquisition is one driven by technology. The SAF's technological edge serves as a force multiplier and constitute one of its pillars of development. Similarly, any future procurements or developments would have a significant technology dimension as the SAF continues to subscribe to the ideas of a Revolution in Military Affairs (RMA).

There is a prominent trend in the RSAF and RSN to incorporate stealth technology into weapon systems and platforms. Over the next 5 to 10 years, the RSAF and RSN will have incorporated stealth technology into the SAF's arsenal with the commissioning of RSAF's JSF and RSN's frigates. It is to be expected that stealth technology will not be restricted to aircraft and frigates. Stealth technology could also be employed by new generations of the army's armour vehicles and UAVs, as demonstrated in the recent revelation of the *Blue Horizon 2*. EW is also likely to be enhanced to complement the stealth technology. Radar jamming platforms, such as the EF-111 *Raven* or EA-6B *Prowler*, may be purchased in the future so as to obtain a complete package of EW.

For the RSAF, the renewing of its ageing fleets of A-4s and F-5s will steal most of the limelight in the near future. In 2001, the RMAF declared that buying new strike aircraft was not a top priority. It recently contradicted this previous announcement by disclosing that negotiations were being conducted to buy an unknown number of either the FA-18F *Super Hornet* or the *Sukhoi* Su-30 fighter aircraft.<sup>118</sup> This change in plans reflects the active dynamics in the arms-procurement relation between Singapore and Malaysia. The RSAF looks set to retain its air power supremacy in the future, with its quantitative and qualitative edge, as the RMAF purchase of new fighter aircraft is likely to be small. In view of the growing numbers of advanced aircraft in Singapore, Malaysia has expressed interest in self-propelled New Generation (NG) SAM such as the *Crotale* NG short-range air defence (SHORAD) system.<sup>119</sup> Malaysia is likely to purchase more SAMs than aircraft in the near future, as it is a cheaper response to the RSAF's procurement programmes.



Interest in UAVs in the RSAF is likely to increase for practical manpower reasons. Indeed, this interest in unmanned technology was clearly spelled out through official channels.<sup>120</sup> The recent demonstration of the lethality of an armed UAV — RO-1 *Predator* — in Afghanistan provided an impetus for further UAV development. Future UAVs in the RSAF are likely to have stealth capability and be armed. By attaching a “dumb” bomb with a remote fuse to a less-advanced UAV, the RSAF could also develop its own effective, albeit crude, version of precise and remote controlled cruise missiles. As Singapore buys more advanced UAVs in the future, the stock of obsolete UAVs could be modified to assume a *kamikaze* role. Remembering that UAVs are meant for reconnaissance and surveillance operations *imprimis*, future UAVs should also be “an integrated airborne surveillance and communications system to provide continuous temporal and very large spatial coverage.”<sup>121</sup> The RSAF is also likely to increase its stable of *Apache* attack helicopters in the future in response to Malaysia’s intention of acquiring more MBTs<sup>122</sup> and possibly CSH-2 *Rooivalk* attack helicopters from South Africa.<sup>123</sup>

Smart and laser-guided bombs and missiles will also be increasingly prevalent in the RSAF, as the cost of transforming a “dumb” bomb into a smart, guided one is getting cheaper. For example, the Joint Direct Attack Munition (JDAM) guidance tail kit costs approximately US\$21,000 each and can convert an unguided free-fall bomb into an accurate Global Positioning System (GPS) guided smart bomb.<sup>124</sup> A smart bomb promises to hit its designated target in all-weather conditions and can complement the recent trend toward achieving all-weather operation capability.

RSAF’s E-2C *Hawkeye* AEW aircraft is likely to be replaced or further upgraded, although this may not be an urgent priority as long as regional air forces do not significantly upgrade their existing airborne reconnaissance and C<sup>3</sup>I assets.

In conjunction with the RSN, several naval helicopters will be acquired in the near future to complement the RSN’s new frigates. These new naval helicopters are likely to be commanded and operated by the RSAF as per the *Fokker 50* arrangement. These naval helicopters will most probably play an ASW role to complement the existing APVs. Alternatively, they can also be configured into an armed utility helicopter for ferrying troops for special operations via the frigate, assuming that the frigate has a stealth capability.

The army will shortly start replacing its ageing *Centurion* MBTs and its AMX-13 light tanks. There was reported interest in the US’ Future Combat System (FCS), which is a “multi-mission combat system that will be

overwhelmingly lethal, strategically deployable, self-sustaining and highly survivable in combat through the use of an ensemble of manned and unmanned ground and air platforms."<sup>125</sup> It is believed that the army will enhance its C<sup>4</sup>I capabilities based on information technology and wireless digital communications in order to share vital information with the other services. Future integration of C<sup>4</sup>I systems would allow commanders to have unprecedented information on, and control of, the battlefield. For example, images from UAVs or orbiting satellites could be passed on to tank and artillery commanders to inform ground troops of enemy positions, and ammunition level could be relayed to logistics divisions — all in real time.

However, this capability will lead to serious ramifications for the SAF's command and control structure, as field commanders will have to exercise more operational initiative and take on greater responsibility.<sup>126</sup> The SAF's highly rigid and strict hierarchical structure would have to give way to a more decentralised command and control model that would allow lower-level field commanders to make their own decisions in order to fully exploit advancements in communication and information technology.

The army will also continue to improve individual combat effectiveness by increasing each individual's firepower, body armour, and situation awareness. The SAR 21 is only the beginning of more to come. Indeed, the DSTA and the army came up with bold plans for innovations to equip future soldiers that would turn science fiction into reality.<sup>127</sup> Further development and deployment of night vision and thermal imaging devices would also be included in the next stage of enhancing individual combat efficiency.

Interest in Multiple Launch Rocket System (MLRS) may also be revitalised after Malaysia bought the 80 km-range ASTROS II or Artillery Saturation Rocket System in 2002.<sup>128</sup> In March 2003, the MAF test-fired 48 ASTROS 11 rockets at a distance of between 60 km to 90 km. This involved 24 type SS60 rockets and 24 type SS80 rockets.<sup>129</sup> It is highly likely that Singapore would respond by procuring similar systems to blunt the impact on the "precarious balance." In the realm of surface-to-surface missiles, Singapore had expressed interest in the 120 km-range Russian SS-21 missile in the mid-1990s.<sup>130</sup>

Long-range MLRS or ballistic missiles are extremely threatening to Singapore due to the island state's size and lack of strategic depth. Besides buying similar systems, Singapore may, in the long term, have to create a missile defence system by buying the *Patriot* or *Arrow* anti-ballistic missile



systems, particularly if threats posed by long-range missiles materialise. Singapore may even purchase the sea-based *Aegis* system for a more comprehensive missile defence system. Even though the threat of ballistic missiles from the neighbouring countries has not become serious, Singapore's interest in these weapon systems is indicative of the kind of threat scenarios the Republic is thinking about in the near future.

In view of the rising threat of terrorism and an increase in LICs, the army may also expand the roles of its special forces. Special forces may be integrated into the SAF's plans and strategy, rather than being solely a counter-terrorism unit. Specific information of the Special Operation Force (SOF) is extremely rare due to its secretive nature. However, it is acknowledged that such a unit exists within the Commando battalion.<sup>131</sup> Widely regarded as the Commandos and elite of the Navy, the Naval Diving Unit (NDU) may eventually develop a subunit of Navy SEAL for special operations. The fact that the SAF had sent personnel on US Navy SEAL courses reinforces the likelihood of a SEAL capability in the SAF.<sup>132</sup> It is also probable that more have been sent for special forces training in secrecy. Military planners would have studied closely the extensive, and successful, deployment of special forces troops by the US in Afghanistan and Iraq. One possible outcome could be a closer link between the SOF and the intelligence community to emulate the function of the US Delta Force, which played an important role in Afghanistan. With the increase in laser-guided munitions, the roles of SOF will become increasingly important. To effectively exploit precision munitions, stealthy SOF would have to be inserted behind enemy line beforehand in order to identify and "light up" the target so as to guide the smart bombs for a kill.

The navy will focus most of its attention on developing its submarine warfare and ASW capability.<sup>133</sup> It is expected that the RSN would buy bigger, better and newer submarines in the future as its submarine capability matures. ASW capabilities are currently in high gear in anticipation of Malaysia's imminent submarine acquisitions.<sup>134</sup> Possible future ASW platforms could include the soon-to-be-acquired naval helicopters and/or the existing *Fokker 50* maritime patrol aircraft. The APV fleet is likely to get larger as new orders will be placed to replace the RSS *Courageous* after the devastating collision with a container liner.

Looking at the development of the SAF as a whole, the obvious intention of forming a rapid deployment force with air and amphibious capabilities fits nicely into the bigger picture of Singapore's defence strategy. For a small island state like Singapore, it is reasonable, if not natural, to desire



troops capable of air and sea insertion into enemy territories in times of conflict to provide strategic depth and the ability to fight the battle away from home. These troops must be lightly equipped in order to be deployed rapidly, but heavily armed as they will be amongst the first to cross into enemy territory. Recent acquisitions by the army, air force and navy complement each other and allow for the development of such a force. The LSV and LWSPH can be airlifted and deployed rapidly. The *Bionix* IFV and *Bronco* ATTC are fully amphibious. The *Endurance*-class LST and the future frigate both have helicopter platforms.

During a conflict, the 21<sup>st</sup> Division rapid deployment force would have flexible means of advancing into enemy territory. Heli-borne Guardsmen would be dropped in together with their LSVs. They can also infiltrate by sea, possibly via hovercrafts or existing fast craft from the well dock of the LST. Armour, in the form of *Bionix* IFVs, supported by the *Apaches*, would make an amphibious landing to join the Guardsmen. LWSPH would also be flown in to support the troops.

This rapid deployment force can also be deployed to any part of the region to maintain Singapore's interest if the local government is unable to protect Singaporeans or Singapore assets. For example, if civil unrest were to break out in Batam or Bintan, where significant Singaporean assets are based, and Jakarta is unable to provide substantial assistance to restore calm, Singapore may feel necessary to deploy the rapid deployment force to safeguard Singaporean assets and evacuate Singaporeans. However, the possible political repercussions of such an action require thorough calculations and should be used only *in extremis*.

## CHAPTER 5

# RECENT DEVELOPMENTS AND THEIR IMPACT ON SINGAPORE ARMS PROCUREMENTS

### Introduction

“Adequate defence spending is the insurance premium we have to pay for peace. We have to invest in defence so that we do not need to go to war. There is nothing more tempting to a potential aggressor than a soft and easy target. If we are weak, those who want to impose their will on us may be tempted to go beyond spouting the rhetoric of war to actually try to use military force to subjugate us or prevent us from pursuing our national interests. If we want peace, we have to prepare for war. This is the basis of our policy of deterrence. We best avoid war not by merely advocating love and peace but by deterring those who may have aggressive designs on our security, territorial integrity and national interests. Potential aggressors must know that the cost of any military adventurism against Singapore would be too high for them. Sir, let me make one point clear. Singapore is not looking for a fight with anyone. We have put a high priority on developing cooperation and mutually beneficial relations with the countries around us. And we have every interest in seeing our neighbours do well, because an economically thriving and politically stable region is important for Singapore’s own security and prosperity. Singapore desires friendly and cooperative relations with all countries in our region. But such good relations must be based on the fundamental principle that Singapore is a sovereign nation with our own national interests to safeguard and to promote. Having a credible defence capability ensures that we will not be pushed around. The SAF gives us the space to pursue Singapore’s own best interests.”

Deputy Prime Minister and Coordinating Minister  
for Security and Defence of Singapore,  
Dr. Tony Tan.<sup>135</sup>

For a city-state with a total land area of a mere 682 sq km, and a population of only 4.16 million, Singapore’s defence budget is exceptional in Asia, if not globally. While remaining below the defence budget cap of 6 per cent of its gross domestic product (GDP), Singapore’s defence budget accounted for S\$8.252 billion or 27.5 per cent of the S\$30 billion budgeted expenditure this financial year. It is the largest budget compared to other

government ministries, including the Education Ministry. As the country is currently suffering economic difficulties, questions were raised in parliament in March 2003 over the reason for the large sums of money budgeted for defence spending. Critics pointed out that the continued efforts to build up the capabilities of the Singapore Armed Forces (SAF) is disputable given that Singapore has enjoyed enduring peace with its neighbours, the last major conflict being the *Konfrontasi* with Indonesia during the 1960s. The nature of the perceived security threats to Singapore and why they necessitate the exceptionally high defence budget are thus pertinent questions.

In this post-Cold War, post 9-11 security environment, it is clear that the SAF makes every effort to ensure its high state of operational readiness to respond to any conventional and non-conventional security threat. In particular, two recent developments have affected the analysis of conventional and non-conventional security threats to the Republic, namely, the modernisation of Malaysian Armed Forces (MAF) and the threat of terrorism. It can be argued that the SAF's procurement programme is not a mere modernisation exercise, but rather an elaborate advancement process to preserve its position as the premiere armed forces in Southeast Asia, a two-pronged process given a further boost since the events of 11 September 2001.

### **The MAF's Modernisation as a Conventional Security Threat**

International relations theorists have asserted that geographical proximity has an impact on the kind of relationships between neighbours. As Kautilya wrote in his classic text *Arthashastra*, "one with immediately proximate territory is the natural enemy".<sup>136</sup> That is, one's neighbour is one's natural enemy. Indeed, because "threats travel more easily over short distances than over long ones, insecurity is often associated with proximity".<sup>137</sup> It is thus of no surprise that the relationship between Singapore and Malaysia is often characterised by tension and mutual distrust. Notwithstanding the economic, social and security interdependence between the two countries, Tim Huxley is correct to point out that, in Singapore's security threat assessment of the Southeast Asian region, it is only natural to perceive Malaysia as the "most likely adversary".<sup>138</sup>

### **Upsetting the Military Balance**

Of crucial concern to the security of Singapore is the MAF's procurement of conventional capabilities that undermines the SAF's existing military



superiority, especially given the economic revival after the 1997 Asian Financial Crisis.<sup>139</sup> Amidst the disturbingly blatant and careless talk of war between Malaysia and Singapore, Malaysia's defence budget has increased nearly threefold, from RM1.7 billion in 1981 to RM7.8 billion in 2003.<sup>140</sup> The Malaysian Armed Forces' defence modernisation in recent years, especially following the Asian Financial Crisis, gives a semblance that the MAF is on an arms buying spree.

By 1999, Malaysia's Royal Malaysian Air Force (RMAF) possessed strike capabilities through its 17 MiG-29 fighters. The MiG-29s are fitted with Western avionics and have a top speed of more than twice the speed of sound. Armaments that would pose questions about the aerial superiority of the Republic of Singapore Air Force (RSAF) include six air-to-air missiles, unguided air-to-surface missiles and up to two tonnes of bombs. Other aircrafts protecting the Malaysian skies include 8 F-18D Hornet strike fighters, 13 F-5E fighters, 25 Hawk light fighters / advanced trainers, 2 RF-5E reconnaissance fighters, 10 MB-339, 37 Pilatus PC-7 trainers, 12 C-130H transports, 2 C-130H-MP maritime patrol aircrafts, 2 KC-130H air tankers, 4 Beech B200T maritime patrol aircraft and 30 S-61A transport helicopters.

In May 2003, the RMAF also agreed to a deal to buy 18 Russian-made Sukhoi Su-30MKM Flanker fighter jets. The Su-30MKM could be equipped with a 30mm GSH-301 gun with 150 rounds of ammunition, air-to-air missiles, all-aspect medium-range missiles with semi-active radar homing and infra-red homing and all-aspect, close-combat air-to-air missile with infra-red homing. RMAF is also expected to purchase a similar number of F/A-18E/F Super Hornets from Boeing of the United States. The Super Hornets are useful for reconnaissance, aerial interdiction, ground support and suppression of enemy defences. With the RMAF's plans to develop its Airborne Early Warning and Control (AEW & C) platform to pre-empt strikes from adversaries, its latest defence procurement would make the RMAF one of the most modern outfits in the region and thus would challenge the premiere position of the RSAF.

As at 1999, the MAF army capability was 80,000 personnel in 4 area command divisions, 10 infantry brigades, 1 mechanised infantry brigade, 1 airborne brigade (Rapid Deployment Force), 1 special forces regiment, 26 Scorpion tanks, 1,210 Armoured Personnel Carriers (APC), 155mm howitzers, anti-tank missiles and Surface-to-Air missiles (SAM). In April 2003, Malaysia bought 48 military armoured battle tanks and 14 support/recovery vehicles from Poland. Expected to buy at least 80 more main battle tanks (MBT), the procurement sets out to create its first combined-arms

division and signals a fundamental change in Malaysia's defence strategy given that battle tanks have never formed part of its armoury. Such a revolution will undoubtedly increase its firepower against any adversary.

In continuing with its efforts to emerge as a strong maritime nation capable of protecting its sovereignty and territorial integrity, Malaysian Defence Minister Najib Tun Razak has demanded that all Royal Malaysian Navy (RMN) vessels achieve at least 70 per cent operational readiness at all times.<sup>141</sup> By 1999, the RMN included 2 Leiku frigates, 2 FS1500 frigates, 4 Laksamana missile corvettes, 8 Spica / Combattante II missile boats and 4 Lerici minehunters. The RMN have on order Super Lynx helicopters, which are expected to arrive in late 2003. The Defence Ministry will also purchase four submarines, including two used ones for training purposes in the near future. The modernisation of the RMN will thus provide greater deterrence to potential encroachment into the country's territorial waters by foreign elements.

### **Singapore's Response to the MAF's Modernisation**

Defence planners on both sides of the causeway linking Malaysia and Singapore are constantly paying close attention to its counterpart's defence modernisation. For example, the RMAF's conversion of C-130 aircrafts into air tankers appears to counter Singapore's fleet of air refuelling tankers. Tim Huxley perceived the arm procurements by Singapore and Malaysia as "counters" to each other.<sup>142</sup> In a simplistic sense, the defence capability upgrade of one country is likely to be followed with a similar action by the other. The arms dynamic between dyads is due to the repercussions of the 'security dilemma'.<sup>143</sup> One's gains in security is often seen by others as a diminution of their security, even when this is not the intent. The result of such a security dilemma is the engagement in an arms race so as to better secure oneself from the security threats of another. Behind the rhetoric of defence modernisation, the arms procurement programmes of Malaysia and Singapore are leading to a potentially perilous arms race.

Theorists have asserted that an offense-defense differentiation of weapons can ameliorate, if not abolish the security dilemma.<sup>144</sup> For example, in the procurement of defensive weapons by country A, neighbouring country B has less to fear vis-à-vis a scenario of the purchase of offensive weapons by country A. Thus, the heightened tension of the security dilemma is mitigated. However, the amelioration of the security dilemma by an offense-defense weapons differentiation does not necessarily apply in the Singapore-Malaysia arms dynamic. For one thing, the distinction between an offensive and a defensive weapon is hardly possible. A weapon can be employed



either offensively or defensively. More importantly, Singapore's emphasis on 'forward defence' renders inconsequential the offense-defense differentiation. The central assumption of Singapore's strategy is that Singapore could not fight an adversary on its own soil due to its lack of strategic depth. In any war scenario, the SAF would necessarily invade the southern peninsula of Malaysia so as to secure its water-pumping stations at Kota Tinggi and Skudai<sup>145</sup>. The viability of its 'forward defence' strategy is crucially dependent on the military superiority of the advancing SAF vis-à-vis the defensive capabilities of the MAF. The modernisation of MAF defences thus upsets the military "balance" and necessitates the SAF procuring more advanced capabilities to restore superiority. This in part also explains the procurement of advanced weapon systems by the SAF.

To counter the RMAF's MiG-29s and Sukhoi Su-30MKMs, the Republic of Singapore Air Force (RSAF) is replacing its A-4SU Super Skyhawks with the more advanced multi-role F-16C/D Fighting Falcons that can carry various air-to-air and air-to-ground missiles and can fly at low levels at night to carry out precision attacks. Under the air force's Next Fighter Replacement Programme, the RSAF is expected to buy two dozen aircraft from a shopping list of 6 warplanes to maintain the crucial military advantage in its air force.<sup>146</sup> Also, the SAF has joined a multinational programme to develop the F-35 Joint Strike Fighter (JSF), expected to be the benchmark combat aircraft in 2015 and beyond. This would allow the RSAF to retain its technological edge over its Malaysian counterpart.

While the Malaysian army has set out to create its first combined-arms division with the purchase of main battle tanks (MBTs) from Poland, the SAF has attempted to offset the firepower of the Malaysia's armoury with the purchase of 20 Apache attack helicopters among others. The Apaches, heavily armed with sophisticated anti-tank guided missiles, rockets and a 30-mm automatic cannon are employed as front-line attack helicopters. The armoured force of the SAF includes the locally upgraded AMX-13SM1 light tanks and the modernised Centurion MBTs. The army has also purchased Spike, the new generation, electro-optical, medium to long-range anti-tank missile. As a 'fire and forget' missile, Spike is most effective against MBTs. The SAF also has a numerical advantage in artillery. Furthermore, the development of Singapore's own Infantry Fighting Vehicle, Bionix, adds to the firepower advantage of the SAF vis-à-vis its counterpart across the causeway.

With the RMN's expected procurement of submarines in the near future, the Republic of Singapore Navy (RSN) has already ensured that it will retain a capability edge at sea. The Submarine Squadron is being formed



with the acquisition of four submarines. The original Sjöormen class submarines were renamed the Challenger class with added capabilities. Also, the RSN's search for its first ship-borne helicopters is entering its final phase. The search began in 2000 following its purchase of six 110metre stealth frigates from France. Eight helicopters, chosen from three shortlisted manufacturers, will perform maritime patrol and carry anti-submarine torpedoes and anti-ship missiles. The growing anti-ship and anti-submarine capability of the RSN thus reduces the impact of the modernisation of the RMN and its eventual purchase of the submarines. It is thus evident that the SAF is countering the arms procurement of the MAF by the purchase of more advanced weaponry.

### ***Jemaah Islamiyah* (JI) as a Non-Conventional Security Threat**

On 11 September 2001, 19 terrorists hijacked 4 US airlines. Two were used to crash into the Twin Towers of the World Trade Center in New York and a third into the Pentagon in Pennsylvania. The fourth crashed in Pennsylvania before it reached its (unknown) target. The deadly terrorist attack on the United States has forced a rethinking of established and conventional security policies of countries. While countries can boast of their defence capability to meet traditional security threats of other states, the menace of terrorism is harder to pinpoint. Commenting on this new post-Cold War, post-911 strategic environment, a former Central Intelligence Agency (CIA) Director remarked: "We have slain a large dragon, but now we find ourselves living in a jungle with a bewildering number of poisonous snakes. And in many ways, the dragon was easier to keep track of".<sup>147</sup> The Bali bomb blasts on 12 October 2002 and the Jakarta J.W Marriott Hotel car bomb explosion in Indonesia have sent a compelling message that terrorists can strike anywhere and anytime. Security must now be defined accordingly, acquiring new dimensions to address this distinctive threat.

Few armed forces in the world have thought about how their arsenal of weapons could effectively deal with the threat of terrorism. While the US wars against terrorism in Afghanistan and in Iraq using conventional military warfare have seemingly crippled the operations of the *Al Qaeda* terrorist network, the sporadic terrorist attacks in countries such as Saudi Arabia, Morocco and Kenya and the truck-bomb explosion of the UN headquarters in Iraq serve as timely reminders that the global terrorist network remains deadly yet elusive.

### **The SAF's response to the threat of terrorism**

The appointment of Deputy Prime Minister and Defence Minister Tony Tan as the Coordinating Minister for Security and Defence in August 2003

signals an important overhaul of the traditional and conventional defence strategy of Singapore. With a new master plan for the country's defence, Dr. Tony Tan is expected to harness national resources from all ministries and government organisations to meet unconventional threats such as the terrorism espoused by JI. Indeed, since the events of 11 September 2001, Singapore has organised its defence capabilities into three rings of "prevention, protection and response".<sup>148</sup> A new National Security Secretariat (NSS) was created to strengthen coordination between various security agencies in Singapore. A Joint Counter Terrorism Centre (JCTC) was established in January 2002 to coordinate intelligence gathering to combat terrorism. What is clear is that Singapore's counter-terrorism endeavour involves the efforts of all its security agencies, including the SAF.

Lessons from terrorist activities around the world have clamoured for the use of unconventional means to prevent further attacks. The use of compromised airliners as guided missiles in the 11 September terrorist attacks has consequently enforced safety measures to prevent the hijack of airliners. Also, the deadly potency of car-bombs and truck-bombs in the various JI's terrorist attacks in Indonesia has demanded the employment of greater surveillance at borders and checkpoints. As such, the non-conventional threat of terrorism necessitates the procurement of unconventional 'specialised weapons'. The SAF has thus procured and boosted security with 'specialised weapons' such as smart fences and super sensors. These include<sup>149</sup>:

- Border checks using bomb-sniffing dogs, a new baggage screening system to detect explosives and a mobile X-ray machine for cargo at various immigration checkpoints. Singapore is also seeking advice from the United States government-funded Sandia National Laboratories to assist in developing its own explosive-detection technology. Such expertise will subsequently be deployed at ports to inspect containers for bombs and to check for materials used to make weapons of mass destruction.
- Truck-bomb blocks such as retractable road blades, capable of puncturing vehicle tyres and steel-kerbs barriers along driveways.
- Intelligent Inspector, an SAF advanced prototype, which uses a camera whose images are fed into a liquid-crystal display screen. This replaces the method of slipping a mirror under a vehicle to check the undercarriage.
- Smart fences with fibre-optic cables that detect intruders cutting or scaling fences.
- 'Eye From Afar', which is a personal digital assistant fitted with a global positioning device and a camera to enable soldiers to capture images of



suspicious activities and send them to commanders elsewhere. Key installations are also fitted with portable video surveillance cameras equipped with wireless technology.

- Security blankets that have the ability to smother blasts from up to 2.5kg of explosives.
- Stronger buildings, which have blast-resistant polymer layer glued to walls of tall buildings to make them five to six times stronger than original bricks and glass.
- Mail-menace defence that involves air-tight glove containers to check letters for hazardous substances such as anthrax.
- The Chemical, Biological, Radiological and Explosive (CBRE) Defence Group, which is a new crack team in the SAF to tackle bio-threats. Established in October 2002, the CBRE comprises a Chemical and Biological Defence Unit, an Explosive Ordinance Disposal Unit and a Medical Response Force. Members of this crack team are equipped with non-permeable Lightweight Decon Suits to protect them against chemical agents. Robots are also used to detect and dispose of chemical devices safely.

Apart from the procurement and the use of 'specialised weapons', the SAF has stepped up security with the deployment, and increased patrols, of SAF personnel equipped with M-16S1 assault rifles and Gurkha officers at key installations such as the Changi Airport, the Tuas and Woodlands checkpoints, government buildings, and oil and water installations. Uniformed police are also patrolling 'softer' targets frequented by the expatriate community in Holland Village and Boat Quay. Air marshals are also seated aboard flights. In the worst-case scenario, decisive force is the last line of defence in the event of failure of preventive measures. The SAF's Special Operations Force (SOF) commandoes are fully trained and capable of dealing with terrorists, as demonstrated in their swift and decisive resolution of the SQ-117 hijack in March 1991.<sup>150</sup> Formed secretly in 1984, the SOF has trained with crack anti-terrorist organisations throughout the world, including the British Special Air Service, German GSG-9 and various American hostage rescue teams.

## **Conclusion**

From the above, it is clear that the SAF's defence spending is unlikely to decrease in the face of both conventional and non-conventional security threats. So long as the SAF advocates its 'forward defence' strategy, which operates on the basis that the SAF enjoys a military superiority over its Malaysian counterpart, the SAF will be obliged to sustain a vigorous modernisation program. As such, short of an arms race, the arms



procurement of the MAF necessitates further modernisation of the SAF's weaponry. This action-reaction relationship is potentially dangerous and expensive for both Singapore and Malaysia.

What is certain for the future direction of the SAF's arms procurement is that technological superiority will be much valued and sought after in modern warfare. As evident from the US-Iraq war, the introduction of artificial intelligence to the battlefield enabled the US-led coalition forces to enjoy a swift and decisive victory. Through technological superiority, the coalition forces exploited a real-time situational awareness never available before with both speed and accuracy.<sup>151</sup>

Yet, technological progress inevitably leads to technological obsolescence. The development of technologically advanced weapons implies the redundancy and replacement of outdated ones. Singapore's chief defence scientist, Professor Lui Pao Chuen, has thus clamoured for the adoption of unconventional solutions. Instead of replacing a technologically obsolete aircraft with another aircraft, Professor Lui noted that unmanned combat aircraft and robots could play a more important role in warfare.<sup>152</sup>

Working closely with defence technology organisations such as Singapore Technologies Engineering (ST Engineering) and the Defence Science and Technology Agency (DSTA), the SAF is developing a range of combat robots and unmanned sensors to be used either as weapons platforms or for surveillance. A driverless vehicle, known as the Spartan, has the capability to blast tanks, shoot down planes and detect the position of snipers. The development of radar technology by the Defence Science Organisation ensures that any adversary has 'nowhere to hide, no time to hide, no way to hide' on the battlefield.<sup>153</sup> From electronic warfare (EW) to stealth technology, the research and development (R & D) of the defence technology organisations in Singapore maintains the extra edge that the SAF enjoys over its counterparts in the region.

Nevertheless, the SAF cannot take its military superiority for granted. The SAF must continue to develop its "silver bullet"<sup>154</sup>, especially in electronic warfare. The continued development of its advanced Command, Control, Communications, Computer-processing and Intelligence (C<sup>4</sup>I) facilities will ensure that the SAF can fight as a coherent force. In the face of conventional and non-conventional security challenges and uncertainties, the SAF must adapt and re-orientate to combat these threats. Thus, the modernisation of the SAF is not an option, but an imperative. Only then, can the security of Singapore be guaranteed.

## CONCLUSION

The SAF will remain Southeast Asia's premier armed forces over the next decade. The SAF's procurement programmes are not simply a modernisation exercise, but more of an ongoing elaborate advancement process. New capabilities are regularly introduced into the SAF, albeit gradually. While enhancing its operational capabilities and embracing new military technology, Singapore is careful not to drag its neighbours into a costly arms race. However, it is inevitable that its neighbours view Singapore's increasingly lethal arsenal with suspicion and resentment given the region's geopolitical history and the latent tension between countries in the region. This is all the more evident considering the "interactive dynamic" between the military acquisition programmes of certain pairs of countries in the region.<sup>155</sup> An action-reaction relation short of an overt arms race is obvious between Singapore and Malaysia.

To be sure, due to various exigencies, the present military competition between Singapore and Malaysia is essentially a Singapore-led phenomenon. In its initial years, due to the communist insurgency, the MAF oriented itself towards counter-insurgency warfare. This only changed following the termination of the conflict in the late 1980s, something aggravated further by the end of the Cold War when the MAF began to restructure itself for conventional warfare. In contrast, from the very beginning, the SAF was structured as a conventional force and it has been improving itself, both quantitatively and qualitatively, since the late 1960s. With the adoption of a forward defence strategy, Singapore's focus on military superiority has been inevitable. Equally, so has been the Malaysian reaction, with its own build-up through the 1980s to the present. In many ways, the MAF's conventional build-up was and is an escapable consequence of Singapore's defence policies and strategies over the last two decades or so, with Kuala Lumpur's defence planners trying to narrow the edge that the SAF has built up over the years.

Even though an open-ended, full-blown 'arms race' has not broken out between the two countries (say, as between India and Pakistan), what is clear is that both countries have been arming themselves, often taking into consideration the purchases of each other. As Singapore always had the technological edge against Malaysia, since the latter commenced its large-scale purchases, Singapore often reacted to sustain the favourable balance. This is despite the fact that Kuala Lumpur legitimately saw itself as doing nothing more than playing 'catch-up' in a 'race' where Singapore was far



ahead. Yet, at the same time, what cannot be ignored is that the Singapore-Malaysia purchases could have a deleterious impact on the regional security of Southeast Asia. It will only enhance the security dilemma of various countries by injecting new sources of threats into a region already laced with various traditional and non-traditional security concerns.

The arms dynamics between Singapore and Malaysia can be considered a security dilemma in the simplest sense. Both countries are aware of the disastrous consequence of any armed conflict and wish to avoid war as much as possible. But mutual suspicion and distrust lead both countries to surmise each other as a terrible threat. This perceived threat is not entirely hypothetical even though it is, at times, exaggerated. In a bid to protect themselves, both have ended up heavily armed and yet neither are safer. The centre of gravity of economic growth in Southeast Asia in the next 10 years will revolve between Singapore and Malaysia, as the current economic outlook of both countries appears promising. With their economies back on track, it is likely that the interactive arms procurement dynamic will follow.

However, this purchase and counter-purchase relation cannot go on indefinitely. While money can buy guns and tanks, it cannot buy space and size. Singapore's minute size and restrictive geopolitical situation will be its greatest misfortune and, perhaps, spell its eventual defeat in this interactive arms competition with Malaysia. The introduction of long-range ballistic missiles would be one of Singapore's worst security nightmares. Singapore could certainly respond with comparable or better missiles, but it lacks the space to hide. Malaysia can place its missile silos in isolation, away from strategic installations and civilian areas. Singapore would not have such a luxury. A dozen ballistic missiles launched from 1,500 km away are all that it will take to 'shock and awe' Singapore's populace. Sabah is approximately 1,500 km from Singapore and the state of Kedah is approximately 700 km from Singapore. In comparison, an F-16's range is about 800 km depending on the type of weaponry it carries. Theoretically, it is not possible to shoot an incoming ballistic missile with a plane as it is looped above the earth's atmosphere. Singapore may have to deploy a missile defence shield to counter threats of this nature. Or Singapore can increase the ability of its submarine fleet to launch sea-to-surface missile, thereby ensuring mutual destruction acts as a means of deterrence. Both solutions are highly advanced and extremely expensive. This scenario may seem farfetched, but it is far from fictitious. As the price of technology decreases and proliferation of ballistic technology continues, the materialisation of such a situation may appear sooner rather than later.



Indeed, according to Huxley, "the possibility that certain South East Asian countries could develop or import ballistic or cruise missiles should not be ruled out."<sup>156</sup> While Singapore-Malaysian relations are not characterised by implacable hostilities as are, say, between India and Pakistan, there remains much tension between the two Southeast Asian neighbours, where action-reaction arms procurements have been taking place for quite some time, with the tempo being rapidly heightened in the last few years since the AFC.

Another doomsday scenario for Singapore would be an adversary armed with weapons of mass destruction (WMD). Although all ASEAN countries are signatories of the Non-Proliferation Treaty (NPT) and Southeast Asia Nuclear-Weapon-Free Zone (SEANWFZ), many had expressed interest in developing nuclear energy.<sup>157</sup> Indonesia has three research reactors; Thailand, at least one; Vietnam, the Philippines and Malaysia one apiece.<sup>158</sup> While it is true that the possession of nuclear energy does not equate to possessing nuclear weapons, the switch from civilian usage to military application is, however, not as arduous as one would like it to be.<sup>159</sup> Pakistan and India are two perfect examples of third-world nuclear powers that developed their nuclear weapons from civil nuclear fuel cycle.<sup>160</sup>

Another concern deriving from WMD is that of biological and chemical weapons. Singapore probably has the most advanced chemical defence at present, as training in chemical warfare in the SAF began in the early 1990s.<sup>161</sup> It is not clear whether Singapore possesses any form of biological and chemical weapons. However, it was reported that Singapore had "experimented with binary artillery shells and air-delivered bombs suitable for use with chemical agents."<sup>162</sup> That is not to suggest that Singapore has biological or chemical weapons, bearing in mind that Singapore is one of the signatories of the Non-Proliferation Treaty, Biological Warfare Convention and Convention on Chemical Weapons.<sup>163</sup>

However, Singapore is most likely to possess some undeclared, secret weapon projects — known as "silver bullets"<sup>164</sup> — such as fuel-air explosives, capable of achieving a blast effect comparable to that of a small nuclear weapon, or better than expected EW capability.<sup>165</sup>

The SAF's strength is ironically its weakness. Facing a highly effective and lethal SAF, Singapore's neighbours resort to employing asymmetrical responses to tilt the skewed balance of military power in their favour. When these countries cannot match up conventionally, they may eventually go the non-conventional way by introducing the above-mentioned scenarios. Also not to be discounted would be the threat of state-sponsored terrorism

exploiting Singapore's sensitive and delicate social fabric. In view of this intrinsic vulnerability, Singapore's long-term security cannot be secured with the SAF's might *per se*. Singapore must control the balance of having a potent deterrence force and yet, at the same time, allow some leeway for meaningful competition to prevent competitors from going the non-conventional route.

All in all, there must be a strong political will and determination between Singapore and Malaysia to maintain amicable relations as both get bigger and better arsenals. It would be disastrous for both countries to have deteriorating ties as the military of both countries mobilised. Singapore may face an eventual dead-end in the arms-competition with Malaysia as a result of its small size and unique geopolitical situation. Malaysia, on the other hand, will not be entirely free of restrictions; the most practical one being an economic capability to "win" the competition. As Singapore and Malaysia continue with their military build up, they form the core of insecurity in Southeast Asia. The problem facing Singapore and Malaysia is a political one. As it is, a political problem is best solved by political means; weapons will only make it more difficult. Many modern security threats are looming in the region and Singapore and Malaysia would be on a better footing to deal with them if they were a team. In the end, as both Singapore and Malaysia possess capabilities to arm themselves, with neither side in a position to develop asymmetric superiority, it would be in the interests of national and regional security to settle problems through greater political cooperation and convergence. Whether, and how, this is undertaken will go a long way to determining the future structure, strategies and missions of the SAF and MAF.

## Notes

### Introduction

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- <sup>2</sup> Yeo Kim Wah and Albert Lau, ‘From Colonialism to Independence, 1945-1965’, in *A History of Singapore*, edited by Ernest C.T. Chew and Edwin Lee (Singapore: Oxford University Press, 1991), p.117.
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- <sup>7</sup> Tim Huxley, ‘Singapore and Malaysia: A Precarious Balance?’, *The Pacific Review*, Vol. 4, No. 3 (1991), p.208.
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- <sup>12</sup> See J. David Singer, *Deterrence, Arms Control and Disarmament* (New York: University Press of America, 1984), p.284.
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## Chapter 2 – Singapore and Threat Perceptions

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- <sup>23</sup> See Damon Bristow, 'The Future of Territorial Disputes Within South East Asia', *International Security Review* (London: Royal United Services Institute for Defence Studies, 1999), pp. 319-22.
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- <sup>26</sup> Tim Huxley, *Defending the Lion City—the Armed Forces of Singapore*, (Australia: Allen & Unwin, 2000), pp. 208-12.
- <sup>27</sup> Tim Huxley, *Defending the Lion City—the Armed Forces of Singapore*, p. 209.
- <sup>28</sup> It was reported that two of the hijackers who crashed into the Pentagon on September 11 rendezvoused in KL and made contact with local sympathisers in 2000. It was also discovered that *Al Qaeda* was linked to several terrorist organisations, covert or otherwise, in the Southeast Asia region. Therefore, a friendly supporter in the backyard of the world's largest Muslim population is a priceless asset to the US in its war on terror. See Rohan Gunaratna, *Inside Al Qaeda Global Network of Terror* (London: C. Hurst & Co., 2002), pp. 174-203; Zachary Abuza, 'Tentacles of terror: Al Qaeda's Southeast Asia network', *Contemporary Southeast Asia*, Vol. 24, No. 3 (Dec 2002); 'Police arrest wife of Malaysian Al-Qaeda-linked suspect', *Dow Jones International News*, 18 April 2002; 'Investigation — The UK connection — Bin Laden's Global Network', *The Observer*, 20 January 2002.
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- <sup>37</sup> Tim Huxley, *Defending the Lion City*, p. 227.
- <sup>38</sup> Damon Bristow, 'The Future of Territorial Disputes Within South East Asia', *International Security Review*, pp. 321-2.
- <sup>39</sup> In 1988, China and Vietnam came to blows over the Spratly Islands. The Chinese occupied Mischief Reef in 1995 and Chinese boats were frequently sighted in 1997. Damon Bristow, 'The Future of Territorial Disputes Within South East Asia', *International Security Review*, pp. 321-2.
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- <sup>41</sup> Lee Kuan Yew, *The Singapore Story*, p.554; Albert Lau, *A Moment of Anguish*, chapter 5.
- <sup>42</sup> Ginnie Teo, 'Students to promote racial harmony', *The Straits Times*, 16 March 2002.
- <sup>43</sup> Lee Kuan Yew, *From Third World To First: The Singapore Story*, p.261.
- <sup>44</sup> For a chronology of Singapore-Malaysia conflicts from 1965-2002, see Appendix I.
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- <sup>49</sup> In the last few years, there have been a number of discussions over the issue of war between Singapore and Malaysia. One of the first occasions was in 1986, following the visit of Israel's president, Chaim Herzog, when the then Prime Minister Lee, in a private meeting with Dr Mahathir, in the presence of his Chief of Defence Force, General Hashim, threatened that Singapore would use military force to occupy the water plant in Johor if the Malaysian Government were to stop the flow of water to Singapore. General Hashim is said to retaliate that he "would shoot any Singapore soldiers that crosses into Malaysian territory". This was later confirmed by the then Chief Minister of Johor. Since then, there have been various references to war with Singapore, especially from Prime Minister Mahathir. For instance, in April 2002, while discussing the issue of land



reclamation, he argued, “we must be careful in handling a problem such as this because we don’t want to be at war with Singapore”. Cited in *The Straits Times*, 15 April 2002. Partly in response to the ‘war talk’, Singapore’s defence minister, Tony Tan argued, “Singapore needs a credible defence force to ensure that talk of war remains just talk, mere rhetoric”. *The Straits Times*, 17 May 2002.

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### Chapter 3 – The Arming of the SAF

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- <sup>59</sup> Anil R Pustam, ‘Air forces in South East Asia’, *Military Technology*, February 2002, vol. 26, no. 2.
- <sup>60</sup> David Boey, ‘New generation warplanes seen to replace A-4 fighters’, *Business Times*, 23 July 2002.
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- <sup>62</sup> Figures derived from *The Military Balance 2002-2003* (London: International Institute for Strategic Studies, 2002), p. 204.
- <sup>63</sup> For details, see Tim Huxley, *Defending the Lion City*, pp.143-7.
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## Chapter 5 - Recent Developments and Their Impact on Singapore Arms Procurements

- <sup>135</sup> Dr. Tony Tan at the parliamentary debate on budget for the Defence Ministry, 14 March 2003, See, <http://www.parliament.gov.sg/Publication/Htdocs/20030314.pdf>
- <sup>136</sup> Kautilya, 'Arthashastra', in Lynn Nelson and Patrick Peebles (eds.), *Classics of Eastern Thought* (San Diego, Cal.: Harcourt Brace Jovanovich, 1991), p, 86.
- <sup>137</sup> Barry Buzan, 'The Post-Cold war Asia-Pacific Security Order: Conflict or Cooperation?', in Andrew Mack, & John Ravenhill, *Pacific Cooperation: Building Economic and Security Regimes in the Asia-Pacific Region* (St. Leonards, NSW: Allen & Unwin, 1994), p. 131.
- <sup>138</sup> Tim Huxley, *Defending the Lion City: The Armed Forces of Singapore* (St Leonards, NSW: Allen & Unwin, 2000), pp. 44-50. Bilateral problems between Malaysia and Singapore remained unresolved. These outstanding issues include the location of Malaysia's customs and immigration complex, the redevelopment of Malaysia's railway land in Singapore, the release of CPF savings to West Malaysian workers who no longer work in Singapore, Singapore's reclamation works at Pulau Tekong in the Johor Straits, the use of Malaysian airspace by Singapore's armed forces, the long-term water supply to Singapore and the squabble over the sovereignty of the offshore island of Pedra Branca.
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- <sup>142</sup> Tim Huxley, *Insecurity in the ASEAN Region* (London: Royal United Services Institute for Defence Studies, 1993), p. 58.
- <sup>143</sup> Security dilemma is defined to mean an increase in one's state security would decrease the security of others. See Robert Jervis, 'Cooperation under Security Dilemma', *World Politics*, vol.30, no.2 (1978), p. 186.
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- <sup>150</sup> Refer to Bilveer Singh, *Skyjacking of SQ 117: causes, course and consequences*, (Singapore: Crescent Design Associates, 1991). See also, David Boey, 'Fighting Terrorism: SAF's secret edge', *The Straits Times*, 27 March 2003.
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- <sup>152</sup> 'Weapons of the future — Let's think out of the box', *The Straits Times*, 12 July 2003.
- <sup>153</sup> For an account of the cutting-edge research by the Defence Science Organisation, refer to Melanie Chew and Bernard Tan, *Creating the technology edge: DSO National Laboratories, Singapore 1972-2002* (Singapore: Epigram for DSO National Laboratories, 2002).
- <sup>154</sup> Refer to speech by David Lim, former Minister of State for Defence, *iMindef*, 29 October 1999. See also, *Defending Singapore in the 21st Century* (Singapore: Ministry of Defence, 2000).

## Conclusion

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- <sup>156</sup> Tim Huxley, 'An Arms Race in East Asia?', *International Security Review*, 1997, p.300.
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- <sup>161</sup> 'SAF's Chemical and Biological Defence Capability'.
- <sup>162</sup> Tim Huxley, *Defending the Lion City*, p. 254.
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## APPENDIX I

### Chronology of Major Disputes between Singapore and Malaysia (1965-2002)

Year	Dispute
1966	February — Malaysia refused to move their army regiment out of Singapore's Camp Temasek. April — Malaysia enforced entry controls for Singaporeans crossing the Causeway after Singapore resumed ties with Indonesia.
1967	N.A. — Separation of currency after rounds of unfruitful talks.
1969	April/May — Malaysia accused Singapore of interfering with their domestic politics via a proxy party, Democratic Action Party (DAP), during the 1969 election. After the election, a racial riot broke out in KL. Following the riot, newspapers published in on each territory cannot be imported and sold in the other lest the newspapers be used to propagate racist sentiments.
1971	N.A. — Singapore detained three Malaysians on suspected secret society activities and caused a minor storm.
1973	N.A. — Malaysia imposed import tax on goods that came through Singapore. N.A. — Malaysia banned timber export to Singapore, affecting the latter's plywood factories and sawmills.
1976	December — An UMNO leader paid an opposition candidate in Singapore to make defamatory remarks against Lee.
1977	N.A. — Malaysia ruled that all exports from Johor to East Malaysia must not be shipped through Singapore.
1984	January — Malaysia imposed a RM100 levy on goods vehicles leaving Malaysia in a bid to discourage usage of Singapore's port.
1986	November — Israeli President's visit to Singapore ignited vehement protest that resulted in the recall of the Malaysian High Commission in Singapore and threats to cut off water supply.
1987	February — Singapore's minister for trade and industry Lee Hsien Loong commented on Malays in SAF. Malaysia criticized Singapore of surmising the former as an enemy.

- October — Two SAF assault boats entered Malaysian territorial waters by mistake for 20 minutes. Malaysia accused Singapore of spying and protested.
- 1989 April — Singapore implemented the “half-tank rule” to reduce financial losses by discouraging Singapore motorists from buying cheaper petrol from Malaysia.  
Mid — Singapore installed radar on the disputed Pedra Branca provoking Malaysian officials to accuse Singapore of chasing their fishermen away.  
July — Singapore’s offer of military facilities to the US annoyed Malaysia and Indonesia.  
August — Malaysia arrested five employees of their Ministry of Defence and two Singaporeans on charges of espionage for Singapore.  
Late — Malaysia closed airspace to aircraft from the Singapore Flying College and the Singapore Flying Club after accusing Singaporean pilots of conducting photographic reconnaissance over strategic locations.
- 1990 Early — Malaysia accused Singapore of sabotaging their “Visit Malaysia Year 1990”. PM Lee tried to defuse the accusation by encouraging Singaporeans to visit Malaysia but was denounced as “dishonest.”  
March — Malaysia suspended all bilateral military exercises with Singapore after the latter enhanced military ties with Indonesia.  
November — Points of Agreement agreed upon and signed by Malaysian finance minister Daim Zainuddin and PM Lee.  
August — Deputy PM Goh Chok Tong’s warning to Singaporeans that Singapore must not be another Kuwait angered Malaysia and Indonesia.  
Late — Malaysia accused RSAF helicopters of violating their airspace.
- 1991 August — Malaysia and Indonesia conducted bilateral military exercises from 31 July to 10 August in southern Johor. Singapore responded by mobilizing the SAF reservists on the eve of National Day.  
September — PSA’s building of a helicopter pad on Pedra Branca irritated Malaysia.
- 1992 Early — Johor introduced special regulations for boats registered in Singapore and seized six Singaporean pleasure boats for alleged intrusion into Johor waters.  
April — Singapore officially protested the violation of its territory by a Malaysian boat near Pedra Branca.



- May — Johor marine police detained two Singaporean fishing boats near Pedra Branca.
- November — Singapore announced rental hike of the Royal Malaysia Navy (RMN) base at Woodlands to the tune of thrice the current amount.
- 1993 N.A. — PM Mahathir announced that the POA was unfair.
- April — Unidentified vessel allegedly opened fire at three Singaporean trawlers in the waters of Pedra Branca.
- 1994 September — Both agreed to refer the Pedra Branca dispute to the International Court of Justice (ICJ).
- 1996 June — SM Lee's comment on the possibility of remerger with Malaysia stirred up another round of criticism and anger from the latter.
- 1997 March — SM Lee's comment on Johor being "notorious for shootings, muggings and car-jackings" in an affidavit resulted in angry protest from Malaysia. SM Lee apologized twice and removed the offending statement from record. Malaysia froze bilateral relations with Singapore. Pugnacious media wars between both countries started after the *Straits Times* ran a series of articles highlighting crime rates in Johor. Threats were made to sever ties with Singapore and to cut off the water supply.
- April — KTM brought two Singaporeans to court for illegally leasing out KTM-owned land for commercial purposes.
- May — Malaysian minister for culture, arts and tourism charged that the Singapore government directed its citizens not to visit Malaysia.
- June — Malaysia decided not to move their CIQ facilities from Tanjong Pagar to Woodlands as agreed upon in 1992.
- June — Some Singaporeans were prevented from returning to Singapore for several hours because of new immigration checks at the Causeway.
- 1998 July — Malaysia claimed to have legal rights to retain their CIQ facilities in Tanjong Pagar. However, no legal arguments were submitted despite extended dateline.
- July — PM Mahathir declared that the POA is not an international agreement since it was not approved by the heads of government and ratified by the cabinet.
- September — SM Lee's launch of his first volume of his memoirs caused a thunderous barrage of criticisms, that SM Lee was insensitive to their economic difficulties and also hurt some Malaysian leaders' feelings.

September — Malaysia closed an entire section of the Singapore stock market — Central Limit Order Book (CLOB) — that dealt with Malaysian shares in a series of capital controls in the midst of the Asian financial crisis.

September — Malaysia banned RSAF planes from flying over their airspace with immediate effect.

1999 June — PM Mahathir accused Singapore of adding to its financial woes by offering high interest rates in Singapore banks.

2000 July — Singapore's deal with Israel to develop surveillance and intelligence-gathering satellites upsets Malaysia.

October — SM Lee said that Singapore "welcomed" any attacks after the purchase of 100 AIM-120C air-to-air missiles from the US.

2001 January — PM Goh said that Singapore Malays have fared better than Malays living in Malaysia and Malaysia reacted angrily.

February — Singapore's Free Trade Agreement (FTA) with New Zealand was deemed worrisome by Malaysia and the former's pursuit of FTAs with other countries was criticized.

April — Malaysia was angry at Singapore for sending diplomats to attend Dr. Wan Azizah's briefing on the condition of her husband, ex-DPM Anwar.

September — A Malaysian Armed Forces College journal called on Malaysia to use water as a "strategic weapon" against Singapore and suggested polluting the water supply to Singapore in times of Singapore military aggression.

2002 January — Malaysian media alleged that Singapore was profiteering from the purchase of water from Johor at low price and selling treated water back to Johor at exorbitant price.

February — Singapore's education ministry's ban on wearing of "tudungs" in schools invited vituperative responses from Malaysia. Singapore then retorted that Malaysia was interfering with its domestic issue.

March — Malaysia alleged that Singapore's land reclamation near Pulau Tekong would affect the development plans of southern Johor.

March — Singapore MP's joking remarks that overly enthusiastic reporters were like "wild animals" offended the Malaysian media and another round of war of words followed.

April — Allegations that armed Singapore personnel were on Pulau Pisang, where Singapore operates a lighthouse, were made.

May — PM Mahathir's "skin Singapore" comment: "We can skin a cat in many ways. To skin Singapore, there is not just one method."

August — Singapore's NEWater drew scores of rude jokes from Malaysia.

September — Negotiation, held in Singapore, was marked by delays and changes of schedule by Malaysia.

September — Malaysia insisted on taking the water issue out of the package of outstanding issues for negotiation.

October — Malaysia announced that it would not adopt the "package approach" for further negotiation and that any new water price must be backdated.

**Note:** In most cases, media from both sides played no minor roles in initiating or exacerbating the disputes.

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*Various issues/editions:*

*Agence France Presse; The Straits Times; Far Eastern Economic Review; The New Straits Times; South China Morning Post; The Star; Singapore Government Press Release; Singapore Window website <<http://www.singapore-window.org/>>; SINGOV: Government News & Press Releases website <<http://www.gov.sg/singov/news&pr.htm>>*



## APPENDIX II

### Selected SAF's arms procurements, 1990-2001

Year Ordered	Year Delivered	Designation	Description	Qty	Supplier	Comments
1990	1991-92	TOW-2A	ATGW	240	USA	
1990	1991-93	LG1 Mk1	105 mm arty	37	France	
1990	1991-92	AS532UL <i>Cougar</i>	Transport helo	6	France	
1990	1991-92	AS550A2/C2 <i>Fennec</i>	Armed helo	20	France	Armed with TOW-2As.
1990	1991-92	AMX-10P	AFV	22	France	
1990	1991-92	AMX-10P AC90	AFV	22	France	
1991	1992	<i>Skyguard</i>	AA radar	1	Italy	
1991	1993-94	AGM-84A <i>Harpoon</i>	AShM	20	USA	
1991	1993-94	Griffo F/X	Fighter radar	37	Italy	
1991	1993-95	<i>Landsort</i> -class	MCMV	4	Sweden	
1991	1994-95	Fokker 50	MPA/SIGINT	5	Netherlands	
1991	NA	<i>Hotshot</i>	Air combat simulator	1	Israel	
1991	1999	<i>Bionix</i>	IFV	500	Domestic	Manufactured by ST Kinetics.
1992	1992	<i>Perseverance</i> -class	Landing ship	1	UK	
1992	1994-95	<i>Mistral</i>	SAM	150	France	
1992	1994-95	<i>Sadra/Simbad</i>	Naval SAM	NA	France	
1992	1994-97	AS-532 <i>Cougar</i>	Helo	20	France	
1992	1996	<i>Barak</i>	Naval SAM	NA	Israel	
1993	1993-94	V206	All-terrain vehicle	300	Sweden	
1993	NA	A-244/S Mod 1	Torpedo	NA	Italy	
1993	1996-99	<i>Fearless</i> -class	OPV	12	Domestic	Manufactured by ST Marine.
1993/95	1994-96	FV1805 CET	Engineer vehicle	36	UK	
1994	1994	Fokker 50	Transport aircraft	4	Netherlands	
1994	1994	F-5E/F	Fighter aircraft	7	Jordan	
1994	1998-99	F-16C/D	Fighter aircraft	18	USA	
1994	1998-99	AIM-7M/ AIM-9	AAM	86	USA	
1994	1997-98	CH-47D <i>Chinook</i>	Transport helo	6	USA	Based in US for training.
1995	1997	<i>Searcher</i>	UAV	40	Israel	
1995	1998-99	LANTRIN	Nav./attack syst.	8	USA	Used with F-16C/Ds.
1995/97	1997-99	A12-Type <i>Sjöormen</i>	Submarine	4	Sweden	
1996	1999-	KC-135R	Tanker aircraft	4	USA	
1996	NA	AGM-84A <i>Harpoon</i>	AShM	24	USA	
1996	1997-99	SA-16/SA-18 <i>Igla</i>	SAM	NA	Russia	
1996	1997-2001	MILAN	ATGW	671	France	
1996	1997	155 mm	Arty	5	Indonesia	Surplus equipment.
1996/98	1997-	<i>Flyer</i>	Light strike vehicle	79	Australia	Deployed in Guards battalions.
1997	2000-	CH-47SD <i>Chinook</i>	Transport helo	8	USA	Follow-on order after 1994 order for 6.
1997	1999-2000	F-16C/D	Fighter aircraft	12	USA	Follow-on order after 1994 order for 18.
1997	1997-2001	Python-4	AAM	600	Israel	For F-5S and F-16 FGA aircraft.
1997	2000-01	Type-43	ASW torpedo	32	Sweden	For <i>Sjöormen</i> submarines.
1997	2000-01	Type-613	AS torpedo	80	Sweden	For <i>Sjöormen</i> submarines.
1997	1999	<i>Endurance</i> -class	LST	4	Domestic	Manufactured by ST Marine.

1999	1999-	Spike/NT-G Gill	ATGW	NA	Israel	Spike assembled in Singapore.
1999	2002-	AH-64D <i>Longbow Apache</i>	Attack helo	8	USA	
1999	NA	CH-47D <i>Chinook</i>	Transport helo			
2000	2005-09	<i>La Fayette</i> -class	Frigate	6	France	5 to be built by ST Marine in Singapore.
2000	2003-04	F-16C/D	Fighter aircraft	20	USA	
2000	NA	S-70A/UH-60L <i>Blackhawk</i>	Helo	2	USA	
2000	NA	SA-16 <i>Igla</i>	Portable SAM	3000	Russia	
2001	From 2005	AH-64D <i>Longbow Apache</i>	Attack helo	12	USA	Contract not signed yet. Pending decision on Longbow FRC.
2001	NA	AGM-114K <i>Hellfire</i>	Anti-tank missile	192	USA	
2001	2001	M-109 chassis	SP gun chassis	54	USA	For development of full-tracked self-propelled artillery system.
2001	NA	AIM-120B AMRAAM	AAM	100	USA	In storage in USA.

### Acronyms and abbreviations

AA	anti-aircraft	MCMV	mine counter measures vessel
AFV	armoured fighting vehicle	MPA	maritime patrol aircraft
arty	artillery	nav	navigation
AShM	anti-ship missile	NA	not available
AS	anti-ship	OPV	off-shore patrol vessel
ASW	anti-submarine warfare	SIGINT	signal intelligence
AAM	air-to-air missile	SP	self-propelled
ATGW	anti-tank guided weapon	SAM	surface-to-air missile
helo	helicopter	syst.	system
IFV	infantry fighting vehicle	UAV	unmanned aerial vehicle
LST	landing ship tank		

**Note:** These figures are based on informed estimations from various different sources. Actual figures are likely to be greater than official ones.

#### *Various sources:*

Björn Hagelin, Pieter D. Wezeman, Siemon T. Wezeman and Nicholas Chipperfield, "Register of the transfer and licensed production of major conventional weapons, 2001," *SIPRI Yearbook 2002*, (Stockholm: Almqvist & Wiksell; New York: Humanities Press, 2002); *The Military Balance* (various issues); Tim Huxley, *Defending the Lion City*.

## APPENDIX III

### Singapore's Annual Submissions to the United Nations Conventional Arms Register, 1992-2003

Reporting country: Singapore

Original language: English      Calendar year: 2002  
 Background information provided: no      Date of submission: 8 May 2003

"Nil" report on exports.

#### IMPORTS

A	B	C	D	E
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Reporting country: Singapore

Original language: English      Calendar year: 2001  
 Background information provided: no      Date of submission: 17 May 2002

"Nil" report on exports.

#### IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
VII. Missiles and missile launchers	U.S.A.	Several	-	-	AIM-7M AIM-9M	-

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Reporting country: Singapore

Original language: English      Calendar year: 2000  
 Background information provided: no      Date of submission: 7 June 2001

#### EXPORTS

A Category (I-VII)	B Final importer State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
III. Large calibre artillery systems	Sri Lanka	9	Singapore	Nil	120 mm Mortar System	Used item
	Israel	8	Israel	Nil	160 mm Mortar System	Used item

#### IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
IV. Combat aircraft	U.S.A.	11	-	-	F-16C/Ds	-
VI. Warships	Sweden	1	-	-	<i>Sjöormen</i> Class Submarine	-



Reporting country: Singapore

Original language: English

Calendar year: 1999

Background information provided: no

Date of submission: 21 June 2000

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
IV. Combat aircraft	U.S.A.	6	-	-	F-16C/D	-

Reporting country: Singapore

Original language: English

Calendar year: 1998

Background information provided: no

Date of submission: 18 July 1999

"Nil" report on exports.

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
IV. Combat aircraft	U.S.A.	8	-	-	F-16C/Ds	-
VII. Missiles and missile launchers	U.S.A.	several	-	-	Sparrow and Harpoon missiles	-

Reporting country: Singapore

Original language: English

Calendar year: 1997

Background information provided: no

Date of submission: 18 June 1998

## EXPORTS

A Category (I-VII)	B Final importer State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
III. Large calibre artillery systems	Indonesia	5	-	-	155 mm Field Howitzer	-

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
VII. Missiles and missile launchers	U.S.A.	6	-	-	Sparrow and Harpoon missiles	-

Reporting country: Singapore

Original language: English

Calendar year: 1996

Background information provided: no

Date of submission: 27 June 1997

## EXPORTS

A Category (I-VII)	B Final importer State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
III. Large calibre artillery systems	Papua New Guinea	3	-	-	120 mm Standard Mortar	-

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
VI. Warships	Sweden	1	-	-	Decommissioned <i>Sjöormen</i> Submarine	-

Reporting country: Singapore

Original language: English

Calendar year: 1995

Background information provided: no

Date of submission: 30 April 1996

"Nil" report on exports.

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
VII. Missiles and missile launchers	U.S.A.	11	-	-	Harpoon missiles	-

Reporting country: Singapore

Original language: English

Calendar year: 1994

Background information provided: no

Date of submission: 3 May 1995

"Nil" report on exports.

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
II. Armoured combat vehicles	France	20	-	-	-	-
IV. Combat aircraft	Jordan	7	U.S.A.	Jordan	-	-
VII. Missiles and Missile launchers	U.S.A.	12	-	-	-	-

Reporting country: Singapore

Original language: English

Calendar year: 1993

Background information provided: no

Date of submission: 21 July 1994

"Nil" report on exports.

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
II. Armoured combat vehicles	France	24	-	-	-	-
III. Large calibre artillery systems	France	13	-	-	-	-
VII. Missiles and missile launchers	U.S.A.	8	-	-	-	-

Reporting country: Singapore

Original language: English

Calendar year: 1992

Background information provided: no

Date of submission: 11 May 1993

"Nil" report on exports.

## IMPORTS

A Category (I-VII)	B Exporter State(s)	C Number of items	D State of origin (if not exporter)	E Intermediate location (if any)	Remarks Description of item	Comments on the transfer
II. Armoured combat vehicles	U.S.A.	1	-	-	-	-
III. Large calibre artillery systems	France	24	-	-	-	-
VII. Missiles and missile launchers	U.S.A.	1 missile	-	-	-	-

Source: United Nations Register on Conventional Arms at [http://disarmament.un.org/UN\\_REGISTER.nsf](http://disarmament.un.org/UN_REGISTER.nsf)



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As a consequence of its security doctrine of collaborating with outside powers, its neighbours and enhancing self-reliance, Singapore has emerged as one of the most 'armed states' in the region. Unlike its many neighbours, the 1997 economic crisis did not stop or slow down Singapore's arms purchases. Since then, there has been a quantitative and qualitative upgrading of weapons systems in Singapore, with the improving economy and the threat of terrorism acting as catalysts in this drive. How the arming of the Singapore Armed Forces has taken place and what it means for Singapore and the region's security are examined in this study.

**Bilveer Singh**