

CHAPTER 6

Singapore's Relentless Quest for Security and Technology: 2012

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In the Financial Year 2012, the affluent city-state continued to channel considerable resources in a relentless bid to transform the Singapore Armed Forces (SAF) into a “Third Generation” digitally networked and seamless fighting force.¹ Minister for Defense Dr Ng Eng Hen made the following justification for Singapore’s hefty defense spending at the Committee of Supply Debate 2012 in Parliament: “[T]he government is prepared to spend up to 6% of GDP on defense . . . Our overall approach is to maintain a stable defense budget that grows gradually in absolute terms, and to manage that prudently. So over the last five years, defense expenditure has grown steadily by about 4% annually on average. It was \$10.7 billion in 2008 and as Members pointed out, it is \$12.3 billion this year.”²

Defense Minister Ng then noted: “Such steady spending is a critical enabler. . . . It allows the SAF to steadily build up its capabilities, exploit nascent technologies—so in other words, we can actually spot the technology that will come on the market even before it has and exploit it—minimize disruptions, and effectively network its various Services so that the combined capability is more powerful than its individual parts.”³

¹ See “Singapore shells out for security,” *Wall Street Journal*, 21 March 2012.

IHS Jane’s wrote: “Since the turn of the century this (defense) spending has increased as the country has escalated the development of the so-called 3rd Generation Singapore Armed Forces (SAF) an effort that emphasizes the development of futuristic military concepts such as network-centric warfare, unmanned systems, precision strike, and a concept known in Singapore as IKC2 --- Integrated knowledge-based command and control.” See IHS Navigating the Emerging Markets, *Republic of Singapore* (Surrey: IHS, 2011), p.20.

See also Lieutenant Colonel Song Chun Keet, et. al., “Sustaining Progress for the Third Generation RSAF,” *Pointer: Journal of the Singapore Armed Force*, Vol.37, Nos.3-4, 2011, pp. 8-15.

However, the SAF is cognizant that the human software is critical for its technological transformation.

See Chia Hee Chen, “SAF Transformation: Focusing on the People,” *Pointer: Journal of the Singapore Armed Forces*, Vol.38, No.3, 2012, pp.1-10, Captain Charles Phua Chao Rong, “Transformers of the Third Generation SAF,” *Pointer: Journal of the Singapore Armed Forces*, Vol.38, No.1, 2012, pp.50-58, “Full Steam Ahead: An update on the 3rd Generation Navy,” *Pioneer*, May 2012, pp.6-10 and *Pointer, Leading in the Third Generation SAF, Pointer Monograph No.9: A Reader for Leadership Development* (Singapore: Singapore Armed Forces, 2012).

² MINDEF, “Speech by Minister for Defense Dr Ng Eng Hen at the Committee of Supply Debate 2012,” 6 March 2012. The figures are in Singapore dollars. The US-Singapore exchange rate in 2012 is one US\$ to around S\$1.22.

³ *Ibid.*

The *IHS Jane's Navigating the Emerging Markets*' report predicted: "Underpinned by a strong national economy, defense spending in Singapore is expected to continue a pattern of robust growth in the next three years (2012-2015). By 2015, total military funding is forecast by HIS Jane's to reach US\$14 billion—a 26 percent increase over spending in 2011—while procurement expenditure is expected to total US\$14 billion during the same period."⁴

This substantial financial outlay is quite astonishing for a city-state with a resident population of 5.32 million (with only 3.2 million citizens). According to the Stockholm International Peace Research Institute (SIPRI), Singapore is now the fifth-largest arms importer in the world after China, India, Pakistan, and South Korea.⁵ This is surprising given the fact that Singapore does not have obvious enemies like the four top weapons importers. According to the 2012 BICC Global Militarization Index, Singapore is the second most "militarized" country in the world after Israel.⁶ There is speculation that Singapore may acquire the costly, state-of-the-art US-made F-35 stealth fighter.⁷ Besides manufacturing some of its own weapon systems, the city-state has developed a technological cutting edge for its military—a capability lacking in other Southeast Asian countries.

Singapore's military-industrial complex: DSO National Laboratories

2012 marked the 40th anniversary of the DSO National Laboratories—the country's oldest and largest defense research and development organization.⁸ By 2012, it had at least 1,300 scientists and engineers. This scientific talent pool is expected to grow

⁴ IHS *Navigating the Emerging Markets, Republic of Singapore* (Surrey: IHS, 2011), p.3.

⁵ Report from SIPRI quoted in "Military spending in South-East Asia: Shopping Spree," *The Economist*, 24 March 2012. See also "Singapore: Little Tiger with a Big Military Roar," *International Business Times*, 15 May 2012 and "Singapore Shells out for Security," *Wall Street Journal*, 21 March 2012.

⁶ The Bonn International Center for Conversion (BICC)'s Global Militarization Index "depicts the relative weight and importance of the military apparatus of one state in relation to its society as a whole." The indicators to represent the degree of militarization of a country includes: the comparison of military expenditures with its GDP and its health expenditure (as share of its GDP), the contrast between the total number of military forces and the number of physicians and the overall population, and the ratio of the number of heavy weapons available and the number of the overall population. See BICC, "Global Militarization Index 2012." 13 November 2012, <<http://boonsustainabilityportal.de?p=26072>> (accessed: 12 December 2012).

⁷ "Lockheed sees increased Singapore interest in F-35 fighter," *Reuters*, 10 November 2012. Singapore became a "security partner" on the international program in 2003 for the F-35 development effort.

⁸ For a good review of Singapore's defense industrial capabilities such as ST Engineering and Future Systems Directorate, see IHS *Navigating the Emerging Markets, Republic of Singapore* (Surrey: IHS, 2011), pp.20-28.

to 1,500 within the next few years.⁹ The DSO National Laboratories are to give the SAF home-grown technologies “not available in the open market.”¹⁰

MINDEF (Singapore Ministry of Defense) now commits about 4 percent of Singapore's annual budget to R&D. This amounted to around S\$500 million, with DSO taking up about half that sum.¹¹ MINDEF's other R&D entities like the Defense Science & Technology Agency (DSTA) share the other half of the sum. It is suggested that up to 20 DSO innovations are “operationalized” in the SAF yearly, with two deemed as “game-changing technology.”¹² Some of DSO's technological innovations include “electronic surveillance and communication that allows the Republic of Singapore Navy's stealth frigates to communicate safely with each other and mini pilotless surveillance planes that army battalions here now use.”¹³

The media reported: “Today, DSO has gone beyond research on electronic warfare into areas such as radar, sonar, biological and chemical security and, more recently, unmanned-vehicle capabilities and satellite systems.”¹⁴ Noteworthy is the DSO's Skyblade III, a portable unmanned surveillance plane which beams real-time video images beyond a soldier's line of sight.¹⁵

Other indigenously designed military equipment includes the Warthog and Terrex. In 2008, ST Engineering sold more than 100 Warthog (also known as Bronco) armored personnel carriers to the British military, which deployed them to the war in Afghanistan. In 2012, the media reported that the United States Marine Corps will be testing the ST Kinetics made-Terrex armored infantry carrier, which will have to outperform three heavy weight competitors fielded by Lockheed Martin, BAE Systems, and General Dynamics Land Systems in a year-long evaluation.¹⁶ It is noted that the “advanced networking system on the Terrex puts soldiers inside it in direct contact with HQ, unmanned aerial vehicles (UAV) and sensors carried by

⁹ See “From 3-man team to powerhouse,” *Straits Times*, 27 November 2012.

¹⁰ “20 new inventions from DSO each year,” *Straits Times*, 22 November 2012.

¹¹ *Ibid.*

¹² “From 3-man team to powerhouse,” *Straits Times*, 27 November 2012.

¹³ “20 new inventions from DSO each year,” *Straits Times*, 22 November 2012.

¹⁴ “DSO to get new, bigger campus next year,” *Straits Times*, 27 April 2012.

¹⁵ *Ibid.*

¹⁶ “US marines to test made-in-Singapore armored infantry carrier,” *Straits Times*, 7 November 2012. See also “Singapore gains toehold in world arms industry,” *Agence France-Presse*, 18 March 2012.

soldiers on the ground as well as fighting machines.”¹⁷

Despite the rising capability of its military-industrial complex and its deep financial pockets, Singapore cannot possibly produce all the sophisticated weapon systems it needs. Its strategy is to buy from abroad to enable the SAF to maintain its technological edge in the neighborhood. In the last few years, the SAF has acquired expensive items like 110 Leopard main battle tanks, 24 F-15 SG fighter jets, 18 High Mobility Artillery rocket System trucks, and six S-70B Sikorsky Seahawk naval helicopters.¹⁸ More recently, the SAF has also acquired Israeli-built Heron pilotless surveillance planes, and the Spyder-SR ground-based air defense system.¹⁹

In 2012, Defense Minister Ng Eng Hen declared its latest early warning surveillance jets—four Gulfstream 550s (G550s)—as battle-ready.²⁰ They replaced the Air Force’s ageing E-2C Hawkeye airborne early warning aircraft. The military may buy Boeing’s KC-46A or Airbus Military’s A330 multi-role tanker transport to replace its ageing KC-135 airborne tankers, and, as mentioned earlier, Boeing’s F-35 Joint Strike Fighter jets.²¹

Why high defense spending? The demographic factor

Just because Singapore can afford to splurge on defense does not quite answer the question why it feels compelled to do so. Indeed, there are many affluent countries which spend considerably less on defense. There are many plausible reasons for Singapore’s seeming insecurity: the legacy of Singapore’s traumatic separation from Malaysia in 1965, the “realist” mentality of sovereign Singapore’s Founding Father Lee Kuan Yew and his protégés who adopt a hard-nose approach to larger, neighboring Malaysia and Indonesia to safeguard the city-state’s sovereignty, Singapore’s location in a turbulent and unpredictable region (unlike Western Europe), the lack of strategic depth of the city-state, the absence of a formal ally or

¹⁷ “SAF troops test new armored vehicle: Singapore-made Terrex put through its paces in rugged Australian terrain,” *Straits Times*, 10 October 2012.

¹⁸ “Singapore among big arms importers: Purchases part of SAF’s bid to maintain tech edge: Expert,” *Straits Times*, 20 March 2012.

¹⁹ *Ibid.* See also “The Heron 1: Singapore’s new ye in the sky,” *Straits Times*, 24 May 2012.

²⁰ See “Eyes in the skies ready for combat: boost for Singapore’s air defenses as new early warning jets are declared operational,” *Straits Times*, 14 April 2012.

²¹ “Singapore among big arms importers,” *Straits Times*, 20 March 2012.

a regional organization (like NATO or the EU) which can guarantee its security, and the negative implications of its declining demography.

Singapore is confronted by declining birth rates and an ageing population. This has profound implications for the SAF in the long run, because Singapore's compulsory conscription system (known as National Service [NS] enlistees) are drawn from able bodied male Singaporean citizens and permanent residents. According to Defense Minister Ng, about 15,000 NS men enlisted each year in the 1990s.²² From 2000, the city state experienced higher numbers as children given birth by cohorts of baby-boomers reached enlistment age. Indeed, SAF enlistments rose and peaked at around 21,000 in 2011. However, the projected trend is that SAF recruitment will fall to the levels of the 1990s, about 15,000 each year. Defense Minister Ng noted that despite Singapore's long-term projections of a dip in births till 2040, it is anticipated that the SAF will still be able to mobilize a fighting force of 300,000 soldiers.²³

The same report noted: "Dr Ng added (that) the SAF has taken into account its manpower requirements over the long term through its transformation towards a 3rd generation SAF. That is, through advances in technology and with more effective systems and platforms, which require fewer men to operate."²⁴ Indeed, Singapore's relentless quest to leverage technology to compensate for a lower birth rate and enlistment for its SAF, has necessitated a huge defense budget to forge a hi-tech military.

The year 2012 also marked a milestone for the SAF when National Service enlistment hit 900,000 since it was first introduced in 1967—two years after Singapore's separation from Malaysia. Today the SAF can swiftly deploy a fighting force of 355,000—50,000 regulars and full time enlistees; the rest are NSmen (reservists).²⁵ Troop numbers, a fat wallet, and advanced technology can neither guarantee a successful deterrent nor victory in war. Though lacking in combat experience,

²² "SAF uses technology to counter lower birth rate and ageing population," *Channel News Asia*, 12 November 2012. See also "Leaner SAG can still do more: tech-savvy soldiers will make up for falling enlistment numbers, says Defense Minister," *Straits Times*, 1 July 2012.

²³ *Ibid.* "SAF uses technology to counter lower birth rate and ageing population," *Channel News Asia*.

²⁴ *Ibid.*

²⁵ "NS enlistment hits 900,000," *Straits Times*, 9 April 2012.

the SAF hones its skills through its deployment to Afghanistan,²⁶ and waters off Somalia for anti-piracy operations,²⁷ disaster relief and humanitarian operations in the neighborhood, exercises with other militaries, and conducting exercises abroad (given Singapore's lack of training space).

Why high defense spending? An uncertain strategic environment

The city-state is also faced with an uncertain strategic environment. Despite the aspiration and the promise of an ASEAN Community by 2015, East Asia is confronted by an uncertain power transition given the rise of China and its excessive claims in the South China Sea (bounded by Beijing's self-declared nine-dotted lines). Presumably, it was quite disconcerting to some ASEAN states, including Singapore, when the Southeast Asian regional organization and its member states failed to maintain a united front to face Beijing over the South China Sea dispute in 2012.²⁸ For the first time since its formation since 1967, ASEAN failed to issue a joint communiqué in 2012 after the mishandling of the ASEAN Chairmanship by Cambodia to forge a consensus on the South China Sea dispute.

Although Singapore is not a claimant state, it is a maritime country with an abiding interest in the peaceful settlement of territorial disputes in the South China Sea. Foreign Minister K. Shanmugam said in September 2012: "ASEAN's role, as Singapore has articulated and others have articulated, is not to deal with the claims themselves, but in the broader setting of a framework which would allow for a peaceful resolution of these claims. For example, ASEAN had a role in formulating the Declaration of Conduct (DOC), the implementation guidelines of the DOC, and likewise, in the Code of Conduct (COC) we hope will be negotiated, ASEAN will have a role. So that's the context in which we have said ASEAN has a role, not in the specific delineation or settlement of claims between claimant states."²⁹

²⁶ "Soldiers lauded for Afghan service: 43 get medals for helping to boost medical aid and security for coalition forces," *Straits Times*, 8 June 2012.

²⁷ On the Republic of Singapore navy stealth frigate's deployment to the Gulf of Aden, Defense Minister Ng commented: "It's a very good experience. It's an opportunity to deploy our frigates and naval helicopters far from home, far from (our) shores." See also "Singapore will reassess Gulf of Aden involvement," *Straits Times*, 28 November 2012 and "Dr Ng visits SAF task group in Gulf of Aden," *Pioneer*, November 2012, p.4.

²⁸ See "Singapore reiterates ASEAN's role over South China Sea dispute," *Channel News Asia*, 11 September 2012.

²⁹ See Foreign Minister K. Shanmugam, "China and ASEAN want stability," *Straits Times*, 12 September 2012.

In November 2012, at the East Asian Summit, Singapore, along with some ASEAN members, asked the Cambodian Chair to correct inaccuracies in its statement that ASEAN nations agreed to keep the South China Sea dispute only between ASEAN and China. ASEAN leaders then struck a last-minute compromise on the South China Sea issue.³⁰ The jurisdiction dispute in the South China Sea will continue to draw in competing great powers, and the turbulence this creates will be a strategic challenge to the ASEAN states including Singapore.

While Singapore supports ASEAN as a regional organization, the United Nations, international law, and the freedom of navigation, it pragmatically supports a balance of power in East Asia by facilitating US presence in this region.³¹ The city-state seeks to maintain good relations with its immediate neighbors Indonesia and Malaysia, rising China, and the US superpower. While Singapore's economic relations with China are deepening, the US remains its closest defense partner.

In April 2012, Defense Minister Ng stated explicitly: "The US, I would say, is our closest security partner and I don't see any country displacing the US as that."³² Ng also noted that even when the US was stretched with the Iraq and Afghanistan wars, there was no visible reduction in the US presence in East Asia or its usage of the Paya Lebar Air Base or Changi Naval Base in Singapore.³³ Apparently, Singapore continues to "bandwagon" with the top dog despite the rise of China. Ng said: "The direct question is whether you see anyone supplanting the US, and the answer is no."³⁴

In June 2012, the city-state announced that it had agreed to Washington's request to deploy up to four littoral combat ships to Singapore on a rotational basis from the

³⁰ "Late deal averts rift at ASEAN meet: compromise over South China Sea issue; PM sets out Singapore's position," *Straits Times*, 21 November 2012.

³¹ Prime Minister Lee Hsien Loong noted: "We have facilitated the visits by American air force and navy units to Singapore. They don't have bases here but they visit frequently and there's a logical support unit here for their navy ships. We will be helping to keep their ships supplied while they are operating in the region. We think it is good that the US presence remains in the region, including the security presence and the Seventh Fleet. We are such a tiny area that there are a lot of constraints, but what we can do to help the American presence we will do." See "From Istana to Canberra," *Straits Times*, 11 October 2012.

³² "US closest defense partner of Singapore: Exchanges with China 'qualitatively different,'" *Straits Times*, 7 April 2012.

³³ "US expected to keep up Asian military presence: Ng Eng Hen thinks budget cuts won't affect US defense capabilities," *Straits Times*, 7 April 2012.

³⁴ *Ibid.*

second quarter of the following year.³⁵ The media noted: “Able to operate on the high seas and along shallow coastlines, the fast, maneuverable Littoral Combat Ship is central to Mr. Obama’s strategy of projecting US power in the Pacific and the Persian Gulf. It adds a relatively small and technological ship . . . to America’s traditional blue-water Navy of aircraft carriers and destroyers.”³⁶

Though Singapore’s security ties with US are strong, it is by no means exclusive. While the city-state is gradually building defense ties with China, it has reiterated that it will not come at the expense of Singapore’s relations with other countries.³⁷ Both Singapore and China have conducted joint counter-terrorism exercises dealing with potential chemical, biological, and radiological threats. The PLA has also sent some of its officers to Singapore for courses including those conducted by the Goh Keng Swee Command and Staff College.³⁸ Chinese Defense Minister General Liang Guanlie proposed the following cooperation with Singapore to enhance bilateral ties: greater interaction between senior officers of the SAF and the PLA, practical cooperation exercises, and cooperation in non-traditional security areas such as military medicine, humanitarian missions, and disaster relief.³⁹ Both navies have also regularly interacted in the Gulf of Aden, as part of an international anti-pirate taskforce.

Conclusion

A salient feature of Singapore’s security policy is its imperative to commit vast resources to build a hi-tech and potent military for deterrence, and to compensate

³⁵ “US Navy to move 60% of warships to Asia: Redeployment by 2020 a clear-cut message on its large footprint in region,” *Straits Times*, 3 June 2012. See also “US Navy to deploy new warship to Singapore in 2013,” *Channel News Asia*, 11 May 2012.

³⁶ “US Navy embraces new ship --- for better or worse: shallow-water craft pushed into duty soon despite doubts about its combat readiness,” *Straits Times*, 7 April 2012. See also “US plans 10-month warship deployment to Singapore,” *Reuters*, 10 May 2012.

³⁷ “Sino-Singapore bond is special, says Ng Eng Hen: but it won’t affect Singapore’s ties with other countries, says Defense Minister,” *Straits Times*, 22 June 2012. See also “China urged to lead in maintaining global peace: It plays crucial role by virtue of its economic heft, influence: Ng Eng Hen,” *Straits Times*, 21 June 2012 and “Sino-US relationship most important for Asia-Pacific stability: Ng eng Hen,” *Channel News Asia*, 20 June 2012.

³⁸ See “US closest defense partner of Singapore: Exchanges with China ‘qualitatively different,’” *Straits Times*, 7 April 2012.

³⁹ See “Sino-Singapore bond is special, says Ng Eng Hen: but it won’t affect Singapore’s ties with other countries, says Defense Minister,” *Straits Times*, 22 June 2012. See also “Minister of Defense makes introductory visit to China,” *MINDEF News*, 18 June 2012 and “Dr Ng visits Chinese historical sites, military facilities,” *MINDEF News*, 19 June 2012.

for its small demography and lack of strategic depth. That the city-state can raise its defense budget annually and unchallenged is due to the one-party dominance of the ruling People's Action Party (PAP) and the strong economic performance of the city state in the past decades. It is not inconceivable that Singapore's relentless drive for security and technology may not be sustainable in the long run if the city-state suffers from economic stagnation or low growth due to its rapidly ageing population, severe geopolitical turbulence in the region, and a global depression. Moreover, the electoral support of the PAP (in power since 1959) is eroding.

Given the generational and attitudinal change in an affluent Singapore leading to more diverse values and rising preference for political pluralism, there is likely to be greater demand for welfare spending in an ageing society, and a country marked by rising social inequality. Conceivably, rising numbers of opposition members of parliament and more strident citizens in an Internet Age may well demand that the ruling party recalibrate the allocation of funds between the military and public welfare.⁴⁰ A more politicized Singapore will then have to grapple with the classic dilemma of choosing between guns and butter. It is not unthinkable then, that a more polarized domestic political environment and declining affordability may knock Singapore off the pedestal as the world's second largest militarized nation according to the Global Militarization Index.

⁴⁰ For critical voices in the cyberspace on Singapore's high defense budget, see, for example, "Rethinking Singapore's Defense Needs," *Online Citizen*, 25 June 2012, <<http://theonlinecitizen.com/2012/06/rethinking-singapores-defence-needs/>> (accessed: 4 October 2012).

The article noted: "But is it really an immutable fact that Singapore must have a large and strong armed force with advanced strike capabilities? I suggest that there are other ways of structuring Singapore's defense needs without compromising our security which will result in reduced needs for defense spending. This, in turn, should both ease the pressure to grow the economy with its unsustainable need for imported workers and free up funds which can then be used for social purposes. . . . Does Singapore need to spend so much on defense? Indeed, can it afford to spend so much on defense and should it prioritize defense spending above other needs such as the social needs of vulnerable sections of society. I suggest it does not."

Another blogger wrote: "Air Force Major-General Charles Davis, Pentagon's program chief in charge of the F-35 Joint Strike Fighter (JSF) aircraft development mentioned it first: 'The Israelis have said they'd take up to 100 aircraft. The Singaporeans have said basically the same thing.' . . . Do we really, really (sic.) need a top of the line US\$68 million (basic configuration) fighter plane?" See "Do we need a US\$68,000,000 airplane," *Singapore Notes*, 23 March 2012,

<<http://singaporedesk.blogspot.sg/2012/03/do-we-need-us68000000-airplane.html>>(accessed:30November 2012).