

CHAPTER 4

Singapore in 2010: Innovation and Confidence amidst Strategic Uncertainty

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Power shift in Asia and the World

Singapore and the world are witnessing a power shift in the global political economy. First, East Asia has weathered the global financial crisis better than the West. Second, China surpassed Japan in its GDP in 2010, and might well overtake the US economy by 2019.¹ Besides this power shift, Singapore also has to address non-traditional security issues like the safety of the sea lanes in the Straits of Malacca and the Gulf of Aden, and terrorism in its neighborhood and Afghanistan.

At the 2010 Shangri La in Singapore, Minister for Defense Teo Chee Hean remarked:

Asian economic powers like China and India continue to grow much faster than the US or Europe, and these powers have weathered the global financial crisis relatively well, maintaining positive growth as the developed countries went into recession. The shift in the balance of global economic weight towards Asia, set in motion in the last decade of the 20th century, has clearly been accelerated by the financial crisis. ... The strategic weight of Asian powers, especially China and India, has also grown. With the shift in the balance of economic weight comes a shift in the balance of geo strategic weight. With such geo strategic shifts inevitably comes strategic uncertainty. Questions are asked about whether new powers will assert themselves to protect their growing economic and security interests, and pose a challenge

¹ "When will China overtake America?", *The Economist*, 18-31 December 2010, p.137.

to existing powers and the stability of the regional order.²

Despite the manifold challenges to Singapore's security, the city-state is addressing them actively with innovation and quiet confidence. Despite its open economic vulnerability to external shocks, the country enjoyed superlative economic growth of around 15 percent in 2010. A rebounded economy and deep financial reserves have enabled its Ministry of Defense (MOD) to be well funded. The Ministry was allocated S\$11.46 billion (US\$8.87 billion) in Financial Year 2010, around the same as the previous year.

Singapore's strategy to survive and thrive amidst strategic uncertainty includes the following features: supporting an ASEAN-centered regional architecture, maintaining good relations with all great powers (including conducting military exercises with them), improving relations with its immediate neighbors, making international contributions like humanitarian disaster relief, anti-piracy measures in the Straits of Malacca and the Gulf of Aden and anti-terrorism in Afghanistan, and enhancing the deterrence capability of a 3rd Generation, digitally-networked Singapore Armed Forces (SAF). A remarkable feature of the city-state's security policy is its technological ability to innovate and to compensate for its lack of physical space by building some of its own advanced weapon systems, and testing them in integrated land-air and sea-air exercises in training grounds abroad. To date, the SAF has conducted exercises in at least a dozen places countries including the US, Australia, New Zealand, India, South Africa and Germany.

ASEAN-Centered Regional Architecture

Minister of Defense Teo noted: "Therefore, in the midst of this strategic flux, what kind of security architecture should we be evolving in the Asia Pacific to meet the

² Deputy Prime Minister and Minister for Defense Teo Chee Hean at the 6th Plenary Session on "Renewing the Regional Security Architecture" Shangri-La Dialogue 2010.

At his speech to the Parliamentary Committee of Supply Debate 2010, Minister for Defense Teo noted: "While the US will continue to be pre-eminent over the next few decades, in economic, military, and technological terms, the balance of global economic weight has shifted eastwards. The strategic weight of Asian powers, particularly China and India, will grow. These two countries will become more confident and will want to play a greater role in global and regional affairs". See MINDEF News, "Speech by Deputy Prime Minister and Minister for Defense Teo Chee Hean at the Committee of Supply Debate 2010", 5 March 2010.

challenges before us? The current ASEAN-centered regional architecture has served the region well. . . . Over the years, ASEAN has played an important role in bringing together the major powers for dialogue on security, economic and other issues, even when it was not convenient for some of them to meet bilaterally. It is at ASEAN-centered forums such as the ASEAN Regional Forum (ARF) and the East Asia Summit (EAS) that all the key players in the region come together. Going forward, ASEAN will continue to serve an important role as the fulcrum of the regional security architecture for a number of reasons: ASEAN is neutral, consultative and open to engagement”³

Presumably, Singapore and ASEAN have brought the US, Russia and India into the EAS to balance the heft of a rising China. In May 2010, ASEAN established the ASEAN Defense Ministers Meeting Plus (ADMM Plus) in an ASEAN+8 format. Besides ASEAN, this new framework includes Australia, China, India, Japan, New Zealand, the Republic of Korea, Russia and the US. The intent is to enmesh the great powers and regional actors in a multilateral network of confidence-building and cooperation.

Diplomacy and Cooperation: Immediate Neighbors

Ever since Singapore’s acrimonious separation from Malaysia in 1965, bilateral relations have often been prickly. Points of contention include the sale of water to Singapore (as enshrined by international treaty) and Malaysian Railway land in Singapore. Arguably, any unilateral cutting of water supply to Singapore is *casus belli*. By 2010, relations with Malaysia significantly improved. After renewed negotiations, Malaysia agreed to return the Malayan Railway land to Singapore in exchange for parcels of land of a similar value in other parts of Singapore, and relocate its immigration and quarantine facilities from Tanjong Pagar in the heart of the city to Woodlands, the northern tip of Singapore just opposite Malaysia. Moreover, Malaysia returned Mas Selamat, Singapore’s most dangerous terrorist and a leader of the Jemaah Islamiyah (a regional associate of Al Qaeda) to the city-state in the same year. Earlier, Mas Selamat had escaped from a high security prison to Malaysia despite a massive manhunt. He was subsequently captured in Malaysia after a time

³ Ibid.

of hiding.

Of significance is the official opening of the Marina Barrage in 2010 which will supply more than ten percent of Singapore's current water needs. This is the city-state's 15th reservoir but the first to be located in the heart of the city. Despite a gradual rise in its population to probably hit 6.5 million in the long run, Singapore is working towards self-sufficiency of water by harnessing new and affordable technology including desalination plants, and turning much of the island into water catchment areas. By reducing Singapore's dependency on water (which can be politicized in a bilateral spat with Malaysia), its survival will be enhanced and a bone of contention between the two neighbors removed.

Singapore is enjoying good relations with Indonesia. Besides bilateral military exercises, the SAF also assisted in humanitarian disaster relief operations in Indonesia such as after the 2004 tsunami tragedy and the 2009 Sumatra earthquake. Indonesia is also one of Singapore's partners in anti-piracy maritime security. The littoral states of Indonesia, Singapore, Malaysia and Thailand conduct sea and air patrols together in the Straits of Malacca and its vicinity.

At the Singapore Navy's Information Fusion Center (IFC) established in 2009, international liaison officers from at least seven countries work together to detect potential maritime threats, as well as provide timely and more effective responses to these problems. The Singapore Navy has invited regional groupings such as the Western Pacific Naval Symposium Regional Maritime Information Exchange and Malacca Straits Patrols to attach International Liaison Officers to the IFC.

SAF Abroad: Gulf of Aden

While Singapore's navy focuses on the security of the Straits of Malacca and Singapore, it is also playing a role in the Gulf of Aden in cooperation with other navies to secure the sea lanes there.⁴ From April to July 2009, Singapore deployed a Task Group comprising a Landing Ship Tank and two Super Puma helicopters for

⁴ See Major Kwan Hon Chuong, "Piracy in the Gulf of Aden: Are there any lessons to be learnt from the Straits of Malacca and Singapore?" in *Pointer: Journal of the Singapore Armed Forces*, Vol.36, No.2, 2010, pp.15-22.

anti-piracy in the Gulf of Aden within the framework of the multinational Combined Task Force 151 (CTF 151). From January to April 2010, an SAF command team led the CTF 151. This command team, comprising 29 Singaporeans and six personnel from the navies of Australia, France, New Zealand, South Korea and Saudi Arabia, also coordinated counter-piracy operations with navies from the European Union, NATO and other countries.⁵

As its commitment to the security of sea lanes in the Gulf of Aden, Singapore deployed a 221-strong second Task Group a Landing Ship Tank with two Super Pumas from June to October 2010 as well as Fokker-50 Maritime Patrol Aircraft from December 2010 to February 2011. Singapore had accepted an invitation to command the CTF 151 for the second time from March to June 2011. Another task force comprising a Landing Ship Tank with two Super Pumas will be deployed again to the Gulf of Aden in the second half of 2011.⁶

SAF Abroad: Afghanistan

Besides remaining vigilant against any home grown terrorist networks in Singapore and Southeast Asia, the city-state has also dispatched the SAF to support the US and NATO anti-terrorism efforts in Afghanistan. Sending the SAF to Afghanistan also provides it the opportunity to cooperate with the militaries of other friendly countries, and hone its skills in genuine military operations in a difficult terrain. Singapore's contributions in Afghanistan include: a weapon locating radar detachment in Tarin Kowt, the training of Afghan troops in an artillery school in Kabul, medical and surgical teams in Oruzgan, construction engineering teams in Bamiyan province, a KC-135 aerial refueling tanker, and a 52-man Unmanned Aerial Vehicle Task Group in Tarin Kowt.

SAF Abroad: Training as an Advanced Networked Force

⁵ MINDEF News, "Singapore completes Command of Multinational Counter-Piracy Task Force", 21 April 2010. See also "The RSN at the Helm of CTF 151 --- A Job Very Well Done", *Navy News*, Issue 2, 2010.

⁶ MINDEF News, "302 SAF Personnel Honored for Counter-Piracy Efforts in the Gulf of Aden", 8 October 2010.

Continuing to hone its skills as a 3rd Generation, highly networked force and to overcome land and airspace constraints of a city-state, the SAF continued to train abroad in challenging, unfamiliar and broad terrain. Noteworthy was Exercise Wallaby 2010 held from September to November 2010 with about 5,200 personnel in the Shoalwater Bay Training Area of Queensland, Australia. The Shoalwater Bay area is four times the size of Singapore and therefore a valuable training ground for the SAF.

This is to date one of Singapore's largest military exercises abroad. Singapore's MOD noted about Exercise Wallaby, "from a brigade-level exercise 20 years ago, the latest edition of the exercise has grown to involve numerous air and land platforms such as Apache AH-64 helicopters, F-16 fighter aircraft, Bionix II Infantry Fighting Vehicles, Leopard 2A4 tanks and the Singapore Self-Propelled Howitzer – Primus".⁷

Besides military training with its neighbors and other countries (including those from the Five Power Defense Arrangement), the SAF also trains with the US superpower and the great powers of China and India. This is in line with Singapore's grand strategy of maintaining good ties with all great powers. In November 2010, a 170-strong SAF personnel conducted a High Mobility Artillery Rocket System (HIMARS) battery live-firing exercise, code-named Daring Warrior, at Fort Sill, Oklahoma, USA. First delivered to the SAF in July 2010, the HIMARS can engage targets 70 km away, move at a top speed of 94km per hour, and "shoot and scoot" in under 20 seconds to ensure crew and equipment survivability.⁸ The exercise also included a joint live-firing with the US Army.⁹

In 2009 and 2010, the SAF conducted two counter-terrorist exercises with China's

⁷ See "Exercise Wallaby through the Ages", *Pioneer*, January 2011.

The *Straits Times* reported: "Air-land integrated maneuvers are at the heart of exercise Wallaby ... The SAF's Air-Land Tactical Control Centre spotted and tracked enemy forces, allowing commanders to marshal the SAF's firepower and make quicker decisions, so as to preemptively hammer the enemy forces". See "Training abroad important for SAF" in *Straits Times* (Singapore), 20 November 2010.

⁸ "SAF conducts live-firing test of latest artillery system", *Channel News Asia*, 21 November 2010.

⁹ MINDEF News, "SAF Conducts HIMARS Live-Firing Exercise in the US", 21 November 2010.

People's Liberation Army (PLA). The first exercise in June 2009 was conducted in Guilin, Guangxi province. The second was held at the Murai Urban Training Facility in Singapore. 60 troops each from the SAF and PLA took part in the nine-day exercise which focused on counter-terrorism operations including responding to chemical and explosive threats. According to the media, SAF personnel who participated in the 2010 exercise included the SAF Chemical, Biological, Radiological and Explosive Defense Group, the Medical Response Force, and the Military Police Command. From the Chinese side, personnel from the PLA Headquarters, Beijing Garrison and Beijing Military Command, along with its Chemical Defense Regiment, participated in the exercise.¹⁰ Brigadier General Ngien Hoon Ping, SAF Director of Joint Operations, noted that the joint exercise had "provided a platform for both armed forces to better understand and cooperate with each other", and that "interactions such as this stand us in good stead to work together in the future, on efforts such as humanitarian assistance and disaster relief, should there be a need".¹¹

Singapore has regularly conducted exercises in India with the Indian air force, army and navy. In March 2010, the SAF and the Indian Army participated in an annual bilateral armor exercise codenamed Bold Kurukshetra at the Babina Field Firing Range in central India. The live-firing exercise involved the SAF's BIONIX Fighting Vehicle and BRONCO All-Terrain tracked Carrier, and the Indian Army's BMP-2 infantry Fighting Vehicle and T-72 Main Battle Tank.¹² The Republic of Singapore Air Force (RSAF) and the Indian Air Force (IAF) also conducted joint military training at Kalaikunda Air Force Station in December 2010. The RSAF's F-16 C/D fighter aircraft, RBS-70 fire unit and PSTAR radar trained with the IAF's MiG-27 squadron in that year.¹³ Earlier in June, the RSAF participated in Exercise Garuda for the first time, with the French and Indian Air Forces covering 11,500 km from Singapore to the Orange and Istres air bases in France.¹⁴

The Singapore Navy began ASW (anti-submarine warfare) exercises with the Indian

¹⁰ "SAF and Chinese army in joint exercise" in *Straits Times* (Singapore), 20 November 2010.

¹¹ MINDEF News, "SAF and PLA conclude COOPERATON 2010", 24 November 2010.

¹² MINDEF News, "Minister of State for Defense Visits Bilateral Armor Exercise in India", 27 March 2010.

¹³ MINDEF News, "Singapore and Indian Air Forces Conduct Joint Military Training", 15 December 2010.

¹⁴ See "20 Takes on 10 milestones", *Pioneer*, December 2010, p.9.

Navy in 1994. In April 2010, the annual SIMBEX (Singapore Indian Maritime Bilateral Exercise) was held in the Andaman Sea and the Bay of Bengal. The Singapore Navy sent a stealth frigate and a missile corvette to train with the Indian Navy, and made port calls at Port Blair and Visakhapatnam during the exercise. Singapore also participated in the multilateral Exercise Milan war game hosted by India and attended by 12 countries in August 2010.

Singapore's Defense Research and Development

It is quite remarkable for the armed forces of a tiny city-state to train abroad in at least twelve countries including the great powers of the US, China and India. Another hallmark, as stated earlier, includes the relentless efforts of the SAF to transform itself into a 3rd Generation, digitally-networked military operating seamlessly among its army, air force and navy;¹⁵ and Singapore's ability to conduct defense research and development, and develop weapon systems for the SAF. This is made possible by the investment of about 4 percent of Singapore's defense budget on research and development. Successful indigenous development included the Pegasus Lightweight Howitzer, the Bronco All-Terrain Tracked Carrier, and the command and control systems of the Singapore Navy's frigates.

Case in point of a successful hi-tech research development is Singapore's Unmanned Aerial Vehicles (UAV). Few militaries in East Asia have succeeded in developing

¹⁵ Chief of Air Force Major General Ng Chee Meng noted: "For the Air Force to evolve into the 3rd Generation RSAF, we look to technology as an important force multiplier. For example, the Gulfstream 550 Airborne Early Warning (G550-AEW) aircraft, with its advanced surveillance capability and high airborne endurance, will enhance our networked air defense. In the longer term, the G550-AEW will also play a role in the development of Integrated Knowledge-Based Command and Control (IKC2) capabilities for the RSAF and the SAF. The F-15SGs are our most advanced fighter, being equipped with advanced technologies and state-of-the-art mission systems. Together with our F-16s and F-5s, they will provide the RSAF a good mix of fighter aircraft which cost less to operate but are more effective. Going forward, the RSAF will emphasize the integration of these advanced platforms into the RSAF fighting system to fully exploit their potential. When fully operational, these integrated capabilities will effectively network all our sensors and shooters, enabling the RSAF to see further, respond faster and deal more effectively with all aerial threats". See "The RSAF's next flight", *Pioneer*, September 2010, p.11.

The same article wrote: "IKC2 are a tri-Service effort to integrate all SAF personnel and platforms. Once fully operational, the IKC2 capabilities will allow the SAF to operate as one. For example, an Army Commander may call upon Republic of Singapore Air Force (RSAF) assets to neutralize a ground target if the Air Force is the best choice for the job". *Ibid.*, p.11.

their own UAV for the 21st century battlefield. Besides UAV, the city-state is also developing unmanned underwater vehicles for underwater surveillance and mine counter-measures for its navy, and ground robots for its army. Chief of Navy Rear-Admiral Chew Men Leong explained: “For the MCMVs (mine countermeasure vessels), our focus is on introducing new technologies that will enable us to test the deployment of unmanned technologies in dealing with mine threats..”¹⁶

It would be useful to quote Minister of Defense Teo at length on Singapore’s research and development of UAV (See Appendix One). Teo noted: “Our R&D efforts in the airborne area have also paid off. DSO started R&D into Unmanned Aerial Vehicles about a decade ago. It worked towards developing a man-portable mini tactical UAV called the Skyblade whose primary mission is to support Army battalion operations. These UAVs provide the battalion with real-time video images of its area of operations, including those areas on the “other side of the hill”, which you cannot see by direct observation”.¹⁷

Teo continued: “Development of such mini-UAVs was technically very challenging as all the subsystems had to be small and light-weight, yet robust and reliable. DSO engineers had to work on a design, within a very tight weight budget, that would include optical devices with sufficient resolution, pointing accuracy and stabilization so that they can deliver clear video imagery. A miniaturized communications data-link had to be incorporated to transmit the video back in real-time to the users. The mini-UAV also needed a good engine and a high-capacity battery pack for meaningful mission time and range, and a non-trivial problem - it had to be robust enough to survive repeated take-offs and landings in the field and in very rough conditions”.¹⁸

Teo then intimated: “After extensive trials and evolution, the design was refined and transferred to ST Engineering to produce the Skyblade III. ST Engineering then developed the production model successfully, and these UAVs are now being fielded in the Army. Following this success, R&D of UAVs is continuing with the development

¹⁶ “The next lap of RSN’s transformation” in *Pioneer*, July 2010, p.16.

¹⁷ See MINDEF News, “Speech by Deputy Prime Minister and Minister for Defense Teo Chee Hean at the Committee of Supply Debate 2010”, 5 March 2010.

¹⁸ Ibid.

of a 60 kg class of tactical UAV called Skyblade IV, for use at the brigade level”.¹⁹

Besides its own research and development, the SAF has also beefed up its arsenal in 2010 through the acquisitions and delivery of Sikorsky S-70B naval helicopters and its second Archer-class submarine from Sweden, the *RSS Swordsman*.

Epilogue

Singapore has come a long way since 1965 when it was left defenseless after being abruptly booted out of Malaysia. The city-state has weathered the global financial crisis well. It has the material wherewithal, technological capability and vision to become increasingly self-sufficient in water, a strategic asset, and to develop some of its own hi-tech weapon systems for its own defense.

It has assiduously cultivated good relations with the militaries of its immediate neighbors and the great powers amidst the power shift in East Asia. “Known unknowns” may be home-grown, regional or global acts of terrorism: such acts may create temporary and localized mayhem, but not adequate to compromise the sovereignty and survival of Singapore. Arguably, the city-state is probably the most secure ever in its short history. It appears to be brimming with quiet confidence given its improved relations with its neighbors, especially Malaysia, good ties with the US superpower and regional great powers, the relentless innovation of the SAF into a 3rd Generation, networked fighting force with a considerable deterrent capability, and the SAF’s excellence in humanitarian disaster relief operations in the region, and multilateral cooperation in the Gulf of Aden and Afghanistan.

¹⁹ Ibid.