

# Interpreting Recent Military Modernizations In Southeast Asia: Cause For Alarm Or Business As Usual?

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## Abstract:

Observers of the security situation in the Asia-Pacific and more specifically Southeast Asia have recently commented on the various force modernization programs that have been taking place. While there are varying opinions as to their impact on regional security, there is a largely consistent perception that significant changes have begun over the course of the last decade. Singapore is part of the region and, due to its persistent sense of vulnerability, has contributed somewhat to this modernization trend since its creation, most recently in its bid to create “the Third Generation Singapore Armed Forces (SAF).” While Southeast Asia has clearly seen a spate of significant military modernization efforts in recent years, we must avoid coming to the conclusion that a potentially destabilizing arms race is under way. Instead, a more accurate conclusion would be to consider these activities as part of an ongoing and expected process of modernization that ensures each state’s conventional deterrence remains relevant and effective—it is a “stability-inducing” modernization in that it improves defenses without becoming a threat to neighbors.

From Singapore’s national security perspective, this conclusion means that its current defense policies remain relevant and appropriate. Consistent and substantial military expenditure since its independence has allowed Singapore to build and maintain a defense force which possesses sufficient deterrence potential to address the tiny city-state’s strategic vulnerabilities. However, as regional economies advance, the required increase in defense expenditure in the long term to maintain this deterrence is unsustainable for small Singapore. Therefore, beyond continued investment in defense to maintain its conventional deterrence edge as long as economically feasible, Singapore needs to take a leadership role in creating a regional collective security community. In the short term, this would require increased military transparency and cooperation, leveraging on existing ASEAN structures.

*Keywords: Arms Race; Deterrence; Force Modernization; Southeast Asia*

## INTRODUCTION

Observers of the security situation in the Asia-Pacific and, more specifically, Southeast Asia have recently commented on the impacts of the force modernizations that have been taking place. Thayer considers this military modernization to be both a major regional trend and a source of inter-state tension.<sup>1</sup> Bitzinger considers this “arms dynamic” to be the most recent iteration of an ongoing cycle that is focused on the “maintenance of the status quo military equilibrium”; it might not be perfect, but it is at least constrained and controllable.<sup>2</sup> While there are varying opinions on its impact on regional security, there is a largely consistent perception

that significant changes have begun over the course of the last decade. Singapore is part of the region and, due to its persistent sense of vulnerability,<sup>3</sup> has contributed somewhat to this modernization trend since its creation, most recently in its bid to create “the Third Generation Singapore Armed Forces (SAF).”<sup>4</sup>

This paper will analyze the impact of these ongoing modernizations within Southeast Asian militaries and their impact on Singapore’s national security.<sup>5</sup> Firstly, it will examine regional long term modernization and procurement trends at the macro level in order to ascertain if the recent surge should be a cause for increased concern—in other words, is it a destabilizing arms race? This paper will then discuss

Singapore's defence policy and force modernization efforts to understand if the current policies and capabilities are still relevant and effective. Finally, this paper will highlight the challenges that Singapore will need to address in the near future.

### **BUY, BUY, BUY – ALARMING DEVELOPMENT OR EXPECTED CYCLE?**

The Stockholm International Peace Research Institute (SIPRI) reported that conventional arms transfers to Southeast Asia “nearly doubled in 2005-2009 compared to 2000-2004,” with Indonesia, Malaysia and Singapore receiving special mention.<sup>6</sup> Thayer interprets this increased activity as “beyond force modernization” and, “although largely intended for defensive purposes, may have a destabilizing impact on regional security.”<sup>7</sup> Other observers such as Sam Bateman go further, declaring that “there are indications that a naval arms race is in fact developing in the region.”<sup>8</sup> However, while substantial procurement has occurred in recent years and military capabilities in specific areas (such as naval force

projection) have evolved, this should not be taken to indicate that an arms race—with all its associated destabilizing connotations—has suddenly developed within the Southeast Asian region.<sup>9</sup> Instead, a more accurate depiction of recent developments would be to perceive it as the latest phase of military modernizations that go “on continuously throughout Asia, and not every modernization activity is an area of concern, or presages an arms race. Quite the contrary, as adding systems or capabilities that are clearly defensive in nature and are carefully bounded in quantity and quality can actually contribute to stability.”<sup>10</sup> Four aspects will be analyzed to substantiate this assessment: long term military expenditure, block obsolescence cycles, stakeholder behavior, and external threats.

#### **Long Term Military Expenditure**

Considering the growth trends of regional countries, there are no indications that any of them have significantly increased military expenditure recently. In fact, aside from a 2% increase in Cambodia's budget from 1993-1994 (which was then followed



*The F-15SG*

by 11 years of consecutive decline), no country has implemented more than a 1% yearly increase (Brunei) and many countries have experienced either declining or constant Gross Domestic Product (GDP) allocation trends (see Chart 1).<sup>11</sup>

*However, while substantial procurement has occurred in recent years and military capabilities in specific areas (such as naval force projection) have evolved, this should not be taken to indicate that an arms race—with all its associated destabilizing connotations—has suddenly developed within the Southeast Asian region.*

When absolute expenditures are plotted, the effect of economic growth on state budgets shows a generally upward trend for Indonesia, Malaysia, Singapore, Thailand and Vietnam—referred to subsequently as the Big Five. This is no surprise as militaries from these countries have maintained sustained military modernization programs since the 1970s.<sup>12</sup> As they represent the largest spenders (and are the countries most mentioned by observers regarding recent military build-ups), these countries have been used for the subsequent Military Expenditure-Economic Growth Trend analysis.<sup>13</sup>

Overall, the charts demonstrate that **a link exists between economic growth and recent increased procurement.** It also supports Huxley's observation that while the financial crisis "severely undermines" the ability of Indonesia, Malaysia and Thailand to fund the military procurement "seen as necessary to modernize their armed forces," the past decade's economic recovery has allowed them to resume their procurement plans.<sup>14</sup>

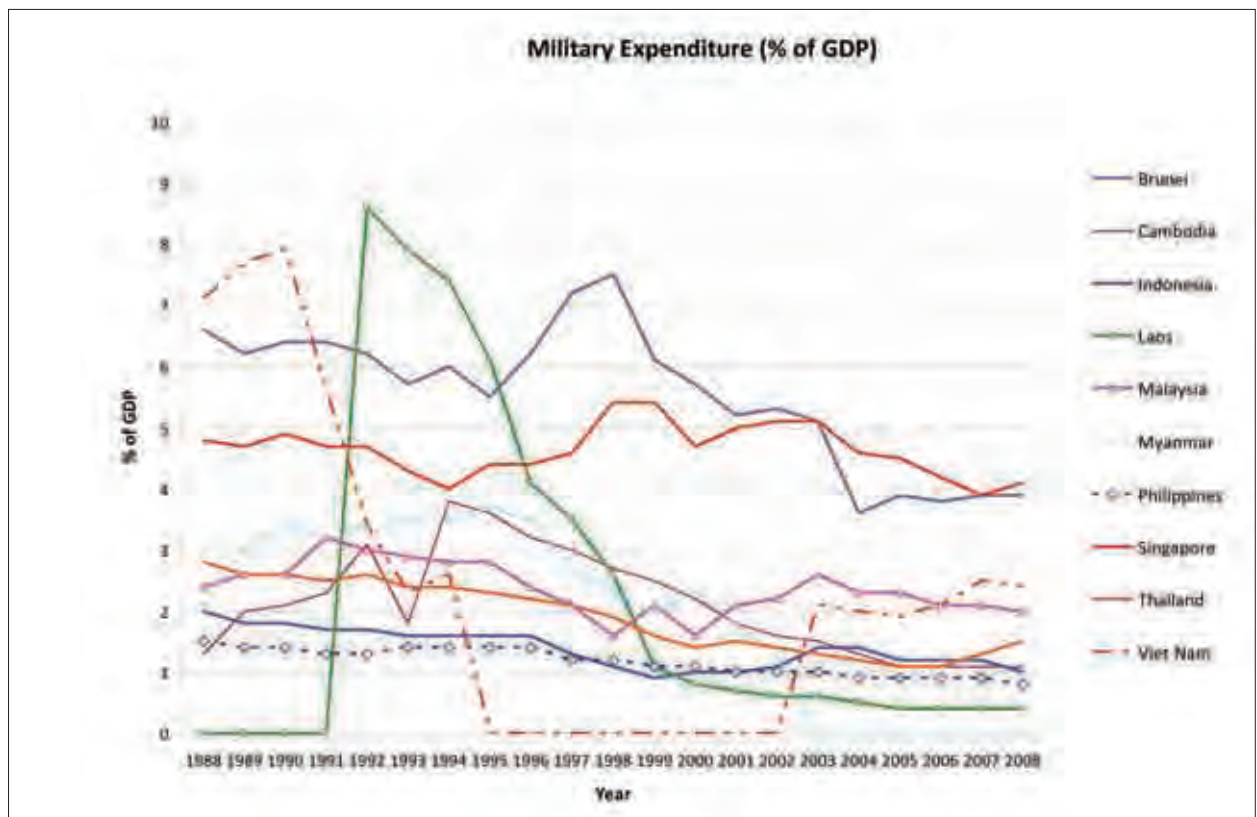


Chart 1: Regional military expenditure as a percentage of GDP (1988-2008)<sup>15</sup>

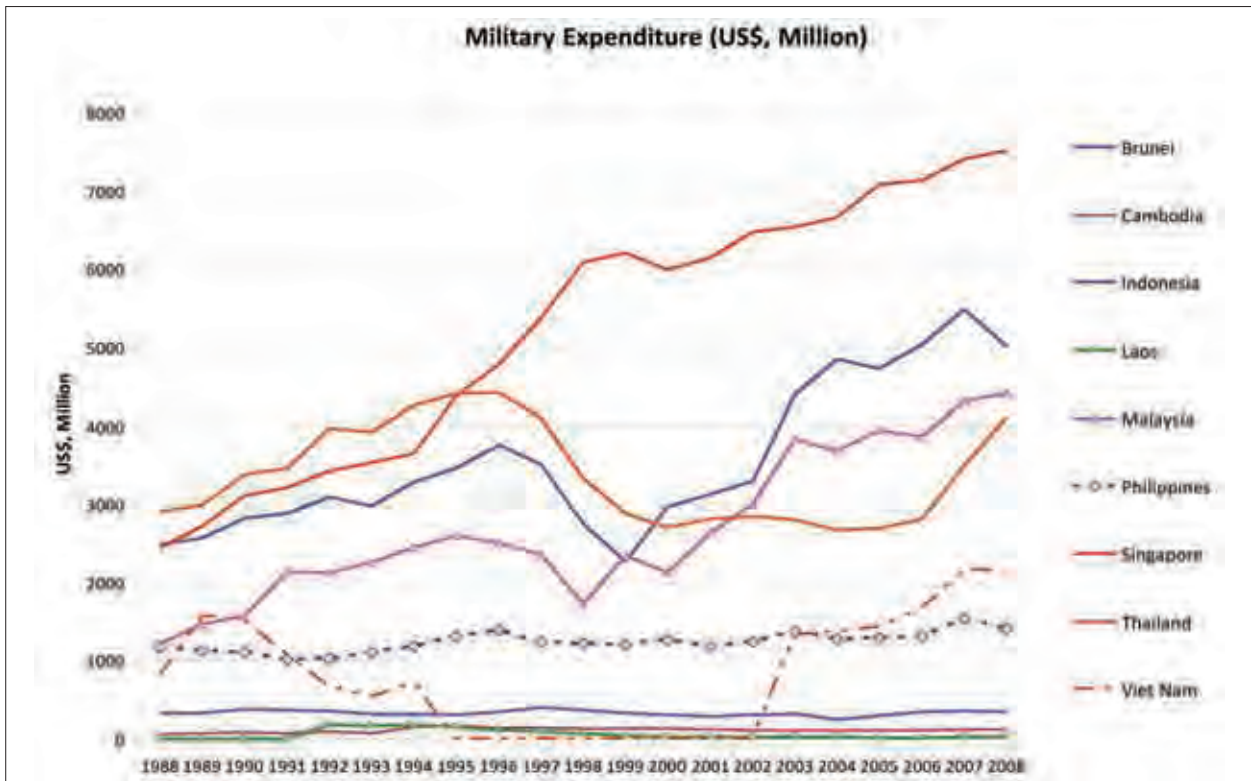


Chart 2: Regional absolute military expenditure in 2008 US\$ (1988-2008)<sup>16</sup>

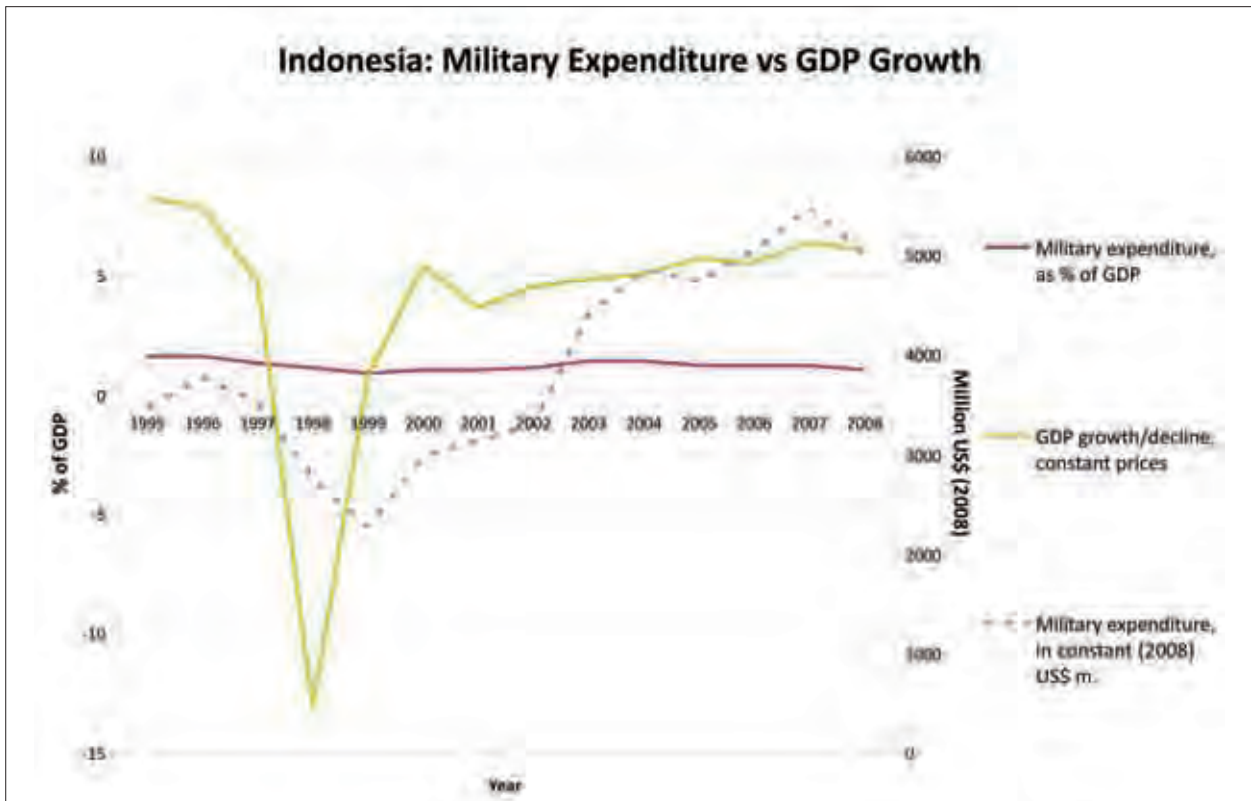


Chart 3: Indonesia's Expenditure-Growth Relationship

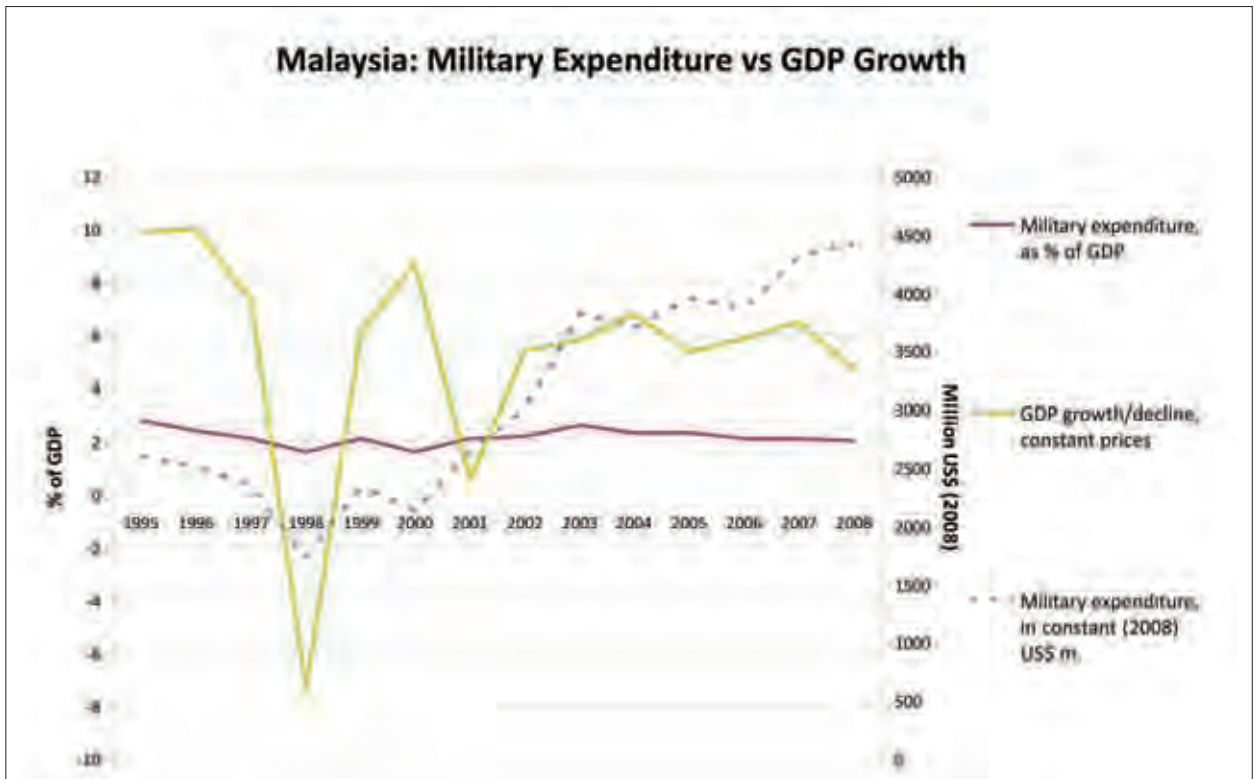


Chart 4: Malaysia's Expenditure-Growth Relationship

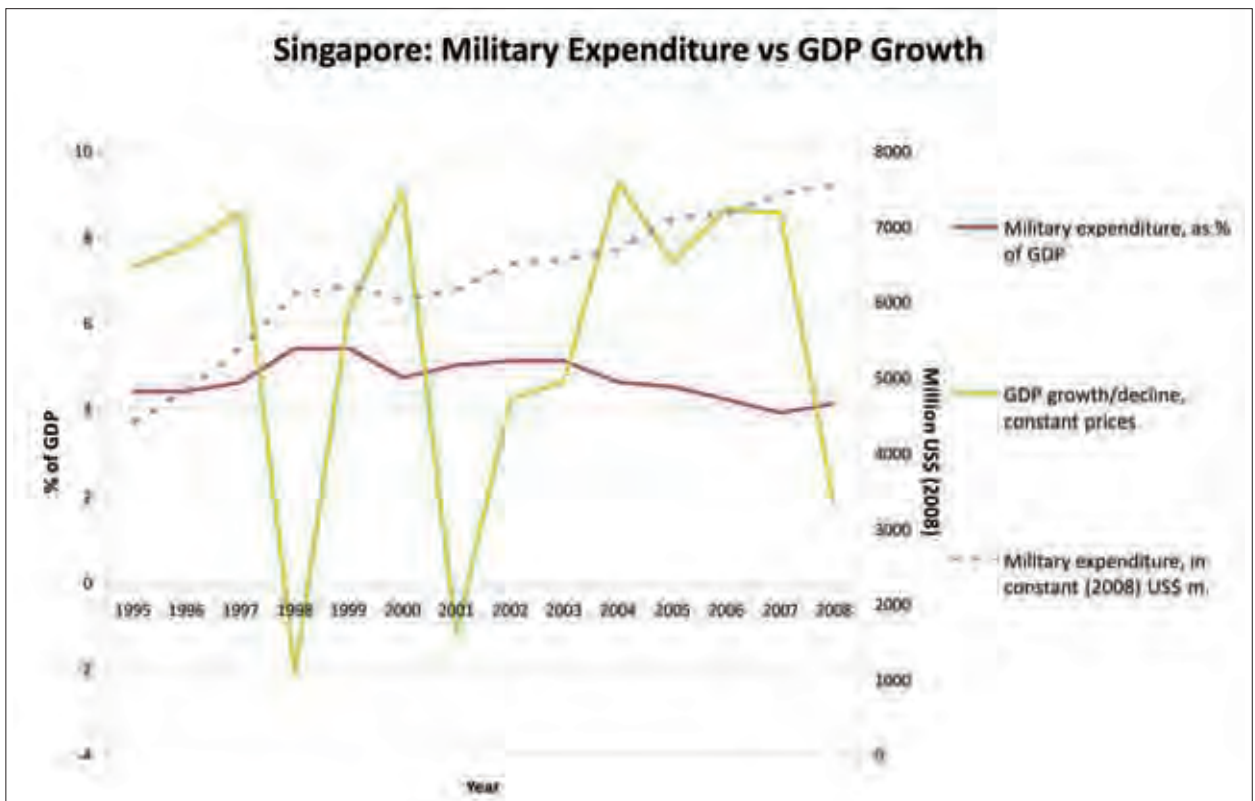


Chart 5: Singapore's Expenditure-Growth Relationship

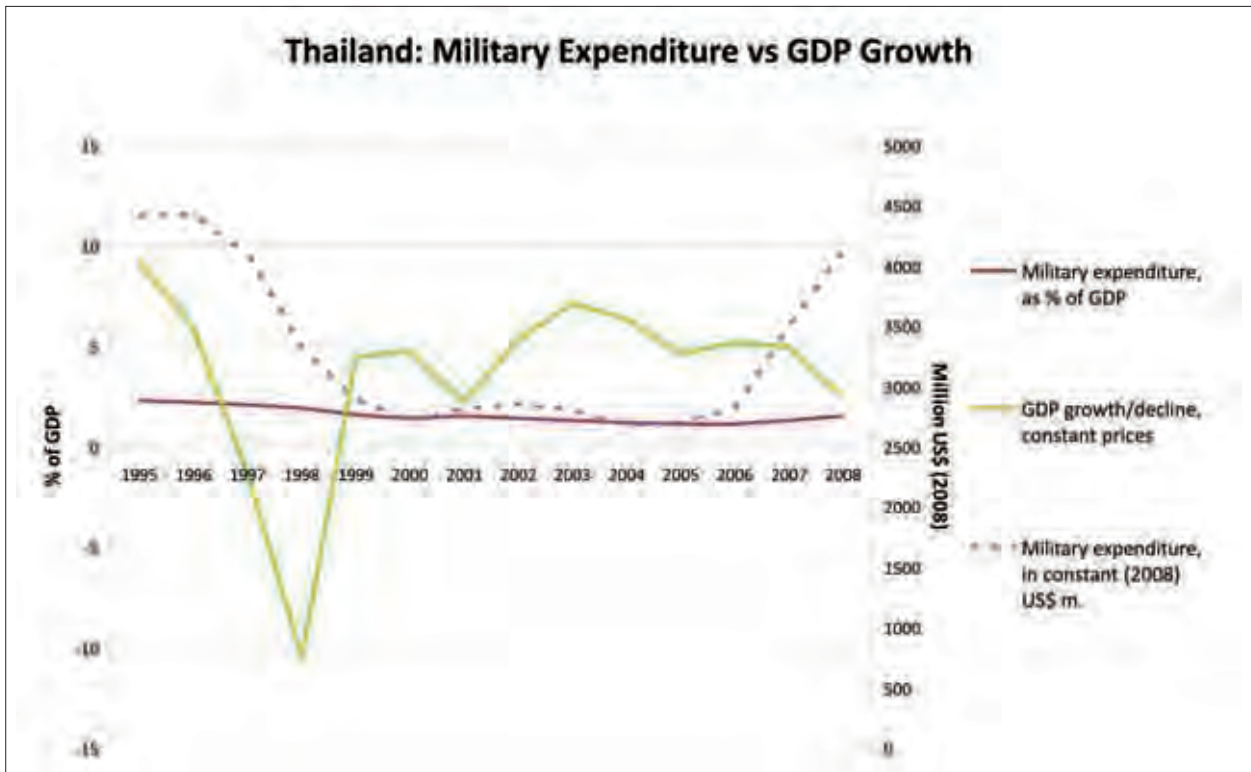


Chart 6: Thailand's Expenditure-Growth Relationship

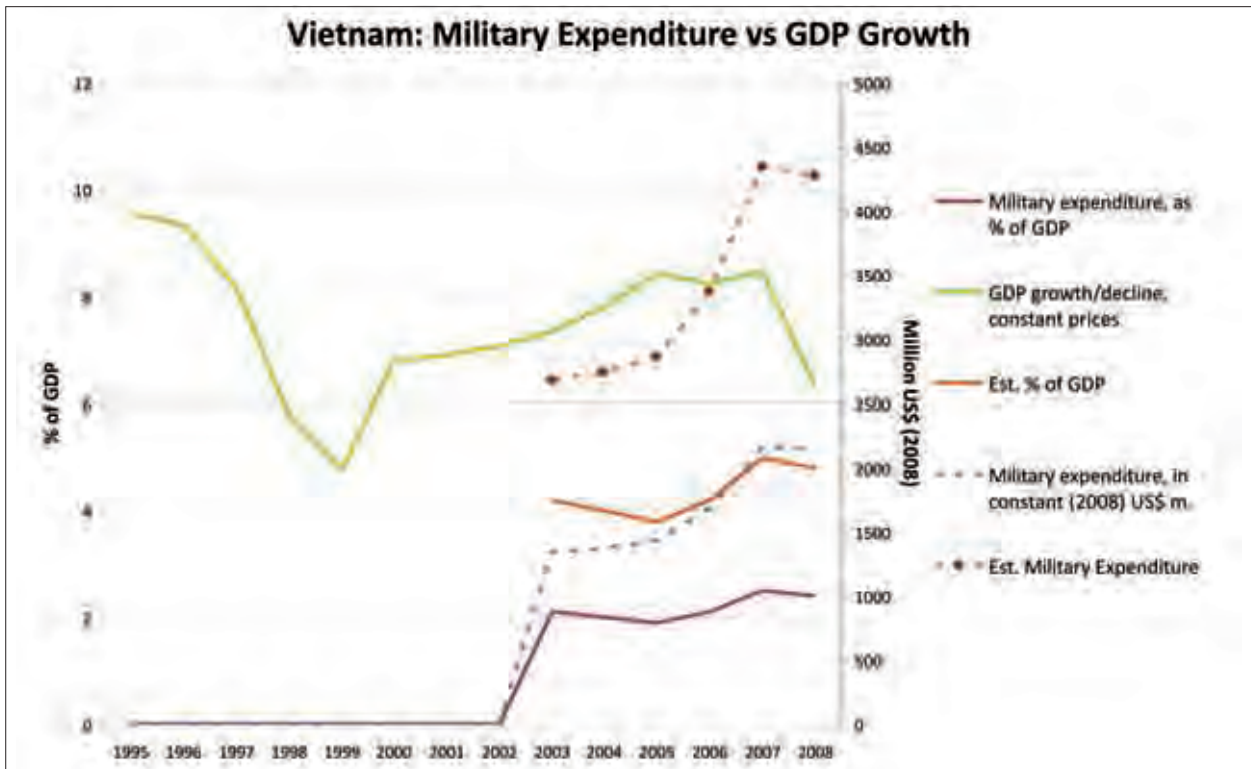


Chart 7: Vietnam's Expenditure-Growth Relationship<sup>17</sup>

## Block Obsolescence Cycles

The second factor explaining the recent surge in procurement is the need for states to maintain modern armed forces in the face of technological progress and platform aging. Using data on arms imports for the Big Five, the cyclical nature of arms procurements can be observed.<sup>18</sup> Chart 8 demonstrates that high technology capabilities such as aircraft and ships—which also make up the bulk of military procurement expenditures due to their high per unit costs—receive substantial investments every decade.<sup>19</sup>

Further observations can be made at the state level. For Indonesia, while a largely cyclic pattern can be observed, relatively lower investment in aircraft and reducing investments in naval capabilities indicate that increased future investment in these areas, economy permitting, should not be unexpected. This assessment is supported by recent announcements by Indonesia's senior leaders.<sup>20</sup> Malaysia's procurements—assuming no major military capability enhancements are planned—seem to have addressed the majority of this decade's replacement needs.

Singapore's procurements would initially indicate a significant surge in recent investment. However, when this trend is mapped onto Singapore's long term

military expenditure, it reveals that increased expenditure this decade is part of the state's continuously increasing absolute investment in defence (refer to Chart 5 and the expenditure trend-line plotted in Chart 11), which will be revisited later.<sup>21</sup>

Thailand was significantly affected by recent economic instability and other domestic developments. Based on its expenditure this decade, it can be expected that Thailand will engage in significant military procurements over the short term—assuming economic growth continues.

Data on Vietnam's military expenditure is limited and consists largely of estimates. Recent reports of aircraft and submarine purchases are not reflected in SIPRI's database—these have been plotted as Aircraft and Ships Estimates respectively.<sup>23</sup> Therefore, it is assessed that significant procurements are already under way and will continue.

The data for the Big Five indicates that both the region and individual countries have not seen sudden surges in military expenditure—in fact completed procurements are also the result of extended periods of negotiations that are often punctuated by economic upheaval.<sup>24</sup> Even Singapore's procurement increases are part of a longer term trend.

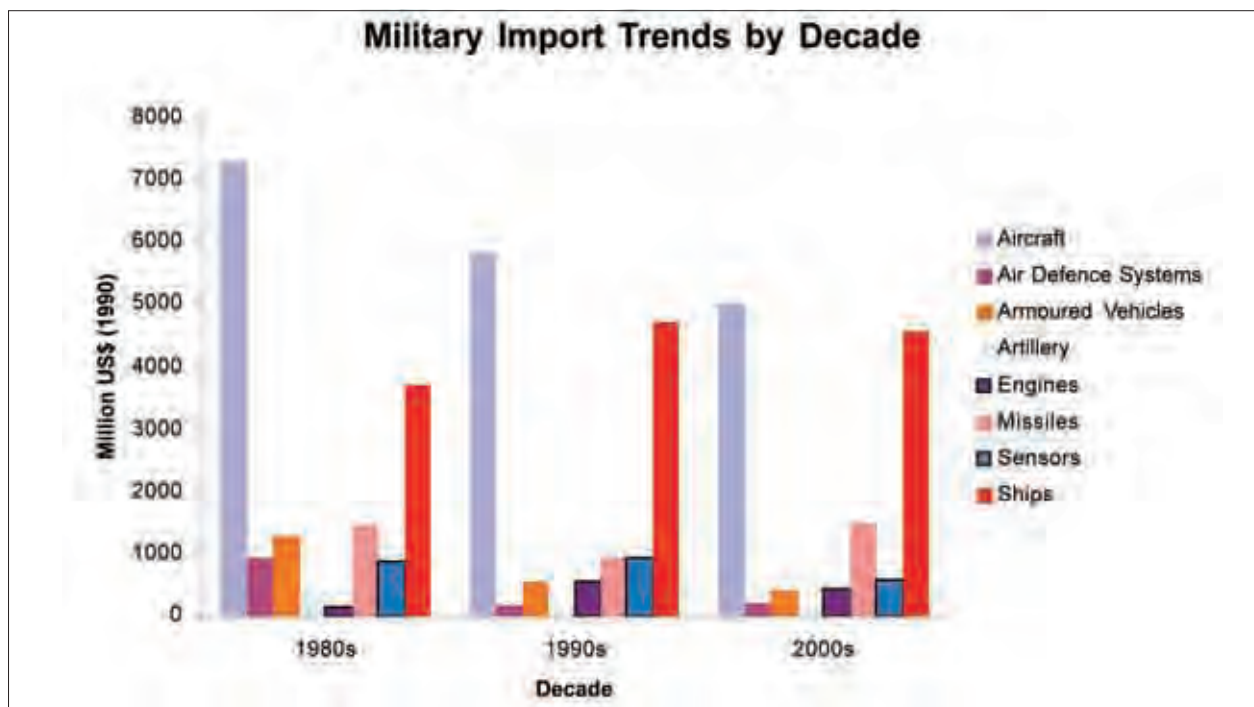


Chart 8: The Big Five's military equipment imports by decade<sup>22</sup>

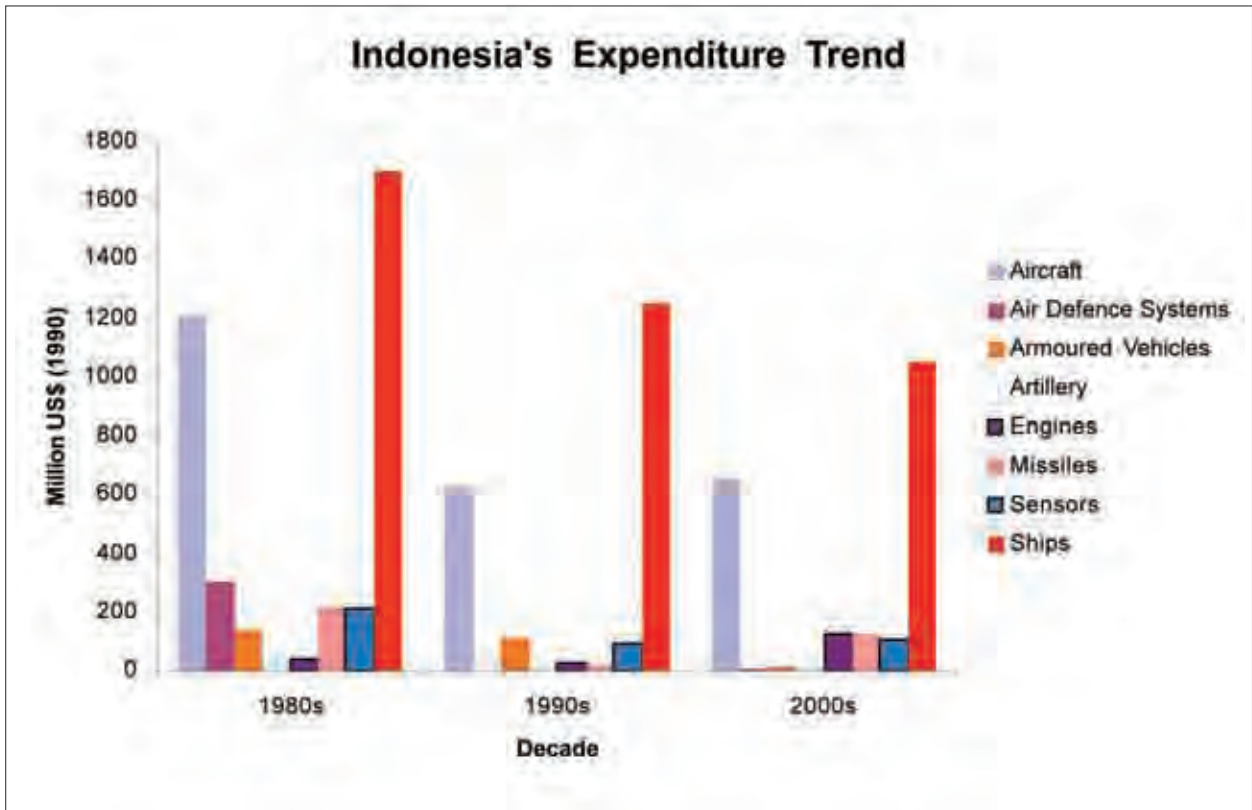


Chart 9: Indonesia's military equipment imports by decade

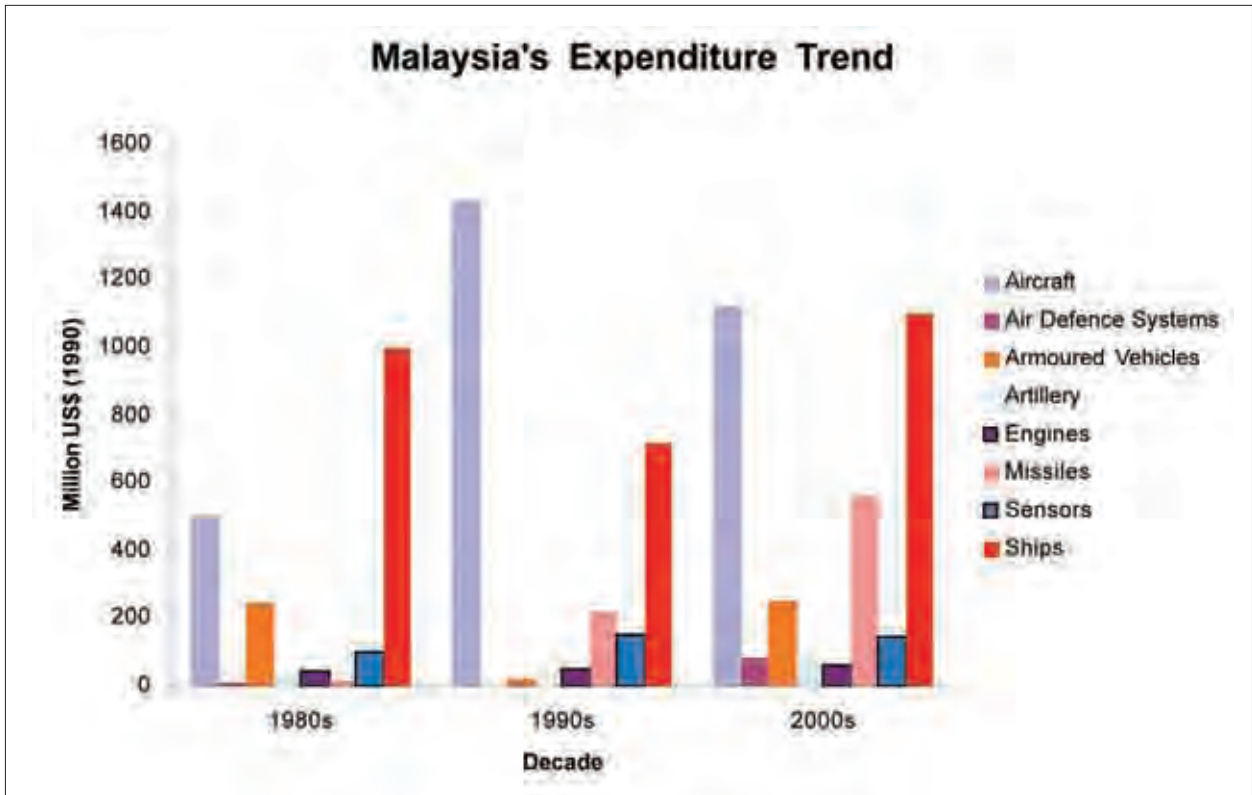


Chart 10: Malaysia's military equipment imports by decade



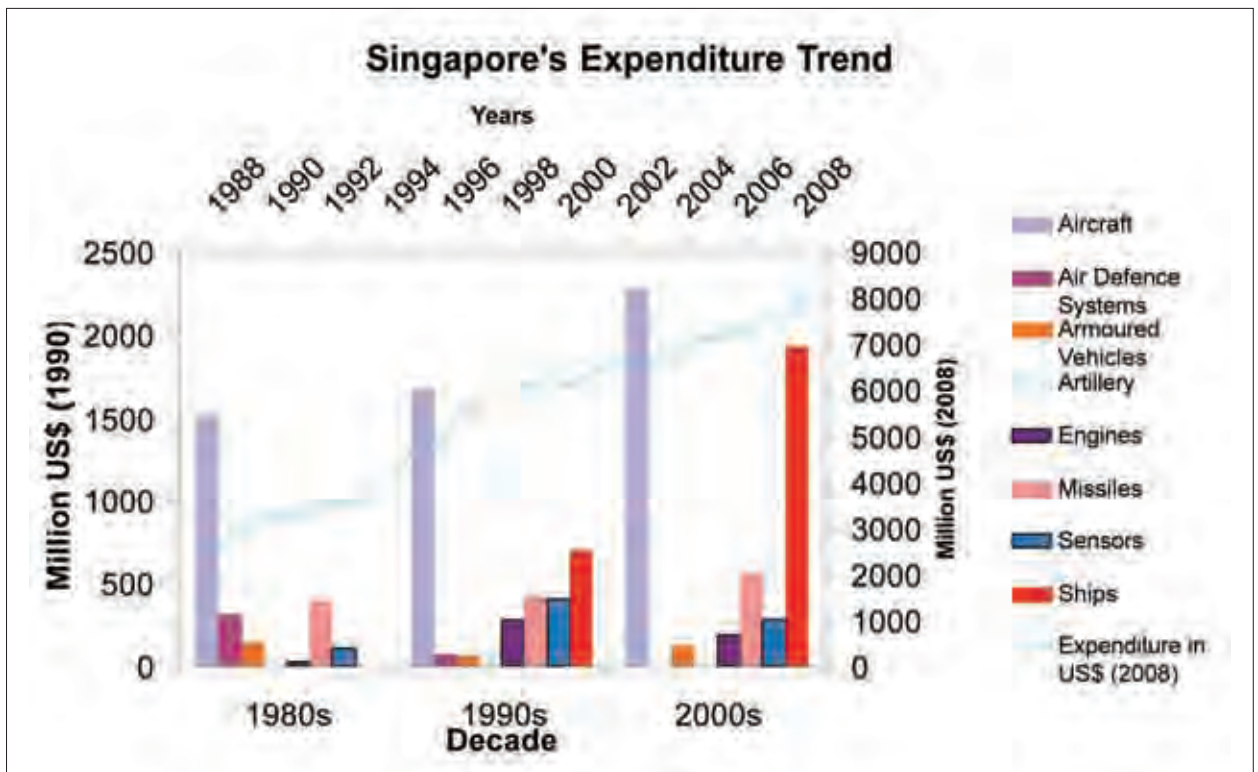


Chart 11: Singapore's military equipment imports by decade

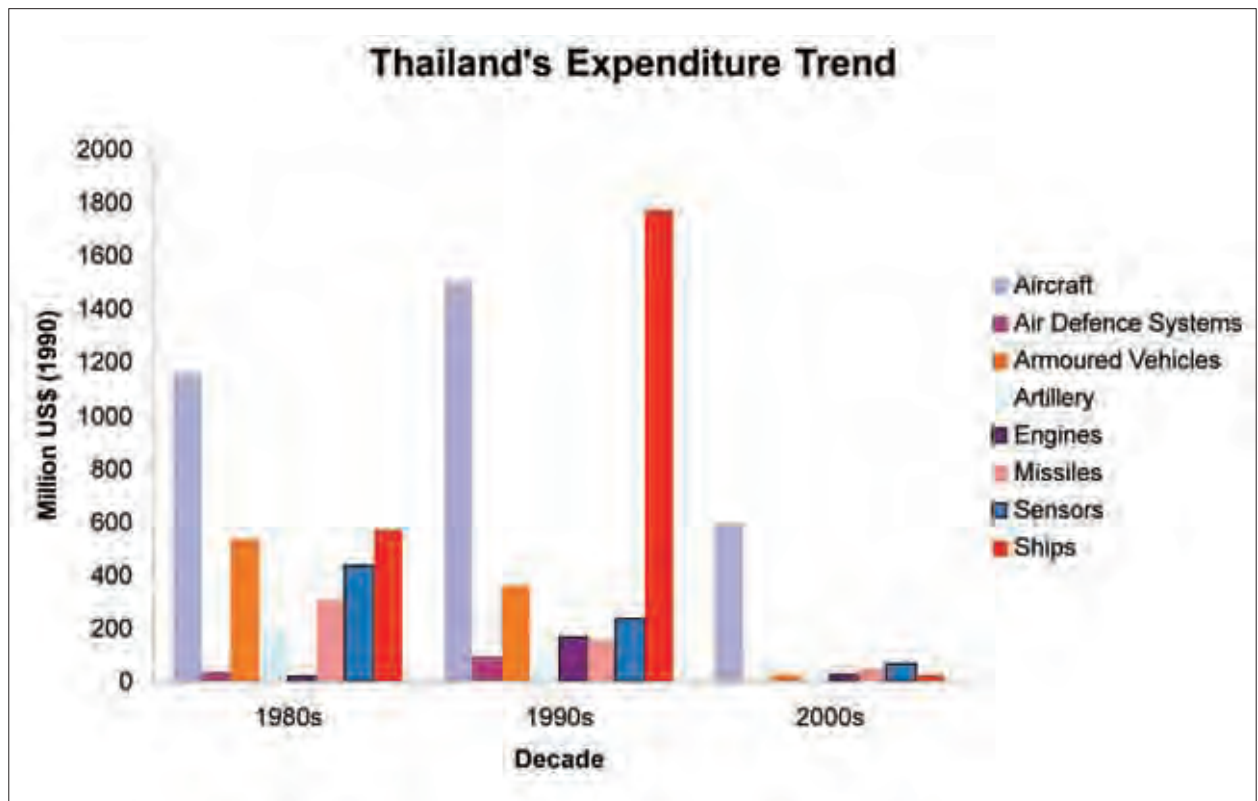


Chart 12: Thailand's military equipment imports by decade

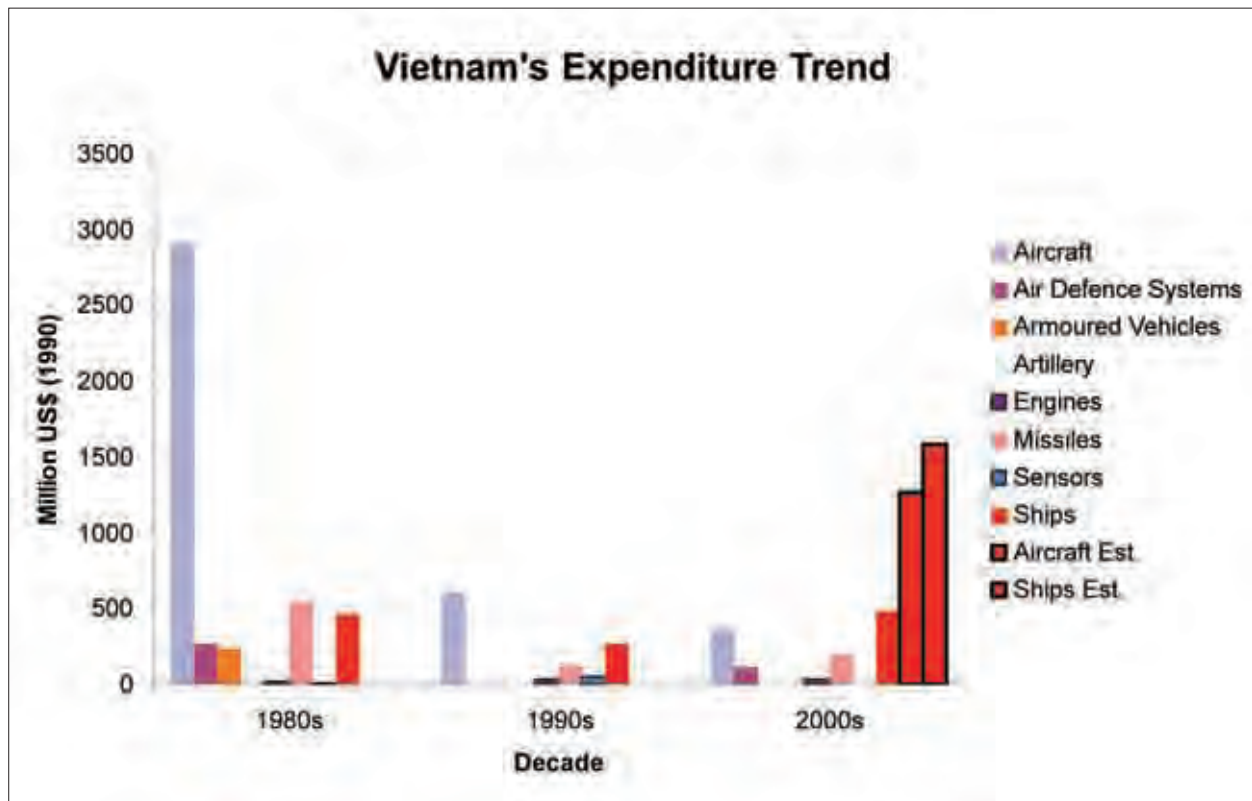


Chart 13: Vietnam's military equipment imports by decade

### Responsible Stakeholder Behavior

This section focuses on whether there has been a trend within the region of states introducing new and potentially destabilizing capabilities. It argues that states can be described as adopting “responsible stakeholder behavior”—avoiding the introduction of new and potentially destabilizing capabilities into the region wherever possible—in their procurement choices.<sup>25</sup> Given the relative advantage, both in terms of technology and investment, that Singapore has attained over the past three decades, it is logical to use Singapore as a case study. The following analysis will focus on the recent procurement of the F-15SG.

Based on Figure 1, Singapore did not introduce a new generation of fighter aircraft into the region until its adoption of the F-15SG. Until that stage, Singapore chose to maintain its air superiority deterrence by increasing or upgrading the capabilities of its F-16 fleet.<sup>26</sup> The recent decision to procure a new generation of aircraft was taken in order to replace the aging fleet of A-4SU aircraft.

Singapore demonstrated restraint and responsible stakeholder behavior in two areas. Firstly, it chose to replace the A-4SUs with a much smaller number of (admittedly much more capable) F-15SGs. Using direct cost conversion, Singapore would have been able to field many more advanced aircraft if it had chosen to. Secondly, Singapore elected to procure the F-15SG (a modified version of the F-15E) instead of the Eurofighter, even though it was considered less technologically advanced.<sup>27</sup>

### External Threats

From the Lowy Institute to the United States (US) National Intelligence Council, perspectives on the future range from an “Asian Balance of Power,”<sup>28</sup> to a “Global Multi-polar” world between 2020-2030.<sup>29</sup> However, despite the differences (and understandable uncertainty) in these predictions, a common theme across almost all observations is the rise of China. When this uncertainty casts its shadow over the comparatively small states of Southeast Asia, it should come as no surprise that regional governments are watching China’s recent military modernization—

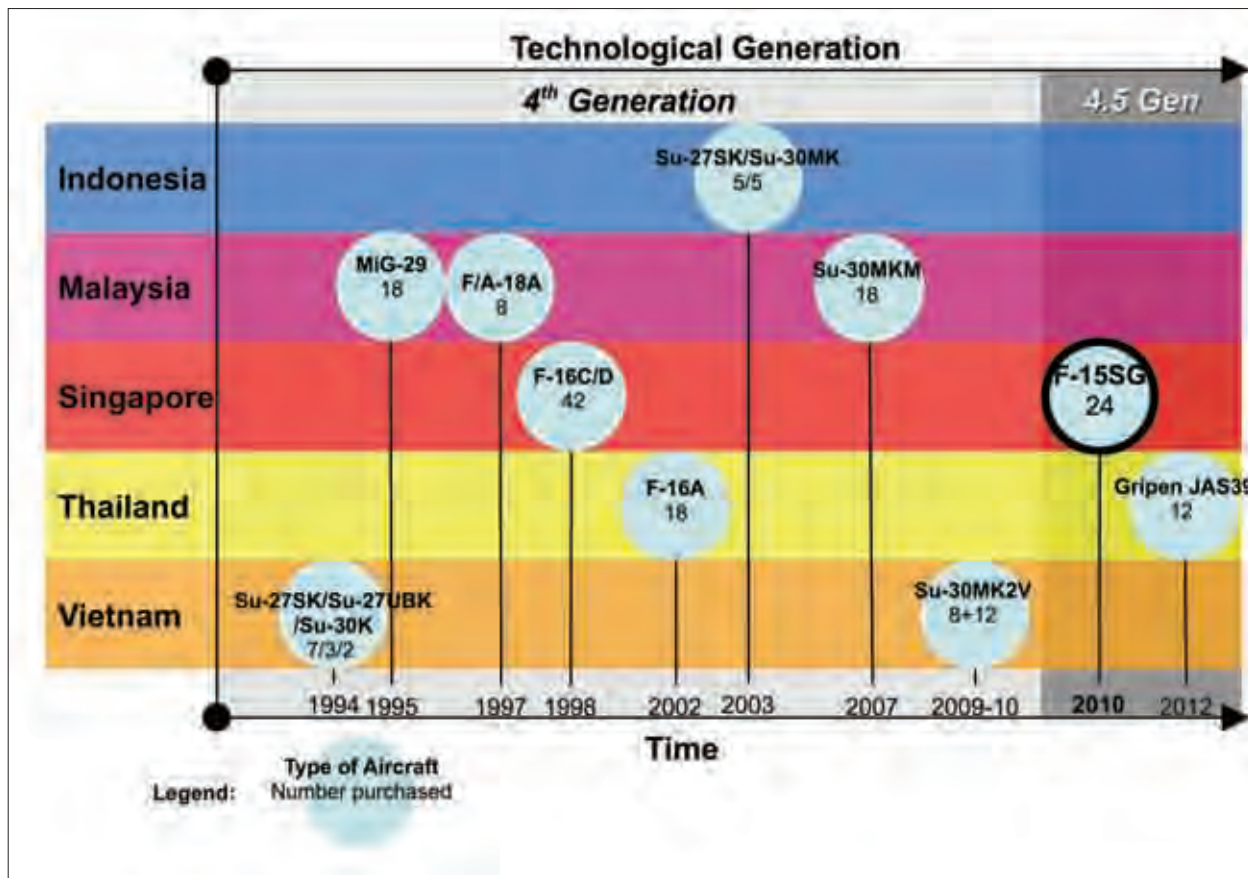


Figure 1: Types, number and technological generation of combat aircraft introduced by the Big Five since the 1990s<sup>30</sup>



Figure 2: Price and procurement size comparison<sup>31</sup>

especially its contribution to the perception of a burgeoning naval arms race—with concern.<sup>32</sup> China’s growing capabilities, combined with its sovereignty claims in the South China Sea,<sup>33</sup> and its propensity to use force to settle disputes,<sup>34</sup> has “created a security dilemma for regional states.”<sup>35</sup> Even beyond the territorial claims, China’s rise highlights potential flash points within the Asia-Pacific—Taiwan, Japan and the US—that could also destabilize the region.<sup>36</sup> There is also a pervading sense of relative American decline, increasing the perception within regional governments that they will need to “develop new military capabilities as a hedge against an increasingly uncertain future.”<sup>37</sup>

In summary, the recent modernizations that have taken place, while significant, should not be seen as symptoms of a Southeast Asian arms race. There exist many factors to indicate that it is but the most recent iteration of ongoing efforts by these states to ensure that their militaries remain relevant and effective as both technology and the geo-strategic environment evolves. The question for Singapore is whether its defence policies have kept pace with these developments.

## THE SINGAPORE ARMED FORCES (SAF) – AN INSURANCE POLICY

Significant annual defence spending on the SAF’s development was seen as investment in an “insurance policy,”<sup>38</sup> and the best means for Singapore to deter aggressors.<sup>39</sup> It was built upon a sense of strategic vulnerability that runs deep within the psyche of the city-state’s leadership.<sup>40</sup> The SAF is made up of a small cadre of professional soldiers, augmented by National Service or Reservist personnel.<sup>41</sup> This adoption of a conscript-based force balances the requirements for nation-building (through National Service), reduces the societal burden that a large armed force would create, and generates sufficient soldiers in the event of

conflict.<sup>42</sup> All these factors created the conditions for a defence policy that has placed Singapore in a strong position to deal with the recent modernizations. Firstly, it has meant that this citizen army needs to be complemented by an emphasis on technology as a “force multiplier.”<sup>43</sup> Chart 14 below presents this commitment and steady investment at work, with accumulated investment far surpassing those of the other Big Five—although uncertainty about Vietnam’s spending remains. Singapore’s “steady defence budget, through both good and difficult economic times,”<sup>44</sup> also further reinforced the message of deterrence.

*There is also a pervading sense of relative American decline, increasing the perception within regional governments that they will need to “develop new military capabilities as a hedge against an increasingly uncertain future.”*

Secondly, together with an emphasis on regular procurements of advanced technology, Singapore has also invested in local research agencies such as the Defence Science and Technology Agency (DSTA) to develop “silver bullets” for the SAF.<sup>45</sup> Chart 15 shows that the allocation of funding to ensuring that Singapore’s military retains

its edge is significantly higher than its immediate neighbors.

Therefore, despite recent modernization efforts within the region, Singapore’s defence policy has so far allowed it to remain effective in allowing the SAF to achieve its role as a means of conventional deterrence against a potential aggressor. However, this view is based upon Singapore’s short, albeit impressive, history thus far. Adopting a longer-term view may not deliver such a rosy prognosis.

## THE FUTURE – CHALLENGES AND OPPORTUNITIES

### Fundamental Premise – Singapore is Small

Despite apparent success thus far, there is doubt that Singapore’s current spending trajectory will allow it to retain its required advantage indefinitely. This is a simple fact of comparative economic and population sizes that Singapore cannot escape. Even assuming that Singapore’s educated workforce and high-technology foundations give it a substantial

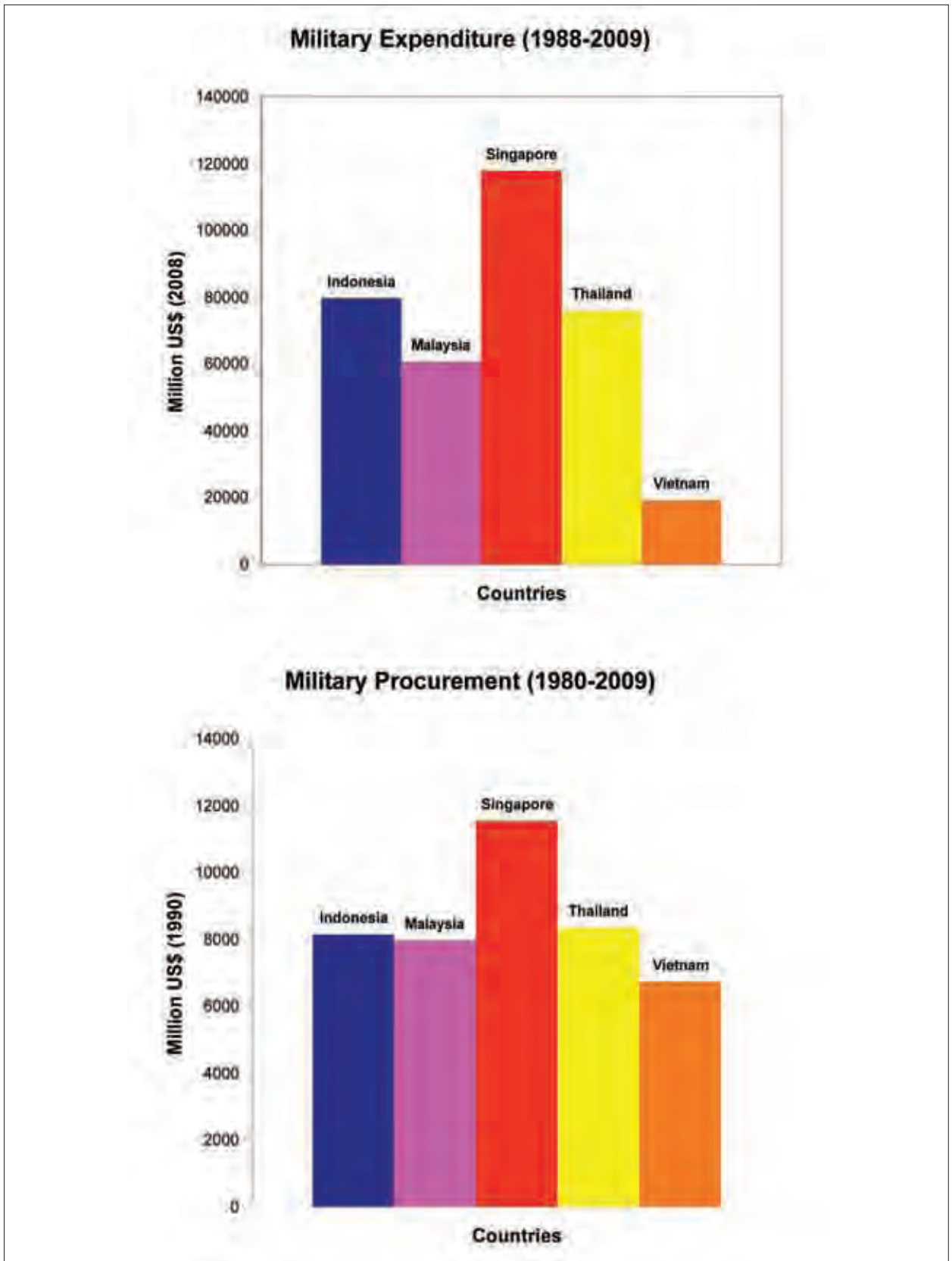


Chart 14: Singapore's military expenditure/procurements vs. other members of Big Five<sup>46</sup>

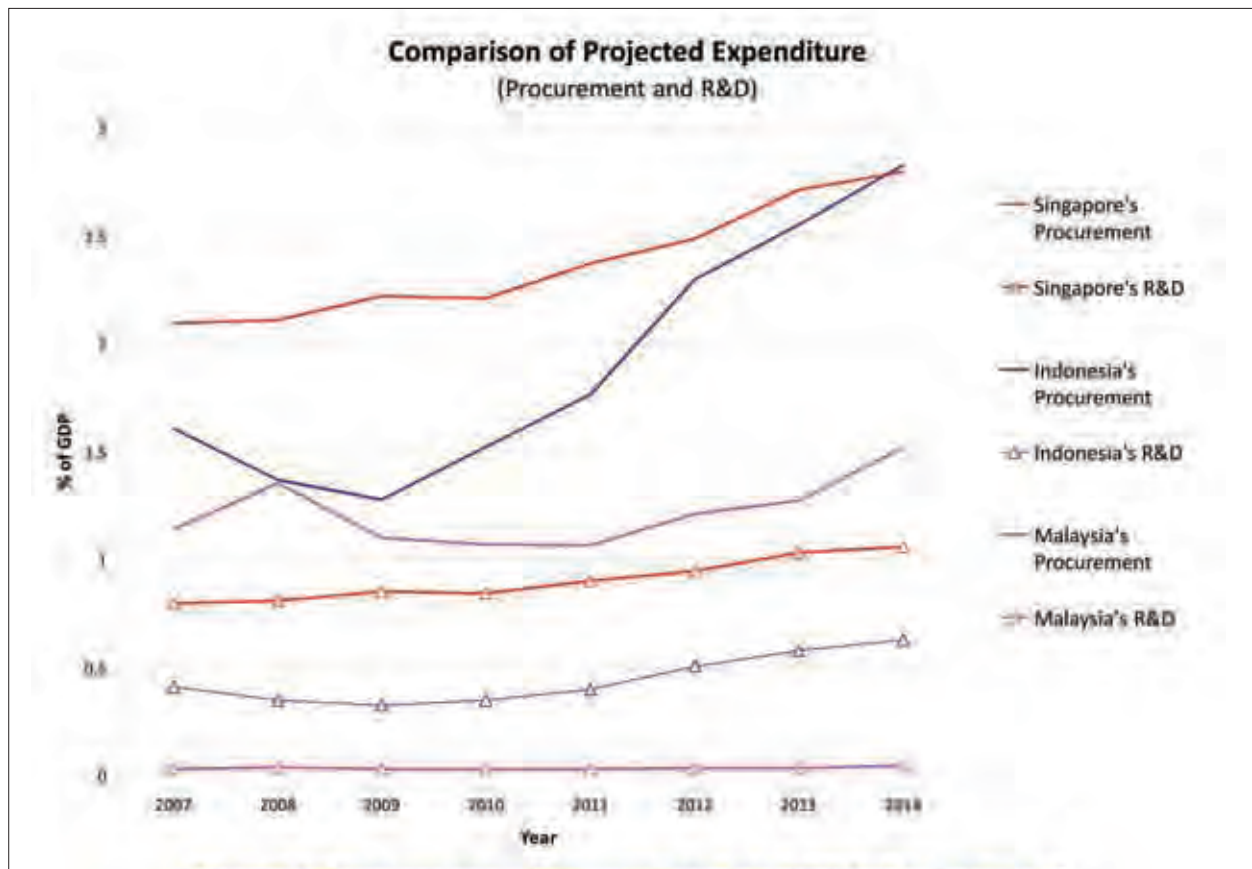


Chart 15: Comparison of Procurement and R&D Expenditure<sup>47</sup>

advantage, it will eventually be surpassed.<sup>48</sup> Referring back to Chart 15, the current prognosis over the short term already sees the procurement expenditure of Indonesia closing the gap. While it is true that securing Indonesia's exponentially larger territorial and maritime boundaries would require a defence expenditure many times that of Singapore, the fact that Indonesia's defence expenditure is expected to rise should not be dismissed. More importantly, returning to the economic drivers for defence procurement adopted in the earlier section, the sheer economic potential of both Indonesia and Malaysia makes competition in defence spending, perhaps no matter how technologically savvy and innovative Singaporeans may be, of questionable effectiveness in the long-term. This is the fundamental reason why a modification of Singapore's long-term defence strategy may be required. The strategic situation is further complicated by the US recently upgrading both Indonesia and Malaysia to potential "key strategic partner(s),"<sup>49</sup> potentially eroding Singapore's favorable

status with the US should tensions rise with these immediate neighbors.

### Finding a New Balance Between Deterrence and Diplomacy

The solution may therefore lie in an adjustment to Singapore's finely-tuned balance of deterrence and cooperation, with an increased emphasis on cooperation against a common threat and a (gradually) reduced signature of deterrence. This is by no means a declaration of surrender. Deterrence must and will continue to be achieved through the proven policy of continued investment in defence. Economic growth permitting, Singapore should continue to maintain "the quantitative and qualitative superiority of the SAF."<sup>50</sup> However, if we agree with the fundamental premise, economic growth and the disproportionate size and resources of Singapore's neighbors will likely bring about a situation when the deterrence effect of Singapore's SAF *aegis* may eventually decline. It is with this probable (or even inevitable) end-state

in mind that Singapore should begin adjusting its Deterrence-Diplomacy balance while it retains a strong conventional deterrence edge. This edge allows it to embark on this new policy course from a position of, if not strength, then at least parity.

This is not to say that Singapore's current policies have not already made headway in the direction of cooperation and collaboration within the region. Indeed, its active participation, and even leadership, in regional forums is well known. Singapore has established an extensive range of bilateral and multilateral defence relationships. These include extensive cooperation, exercises and procurement from the US,<sup>51</sup> Europe, Australia, Japan and the Five Power Defence Arrangement (FPDA).<sup>52</sup> Singapore has also engaged the rising powers of China and India,<sup>53</sup> and is focusing on enhancing the role of the Association of Southeast Asia Nations (ASEAN) Regional Forum "as a vehicle to promote regional peace and stability."<sup>54</sup> Singapore has also taken up the lead role in Maritime Security (MARSEC) efforts within the region, having set up the Changi Command and Control (C2) Center to coordinate local, regional and international efforts against maritime threats.<sup>55</sup> Added emphasis is required in increasing the regional collaboration and collective security components of its defence rhetoric. In order to reduce its dependence on deterrence, Singapore and, at the very least, its immediate neighbors will need to raise themselves more completely above the long-standing tensions that continue to plague their relationships.<sup>56</sup> This is a truly lofty goal for the region. Though many observers remain unconvinced that a collective security regime similar to that of the European Union is feasible,<sup>57</sup> it is perhaps only through a collective security vision of the future that the uncertainty of deterrence in the long-term can be overcome. Towards this end, Singapore could consider the following "baby steps."

*In order to reduce its dependence on deterrence, Singapore and, at the very least, its immediate neighbors will need to raise themselves more completely above the long-standing tensions that continue to plague their relationships.*

Firstly, Singapore needs to encourage greater regional transparency on security matters. To achieve this, it must take a leading role in maintaining as high a level of disclosure about its own military developments and procurements as possible. This would reduce the destabilizing effects of Singapore's investment in defence,<sup>58</sup> which must continue. This can be carried out by publishing annual White Papers or Defence Reviews that clearly present Singapore's plans and objectives for the SAF, to the extent of making transparent its future procurement plans. Regular White Papers stressing the importance of Singapore's commitment to regional cooperation on security—both through support of regional security initiatives and even collaboration in defence capability development—may encourage the region to embark on a similar path. Secondly, Singapore should increase its investment in facilitating the advancing of existing security cooperation (e.g. MALSINDO) to the next level. "Facilitating" is more appropriate than "leading" because Singapore's much larger neighbors are unlikely to want to follow in the "Little Red Dot's" footsteps.

## CONCLUSION

While Southeast Asia has clearly seen a spate of military modernization efforts in recent years, we must avoid coming to the conclusion that such procurements indicate a potentially destabilizing arms race is under way. Instead, a more accurate conclusion would be to consider these activities as part of an ongoing and expected process of modernization that ensures each state's conventional deterrence remains relevant and effective—it is a "stability-inducing" modernization in that it improves defences without becoming a threat to neighbors.<sup>59</sup> Analysis of long term trends supports this conclusion. States have not significantly changed their GDP allocations to military expenditure, and while absolute defence spending has increased,

this is associated with economic growth. Deeper analysis of the various types of military capabilities imported by states provides some evidence that recent purchases are the latest stage of procurement cycles meant to address obsolescence. Moreover, while new capabilities are introduced periodically, they seem to be responsibly selected to achieve deterrence without becoming destabilizing. Finally, developments within key actors outside the region, especially China, also provide impetus for Southeast Asian states to develop specific countering capabilities.

From Singapore's national security perspective, the conclusion that recent acquisitions are part of normal progressive military modernizations means that its current defence policies remain relevant and appropriate. Consistent and substantial military expenditure since its independence has allowed Singapore to build and maintain a defence force, which possesses sufficient deterrent potential to address the tiny city-state's strategic vulnerabilities. However, as regional economies advance, the required increase in defence expenditure to maintain this deterrence is unsustainable in the long term for small Singapore. Therefore, beyond continued investment in defence to maintain its conventional deterrence edge as long as economically feasible, Singapore needs to take a leadership role in creating a regional collective security community. In the short term, this would require increased military transparency and increased cooperation, leveraging on existing ASEAN structures. 🌐

## ENDNOTES

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3. A. T. H. Tan, "The Five Power Defence Arrangements: The Continuing Relevance," *Contemporary Security Policy* 29, no. 2 (2008): 291.
4. R. Matthews and Yan N. Z., "Small Country 'Total Defence': A Case Study of Singapore," *Defence Studies* 7, no. 3 (2007): 385.
5. Limited data affects accuracy of analysis for Myanmar and Vietnam.
6. P. Holtom, M. Bromley, P. D. Wezeman and S. T. Wezeman, "Trends in International Arms Transfers, 2009," *SIPRI Fact Sheet*, March 2010, 4, <http://books.sipri.org/files/FS/SIPRIFS1003.pdf>.
7. C. Thayer, *Southeast Asia*, 10.
8. S. Bateman, "Naval Modernization in the Asia Pacific: Regional Security Implications," *CSCAP: Regional Security Outlook 2009-2010* (Singapore: Booksmith Productions, 2009), 22.
9. Based on Colin Grey's definition, an arms race must contain the following four attributes: "first, the existence of two or more parties, conscious of their mutual antagonism and of being in a mutually adversarial relationship; second, the conscious structuring of military forces by both parties with a 'general attention' towards the political and military behavior of the other party; third, competition between them (presumably explicit) regarding quantity and quality (i.e. capabilities) in terms of their respective military acquisitions; and finally, each party must increase or improve their armaments at a 'rapid' rate. Gray bluntly asserts 'all four of these factors must be present for there to be any valid assertion that a particular relationship is an arms race.'" Quoted in R. A. Bitzinger, "A New Arms Race? Explaining Recent Southeast Asian Military Acquisitions," *Contemporary Southeast Asia* 32, no. 1 (2010): 60.
10. M. McDevitt, "Asian Military Modernization: Key Areas of Concern," *Adelphi Papers* 48, no. 400 (2008), 125.
11. Data is incomplete and likely unreliable for both Myanmar and Vietnam. All data points indicating 0% GDP expenditure (e.g. Laos until 1991, Vietnam from 1995-2002 and Myanmar from 2003 onwards) are years where no data was available.
12. T. Huxley, "Defence Procurement in Southeast Asia," paper presented at the 5th Workshop of the Inter-Parliamentary Forum on Security Sector Governance (IPF-SSG) in Southeast Asia, Singapore, 12-13 October 2008.
13. Military expenditure data downloaded from the Stockholm International Peace Research Institute (SIPRI) database, while economic data was downloaded from the International Monetary Fund (IMF) database. Analysis is author's own. Stockholm International Peace Research Institute, *The Military Expenditure Database*, 31 Oct 2010, <http://milexdata.sipri.org/>; International Monetary Fund, *World Economic Outlook Database*, 31 October 2010, <http://www.imf.org/external/pubs/ft/weo/2010/02/weodata/index.aspx>.



14. Huxley, "Defence Procurement in Southeast Asia."
15. Data provided by SIPRI. Stockholm International Peace Research Institute, *The Military Expenditure Database*.
16. Ibid. No information is available for Myanmar.
17. The inclusion of an additional "Estimated Military Expenditure" curve is based on Jane's Intelligence Assessments, quoting Carlyle Thayer in December 2009, that "it was widely estimated that Vietnam's defence budget was at least twice the official figure stated in its White Paper." "Jane's Sentinel Security Assessment – Southeast Asia: Defence Budget, Vietnam," Jane's Information Group, 10 December 2009, <http://search.janes.com>.
18. Imports are a useful indication for the region due to the generally limited level of development in national defence industries, with the exception of Singapore. R. A. Bitzinger, "ASEAN Defence Industrial Collaboration: Possibilities and Challenges," *RSIS Commentaries*, 3 June 2010, [www.rsis.edu.sg](http://www.rsis.edu.sg).
19. While most major air and naval platforms are procured for planned operational time frames of 20-30 years, the author's experience indicates that developments in military technology normally suggest the need to consider upgrades or even replacements after 10-15 years. The fact that regional countries aside from Singapore are operating much older platforms is assessed to be a result of economic turmoil over the last two decades. This conclusion is supported by the analysis of their procurements in Charts 9-13.
20. Indonesian legislators agreed on 20 October 2010 to boost the country's Fiscal Year 2011 (FY11) defence budget by IDR11 trillion (USD1.2 billion) to cover a shortfall in funds for maintenance and procurement programs. This stems from a pledge made earlier this year by Indonesian President Susilo Bambang Yudhoyono to increase total defence spending from around 0.8 per cent of GDP in 2009 to 1.5 per cent by the end of his tenure in 2014. Following a range of successful recent procurements, Indonesia is also expected to increase its fleet of fighter aircraft and submarines. J. Grevatt, "Indonesia Boosts FY11 Defence Budget," *Jane's Defence Weekly*, Jane's Information Group, 22 October 2010, <http://search.janes.com>.
21. Bitzinger, "A New Arms Race?," 56.
22. Data was downloaded from the SIPRI Arms Transfers Database. Analysis is author's own. Stockholm International Peace Research Institute, *SIPRI Arms Transfer Database*, 31 Oct 2010, <http://armstrade.sipri.org/armstrade/page/values.php>.
23. Between 2009 and 2010, Vietnam has been reported to have confirmed contracts for US\$1.5 billion worth of SU-30MK2V combat aircraft (20 units) and US\$1.8 billion worth of conventional submarines (six KIL0-class boats). Neither of these are included in the estimates by SIRPI. "Jane's Sentinel Security Assessment - Southeast Asia: Procurement, Vietnam," Jane's Information Group, 7 May 2010, <http://search.janes.com>.
24. R. A. Bitzinger, "A New Arms Race? Explaining Recent Southeast Asian Military Acquisitions," *Contemporary Southeast Asia* 32, no. 1 (2010), 62.
25. The author accepts that there is a considerable level of subjectivity in this analysis. While many countries can claim they only introduced new technologies when alternative older ones were no longer viable, this view will always beg the question of perspective.
26. Fighter technology generations are chosen as a simple yardstick for trend analysis. Given the complexity of modern military equipment, a detailed specification comparison would be beyond the scope of this paper.
27. The author accepts that this conclusion might be dependent on which military experts are consulted.
28. M. Cook, R. Heinrichs, R. Medcalf and A. Shearer, *Power and Choice: Asian Security Futures* (Longueville: Lowy Institute, 2010), 12.
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30. All information sourced from a wide range of Jane's database sources through search engine available at <http://search.janes.com>. Analysis is author's own.
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59. McDevitt, "Asian Military Modernization."



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