"A nation must think before it acts."
– Robert Strausz-Hupé

The Asia Program
at the Foreign Policy Research Institute

# Transforming the Philippines' Defense Architecture

by Felix Chang
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# TRANSFORMING THE PHILIPPINES' DEFENSE ARCHITECTURE:

## *How to Create a Credible and Sustainable Maritime Deterrent*

**By Felix K. Chang**

**May 2012**

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## Executive Summary

This paper argues that to adequately defend its maritime claims, the Philippines should consider an external defense architecture designed around mobile coastal defense batteries equipped with long-range anti-ship missiles and protected by an integrated air defense umbrella. Such an architecture would provide the Philippines with an effective means to not only counter surface combatants and improve the survivability of its own forces against naval aviation or ballistic missiles, but also do so with lower procurement, maintenance, and operational readiness costs than a traditional force would require. The Philippine government's new capabilities-based defense budgeting process offers the country an opportunity to study and adopt this sort of defense architecture, which has become increasingly necessary as rising powers, such as China, have begun to test Philippine maritime sovereignty at places like Scarborough Shoal and the Spratly Islands.

# Introduction

Military modernization is difficult for any country. For many, it involves changing traditional mindsets and shifting priorities and resources. But in most cases there is a foundation on which to build. That may be a strategic concept or some existing assets or infrastructure. For the Philippines, the country's forces devoted to external defense have languished for so long that there is little to leverage. But that may offer a unique opportunity to begin anew.

The April 2012 incident between Chinese and Philippine naval forces near Scarborough Shoal highlighted not only China's ability and willingness to project power into those waters, but also the limitations of the Philippines' external defense capabilities less than 250 km from the country's coast. These limitations have invited rising powers, like China, to test Philippine sovereignty.[1]

During the latter half of the Cold War and the years that followed, the Philippines largely relied on its mutual defense treaty with the United States to guarantee its external defense, while it focused on the immediate challenges of coping with a chronic series of insurgencies of communist rebels in its northern islands and Muslim secessionists in its southern islands. As a result, the Philippine armed forces were completely oriented toward internal security and counterinsurgency efforts across the archipelagic country for much of the last half century. The Philippine air force and navy, which would normally have been expected to bear most of the burden for the country's external defense, were subsumed into the counterinsurgency struggle that gave the army primacy in defense budget allocations.

Nonetheless, the Philippine armed forces were among the best equipped in Southeast Asia through the early 1960s, as they received transfers of surplus American weaponry. The Philippine air force fielded several squadrons of F-86 jet fighters and other newly independent countries looked to the navy for help organizing their own naval establishments. But the Philippines became overly reliant on its military assistance arrangement with the United States and the logistical support provided by American air and naval bases. As a result, Manila failed to develop a formal capital planning and budgeting process or to invest sufficient resources in its own infrastructure, preferring instead to narrow its financial burden to its servicemen's salaries.

But in 1991 when the Philippine Senate rejected a treaty that would have extended the lease on American bases, the United States withdrew and the Philippine air force and navy

[1] James Hookway, "Philippines, China Advance in Easing Spat," *Wall Street Journal*, April 13, 2012.

were left in a precarious position. The air force could no longer access American infrastructure and maintenance support at Clark Air Base, which in any case was heavily damaged by a volcano eruption and typhoon that same year. The navy could no longer rely on a flow of ships and spares from the United States purchased with military assistance credits. So after tensions rose over territorial disputes in the South China Sea in 1995, the Philippine Congress passed the Armed Forces of the Philippines Modernization Act. The law called for the transformation of its military into a self-reliant and credible force oriented toward external defense. Unfortunately, sustained annual funding for modernization did not materialize. Rather, fifteen years later, both the air force and navy reached their nadir. The Philippine air force retired its last jet fighter in late 2005 and the navy has but one World War II-vintage destroyer escort left in service.[2]

## Shifting Strategic Landscape

As the Cold War ended, many hoped that the potential for military conflict would also recede. But tension between China and Southeast Asian countries over the disputed waters of the South China Sea reasserted itself. In 1988, China clashed with Vietnam in the Spratly Islands. Alarms arose again in early 1995 when Manila discovered that the Chinese had constructed concrete emplacements on Philippine-claimed Mischief Reef, only 240 km from Palawan Island. While the Philippines did not directly challenge the seizure, in late March its air force deployed all five of its F-5A fighters to Puerto Princesa on Palawan Island, as its navy removed or destroyed Chinese markers on five other reefs and shoals.[3]

Beijing largely avoided other hard line actions for the next decade. Instead, it sought to reassure its neighbors of its peaceful intentions with pledges of a *heping jueqi* (peaceful rise) and more recent aspirations for a *hexie shijie* (harmonious world). Certainly many in Southeast Asia were relieved when China did not participate in the series of competitive currency devaluations during the Asian financial crisis of 1997–1998, and elated by the economic benefits that Chinese prosperity brought to the region afterwards. They were also heartened when Beijing signed ASEAN's Declaration on the Conduct of Parties in the South China Sea—also simply known as the code of conduct—in 2002 and its Treaty of Amity and Cooperation a year later. Even though Chinese preconditions essentially

[2] An Act Providing for the Modernization of the Armed Forces of the Philippines and For Other Purposes, Republic Act No. 7898 (Congress of the Philippines, Feb. 23, 1995).
[3] Rigoberto Tiglao, "Remote Control," *Far Eastern Economic Review*, Jun. 1, 1995, pp. 20-21; Reginald Chua, "Chinese, Filipinos Stage a Stare-Down at Sea in Disputed Pacific Reef Area," *Wall Street Journal*, May 17, 1995; Rodney Tasker, "A Line in the Sand," *Far Eastern Economic Review*, Apr. 6, 1995, pp. 14-16; Nayan Chanda, Rigoberto Tiglao, and John McBeth, "Territorial Imperative," *Far Eastern Economic Review*, Feb. 23, 1995, pp. 14-16.

rendered the code of conduct toothless, ASEAN saw it as a step toward socializing China into the region's multilateral norms.[4]

But Beijing continued to pursue bilateral negotiations. And in 2004, it persuaded Philippine President Gloria Macapagal-Arroyo to negotiate a bilateral agreement, despite Manila's prior promotion of ASEAN's multilateral approach. In the agreement the two countries agreed to conduct joint maritime seismic surveys over a large swath of the South China Sea off the Philippines' continental shelf. But more important than the surveys themselves, the agreement complicated Philippine claims in the region as well as those of its neighbors by implicitly accepting China's "historic claim" to the waters. When the details of the initially-secret terms became known, they provoked popular anger in the Philippines and led to an investigation of Macapagal-Arroyo's negotiations in 2008.[5]

Meanwhile, China's confidence grew with its economic influence and military strength. In late 2007, Beijing elevated the status of the administrative authority governing the Paracel and Spratly Islands to that of a "county-level city" in Hainan province. Then in March 2010, it listed for the first time its South China Sea claims among its "core interests," alongside Taiwan, Tibet, and Xinjiang. Four months later, Southeast Asian countries publicly complained about China's heavy-handed assertions of its claims in the region at the 17th ASEAN Regional Forum. At the meeting, the United States weighed in with an offer to facilitate a multilateral resolution to the overlapping South China Sea claims—breaking with its long-standing policy of non-involvement in the dispute. The offer incensed China, whose foreign minister responded with a warning not to "internationalize" the issue. With remarkable timing, three days later the Chinese navy conducted a major combined-arms exercise in the South China Sea that featured many of its newest combat platforms and live-fire missile tests that many in Southeast Asia saw as a clear deterrent message.[6]

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[4] John Lee, "The end of Smile Diplomacy?" *National Interest*, Sep. 23, 2010, http://nationalinterest.org/commentary/the-end-smile-diplomacy-4122; John Wesley Jackson, "China in the South China Sea: Genuine Multilateralism or a Wolf in Sheep's Clothing?" thesis, Naval Postgraduate School, Dec. 2005, pp. 31-38; Leszek Buszynski, "ASEAN, the Declaration on Conduct, and the South China Sea," *Contemporary Southeast Asia* 25.3 (2003), pp. 343-62.

[5] Vietnam became a party to the joint maritime seismic undertaking agreement in 2005. The China National Offshore Oil Company, the Philippine National Oil Company – Exploration Corporation, and PetroVietnam conducted two seismic surveys over the next three years. Efren L. Danao, "Senate sets inquiry into Spratlys accord," *Manila Times*, Mar. 6, 2008; Carmela Fonbuena, "RP may lose Kalayaan islands by default," abs-cbnNEWS.com, Mar. 6, 2008, http://rp3.abs-cbnnews.com/nation/03/06/08/rp-may-lose-kalayaan-islands-default; Barry Wain, "Manila's Bungle in the South China Sea," *Far Eastern Economic Review*, Jan./Feb. 2008; "Arroyo Strikes a Spratlys Deal with China," *Far Eastern Economic Review*, Sep. 16, 2004, p. 32.

[6] "In the balance," *Economist*, Dec. 2, 2010; Zhong Jijun, "Chen Bingde stresses promotion of military training transformation," *PLA Daily*, Jul. 29. 2010; Ministry of Foreign Affairs of the People's Republic of China, "Foreign Minister Yang Jiechi Refutes Fallacies On the South China Sea Issue," Jul. 26, 2010, http://www.mfa.gov.cn/eng/zxxx/t719460.htm; Jay Solomon, "China Rejects U.S. Efforts in Maritime Spat," *Wall Street Journal*, Jul. 25, 2010; Hillary Rodham Clinton, Secretary of State, remarks, 17th ASEAN Regional Forum, Hanoi, Vietnam, Jul. 23, 2010, http://www.state.gov/secretary/rm/2010/07/145095.htm); Mark

The following year Chinese patrol ships harassed a Philippine and two Vietnamese oil exploration vessels—cutting the cables towing seismic equipment in the latter two cases. When Vietnam voiced its complaint through the conduct of live-fire exercises, China responded with its own. During that year, Chinese vessels also unloaded construction materials on Philippine-claimed Amy Douglas Reef. And in April 2012, the Chinese navy deployed two surveillance ships to prevent Philippine authorities from arresting Chinese poachers in Philippine-claimed waters near Scarborough Shoal. As a consequence, in spite of official Chinese avowals that it would "never seek hegemony or military expansion," such events in the South China Sea have raised suspicions about China's true intentions and refocused military analysts on its capabilities in the region.[7]

## China's Reach in the South China Sea

After witnessing the overwhelming success of sophisticated American arms in the first Gulf war in 1991 and their own failure to deter American warships from meddling in China's ballistic missile tests near Taiwan in 1995 and 1996, Chinese leaders decided to thoroughly modernize their armed forces. They not only replaced old equipment, but also revised its warfighting concepts and professionalized its personnel. Although most of China's new capabilities have been focused on meeting the challenges of Taiwan and the United States, China could also use those new capabilities that extend its reach to assert Chinese control in the South China Sea, where its furthest claims lie over 1,500 km from Hainan Island.

Certainly the Chinese navy's South Sea Fleet, which is principally responsible for China's claims in the South China Sea, has become far more capable since the late 1990s. While historically the last of the navy's three fleets to modernize, it has recently been among the first to receive new combatants that considerably enhanced its anti-air and anti-surface warfare capabilities. In the last decade, its subsurface force added two Shang-class nuclear attack submarines as well as four Kilo-class, three Song-class, and the first of the newest Yuan-class diesel-electric submarines. Meanwhile, its surface fleet added a Luhai-class, two Luyang I-class, and two Luyang II-class destroyers as well as four Jiangwei II-class and two Jiangkai-class frigates to its inventory. And it expanded its amphibious lift capacity with two Yuzhao-class LPDs and an assortment of new-build LSTs, LSMs, and LCUs, which can

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Landler, "Offering to Aid Talks, U.S. Challenges China on Disputed Islands," *New York Times*, July 23, 2010; "Whale and Spratlys," *Economist*, Dec. 13, 2007.

[7] Jeremy Page, "Beijing Stages South China Sea Military Drills," *Wall Street Journal*, Jun. 18, 2011; Ian Timberlake, "Vietnam holds live-fire drill amid China tensions," Agence France-Presse, Jun. 13, 2011; "Not littorally Shangri-La," *Economist*, Jun. 9, 2011; General Liang Guanglie, Minister of National Defense, address, 4th Plenary Session, 10th IISS Asian Security Summit, Singapore, Jun. 5, 2011.

better support the sort of ship-to-shore missions needed in the Spratly Islands. Even though the total number of warships assigned to the South Sea Fleet has not significantly risen, the capabilities of its new combatants make it an even more formidable challenge for any Southeast Asian navy.[8]

To better accommodate the South Sea Fleet's new vessels, China has been constructing a major naval base at Yalong Bay. Unlike the older Yulin naval base located in the heart of Sanya, the new base at Yalong Bay sprawls across a spacious tract of land about 15 km east of the city. Construction on the base began in the early 2000s; and it is divided into two sections. The western section has two 1,000-meter piers that normally service surface ships. Situated on a peninsula, the eastern section is more secluded and has its own 800-meter wharf, four 230-meter piers for submarines, and most notably a submarine tunnel. Given the tunnel and the similarity of the structures near it to those found at Jianggezhuang, China's long-serving strategic submarine base, it was no surprise to see new Chinese nuclear-powered submarines at pierside. Ongoing construction on the base and the submarine tunnel is clearly evident from commercial satellite imagery. Though ship cranes and repair facilities remain absent, the base is a valuable place from which to mount operations into the South China Sea.[9]

The South Sea Fleet's naval air force units have also begun to recapitalize their equipment. While they have long conducted surveillance patrols over the South China Sea with H-6D bombers, their J-7 and J-8 fighters barely have the range to reach the Spratly Islands, let alone provide sustained air cover for the fleet. Only the 2,500-meter airstrip on Woody Island would offer them the opportunity to extend their range, but its small aircraft apron would make it difficult to refuel more than a handful of planes at one time. But recently, China's naval air force has started to convert some of its H-6D bombers into aerial refueling tankers and take delivery of more capable Su-30MK2 fighters, JH-7A fighter-bombers, and Y-8J airborne early warning aircraft.

At Lingshui on Hainan, the 9th Fighter Aviation Division already received a regiment of JH-7A fighter-bombers and will likely receive the naval air force's second batch of 24 Su-30MK2 fighters to replace the older J-8 fighters in one of its other two regiments. These aircraft will greatly improve the division's ability to conduct air superiority and strike missions at longer distances. But given the flight times involved in the transit, they would still have difficulty maintaining a timely air cover over the southern reaches of the South China Sea.

[8] Ronald O'Rourke, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress* (Washington, DC: Congressional Research Service, Oct. 1, 2010), pp. 19, 25-26, 30.
[9] Author's analysis from commercial satellite imagery retrieved on Jul. 23, 2011 and Jul. 5, 2006.

Of course, the Chinese navy's new aircraft carrier could substantially ease that problem. Although its Kuznetsov-class design is almost thirty years old, the ship, originally named the *Varyag*, has undergone a major refit at Dalian and finished its initial sea trials in August 2011. Once operational in late 2012, observers at this writing believe it will field about a complement of J-15 fighters. Unveiled in April 2011 and still under development, the J-15 is the naval variant of the J-11 fighter, which itself is the Chinese version of the Su-27 fighter. It reportedly incorporates features gleaned from a Su-33 fighter prototype that China acquired from Ukraine. The J-15 would be well suited for air superiority roles, but its range is likely to be shorter than the J-11's due to its need to be light enough for a short takeoff from a ski-jump flight deck. For the same reason, its combat load is likely to be lighter as well, making it difficult for it to carry the heavy ordinance needed for strike warfare. Nevertheless, it could provide persistent and timely air cover over the South China Sea.[10]

Many have postulated the role of China's new DF-21D ballistic missile as an anti-ship weapon to counter American aircraft carriers.[11] But for the Philippines, it is the DF-21D's land-attack counterparts that would pose the bigger challenge for its forces. Since the hurdles associated with integrating the DF-21D with a sufficiently precise ocean surveillance and targeting system to hit an aircraft carrier have yet to be overcome, it seems unlikely that the missile would be a threat to the Philippine navy's small ships that have far tinier emissions signatures. Rather, the Philippine military should worry more about the possibility, if still remote, of a Chinese conventional ballistic missile strike to neutralize its air and naval bases in concert with a naval operation. Over the last decade,

[10] Originally designed by the Soviet Union and laid down in 1985, the *Varyag* sat incomplete in a Ukrainian shipyard when the Cold War ended. Ukraine eventually sold the warship to China in 1998, but it took five years before it reached Dalian and another six before China began refitting it. China reportedly acquired the designs for Ukraine's naval avaiation testing and training center and has built a facsimile of it at Xingcheng in Liaoning province to support its flight testing and pilot training programs. J. Michael Cole, "Varyag 'to fall under central command'," *Jane's Defence Weekly*, Aug. 16, 2011; James Hardy, "PLA chief confirms carrier construction," *Jane's Defence Weekly*, Jun. 8, 2011; David Axe, "Relax: China's First Aircraft Carrier is a Piece of Junk," *Wired*, Jun. 1, 2011, http://www.wired.com/dangerroom/2011/06/relax-chinas-first-aircraft-carrier-is-a-pieceof-junk/all/1; J. Michael Cole, "Chinese media 'officially' unveils J-15 carrier-based fighter," *Jane's Defence Weekly*, Apr. 27, 2011; Michael Wines, "Chinese State Media, in a Show of Openness, Print Jet Photos," *New York Times*, Apr. 25, 2011; Reuben F. Johnson, "Russian sold secrets for China's first carrier," *Washington Times*, Feb. 14, 2011.

[11] *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China* (Washington, DC: U.S. Department of Defense, Aug. 2011), p. 28-29; Yoichi Kato, "U.S. Commander Says China Aims to Be A 'Global Military' Power," *Asahi Shimbun*, Dec. 28, 2010; Andrew Erickson and Gabe Collins, "China Deploys World's First Long Range, Land-Based 'Carrier Killer': DF-21D Anti-Ship Ballistic Missile (ASBM) Reaches 'Initial Operational Capability' (IOC)," *China SignPost*, Dec. 26, 2010; *The People's Liberation Army Navy, A Modern Navy with Chinese Characteristics* (Suitland, MD: Office of Naval Intelligence, Aug. 2009), p. 26; *Ballistic and Cruise Missile Threat* (Wright-Patterson Air Force Base, OH: National Air and Space Intelligence Center, Apr. 2009), p. 14; *Annual Report to Congress: Military Power of the People's Republic of China* (Washington, DC: U.S. Department of Defense, Mar. 2009), p. 21.

China's updated operational doctrines suggest such a use for conventional ballistic missiles.[12]

With its ships and submarines now equipped with more capable missiles and over-the-horizon targeting systems, the Chinese navy's ability to defeat surface combatants at sea has markedly improved over the last fifteen years, even though its anti-submarine warfare capabilities still lag. It has also iteratively improved its naval air defense—installing better ship-based anti-air missile systems; then procuring longer-range land-based fighter and attack aircraft; and lastly commissioning its first aircraft carrier in 2012 to provide sea-based air cover. And beyond its navy, China's Second Artillery Corps can now project power far from China's shores with an array of conventional ballistic missiles that few Southeast Asian militaries can directly counter.

## Philippine Recommitment to External Defense

With most of the Spratly Islands lying only a few hundred kilometers off its shores, the Philippines seems well-situated to defend its claims in the South China Sea. But it has nearly no capacity to do so against China. Like most other Southeast Asian countries, the Philippines has recognized its need to rebuild its external defense forces, but until recently Manila has failed to devote the necessary resources to fund such a reconstitution.[13]

In late 2005, the Philippines decommissioned its last F-5A fighters. So, when Chinese patrol ships confronted a Philippine survey vessel near Reed Bank in March 2011, Manila could only dispatch an OV-10 light attack aircraft and a BN-2 light transport to the area. By the time the two slow turboprop aircraft arrived overhead, the Chinese patrol ships had long since departed. With only such aircraft available to it, the Philippine air force can clearly not offer any serious opposition over the South China Sea.[14]

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[12] Kenneth Allen and Maryanne Kivlehan-Wise, "Implementing PLA Second Artillery Doctrinal Reforms" in *China's Revolution in Doctrinal Affairs: Emerging Trends in the Operational Art of the Chinese People's Liberation Army*, eds. James Mulvenon and David Finkelstein (Alexandria, VA: CNA Corporation, Dec. 2005), pp. 165-166; pp. 264-265; Li Bingyan, *Da moulue yu xin junshi biange* [Grand Strategy and the New Revolution in Military Affairs] (Beijing: Military Science Press, 2004), p. 393-394; *Zhanlüexue* [The Science of Strategy] (Beijing: AMS Publishing House, 2001), pp 17-26.

[13] "Front-line Vets," *Economist*, Jan. 28, 2010; Trefor Moss, "Philippine Army seeks additional battalions for counter-insurgency struggle," *Jane's Defence Weekly*, Apr. 8, 2009; Michael Satchell, "Back to the Philippines," *U.S. News and World Report*, Jan. 24, 2000, pp. 30-31.

[14] James Hookway, "Philippine Oil Vessel Confronted By China, Spurring New Dispute," *Wall Street Journal*, Mar. 4, 2011; Reginald Chua, "Chinese, Filipinos Stage a Stare-Down at Sea in Disputed Pacific Reef Area," *Wall Street Journal*, May 17, 1995; Rodney Tasker, "A Line in the Sand," *Far Eastern Economic Review*, Apr. 6, 1995, pp. 14-16.

The Philippine navy is in a similar state. While it operates scores of coastal patrol boats to support the army's counterinsurgency forces, the core of its offshore fleet are three Jacinto-class corvettes, which were acquired from the United Kingdom following the dissolution of its Hong Kong Squadron. Until recently, the navy's only other major combatant was the *Rajah Humabon*, a World War II-era destroyer escort. Armed with 76mm guns and lacking any anti-ship cruise missiles, anti-missile defenses, or integrated sensors, these ships would have limited value in a modern naval battle.

Still, at the end of 2010 few expected the Philippine military to make any significant acquisitions until the start of its 2012–2018 Capability Upgrade Program. But China's renewed assertiveness in the South China Sea changed that. In 2011, Manila purchased two retired Hamilton-class high endurance cutters from the United States. Though the cutters are reportedly costly to maintain and is no better armed than the Jacinto-class corvettes, they were once equipped with RGM-84 Harpoon anti-ship cruise missiles and anti-submarine warfare equipment, which the Philippine navy could later retrofit if funding becomes available. Moreover, the cutters provide the navy with its first dedicated air search radar systems as well as its first ship-borne helicopter platforms, which will accommodate two utility helicopters. But the cutters have only one Phalanx close-in weapons system for anti-air defense and hence would require air cover to conduct sustained operations in combat.[15]

Manila's military modernization is at a nascent stage. In early 2011, the Philippine navy requested designs from the U.S. Naval Sea Systems Command, which provides engineering and maintenance support to the U.S. Navy, for a class of offshore patrol vessels that can incorporate new weapon systems as funding becomes available for them. Similarly, the Philippine air force outlined plans for the acquisition of a squadron of new-build multirole fighters and has preliminarily considered the F/A-18 and MiG-29 as possible candidates.[16]

Certainly whatever Manila chooses to procure for its air and naval forces will be an improvement, given their starting points. But its air force and navy should not acquire capabilities in isolation; its air force should not reflexively request new planes or the navy new ships. As a whole, the Philippine armed forces should consider the various combinations of arms that can produce the capabilities the country needs for its external defense, including less costly alternatives. Arms procurement must not only adhere to a coherent and comprehensive external defense concept, but also fully consider whether the operational lifetime costs of those arms can be maintained within long-term budget

[15] Alexis Romero, "AFP to buy endurance ship, 2 naval helicopters," *The Philippine Star*, Sep. 19, 2011; Jon Grevatt, "The Philippines consider additional US cutters," *Jane's Defence Weekly*, May 26, 2011.
[16] Mrityunjoy Mazumdar, "Philippines looks to US for new OPV design," *Jane's Navy International*, Jun. 24, 2011.

constraints. Such a process would be familiar to any planning, programming, budgeting, and evaluation system.[17]

In the past, allocations for the Philippine defense budget were made only for the year ahead, rather than as part of a multi-year programming process. And for various reasons, those allocations failed to keep up with the rate of gross domestic product growth and also significantly fluctuated—creating uncertainty and making defense planning all the more difficult. Little wonder that the Philippine military learned to make quick, if sometimes hasty, acquisitions whenever the budget allowed. So, even as President Benigno Aquino approved an additional $118 million in military spending to protect the Malampaya Natural Gas and Power Project off Palawan Island in September 2011, the Philippine government should carefully contemplate how it can best use that and future funding to build an effective and enduring external defense capability.[18]

## Traditional and Alternative External Defense Approaches

Taking the protection of Philippine claims in the South China Sea as its highest external defense priority, Manila can more easily focus its military modernization efforts—just as renewed attention on a Warsaw Pact invasion of Western Europe brought coherence to American defense planning in the 1980s. The central issue for the Philippines is how it can exert enough air-sea control in the South China Sea so that its opponents are denied unimpeded access to the disputed area, without which their island outposts would be isolated. Since the outcome of air and naval warfare is largely determined by the platforms that carry them out, the core procurement decision for Manila is: what set of capabilities it can afford that could best put at risk its adversary's platforms—the most formidable of which are those of China's modernized air and naval forces. In the missile age that means the capabilities the Philippines eventually chooses to acquire must be able to deliver sufficient firepower to overcome its adversary's ability to defend its platforms.[19]

To do so, Manila could acquire a traditional set of strike aircraft and ships to penetrate a Chinese force's defenses and deliver a damaging attack against it. Some Southeast Asian navies are building up their submarine fleets to do just that, exploiting China's weakness in anti-submarine warfare and better ensuring the survivability of their own combat platforms. But such expensive armaments are probably beyond the resources of the

[17] Rozzano Rufino B. Biazon, House of Representatives, address, Defence Budgeting in the Philippines, Manila, Philippines, Oct. 24. 2008.
[18] "Philippines Ups Spending To Guard South China Sea," Agence France-Presse, Sep. 7, 2011.
[19] Wayne P. Hughes, Jr., *Fleet Tactics and Coastal Combat*, 2nd ed. (Annapolis, MD: Naval Institute Press, 2000), pp. 17-44.

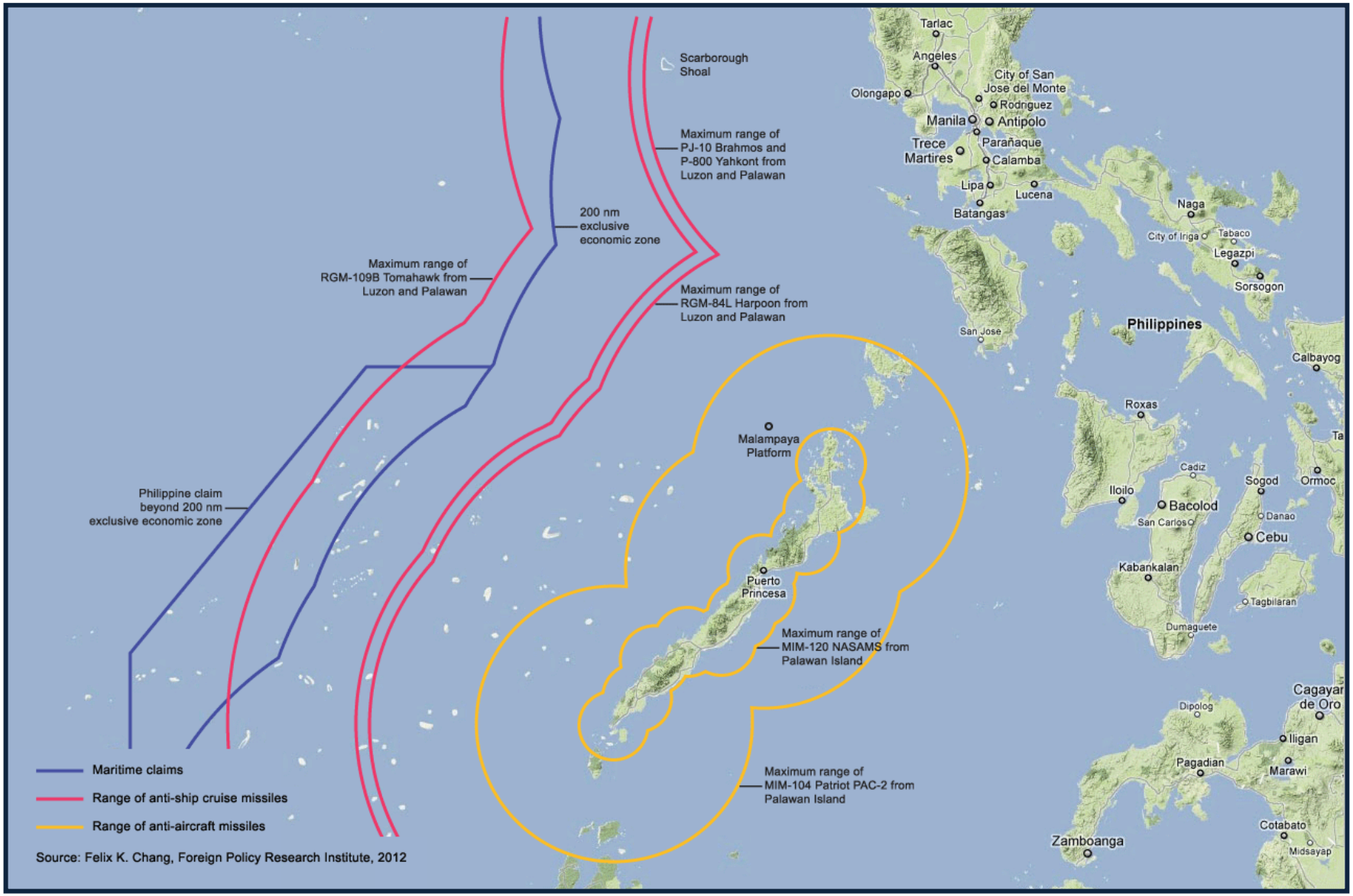
Philippines to procure and maintain. An alternative strategy would be for it to take advantage of its geographic location to the Spratly Islands and meet China's challenge from an asymmetric angle. Rather than directly confront Chinese strengths in air and naval warfare, the Philippines could pose a challenge with a strategy built around new technologies for coastal defense that would have lower long-term procurement and maintenance costs. (See Map 1)

Palawan Island is situated only 450 km from even the most distant Philippine claims in the Spratly group. Mobile land-based anti-ship cruise missiles could cover most of the contested islands. These missiles include America's RGM-84L Harpoon, RGM-109B Tomahawk, India's BrahMos, and Russia's P-800 Yakhont. Denmark, Egypt, South Korea, and a small number of other countries have used RGM-84 anti-ship cruise missiles as part of their coastal defenses; and Vietnam recently ordered two batteries of P-800 missiles to protect its South China Sea claims. Four batteries of such anti-ship missiles mounted on wheeled or tracked vehicles and dispersed along Palawan's long road network could satisfy the Philippines' capability requirement to deliver the massed firepower necessary to penetrate Chinese shipboard defenses. Moreover, their mobility would reduce the possibility that China could suppress them with either air or ballistic missile strikes.

The Russian P-800 missile is part of the K-300P Bastion-P coastal defense system. A single battery's standard configuration consists of four launchers, each with two P-800 missiles, two command-and-control trucks, a combat alert vehicle, and four transporter loaders. Designed for rapid deployment, the battery can ready all eight missiles for launch in five minutes. The American RGM-84L missile's smaller size would allow each launcher to mount four missiles, as Denmark's launchers were configured for its coastal defense batteries that operated from 1988–2003. If organized like the K-300P system, each RGM-84L-equipped battery could launch 16 missiles in a single salvo.

Although the Chinese navy's new ships have improved air and surface search radars, their sensors have limited ability to peer ashore. And while Chinese reconnaissance satellites may be able to find fixed installations and help target land-attack missiles against them, mobile targets are far tougher to locate, as Coalition forces famously discovered during their hunt for Iraqi Scud-B mobile ballistic missiles in 1991. With ample jungle cover and good emissions discipline, Philippine coastal defense batteries could remain hidden from Chinese forces. To counter these batteries, China would have to send aircraft, helicopters, or unmanned aerial systems deep into Philippine airspace over Palawan to pinpoint them, placing them at risk from land-based Philippine air defenses.

*Map 1: Land-Based Missile Ranges and Philippine Maritime Claims*



Of course, coastal defense batteries would require over-the-horizon detection and tracking to provide targeting data for their missiles, and command-and-control coordination to enable a synchronized salvo launch from multiple batteries. Ideally, the Philippines could acquire E-2C airborne early warning aircraft to meet both requirements. Given the over 350 km detection range of its AN/APS-145 airborne surveillance radar, an E-2C patrolling over Palawan and well-defended by land-based air defenses on the island could scout for Chinese ships anywhere in the Spratly Islands. But such an aircraft may prove too costly to acquire and maintain. And it would likely be based on Luzon where it would have better access to service infrastructure, but far from the Spratly Islands, lengthening its response time.[20]

A more flexible alternative may be the MH-60R naval helicopter. Since the Philippine air force already has experience operating helicopters from the same S-70 family, it would not have to create a wholly new spares inventory or training program for aircrews, as an E-2C would require. In addition, the MH-60R's AN/APS-147 airborne surveillance radar has a detection range of probably over 300 km—extending deep into the contested waters around the Spratly Islands—and a substantially lower power output than other maritime radars, making it more difficult to detect. Better still, four helicopters could be acquired at the cost of one E-2C. With a fleet of six MH-60R helicopters, two could be forward deployed at Puerto Princesa, while the other four could remain at Sangley Point for repair or local duties. Though the MH-60R platform may not have the full range of capabilities as the E-2C, they would not be tied to airfields and could be reinforced with the balance of the helicopter force should tensions escalate. In the future, when unmanned aerial systems become more reliable and less costly, they may also play a role in maintaining persistent surveillance over the South China Sea.[21]

Regardless of whether E-2C aircraft or MH-60R helicopters are selected for airborne surveillance, the Philippine military must provide an air defense to protect them and its coastal missile batteries from Chinese counterattack. Given the number of Su-30MK2 or J-15 fighters the Chinese could potentially put over Palawan either using aerial refueling or

[20] E-2C airborne early warning aircraft configured with the AN/APS-145 are currently in service with Egypt, France, Japan, Taiwan, and the United States. The AN/APS-147 airborne surveillance radar's range is probably greater than the AN/APS-124 radar aboard the SH-60B naval helicopter. It can only achieve its maximum detection range when operating at a low scan rate. Martin Streetly, ed., *Jane's Radar and Electronic Warfare Systems 2011-2012* (London: Jane's Information Group, 2011), pp. 220-221; *AN/APS-145 Airborne Surveillance Radar* (Syracuse, NY: Lockheed Martin Corporation, 2008).

[21] While both the E-2C's AN/APS-145 radar and the MH-60R's AN/APS-124 radar have features aid in long-range detection despite sea clutter and lower the false alarm rate, AN/APS-124 must slow its scan rate to achieve its maximum detection range—making it difficult to track fast-moving targets, like fighters and missiles. The AN/APS-145 can also monitor and track up to 20,000 targets simultaneously, many more than the AN/APS-124 can. *Ibid*.; Timothy M. Laur and Steven L. Llanso, *Encyclopedia of Modern U.S. Military Weapons* (New York: Berkeley Publishing Group, 1995), p. 317.

from an offshore aircraft carrier, the Philippine air force would be hard pressed to acquire enough modern fighters to maintain an adequate air cover over the region from its Luzon bases. Considering that its fighters would have to shuttle to and from a combat air patrol over Palawan from Sangley Point and a 75 percent readiness rate, the air force would need 48 fighters in order to ensure that a dozen were on patrol over the contested area. In contrast, China's new aircraft carrier, if nearby, could put aloft 13 fighters at a similar readiness rate. Also secondary airfields would have to be constructed on Mindoro or Panay in the event that the airfield at Puerto Princesa is damaged.

Again, land-based systems could provide an alternative. Surface-to-air missile batteries could protect the airspace above Palawan, reducing the need to purchase as many fighters to counter potential Chinese air sorties. That could be achieved with a combination of and MIM-120 NASAMS fire units to counter threats below 5,000 meters and MIM-104 PAC-2 Patriot fire units to counter those above that altitude. Both systems have networked radar and launchers that enable them to operate even if parts of them are destroyed. Even better, the NASAMS' AIM-120 missile has an active homing radar that frees the system's radar from continuous tracking, further shielding it from counter fire from anti-radiation missiles.[22] The extended-range AIM-120 missile has a range of 40 km and the PAC-2 Patriot missile has a range of 160 km. Both systems can be mounted on standard U.S. Army equipment and are transportable on C-130 aircraft—all of which the Philippine military already operates. Such surface-to-air missile batteries would require far fewer costly specialized personnel, equipment, and facilities to operate than a single high-performance fighter squadron.

However, this core defensive force of missile batteries and surveillance aircraft could be supplemented with a small contingent of air superiority fighters and high-endurance cutters. The small number of fighters could offer a reasonable measure of added protection for airborne surveillance assets. And the high-endurance cutters could serve as patrol vessels to maintain a sustained naval presence in the South China Sea that could handle the policing actions needed to assert Philippine sovereignty during peacetime.

Still, for this sort of external defense architecture to successfully operate it must have its elements well integrated into a joint command structure. Since the Philippines army would likely control the surface-to-air missile batteries, the navy the coastal defense batteries, and the air force the surveillance aircraft, having them seamlessly work together is of vital importance. Knitting together surveillance data from airborne platforms and providing targeting information and tasking to coastal defense batteries comprise just one area where secure datalinks and unified command and control would be critical. Another would

[22] Petri Älkki, "SAM finalists reviewed," *Suomen Sotilas*, Jan. 2009, pp. 48.

be the coordination of surface-to-air missile batteries with fighters and surveillance aircraft to form an effective air defense network. In the end, the creation of a joint theater command structure with a rotating service chief may provide the best way to ensure that all Philippine combat assets would function as one.

With a coastal defense approach, Manila could ensure the safety of the vital Malampaya Natural Gas and Power Project, which supplies nearly half of Luzon's electricity, as well as cover the Scarborough Shoal area.[23] But given the range of contemporary anti-ship cruise missile technology, the most distant Philippine-claimed areas would fall outside the maximum range of land-based systems. As a result, should the Philippines select this approach to external defense, it is important for the Philippine military to program and budget for a regular upgrade cycle for its coastal defense batteries, as longer-range missile systems become more affordable.[24]

In contrast, a traditional approach to reconstituting the Philippines' external defense capabilities would have to acquire a relatively large number of strike aircraft and ships to deliver the same amount of ordinance as an approach based on coastal defense. That is because in the air only a portion of Philippine strike aircraft could be committed to an attack against a Chinese naval force, given that a number of them would first need to suppress the force's air cover. Meanwhile, at sea Philippine warships would have to risk becoming potential casualties to Chinese anti-ship cruise missiles even before they could even launch their own attack. Finally, whatever losses Philippine forces would suffer in their first strike would reduce their capacity to mount a full second strike. Thus, without an adequate number of combat platforms, the Philippine military's ability to overcome the defenses of a Chinese naval force with a traditional approach would be elusive.

A comparison of these two external defense approaches demonstrates that while both have the potential to launch 96 AGM/RGM-84L in two strikes in an action near the Spratly Islands, a coastal defense approach could do so at a cost one-third lower than a traditional one. (See Table 1) That becomes even clearer after considering the losses that a traditional force could sustain to deliver its first strike, whereas a coastal defense force would remain largely intact to deliver a full second strike. Better still, a coastal defense force would likely require a smaller budget to not only procure, but also operate and maintain.

[23] "Overview of Malampaya," Jun. 19, 2009, http://malampaya.com/?page_id=2.
[24] Ellen Tordesillas, "Chinese hardliners want 'lesson' for spratly intruders," *VERA Files*, Jul. 11, 2011.

***Table 1: Comparison of External Defense Approaches***

| | *Traditional* | | *Alternative* | |
|---|---|---|---|---|
| Item | *Number* | *Cost* | *Number* | *Cost* |
| Aircraft | | | | |
| F/A-18E/F fighter[a] | 36 | $2,924.2 | | |
| F-16C/D fighter[b] | | | 12 | $421.0 |
| MH-60R helicopter[c] | | | 6 | $265.0 |
| Land-based air defense | | | | |
| MIM-120 NASAMS system[d] | | | 12 | $276.4 |
| MIM-104 Patriot PAC-2 system[e] | | | 6 | $600.0 |
| Ships | | | | |
| OPV 80 oceanic patrol vessel[f] | 6 | $150.0 | | |
| Hamilton-class cutter[g] | | | 3 | $39.5 |
| Ordinance | | | | |
| AGM-84L Harpoon missile[h] | 72 | $150.0 | | |
| RGM-84L Harpoon missile[i] | 24 | $81.1 | 96 | $324.5 |
| AIM-9M Sidewinder missile[j] | 108 | $10.8 | 48 | $4.8 |
| AIM-120D AMRAAM missile[k] | 36 | $25.2 | 72 | $50.4 |
| Patriot PAC-2 GEM-T missile[l] | | | 48 | $144.0 |
| Support infrastructure | | | | |
| Airfields[m] | 2 | $400.0 | | |
| Roads and launch sites[n] | | | 80 | $280.0 |
| Total | | $3,741.3 | | $2,405.6 |

Notes:
[a] Half of the fighters in an air superiority role and the other half in a strike role. Cost based on United States purchase in 2011.
[b] Cost based on Morocco purchase in 2008.
[c] Cost based on United States purchase in 2011.
[d] Cost based on Finland purchase in 2008.
[e] Includes control station, launcher, and radar. Cost is estimated from various sources.
[f] Cost based on Argentina purchase in 2009 and Colombia purchase in 2011.
[g] Cost based on Philippines purchase in 2011.
[h] Four AGM-84L missiles for each fighter in a strike role. Cost based on Taiwan purchase in 2007.
[i] Four RGM-84L missiles for each OPV 80 oceanic patrol vessel. Cost based on Taiwan purchase in 2000.
[j] Four AIM-9M missiles for each fighter in an air superiority role. Cost based on Saudi Arabia purchase in 2009.
[k] Two AIM-120D missiles for each fighter in an air superiority role and four missiles for each MIM-120 NASAMS launcher.
[l] Eight Patriot PAC-2 missiles for each MIM-104 Patriot PAC-2 system. Cost estimated from various sources.
[m] Cost based on Atlanta and St. Louis runway construction in 2006.
[n] In kilometers. Cost based on Nova Scotia two-lane highway construction.

A large part of those operational and maintenance costs would be devoted to maintaining a certain level of operational readiness of the Philippine air and naval forces. Since many of China's past military actions in the South China Sea have been unanticipated, that would

seem to argue for a higher state of operational readiness, especially for a smaller defensive force. But a high level of operational readiness carries with it a higher financial cost to ensure that equipment is combat-ready and personnel are adequately trained and available for immediate deployment. To maintain such a high readiness, a traditional force of strike aircraft and ships would likely cost more than a coastal defense force of land-based batteries and helicopters whose operation require far fewer personnel and equipment are largely tracked carriers or trucks with missile canisters.

## Conclusion

Recent Chinese assertiveness in the South China Sea has prompted the Philippines to strengthen its security ties with other Asia-Pacific powers and to make more resources available to its armed forces.[25] But that increased funding may not last, given the country's many other pressing priorities, so the Philippine military must use its new budgetary authority with care and foresight. Certainly after decades of neglect, the Philippine air force and navy may have service-centric wish lists that have long gone unfilled. But hastily gorging on large purchases may be militarily and fiscally risky in the long run, especially if the new acquisitions prove costly to maintain and preclude the later procurement of other beneficial capabilities.

However, with the Philippine government's new capabilities-based defense budgeting process, its military has an opportunity to create an external defense force that can exert credible sea denial over the contested waters of the South China Sea. Ultimately, such a force is necessary for the Philippines to maintain its maritime claims in the region. Even if never used, it provides Manila with the leverage to enter into territorial negotiations from a position of greater strength rather than relative weakness. Otherwise, the Philippines will remain reliant on the benevolence of outside powers, like Japan and the United States, whose support is important but ability or willingness to intervene may not transpire when push comes to shove.

As envisioned in this paper, the Philippines could build a capable yet affordable external defense force by eschewing a traditional armament scheme of strike aircraft and ships, and instead pursue an architecture designed around mobile coastal defense batteries equipped with long-range anti-ship missiles and protected by an integrated air defense umbrella. Such a strategic external defense concept would allow Philippine forces to fight at their

[25] Jose Katigbak, "PH wants stronger US military alliance," *Asian Journal*, Dec. 16-22, 2011, p. 1; James Hardy, "Philippines get Japan's backing on SCS as Aquino agrees strategic partnership," *Jane's Defence Weekly*, Sep. 27, 2011; "Philippine Navy Patrol Boat Hits a Chinese Fishing Boat, Philippine Government Apologizes to China," *Global Chinese Times*, Oct. 20, 2011.

best with lower procurement, maintenance, and operational readiness costs than a traditional force would require. Those lower operating costs would help ensure the sustainability of the Philippines' newly acquired combat capabilities long into the future.

# About the Author

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