Journal of Social and Political Sciences

Lu, Shyi-Min. (2021), Research on the Development of Small and Medium-sized Navy in Southeast Asian Countries. In: *Journal of Social and Political Sciences*, Vol.4, No.2, 96-114.

ISSN 2615-3718

DOI: 10.31014/aior.1991.04.02.279

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

Published by:
The Asian Institute of Research

The Asian Institute of Research *Social and Political Sciences* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Social and Political Sciences, which include, but not limited to, Anthropology, Government Studies, Political Sciences, Sociology, International Relations, Public Administration, History, Philosophy, Arts, Education, Linguistics, and Cultural Studies. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Social and Political Sciences* aims to facilitate scholarly work on recent theoretical and practical aspects of Social and Political Sciences.

ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide

ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide

The Asian Institute of Research
Journal of Social and Political Sciences
Vol.4, No.2, 2021: 96-114
ISSN 2615-3718

DOI: 10.31014/aior.1991.04.02.279

Research on the Development of Small and Medium-sized Navy in Southeast Asian Countries

Shyi-Min Lu[1]

[1] Retired Researcher, Industrial Technology Research Intitule, HsinChu 310, Taiwan. Tel: 886-910354790.
E-mail: shyimin@gmail.com

Abstract
There is no doubt that the entire Asia-Pacific region, especially Southeast Asia, is undergoing a large-scale naval modernization process. However, most analyses of this phenomenon have focused on its scope and nature, especially its possible consequences for peace and stability in the region. Of particular concern is whether we are seeing the beginning of an unstable naval arms race in the region. This is completely grounded, and it is indeed an important research area, which will be discussed in the article. In addition, we also look at the general naval modernization process, and discuss in essence how the country to develop or maintain the navy, as well as the special problems and challenges that the navy often faces in this process, for example, with the current economic growth and international trends, increasing the naval budget and procurement of related potential ship. The purpose of this paper is to review the naval modernization of the six countries in the South China Sea, which can be served as guidance for Taiwan's navy construction.

Keywords: Navy Modernization, Southeast Asia, South China Sea, Strategy, Issues

1. Introduction

The ocean covers two-thirds of the earth and contains rich resources. It needs to be properly managed and protected to maintain and optimize the available resources. Maintaining a smooth maritime channel is the main task of the Navy. Take the South China Sea that will be discussed in this article as an example. There are about five trillion U.S. dollars of maritime trade sails through each year (Ali, 2017). Although large navies reflect the dominance of maritime research, historical research shows that relatively small naval forces can also have a disproportionately significant impact on global events. From allied attackers in the 19th century to Somali pirates today, even the slightest maritime power can become a key player on the global issue (McDevitt, 2014).

This article discusses the problems and prospects of small and medium navies, especially the modernization of Southeast Asian navies, including six countries in the South China Sea: Singapore, Indonesia, Malaysia, Vietnam, Thailand, and the Philippines (Goldrick & McCaffrie, 2013).

From a theoretical point of view, the task of becoming a maritime power and developing the navy seems simple, at least in principle. It is nothing more than coordinating a series of coherent decisions, goals, and means. The

levels include the macro-strategic decisions at the top of the government hierarchy to the implementation tactics at the bottom. However, the devil hides in the details. Many facts make it so difficult to perform the task. Due to the geographical, political, strategic, cultural, economic and general conditions, the actual details of each country are different. The best example is Russia and Japan that are located in Northeast Asia adopted completely different strategies for naval development, which had a decisive impact on the subsequent Russo-Japanese War (Papstratigakis, 2011). In this century, the reclamation of the South China Sea reef islands by the Chinese mainland (hereinafter referred to as the mainland) can be regarded as a reorganization of the world's sea power territories (Dolven, et al., 2015), who is proudly announcing the awakening of the Oriental Dragon to the world (Percival, 2007).

Therefore, although their experiences may seem quite different, there are many common factors that in fact determine the relative continuity and success or failure of a country's naval development. Special circumstances are extremely useful for explaining general points. To a certain extent, the modernization of the navies of Southeast Asian countries is regarded as a research object, not because their development is better or worse than other countries, but because their military situation is very similar to Taiwan's, and their experience can point out the other countries of Indo-Pacific region that if they follow suit, what challenges will they face (Ladwig, 2012).

2. The Research Issues and Scope of Naval Growth

In order to meet the challenge of naval modernization, the four main levels of decision-making seem to be particularly important, namely: 1. the first-level decision-making level of the grand strategy; 2. the implementation of the grand strategy and the level of resource integration; 3. levels of military policy and strategy formulation; and, 4. the level of naval policy/strategy formulation (Till & Supriyanto, 2018).

The distinction between these four decision-making levels is vague, but their hierarchical structure represents the determination of the highest national goals at the top and the assurance of naval means at the bottom. At each stage, the relevant decision makers must reconcile the purpose (objective), manner (method) and means (tools and procedures). The main problems at any level can be solved step by step, but it is inevitable that emergencies will occur in the hierarchical structure. Therefore, in the hierarchical structure, there needs to be a feedback system that develops cyclically. In addition, this is only a general strategic thinking model. After the operational objectives and action guidelines are determined, the detailed implementation means can be adjusted flexibly at any time.

When analysts look at the process of naval modernization, especially when it has the characteristics of an actual or potential naval arms race, they often conduct a series of analyses on motivations. First, whether the naval power that emerged from the decision-making process of a country is the result of a well-thought-out and coherent master plan at the grand strategic level. Or, on the other hand, it is an almost accidental product of various conflicting interests and opinions, which neither tells us about the overall intention of the plan, nor provides other countries with a reasonable response policy. Most navies show the mix of these two methods.

When trying to understand the various patterns of naval development in Southeast Asian countries, it seems natural to find some consistent symptoms, which will be explained in detail later. This article aims to propose basic directions for policymakers to think about the modernization of small and medium-sized navies similar to Southeast Asian countries. The basic argument is that after understanding the overall security goals of the countries concerned, they should adopt a macro-strategic vision and have a clear understanding of maritime interests, so that the Navy (or Coast Guard) can indeed play its due role in maintaining these interests. The suggestions may even be possible to use computer software tools such as artificial intelligence (AI) to conduct major strategic thinking, clearly formulate security strategy goals, as a guide for other lower levels, and at the same time, appropriately consider maritime cases in the decision-making process, and consider the priority and resources provided by government agencies to effectively transform the goal into a consistent strategy. Basically, the Department of Defense is suitable to promote the development of the navy from the perspective of the joint

force. In other words, the decision makers are based on their own system flaws, not for the purpose of destroying the environment, to assess the extent (if any) of the naval problems. In addition, to clarify the current state of army establishment is a system's "reasonable" policy or a coherent result under the strategy is very important.

The concept source in policy drive and strategy formulation implied by above arguments is complicated. Whether national nature or international environmental challenges should be used as the main evaluation factor is worthy of our in-depth discussion. In addition, how to view and explain the naval modernization process of other countries will also be helpful for a country to formulate the future military-building strategy. In other words, analyzing the consequences of naval modernization in other countries is the key factor in naval building decisions, even if it is indirect. Therefore, this article will review the causes, processes, and current status of Southeast Asian naval modernization, and then in the subsequent chapters, analyze the causes of problems, and finally put forward conclusions, suggestions, and future development directions.

3. The Participation History of Southeast Asian Countries in Naval Modernization

This article reviews the naval development of Southeast Asian countries as a whole, and finds that this is not just a naval arms race, but a normal naval modernization process (Till, 2012). It identified some possible consequences for the international stability of Southeast Asia.

Since the 1980s, the allocation of naval resources in Southeast Asian countries has increased significantly, focusing on the six most important countries in the South China Sea: Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. According to the data from the Stockholm International Peace Research Institute, the total expenditure on the navy of the six countries in the three decades from 1970 to 1999 increased by about 1 billion U.S. dollars (see Table 1). The increase in expenditure has led to the expansion of naval platforms. These navies have transformed from platforms of "brown water" to platforms of "green water" and even recently have been able to perform limited "blue water" platform missions. In the second decade of the 21st century, most Southeast Asian and South China Sea countries have a keen interest in underwater combat capabilities, or have acquired such capabilities. Obviously, the trend of dedicating resources to develop naval capabilities has yet to show any abating sign.

Table 1: List of Defense Expenditure in Major Southeast Asian Countries

Country	Main project	1960-69	1970-79	1980-89	1990-99	2000-09	2010-13	2014-18	Total
Indonesia	Military aircraft	1,784	485	1,178	617	656	921	1,060	6,701
	Armored vehicle	311	48	141	110	31	42	351	1,034
	Artillery	40	10	111	23	24	40	101	349
	Navy vessel	1,270	361	1,596	1,075	1,021	110	1,357	6,790
Malaysia	Military aircraft	299	566	485	1,369	1,117	60	348	4,244
	Armored vehicle	12	109	281	28	241	51	121	843
	Artillery	2	89	38	8	51	23		211
	Navy vessel	261	680	877	720	1,218	350	74	4,180
The Philippian	Military aircraft	246	558	248	223	100	35	341	1,751
	Armored vehicle	11	67	35	43	5	3	34	198
	Artillery		8	66	6			4	82
	Navy vessel	109	481	14	156	19	108	245	1,132
Singapore	Military aircraft	20	887	1,348	1,720	2,288	1,562	856	8,678
	Armored vehicle	20	308	154	62	126	400	211	1,281

Thailand	Artillery		92		71	17	20		200
	Navy vessel	20	377		699	2,018	198		3,311
	Military aircraft	609	1,183	1,127	1,546	581	468	364	5,878
	Armored vehicle	142	63	522	346	26	146	400	1,645
	Artillery	38	61	200	206	31	41	32	609
Vietnam	Navy vessel	114	460	554	1,781	22	115	221	3,276
	Military aircraft	1,006	2,031	2,829	606	355	1,124	717	8,668
	Armored vehicle	239	2,178	240		18		121	2,796
	Artillery	519	396	34					949
	Navy vessel	250	280	574	300	314	760	2,261	4,739

Note: Expenditure of the main combat system (unit: million U.S. dollars), calculated in 1990 U.S. dollars.

Data source: Stockholm International Peace Research Institute. (2020). SIPRI Databases (1960-2018). Stockholm International Peace Research Institute. http://www.sipri.org/databases

For this reason, we propose several key turning points: first, naval forces and capabilities increase with the increase of GDP; second, this is not just a simple replacement of outdated feature (in other words, it is not a simple modernization procedure), but a more complex structural transformation; third, the recent purchases of facilities have really changed the balance between offensive and defensive capabilities; fourth, they are changing the balance of regional naval power; fifth, the current large-scale procurement of several countries has led to the development of naval armaments. The competition is of special significance. It especially represents a huge follow-up influence on Southeast Asia and the larger Indo-Pacific strategy.

First of all, there are two theories trying to explain these turning points: the first is that these processes represent the naval arms race in Southeast Asia; the other is that these processes represent the modernization of the navy. In addition, other studies believe that the latest development of naval procurement in Southeast Asia should have different interpretations, at least in each country in the region should be regarded as a mature military development, and a slow and mature development in the navy. Generally speaking, the latter argument coincides with how each country views its own strategic environment and the resulting security tasks. But are the motives for modernizing the navies of the South China Sea countries really so?

3.1 Deconstructing the argument of the Southeast Asian Naval Arms Race

Since the 1990s, the arms procurement process in Southeast Asia, even if it is not an arms race, it is still regarded as having the potential to at least destabilize the region (Wood, 2014). Since then, military expenditures in this region have attracted international attention. Specially, Southeast Asia has always been regarded as a traditional economic region. When the comments of some politicians viewed these processes in a negative light, the idea that arms purchases in Southeast Asia might cause destabilization was strengthened.

It is true that at least some elements of the arms purchases in Southeast Asian countries are in line with an arms race argument. For example, in addition to naval procurement, the Minister of Defense of Malaysia (Najib Abdul Razak) announced a procurement of military aircraft F/A-18 and MiG-29 (Francis, 2010). The statement claimed that the Malaysian Air Force had returned to the same level as other services. (Defense Studies, 1993) Malaysia's reconfiguration of its armed forces from counterinsurgency to conventional operations is indeed the result of the continuous enhancement of the Singapore Armed Forces in conventional operations. Soon after the Malaysian Ministry of Defense announced the purchase of main battle tank PT-91, Singapore followed the launch of Apache Longbow helicopter Ah-64D. Myanmar’s attempts to develop conventional land combat capabilities in the late 1990s were almost certainly driven by Thailand’s growing military capabilities. Ostensibly, these patterns at least partly conform to the inherent element of "action-reaction" in any arms race (Bitzinger, 2010).

But how accurate are these arguments? As Richard Bitzinger, a senior researcher at RSIS in Singapore recently pointed out: it is problematic to describe the procurement of these weapons in Southeast Asia as an arms race. Although the internal politics of Southeast Asia is not completely stable, the argument about armed conflicts among Southeast Asian countries is almost certainly untenable at least for the foreseeable future. Therefore, it is wrong to describe Southeast Asian political relations as openly antagonistic and hostile to each other. It is almost certain that the manner of acquiring or declaring specific weapon capability is only unilateral, which does not conform to the "action-reaction" mode required by the arms race. Finally, since the 1990s, defense spending throughout Southeast Asia has not increased significantly. Indeed, defense spending in Southeast Asia has maintained significant consistency in terms of gross domestic product (GDP) or a percentage of the national budget.

It is true that in the 1990s, at least for some Southeast Asian countries, expenditures on naval platforms had increased considerably (see Table 1). In addition, a single acquisition seems to be at least parallel to some aspects of the arms race model. For example, Singapore ordered 6 guided missile frigates in 1983. Ostensibly, this is to assist the Singapore Navy in carrying out its established tasks and protect the maritime transport routes on which Singapore's economy depends. At the time, Singapore's naval strike capabilities included smaller brown water missile ships (Wong, 2015), while its neighbors had larger (and possibly more reputable) green water submarines.

Submarines are often described as the weapon of choice for the weak to stop the strong. Today, more and more countries in Southeast Asia are operating submarines, but their actual capabilities are worth exploring. Many smaller economies in Southeast Asia cannot match with the countries having large multi-purpose navies such as the mainland, India, or Japan, so they have invested in conventional submarines to deter their neighbors. From the perspective of deterrence theory, the proliferation of submarines in Southeast Asia has a major impact on the strategic balance of the region, but the maintenance and training of submarines also need to be considered. Basically, the challenges involved in establishing and maintaining a submarine force go far beyond the commonly understood or recognized challenges. At present, the navies of Southeast Asian countries have no ability and strategy to convincingly propose their own submarine power to play an effective deterrent effect. Although the proliferation of submarines in Southeast Asia may indicate that the strategic balance of the region is changing, the findings emphasize that it is very dangerous to confuse equipment purchases with actual capabilities (Andersson, 2016).

It is true that the guided missile frigate provides the Singapore Navy with anti-submarine warfare capabilities, but only Indonesia has submarines in the area, and before that, it no longer uses old seaworthy ships. In this way, in view of the mission of the Singapore Navy to protect waterways, obtaining countermeasure capabilities by deploying modern naval mine may be a more urgent requirement. We conclude that it is a political factor that drove Singapore to make this decision. Recently, the region's navy has been focusing on submarine purchases, first in Singapore, then Malaysia, Indonesia and Vietnam (Torode, 2014), and even Thailand is now interested in submarine purchases. Some commentators jokingly called these submarines as "keeping up with the Joneses." Countries in the region hope to satisfy the mentality of "not falling behind" through "outer outfits." However, there is also a very positive view, that is, these Southeast Asian countries "finally get" a more comprehensive naval force with both surface and underwater combat capabilities.

It can be said that "not falling behind" means that there is a competitive relationship between countries in the region, if not a completely confrontational relationship. Southeast Asia is certainly not a safe community. There are some lingering doubts and disputes in certain bilateral relations. However, under the current circumstances, there are still no definite confrontation and "action-reaction" events that have occurred, so the so-called arms race argument is undermined (if not invalid). In addition, as stated in the subsequent part of the argument, from a longer-term historical perspective, this kind of naval expenditure in the 1990s should actually be interpreted as an increase in naval platform expenditure to provide a non-arms race.

3.2 Long-term observations on Southeast Asian naval modernization

First, looking at the defense expenditure pattern of the entire Southeast Asia, the general trend is that before 1990, the respective navy's defense budget share was not large. Examining the number of major surface warfare by the navies of various countries, the general trend of relative negligence is obvious (see Table 2). The Singapore Navy is the most obvious manifestation of this relatively negligent model. In terms of major surface combat capabilities, significant growth has only begun in the 1990s. The Vietnamese Navy only began to increase its main surface combat capabilities in the late 1970s. Indonesia used a large naval force to prepare for war in the early 1970s, but by 1979 its main surface combat capability declined sharply. This pattern had remained unchanged for 20 years, and it was not until the late 1990s that naval platforms increased substantially. In the 1970s, the Philippines' activities in major surface combatants and heavy maritime transport increased significantly, but after the 1980s, these numbers declined significantly.

Table 2: Naval components of major countries in Southeast Asia

Country	Component	1969	1979	1989	1999	2009	2019
Indonesia	PSC	21	11	15	33	30	13
	Heavy spreader	7	9	15	28	29	13
	Submarine	6	3	2	2	2	4
Malaysia	PSC	2	3	4	10	12	10
	Heavy spreader		3	2	3		10
	Submarine					2	2
The Philippians	PSC		18	3	1	1	1
	Heavy spreader	6	27	24	9	7	1
	Submarine						
Singapore	PSC				6	12	6
	Heavy spreader		6	5	3	4	6
	Submarine				3	6	4
Thailand	PSC	3	7	7	20	20	9
	Heavy spreader	14	5	6	9	6	8
	Submarine						
Vietnam	PSC		3	7	7	11	10
	Heavy spreader		3	7	6	6	4
	Submarine				2	2	8

Note: PSC refers to the principal surface combatant, including aircraft carriers, cruisers, destroyers, frigates, and light-armed speedboats.

Data source: IISS. (2019). Chapter Six: Asia. The Military Balance, 119(1), 222-319.

There are two notable exceptions. The Malaysian Navy might have been small in the 1969s, but so far, the number of heavy spreaders and major surface warships of the Malaysian Navy has not decreased significantly during the entire study period. This constantly emphasized naval platform echoes the strategic calculations in Malaysia's geo-environment. Similarly, the Thai Navy started very late, although its development was slow but stable, and the number of platforms did not drop significantly.

The more counter-intuitive fact of this model is that for these countries, the marine environment has always been an important part of national life. The history of Southeast Asian countries has always described the powerful ocean elements, whether it is the characteristics of the archipelago or the maritime trade from the colonial period to the present.

3.3 From relative neglect to naval modernization

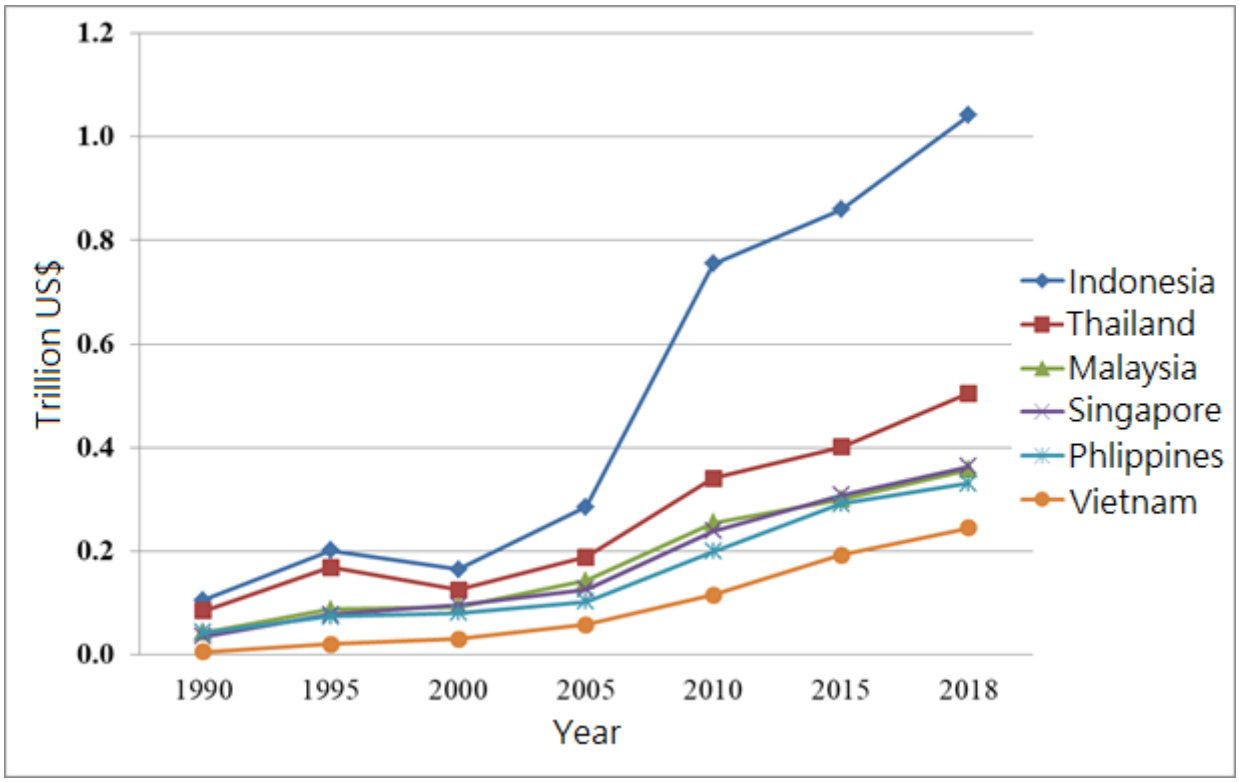
The more counter-intuitive fact of this model is that for these countries, the marine environment has always been an important part of national life. The history of Southeast Asian countries has always described the powerful

ocean elements, whether it is the characteristics of the archipelago or the maritime trade from the colonial period to the present.

The challenge we face is to explain these patterns of relative negligence in some cases, and explain the pattern of "from famine to feast" in other cases, that is, to explain the situation of getting rid of relative negligence, such as Southeast Asia From the 1960s to the 1980s, the national navy was "saving food and clothing," but since the 1990s it has been "generously donating," and investment in naval platforms has greatly increased.

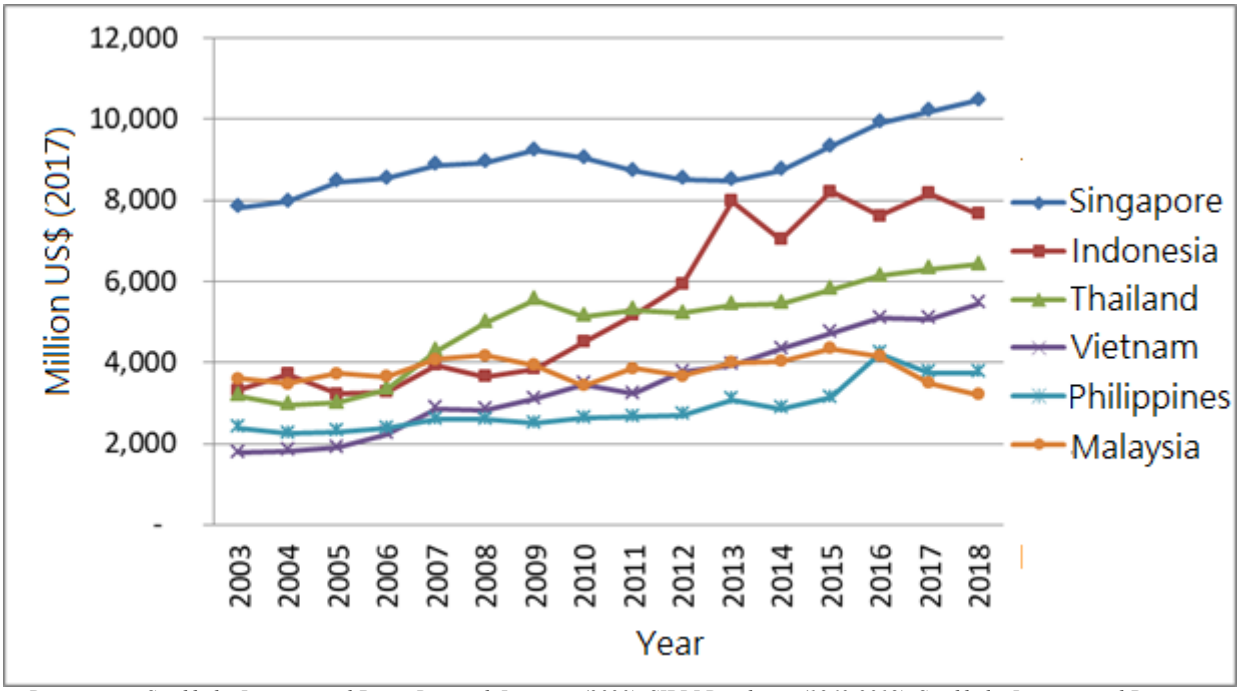
However, what is certain is that the strategic security reasons for this surge in investment in naval platforms are almost the same. Since the 1990s, maritime security (from criminal activities, competing territories, obtaining fisheries to the security of energy resource transportation routes) has become the focus of increasing attention in these countries. Considering the obsolescence or limited situation of naval systems and capabilities at that time, these navies must be modernized and expanded. In addition, as mentioned earlier, this phenomenon should not be regarded as a naval arms race. At least before the twenty-first century, it constituted a more or less slow-motion development of these countries towards a mature navy. There is a simple reason for this: the cost of maintaining at least a green water (if not blue water) platform on a naval platform is definitely much higher than that of a fighter jet. Therefore, from the perspective of military modernization, the financial burden has become an important consideration. From the perspective of gross domestic product (GDP) (see Figure 1), it is clear that the real significant GDP growth of these countries began in the 1990s. Therefore, there was a certain correlation between weapon procurement and economic prosperity during this period. However, after the beginning of the 21st century, this growth trend has stabilized. In other words, although GDP has increased (refer to Figure 2), defense spending as a percentage of GDP has almost remained at a level (refer to Figure 3).

Figure 1: GDP of major countries in Southeast Asia (1990-2018)



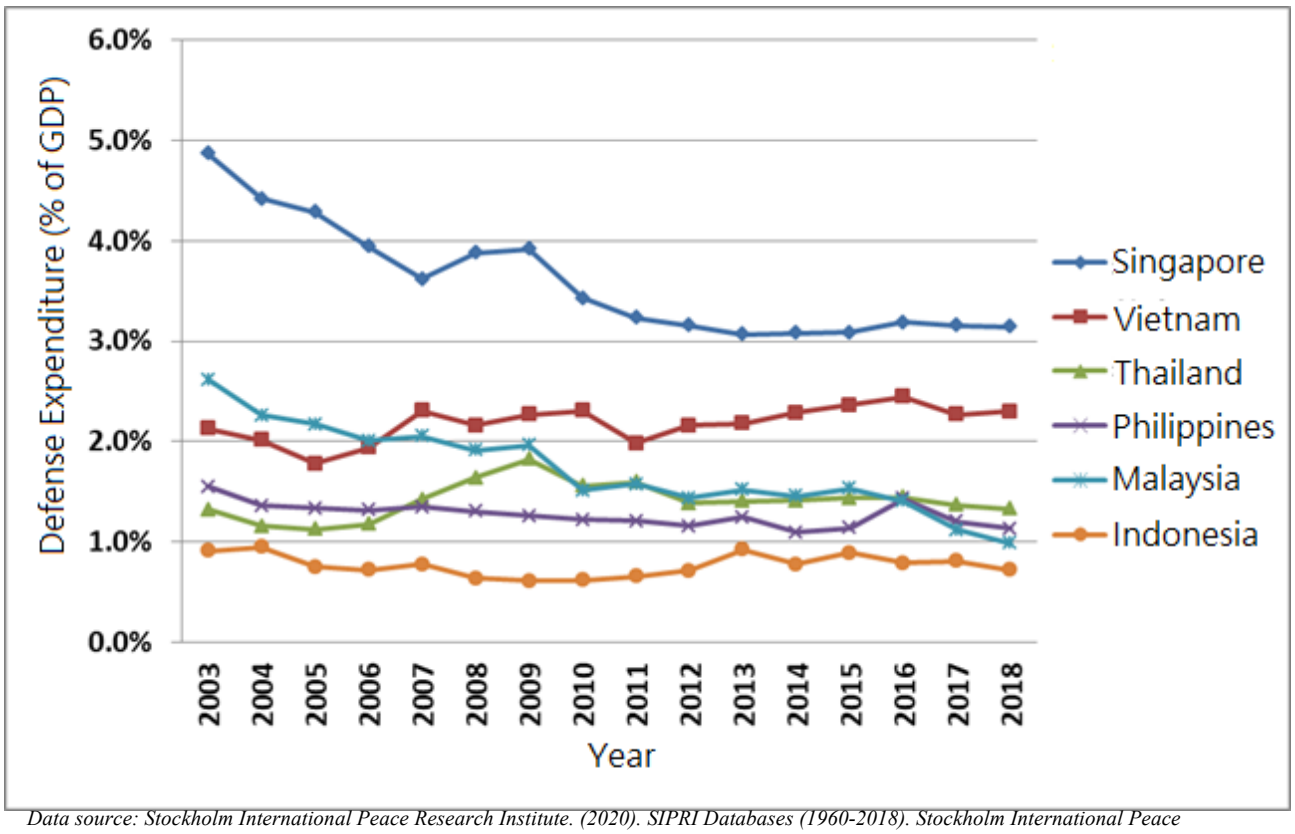
Data source: World Bank. (2020). GDP (1960-2019). World Bank Database. https://data.worldbank.org/indicator/ny.gdp.mktp.cd?most_recent_value_desc=false

Figure 2: Actual defense expenditures of major countries in Southeast Asia



Data source: Stockholm International Peace Research Institute. (2020). SIPRI Databases (1960-2018). Stockholm International Peace Research Institute. http://www.sipri.org/databases

Figure 3: Defense expenditure of major Southeast Asian countries as a percentage of GDP



Data source: Stockholm International Peace Research Institute. (2020). SIPRI Databases (1960-2018). Stockholm International Peace Research Institute. http://www.sipri.org/databases

At the same time, there are many targeted explanations for the surge in naval capabilities since the 1990s. In the case of Vietnam, it is obvious that from the 1960s to the 1970s, investment in the navy was relatively neglected:

because the Vietnam War mainly (in fact, almost completely) took place in the air and on land. Although the maritime domain is also important, it is small private ships that provide maritime supplies to the Viet Cong guerrillas to avoid detection by U.S. naval vessels. For most of the 1980s, Vietnam was involved in the Cambodian conflict (also known as the Third Indochina War), which led to the loss of its already scarce economic resources, and the United States fought the Second Indochina War for many years, and also paralyzed the country. In addition, Vietnam invaded Cambodia on December 25, 1978, and suffered an economic embargo. Therefore, it is not surprising that Vietnam's investment in naval platforms did not start to surge until the 1990s. Indian Prime Minister Narendra Modi said in a media speech, “giving 500 million U.S. dollars to the Vietnamese government to enhance its national defense capabilities,” and saying that “due to the mutual defense cooperation between Vietnam and India, the South China Sea will be more stable, safer and more prosperous” (Minh, 2016).

As one of the important countries in Southeast Asia, Indonesia's pursuit of maritime diplomacy and establishment of regional cooperation can be regarded as a way to achieve two goals: first, ensure security, (Supriyanto, 2016) second, actively resolve border disputes (Wijaya, 2014) and demonstrate the ability to coordinate international affairs and regional leadership (Sebastian et al., 2015). Indonesia ended the 1960s with the largest naval power in Southeast Asia. However, in the history of Indonesia, the Sukarno government favored the Soviet Union. During this period, the main surface combatants (PSC) deployed by the Indonesian Navy were Sverdlovsk class cruisers, 7 Skory class destroyers and 13 frigates. President Sukarno's subsequent downfall due to a military coup d'etat had affected relations with the Soviet Union. In any case, these Soviet ships were obviously not suitable for tropical conditions, especially the severely corroded hulls in muddy and high-salinity tropical waters, and then the fleet was returned to the Soviet Union or decommissioned. The military government that violated human rights replaced Sukarno, leading to an arms embargo and also affecting the number and quality of the entire Indonesian navy in the 1970s and 1980s. The surge in the PSC of the Indonesian navy in the 1990s could be attributed to the acquisition of former East German naval vessels by former President Suharto. This decision was mainly promoted by Habibie, the Minister of Research and Technology at the time. In completing this acquisition plan, it took full advantage of its close ties with the new German government. However, these ships were purchased at exorbitant prices. Therefore, it cannot be ruled out that corruption was a key factor in the arms purchase case. (Robison, & Hadiz, 2004) In the next 10 to 15 years, Indonesia hopes become a major regional military power. The ambitions of the Indonesian Tentara Nasional Indonesia (TNI) armed forces include a green navy with 274 ships, 10 fighter squadrons and 12 A diesel-electric submarines (Schreer, 2013).

As far as Singapore is concerned, its naval investment is in sharp contrast with the above-mentioned countries. The Singaporean Navy had tolerated for ten years from 2000 to 2009, mainly due to the influence of Israeli military advisers, who were the ancestors of the establishment of star-nation armed forces. These Israeli advisers arrived in Singapore after the astounding victory of a conspiracy during the 1967 Middle East-Israel-Arab War. They firmly believed that only by maintaining a greater advantage over potential enemies in the air combat system could they absolutely ensure the survival of a small country like Singapore. This strategy obviously hindered the development of the Singapore Navy. However, by the 1990s, with the maturity of the Singapore Air Force, the defense budget could then focus more on naval modernization or equipment upgrades. Just as Richard Lim, the former head of the Singapore Marine Corps, gave a speech on the 30th anniversary of the establishment of the Singapore Navy on May 5, 1997, “It started as a small patrol and now finally has a balanced navy." Richard Lim further pointed out that the Singapore Navy had evolved from basic coastal defense capabilities of patrol boats and missile gunboats to a modern navy with maritime patrol aircraft, lightning protection ships and new patrol ships, which were sufficient to perform maritime defense tasks and maintain maritime transport routes. Especially in the 21st century, submarine combat readiness is further added to the list of combat forces required for such a balanced force (Lim, 1997).

Take Thailand as an example. The surge in the number of PSCs in the 1990s was attributed to the Chuan Leekpa government, which purchased a helicopter carrier and many Continental 053 Jianghu-class frigates from Spain. According to reports, the Thai navy was impressed by the quality of the mainland frigates, which were sold to

Thailand at the so-called friendship price. There are few explanations as to why these continental frigates were purchased, and they are far from the truth. On the face of it, the Thai Navy has been worried about the insufficient number of such ships. Under the escort of good relations between Thailand and China, the frigate was finally obtained. However, due to stagnant relations between the two militaries, the Thai Navy was unable to obtain better quality platforms and equipment. Therefore, it was more likely to speculate that despite the Thai navy's opposition, the frigates were purchased from the mainland, and these arms purchases were only part of the political relationship between Thailand and China.

3.4 Impact on the strategic stability of Southeast Asia

The above-mentioned strategy in itself does not constitute a sufficient basis for the naval arms race. If an arms race is to take place, there must be a mutually-recognized antagonistic relationship between relevant strategic participants. Even if a country's interests in fisheries and energy resources conflict with the territorial claims of the opposing country, such conflicts are not enough to constitute the existence of "mutual recognition and confrontation" (Gray, 1996).

But this does not mean that we do not have to worry about the strategic stability of Southeast Asia today. Miscalculations can lead to situations of armed conflict that policymakers neither anticipate nor want. In the worst case, the two countries regard each other as potential rivals in future wars and conflicts over territorial resources and geopolitics. At least one party believes that its geostrategic conditions are fundamentally unfavorable, and therefore increase the cost of preemptive military operations. Finally, both countries have military capabilities to project weapons to each other. In other words, both countries have the ability to threaten each other's national interests and even the survival of the country.

After understanding strategic stability from this perspective, it is clear that this condition does not apply to Southeast Asia. As mentioned earlier, there is no obvious antagonism between Southeast Asian countries. It is true that there are disputes between specific countries, but these issues do not constitute a cause of open hostility.

The recent acquisition or ongoing naval platform acquisition plan does constitute a potential but very limited weapon projection and combat capability. The introduction of this weapon projection capability in the naval sector can change the strategic pattern of Southeast Asia to a certain extent. However, just like earlier studies, this change in the strategic pattern of the region has not yet taken place. Although the regional navy began to acquire weapon projection capabilities, the number acquired could only provide a very limited amount of weapon projection, and this type of weapon could not be operated in any continuous manner. Although having said that, we cannot completely rule out the possibility of misunderstanding. The signs show that this misunderstanding is gradually out of control and seems to be slowly falling into armed conflict.

Nowadays, there is a geopolitical issue in Southeast Asia. If it is not handled properly, it may get out of control and fall into armed conflict. That is the territorial dispute in the South China Sea. Therefore, it is not an exaggeration to describe the South China Sea as the hot pot of Asia, or the throat of the Western Pacific and Indian Oceans. (Kaplan, 2014) The latest developments in the mainland's establishment of airfields and land reclamation activities on some atolls and small islands are particularly noteworthy. These activities can be regarded as evidence of the mainland's establishment of permanent military bases in the South China Sea, and can also be regarded as evidence that is not merely purely based on military considerations. In addition to the army's helicopters, (Son, 2014) Vietnam recently purchased 6 Kilo-class submarines (Izvestia, 2016) and 4 Gepard-class frigates (Kienthuc.net.vn, 2014) from Russia to enhance its naval capabilities and at least interfere with mainland naval operations in the South China Sea (Abuza, 2014). After since the mainland's official announcement of the "Nine-Dash Line" in 2009, the Vietnamese Navy began to actively modernize. Between 2011 and 2015, the naval vessel procurement budget accounted for 44% of the total defense imports (Abuza & Anh, 2016). Malaysia's acquisition of two Scorpene submarines and the Philippines' strong interest in purchasing submarines are almost certainly related to the respective interests of these countries in the South China Sea dispute (Laude, 2016a).

In addition, due to the lack of appropriate mechanisms for handling maritime incidents and other crises, the increasingly crowded nature of the South China Sea may eventually trigger a crisis; if not managed properly, the crisis may gradually get out of control and even evolve into conflict. Southeast Asian countries have their own processes, their own attitudes, and their own problems, all of which are reflected in their very unique naval policies (Till & Chan, 2014).

Undoubtedly, the South China Sea has become a potential tipping point in Southeast Asia, attracting widespread international attention, mainly due to the mainland's intervention in the area. Indeed, Southeast Asian countries are competitors for small islands and reef atolls in the South China Sea. Given that Southeast Asian countries only have the basic ability to project naval power into the South China Sea, and have not maintained the naval presence for a long time, it is reasonable to believe that the submarine and PSC procurement behavior is caused by the mainland's intervention in the South China Sea, while the territories of Southeast Asian countries Declaring that the influencing factors are weak, which means that earlier observations in this study that there is no fierce arms race among Southeast Asian countries are still valid. The purchase of naval arms by Southeast Asian countries since the 1990s should not be regarded as a naval arms race. On the contrary, a more comprehensive modernization of naval forces should be regarded as the dominant pattern. Although progress has been slow, there has been an accelerated trend recently. There are different explanations for the progress of each country. Although economic growth has brought about an increase in the affordability of national defense, another reason is the special political development of each country, and people have gradually realized that the ocean is increasingly important to national security and economic prospects. . In short, Southeast Asian countries themselves do not have the conditions and motivations for the existence of a naval arms race.

But this is not to say that the increasing number of naval forces with green water capabilities such as PSCs and submarines is a target that is not worthy of attention. As mentioned earlier, the expansion of relatively advanced and capable naval ships, the South China Sea is not only a potential flashpoint of geopolitical tensions due to frequent shipping, but also in lack of appropriate mechanisms to manage these tensions and risks. In sea areas with potential crises, dangerous conflicts may arise at any time due to maritime accidents. Although Southeast Asia has experienced a period of relative strategic stability, the aforementioned naval procurement risks undermining regional strategic stability. Of course, if there is no appropriate management of the corresponding national weapons procurement plan, there will be no appropriate regional crisis management mechanism, and the strategic stability of Southeast Asia may deteriorate.

4. Naval Modernization in Southeast Asia: Taking the Six Countries in the South China Sea as Examples

Economic factors and geopolitics influence the modernization process of the navies of small and medium-sized countries, as do the Indochina Peninsula and South China Sea countries. Therefore, the development model of the Southeast Asian navy seems to have such a commonality. The detailed description is as follows.

4.1 Singapore

The security of the Straits of Malacca and Singapore is drawing increasing attention from the outside world, and countries in the region are working hard to strengthen their measures. Japan and the United States are increasingly criticizing coastal countries such as Indonesia, Malaysia, and Singapore. The former believes that the latter is not doing enough to ensure the safety of shipping in the region. The high incidence of piracy and armed attacks on ships and the threat of maritime terrorism have been used as a means to support the new security recommendations. Indonesia, Malaysia, and Singapore have increased the number of patrols in the Malacca Strait, while India and Thailand have also patrolled access to the northern part of the strait (Bateman, 2005).

Before modern skyscrapers were encircled, Singapore was a relic of an ancient trading port. Not only was it prosperous and international, it was also a key node of the Maritime Silk Road (Miksic, 2013). From the 1990s

to the 21st century, from the perspective of several important modernization strategies, Singapore's current naval development has been continuous. The modernization of the Singapore Navy has always been very smooth because of injecting capital from time to time to the aging fleet and the serious combat gap (Chow, 2015). Despite the financial crisis in 1997-1998, Singapore's navy continued to grow, and therefore it was ahead of other neighboring countries in many respects.

By the beginning of this century, Singapore had completed most of the balance of naval forces in response to the original strategic vision, and the modernization process continued until 2010. In order to maintain and enhance the existing naval combat capabilities, Singapore has gradually strengthened its existing overall functions. Therefore, the implementation of projects in recent years has not been a radical addition to the force, but more precisely, it has been gradually strengthened or expanded. From a financial, operational and technical point of view, this reflects a more sustainable defense strategy, which enables Singapore to balance its maritime defense and security requirements in the ever-changing defense environment at home and abroad, while keeping pace with the latest naval technology.

4.2 Indonesia

This section presents Indonesia's maritime vision, derivative goals, and the challenges faced in achieving these goals. Obviously, it may be too early to give definitive answers to these questions. But the forecast of Indonesia's alternative ocean strategy seems to be sound. First of all, Indonesia's ambition to march toward the sea has roughly taken shape. In other words, a healthy marine economy, a national defense industry base, and a powerful navy and coast guard can contribute to general economic development, strengthening national integrity, and safeguarding national interests, thereby ensuring national security and regional security, even global security. Secondly, taking the failure of maritime procedures as the starting point, we have come to a conclusion that is completely opposite to the above speculation. The ocean is the source of strength, peace and prosperity for Indonesia and its neighboring countries. Everyone has common interests in sharing waters. However, the ocean is also a threat and an obstacle to national development, because the ocean is likely to keep the country out of the world. Especially, a country that combines naval forces to defend maritime interests will largely determine the rules of the international political and economic game. Of course, the above two points of view are at the two extremes of possibility, representing two completely different choices. In the similarities between them, what is more likely to happen will be more nuanced. Therefore, we can only wait and see what form of development the Indonesian navy may take and the consequences that may occur.

4.3 Malaysia

Geographically, the Strait of Malacca divides Malaysia into two parts: Peninsular Malaysia and East Malaysia. Peninsular Malaysia is located in the middle of Southeast Asia, below Thailand, with the waters of the Strait of Malacca to the west and the South China Sea to the east. East Malaysia is composed of two states in Malaysia. Malaysia connects east and west waters and has historically been influenced by merchants from all over the world. Malaysia's overall marine policy is to provide marine products, services, and development and economic activities on a constantly balanced and permanent basis (Basiron & Kaur, 2009).

Although there are still many inherently insufficient transparencies (Sutarji & Kasmin, 2009) in Malaysia's naval modernization process, (Malaysia's National Defense Policy, 2015) it also reflects the dangers and uncertainties that the Royal Malaysian Navy (RMN) should pay attention to in the decision-making system. (Basiron, 2012) Is this the mainland's overconfidence in the South China Sea, or the internal security issue taking the Sabah incident as an example, or non-traditional maritime security issues such as piracy or illegal fishing. These issues are partly due to uncertainties of very basic strategies. Obviously, there is a lack of consensus on Malaysia's naval development policy, (Matthews & Yip, 2013) and another difficulty comes from the decline in oil prices, which greatly reduces the purchasing power of oil and worsens the situation. The Malaysian currency and the consequent limited budget have raised very practical questions, (Bitzinger, 2015) that is, if anything happens, what capabilities Malaysia should have. At present, RMN opportunistically chooses the capabilities required for

universal deterrence from the long-term list. The project is mainly based on the current situation. This led to the creation of the Navy's defense procurement system. Despite the best efforts of the Navy's leadership, there is no theoretical continuity in practice (Ministry of Defense (Malaysia), 2010). In general, it is clear that there is an intention to improve the cost-effectiveness of the fleet by training savvy users and rationalizing inventory, but this is considered too diverse in terms of support and operational requirements. RMN currently operates about 15 ship-class ships, and the goal is to reduce them to 5 ships by 2030 and at the same time deal with obsolete ships accounting for 40% of the total. In the current situation, this is indeed a challenge.

Malaysia is located on the mainland's "One Belt, One Road" and is the throat of the mainland navy from the Pacific to the Indian Ocean. During Najib Abdul Razak's tenure as prime minister, Malaysia actively developed relations with the mainland (Teoh, 2016). In addition to assisting in the development of infrastructure such as high-speed railways, the mainland also vigorously subsidized the Malaysian navy to purchase armaments (Leng, 2013). Regarding the overlap with the mainland's sovereignty in the South China Sea, Najib believes that disputes should be handled calmly and rationally through dialogue, in accordance with the rule of law and peaceful negotiations, including the Philippines, Vietnam, Brunei and Taiwan (Beng, 2016).

4.4 Vietnam

Unlike the well-trained and experienced Vietnamese ground forces, the Vietnam People's Navy (VPN) has hardly participated in large-scale naval battles since its establishment. Lack of proper training of modern naval combat strategies, VPN faces the most severe challenge, because the navy itself cannot obtain relevant new weapon systems, as well as the knowledge and experience required for actual combat operations. Due to budget constraints, there are very few live ammunition naval exercises. In order to overcome this obstacle, VPN has recently purchased some training simulation systems for naval systems from Russia, such as the Gepard class frigates and Molniya class fast attack boats. The deployment of these first training ships by VPN can also help the Naval Academy improve training courses. However, a qualified and well-organized training program depends entirely on future budget allocation and clear policy formulation in which naval training will play a key role in modernization.

The quality and quantity of the fleet is another major issue. Most of the VPN surface detachment is still made up of outdated Soviet-era small ships. Due to the vast exclusive economic zone, more and more advanced mainland warships invade the sovereign waters, and the ability of VPNs to protect maritime rights and interests is threatened. The recent accumulation of Vietnam's maritime affairs is obviously not enough to ensure the deterrence in response to maritime conflicts in the South China Sea. As mentioned earlier, VPN requires time and other resources to train seafarers to use new weapon systems and related tactics.

The ultimate challenge comes from a naval strategy that lacks public debate. Although Vietnam announced its naval strategy in 2011 and pointed out some future directions for the development of the country's navy, in addition to comprehensively integrating economic and maritime defense measures, it actually did not publish any detailed information on how to develop a navy with sufficient combat power. So far, no real naval strategy has been disclosed, and due to confidentiality, it seems extremely unlikely for the public to learn more about the relevant strategy. Even in Vietnam, experts and analysts can only collect scattered information. Therefore, an incomplete analysis can only be made from VPN contracts with foreign navies and the statements of several leaders. The deep secrecy and lack of transparency surrounding the formulation process of the Navy and related strategies restricts the decision-making process of other intellectuals outside the military field, thus forming unnecessary restrictions on how to make comprehensive but effective comments or provide feedback (Barrie & Waldwyn, 2016).

4.5 Thailand

In contrast, Thailand seems to be less concerned about the complex jurisdictional benefits of the South China Sea. Since 2004, the Thai army, like the Philippines, has long been concentrated on the land borders adjacent to

Vietnam and Cambodia, or the threat of terrorism and insurgency in the southern region. Therefore, Thailand is particularly dependent on the army and air force while downgrading the navy. However, this does not mean that Bangkok will ignore the protection of its maritime borders. Since the 1990s, the Royal Thai Navy has acquired mainland-built frigates and the former Spanish light aircraft carrier HTMS Chakri Naruebet, which has upgraded the navy from its brown water capability to a limited blue water capability.

The modernization of the Thai navy continues to accelerate, but this does not mean that Thai defense has been sea-oriented. Due to strategic and political considerations, military personnel still dominate the development of national defense. The lack of conventional maritime threats, such as the threat faced by the Philippines, (Ministry of Foreign Affairs (People's Republic of China), 2014) is unfavorable to the huge and effective navy construction motivation. Therefore, a question is often raised "If Thailand's defense and military strategy are still centered on land, then why choose a sea platform that is as expensive as an aircraft carrier?" Perhaps political and economic non-strategic factors can answer this question.

In a way, Thailand, on the Indochina Peninsula, is similar to Vietnam. Land-based threats from the mainland and Cambodia, coupled with the military legacy of a long civil war, forced Vietnam to maintain a large standing army, while its naval capabilities were limited to coastal and river defense. This policy was not changed until the threat from the mainland gradually shifted from the northern border of Vietnam to the South China Sea, and Hanoi was competing with Beijing for the ownership of some islands in the Spratly and Paracel Islands. The Vietnamese Navy is composed entirely of torpedo boats and fast assault boats. Through the purchase of Russian-built Goppard-class frigates and six Russian Kilo-class submarines, Vietnam's naval capabilities have been greatly improved. Submarine introduces Vietnam into the field of undersea operation. In theory, at least, the submarine will enable Vietnam to asymmetrically challenge the mainland's maritime control in the South China Sea during the conflict and monitor mainland maritime forces during peacetime.

Owning platforms is one thing, while operating and maintaining them effectively is another. Therefore, in this case, we must keep watch for Thailand, Vietnam, and Myanmar's strong ambitions to purchase and operate general naval platforms, especially the ambition to maintain the submarine military. After-sales support and training may make the purchasing country spend far more than the initial payment of the platform itself. Considering the political attention and financial investment that must be put into the Navy, maintaining the effectiveness of the Navy is also a political strategic decision. This is where political leadership and operation are most important. Without political and economic support to ensure sustained and sufficient funding, it is difficult to see how submarines and other naval platforms maintain operational deployment and strategic effectiveness. Indeed, a recent analyst concluded that most submarine operators in Southeast Asia have not yet convincingly demonstrated their ability and strategy to operate their submarine fleets, thereby acting as an effective deterrent.

4.6 The Philippines

The Philippines Navy (PN) is the naval warfare service department of the Philippine armed forces. PN patrols maritime borders together with the Philippine Coast Guard that was previously an affiliated unit and became an independent maritime law enforcement unit in 1998. As a maritime country and archipelago country with about 95 million people, the Philippines has a total of 1,707 islands, not to mention many disputed islands in the South China Sea. There is no doubt that PN can play an important role in national security (Ministry of Foreign Affairs (People's Republic of China), 2016).

The revised version of Revised Armed Forces of the Philippines Modernization Program (RAFPMP) is implemented in three phases. (Nepomuceno, 2018) The first phase of the so-called "Horizon One" was implemented from 2013 to 2017. The second phase of "Horizon Two" is implemented from 2018 to 2022. The third phase of "Horizon Three" will be implemented from 2023 to 2028. PN is integrated with the entire armed forces and is currently implementing modernization in accordance with PN's 2020 Strategic Navigation Plan.

As part of "Horizon 2", PN is buying new battleships to improve maritime combat capabilities, (kknews, 2018) including the introduction of a new type of anti-submarine missile frigate for the Ocean Combat Force (OCF) under the Corvette Purchase Program. This is in line with PN's expectation that the force will have a mixed capability upgrade plan. In fact, the plan requires the purchase of 12 additional frigates between 2013 and 2028.
The Philippine Armed Forces procurement plan submitted in December 2016 includes 12 naval frigates, of which 8 are planned for the "Horizon 2" phase, and the other 4 are for the "Horizon 3" phase. Finally, according to the latest plan submitted by PN (the "Horizon 2" phase in 2017), only 2 frigates are about to be funded. Based on the official document issued by President Duterte, the proposed budget in June 2018 is Php28 billion (Laude, 2016b).
On August 22, 2019, PN announced the "Government to Government (G2G) Approach" and planned to purchase 2 frigates from South Korea (NAVAL Technology, 2019). At the same time, the South Korean government was planning to donate two additional groups of Pohang-level personnel to support and improve the Philippines' naval capabilities. As part of this plan, PN's maritime transport and amphibious capabilities were strongly modernized and ready to replace the country's traditional ships. The service required support and funding to purchase two strategic maritime transport vessels (SSV) as part of a priority project of "Horizon 2."

In the RAFPMP released by PN in 2012, the fleet needed to purchase at least four strategic shipping vessels between 2013 and 2028. In the last document submitted by PN to the Department of Defense (DND) at the end of 2017, through Malacanang's review and approval, PN requested the purchase of 3 strategic maritime transport vessels with a budget of Php7.5 billion (or an average of Php2.5 billion for each SSV). However, with the reduction of "Horizon 2" to two ships by Malacanang, the plan was approved in early 2018, and the entire budget was reduced to Php5.0 billion.

From the perspective of PN's navy modernization content and the types of assets to be purchased, PN has no intention of building a navy with blue water capabilities. The main purpose of the modernization of the PN is to defend offshore territories and protect the borders of the islands and its own waters, especially the region passed by the new Philippine Islands Baseline Law. This policy can be obtained from the purchase of second-hand Hamilton Class Cutters from the United States, in which the clues of the PN modernization plan can be seen.

The Philippines regards naval modernization as an important policy necessary to safeguard sovereignty and national construction. In essence, PN modernization still has five challenges to be overcome: the current threat perception of decision-makers, restrictions on procurement resources, competition between services, suffocation and difficulty of procurement system, and in lack of social acceptance. Unless the Philippine government reformulates its national security policy to overcome these challenges, it will be difficult for PN to regain the glory of the world's outstanding navy (Banlaoi, 2012).

5. Conclusions, Suggestions and Prospects

In short, most of the Southeast Asian countries studied in this article are not prepared to prioritize the navy as a clear political goal. Due to the improvement of the economic situation (or worse), the modernization of the navy in the region seems to be a gradual process, not accidental or even accidental, but they do not come from the highest political leadership or are jointly supported by a well-coordinated plan.

Changes in the political and economic environment may change the pace and even the continuity of naval modernization. It should be remembered that initially the countries in the region were able to expand their military and air forces in the early 1990s, mainly from the economic miracle of the time, but shortly afterwards, in 1997, policymakers faced the Asian financial crisis, which weakened their abilities to maintain the military expansion at the time. As in other regions, naval decision makers of Southeast Asian countries have indeed been waiting for opportunities.

According to news media reports at the end of 2020, (Lu, 2019) after attending the ASEAN Defense Ministers' Meeting, US Secretary of Defense Mark Thomas Esper called on the South China Sea countries to actively

express their views in Manila, and strongly protested the mainland's expansion of sea power in the South China Sea in recent years. There is no doubt that the entire Asia-Pacific region, especially Southeast Asia, is currently undergoing a large-scale naval modernization process. This phenomenon is completely aimed at the mainland's invasion of the South China Sea, because it has formed an arms race that threatens peace in the region. Although at the end of the last century, economic prosperity was the main reason for the expansion of naval armaments. Since the 1980s, there has been a significant increase in the allocation of naval resources in Southeast Asian countries, especially the six countries in the South China Sea: Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. According to data from the Stockholm International Peace Research Institute, (SIPRI, 2020) the total expenditures on naval platforms of the six countries mentioned above increased by about one billion U.S. dollars during the 30 years from 1970 to 1999.

For these countries, the marine environment has always been an important part of national life. The history of Southeast Asian countries has always described the powerful ocean elements, whether it is the characteristics of the archipelago, or the maritime trade from the colonial period to the present. Today, such geopolitical issues in Southeast Asia may get out of control and fall into armed conflict if they are not handled properly.

Entering the second decade of the 21st century, the South China Sea has become a potential tipping point in Southeast Asia, arousing widespread international concern, mainly because of the mainland's intervention in the region. Indeed, Southeast Asian countries are competitors in the economic interests of small islands and reef atolls in the South China Sea. Given that Southeast Asian countries only have the basic ability to project naval power into the South China Sea, but do not have the ability to maintain a navy's existence for a long time, we have reason to believe that the procurement of submarines and major sea surface combatants is caused by the mainland's intervention in the South China Sea.

In response to the mainland's policy to intervene into the South China Sea, the United States has significantly increased the size of its navy, the degree of freedom of navigation, and the level of interaction with Southeast Asian navies in the area in recent years. Asian countries are also willing to devote energy and resources to their naval development. Under the leadership of former President Obama, the United States has participated in ASEAN affairs and has indeed made significant progress in influencing local policies. Similarly, Trump promised to increase the naval construction from the current 274 to 350, which shows that the United States is still actively preventing China from expanding its autonomy in the South China Sea.

Changes in the political and economic environment may change the pace and even the continuity of naval modernization. Initially, countries in the South China Sea region were able to expand their armaments in the early 1990s, mainly due to the economic miracle at that time, but shortly afterwards, they faced the Asian financial crisis in 1997, which weakened their ability to maintain military expansion at that time. However, in recent years, the mainland's intervention in the South China Sea, regardless of whether its purpose is economic or military, has caused Southeast Asian naval decision makers to "sit on their backs."

In the future, the mainland's self-confidence in the South China Sea will further promote the modernization of the Southeast Asian navy, which may or may not be, because this is related to the mainland's economy to a certain extent. Secondly, the uncertainty about the future direction of the United States in Southeast Asia, the reliability of its security guarantees, the withdrawal of the Trans-Pacific Partnership (TPP), the Indo-Pacific strategy in the Trump era, and Biden's coming to power in 2021 all affect the future of the South China Sea. There are many variables in the forecast of the development of the situation.

However, basically, the only reasonable way forward is the plan to prepare for the threat of the enemy, respond to the uncertain future, and create more capabilities, and it is also a principle of sustainable development. If this is indeed the direction of the actual efforts of Southeast Asian naval planners, then, in the foreseeable future, the worry that the modernization of the navy will destabilize the regional situation will be reduced.

Maritime security is a major issue in the Asia-Pacific region, but until now, solutions have been highly plagued by complex "political problems". These include different interpretations of the Law of the Sea that supports regional maritime security, lack of maritime order, numerous conflicting claims on maritime jurisdiction, the impact of increased naval activity in the region, and the lack of agreed maritime boundaries. Arms expansion will never resolve the South China Sea disputes. Basically, the effective concrete plan is to return to the law and consultation mechanism. Among them, the recently established "Regional Comprehensive Economic Partnership (RCEP)" is a good organization for consultation, because it covers almost all stakeholders in the South China Seas. For those with economic and trade interests, under the coordination of economy and politics, the situation of fierce warfare should be avoidable.

Acknowledgments
This research was not sponsored by any foundation or organization.

References

Abuza, Z. (2014). Vietnam's Naval Upgrades Likely Will Limit but not Deter China in the South China Sea. cogitASIA Center for Strategic and International Studies. http://www.cogitasia.com/vietnams-naval-upgrades-likely-will-limit-but-not-deter-china-in-the-south-china-sea/

Abuza, Z. & Anh, N. N. (2016). Vietnam's Military Modernization. *The Diplomat*. http://thediplomat.com/2016/10/vietnams-military-modernization/

Ali, I. (2017). U.S. Destroyer Challenges China's Claims in South China Sea. *Reuters*. https://www.reuters.com/article/us-usa-china-southchinasea-exclusive-idUSKBN1AQ0YK

Andersson, J. J. (2016). Submarine Capabilities and Conventional Deterrence in Southeast Asia. *Contemporary Security Policy*, 36(3), (January), 490.

Banlaoi, Rommel C. (2012). Philippine Naval Modernization: Current State and Continuing Challenges. Quezon City: Philippine Institute for Peace, Violence and Terrorism Research, 40.

Barrie, D. & Waldwyn, T. (2016). Vietnam paddles its own Kayak. *The International Institute for Strategic Studies*. http://www.iiss.org/en/shangri-la%20voices/blogsections/2016-588c/vietnam-paddles-itsown-kayak-46c1

Basiron, M. N. & Kaur, C. R. (2009). A National Ocean Policy for Malaysia: Rationale and Proposed Components. East Asian Seas Congress 2009, Manila, the Philippines. http://www.pemsea.org/sites/default/files/presentation_t1-1_basiron_0.pdf.

Basiron, M. N. (2012). The search for sustainability and security: Malaysia's maritime challenges and opportunities. In: Ho, Joshua & Bateman, Sam eds., Maritime Challenges and Priorities in Asia: Implications for regional security. London and New York: Routledge, 72–82.

Bateman, S. (2005). Naval Balance in Southeast Asia: Search for Stability. *IHS Jane's Defense Weekly*. https://www.researchgate.net/publication/293271225_Naval_balance_in_Southeast_Asia_-_search_for_stability

Beng, K. K. (2016). Growth in ties validates trust in China: Najib. *The Straits Times*. https://www.straitstimes.com/asia/se-asia/growth-in-ties-validates-trust-in-china-najib

Bitzinger, Richard A. (2010). A New Arms Race? Explaining Recent Southeast Asian Military Acquisitions. *Contemporary Southeast Asia*, 32(1), (April), 50–69.

Bitzinger, R. (2015). Tight budget hampers Malaysia's defense ambitions. *Today*. http://www.todayonline.com/world/asia/tight-budget-hampers-malaysias-defence-ambitions?singlepage=true

Chow, J. (2015). RSN beefs up older ships with modern muscle. *The Straits Times*. https://www.asiaone.com/singapore/rsn-beefs-older-ships-modern-muscle

Defense Studies. (1993). Malaysia Set To Buy MiG-29 and F/A-18s. *Defense Studies*. http://defense-studies.blogspot.com/2009/04/singapore-navy-launches-two-more.html

Dolven, B., Elsea, Jennifer K., Lawrence, Susan V., Rourke, Ronald O' & Rinehart, Ian E. (2015). Chinese Land Reclamation in the South China Sea: Implications and Policy Options. *Congressional Research Service*. https://fas.org/sgp/crs/row/R44072.pdf.

Francis, L. (2010). Malaysia to keep some MiG-29s, delay choice on replacement fighters. *Flightglobal*. http://www.flightglobal.com/news/articles/malaysia-to-keep-somemig-29s-delay-choice-on-replacement-338765/

Goldrick, J. & McCaffrie, J. (2013). Navies of South-East Asia: A Comparative Study. Abingdon, UK: Routledge, 320.
Gray, C. (1996). Arms Races and Other Pathetic Fallacies: A Case for Deconstruction. *Review of International Studies*, 22(3), (July), 323-335.
Izvestia (2016). "Вьетнаму понадобился российский (Vietnam needs a Russian "Dolphin"). Дельфин. http://izvestia.ru/news/639738
Kaplan, R. (2014). Asia's Cauldron: The South China Sea and the End of a Stable Pacific. New York: Random House, 34.
Kienthuc.net.vn (2014). Giải mật thiết kế tàu chiến KBO-2000 Ngadành cho Việt Nam (Declassified the KBO-2000 design Russia made for Vietnam). *Kienthuc*. http://kienthuc.net.vn/quan-su-viet-nam/giai-mat-thietke-tau-chien-kbo-2000-nga-danh-cho-viet-nam-307402.html
kknews. (2018). The Philippine army throws out the equipment update wish list. *Military*. https://kknews.cc/zh-tw/military/jegngal.html
Ladwig III, Walter C. (2012). Drivers of Indian Naval Expansion. In Pant, Harsh V. Ed. The Rise of the Indian Navy: Internal Vulnerabilities, External Challenges. Aldershot: Ashgate, 19-40.
Laude, J. (2016a). Noy mulls submarine force for Philippine defense. *The Philippine Star*. https://www.philstar.com/headlines/2016/03/30/1567885/noy-mulls-submarine-force-philippine-defense
Laude, J. (2016b). Japan to lease 5 surveillance aircraft to Philippines. *The Philippine Star*. https://www.philstar.com/headlines/2016/10/26/1636896/japan-lease-5-surveillance-aircraft-philippines
Leng, K. Y. (2013). The Significance of China-Malaysia Industrial Parks. *ISEAS Perspective #37*. http://www.iseas.edu.sg/documents/publication/iseas_perspective_2013_37_the_significance_of_china_malaysia_industrial_parks.pdf.
Lim, R. (1997). Speech at the Navy 20th Anniversary Parade. MINDEF Singapore. http://www.mindef.gov.sg/imindef/press_room/official_releases/sp/1997/05may97_speech.html#.VOGDGCiVOfQ
Lu, S.-M. (2019). The turbulent navy arms race in South China Sea. *Appledaily-Forum*. https://tw.appledaily.com/forum/20191207/N2ME3W6NZIY4HGOBEOYFGU42SA/
Malaysia's National Defense Policy. (2015). Organization (Organizational Chart in Malay). Malaysian Armed Forces Headquarters. http://www.mafhq.mil.my/index.php/en/about-us/organization
Matthews, R. & Yip, T. (2013). The Push and Pull of Offset in the Development of Malaysia's Defense and Security Technology Park. *Defense Review Asia*. http://www.defencereviewasia.com/articles/203/The-Push-and-Pull-of-Offset-in-the-Development-of-Malaysia-s-Defence-and-Security-Technology-Park
McDevitt, M. (2014). Small Navies in Asia: Small navies in Asia: the strategic rationale for growth. In Mulqueen, M., Sanders, D., & Spell, I. eds. Small navies: strategy and policy for small navies in war and peace. London and New York: Routledge, 266.
Miksic, J. N. (2013). Singapore and the Silk Road of the Sea 1300–1800. Singapore: NUS Press, 491.
Minh, H. B. (2016). India offers $500 million defense credit as Vietnam seeks arms boost. *Reuters*. https://www.reuters.com/article/us-vietnam-india-idUSKCN11905U
Ministry of Defense (Malaysia). (2010). Malaysia's National Defense Policy. *MOD-Malaysia*. http://www.mod.gov.my/phocadownload/DASAR-PERTAHANAN/ndp.pdf.
Ministry of Foreign Affairs (People's Republic of China). (2014). Position Paper of the Government of the People's Republic of China on the Matter of Jurisdiction in the South China Sea Arbitration Initiated by the Republic of the Philippines. FMPRC. www.fmprc.gov.cn/nanhai/eng/snhwtlcwj_1/t1368895.htm
Ministry of Foreign Affairs (People's Republic of China). (2016). Statement of the Ministry of Foreign Affairs of the People's Republic of China on the Award of 12 July 2016 of the Arbitral Tribunal in the South China Sea Arbitration Established at the Request of the Republic of the Philippines. FMPRC. www.fmprc.gov.cn/nanhai/eng/snhwtlcwj_1/t1379492.htm
NAVAL Technology. (2019). Philippine prefers G2G approach to buy offshore patrol vessels. *Philippine News Agency*. https://www.naval-technology.com/news/philippines-prefers-g2g-approach-to-buy-offshore-patrol-vessels/
Nepomuceno, P. (2018). Phase 2 of AFP Modernization Program gets PRRD nod. *Philippine News Agency*. https://news.mb.com.ph/2018/06/20/andolong-says-duterte-approves-horizon-two-of-rafpmp/
Papstratigakis, N. (2011). Russian Imperialism and Naval Power: Military Strategy and the Build-Up to the Russo-Japanese War. London: I.B. Taurus, 352.
Percival, B. (2007). The Dragon Looks South: China and Southeast Asia in the New Century. Westport, CT: Praeger, 216.
Robison, R. & Hadiz, V. (2004). Reorganising Power in Indonesia:The Politics of Oligarchy in an Age of Markets. London and New York: Routledge Curzon, 328.
Schreer, B. (2013). Moving beyond ambitions? Indonesia's military modernization. *ASPI Strategy*. Canberra: the Australian Strategic Policy Institute, 35.

Sebastian, L. C., Supriyanto, R. A. I. & Arsana, M. A. (2015). Beyond the Archipelagic Outlook: The Law of the Sea, Maritime Security and the Great Powers. In Christopher Roberts, Ahmad Habir & Leonard Sebastian eds. Indonesia's Ascent: Power, Leadership, and the Regional Order. Basingstoke, UK: Palgrave Macmillan, 372.

SIPRI. (2020) SIPRI Databases (1960-2018). Stockholm International Peace Research Institute. http://www.sipri.org/databases

Sơn, A. (2014). Nga nâng cấp xong trực thăng săn ngầm cho Việt Nam (Russia finished its upgrade for Vietnam's AWE helicopters). *Thanhnien.vn.* http://thanhnien.vn/thoi-su/quoc-phong/nga-nang-cap-xong-truc-thang-sanngam-cho-viet-nam-513147.html

Supriyanto, R. A. (2016). Developing Indonesia's Maritime Strategy under President Jokowi. *ASAN Special Forum*. http://www.theasanforum.org/developing-indonesias-maritime-strategy-under-president-jokowi-1/

Sutarji, Hj. & Kasmin, Hj. (2009). Maritime Law Enforcement Agencies and Auxiliary Security Agencies of Malaysia. In Abdul Razak Baginda ed., Malaysia's Defense and Security Since 1957. Kuala Lumpur: Malaysian Strategic Research Centre, 226.

Teoh, S. (2016). Najib: deals with China don't hurt sovereignty. *The Straits Times*. https://www.straitstimes.com/asia/se-asia/najib-deals-with-china-dont-hurt-sovereignty

Till, G. (2012). Asia's Naval Expansion: An arms race in the making? London: International Institute for Strategic Studies, 112.

Till, G. & Chan, J. (2014). Naval Modernisation in South-East Asia: Nature, causes and consequences. London and New York: Routledge, 4.

Till, G. & Supriyanto, R. A. (2018). Naval Modernisation in Southeast Asia: Problems and Prospects for Small and Medium Navies. London: Palgrave Macmillan, 126.

Torode, G. (2014). Vietnam building deterrent against China in disputed seas with submarines. *Reuters*. https://www.reuters.com/article/us-vietnam-submarines-china-insight-idUSKBN0H20SF20140907

Wijaya, M. A. (2014). DPR KritikPerintah Jokowi TenggelamkanKapalAsing Illegal (Parliament criticize Jokowi's order to sink illegal fishing boats. *Republika Online*. http://nasional.republika.co.id/berita/nasional/politik/14/11/25/nfl5wmdpr-kritik-perintah-jokowi-tenggelamkan-kapal-asing-ilegal

Wong, K. (2015). TKMS starts construction of Singapore's Type 218SG submarines. *Defense Studies*. http://defense-studies.blogspot.com/2015/06/tkms-starts-construction-of-singapores.html

Wood, I. ed. (2014). National Shipbuilding Procurement Strategy: Charting the Course. Halifax: Dalhousie University, 76.