

# NAVAL MODERNISATION IN SOUTHEAST ASIA: NATURE, CAUSES, CONSEQUENCES

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**S. RAJARATNAM SCHOOL  
OF INTERNATIONAL STUDIES**  
A Graduate School of Nanyang Technological University

# Naval Modernisation in Southeast Asia: Nature, Causes, Consequences

REPORT OF A CONFERENCE ORGANISED BY  
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*This report summarizes the proceedings of the conference as interpreted by the assigned rapporteurs and editors of the S.Rajaratnam School of International Studies. Participants neither reviewed nor approved this report.*

*The conference adheres to variations of the Chatham House rule. Accordingly, beyond the points expressed in the prepared papers, no attributions have been included in this conference report.*

## OVERVIEW

The conference was an extension of an ongoing research project conducted by the maritime security programme of S. Rajaratnam School of International Studies (RSIS), to explore the nature, causes and consequences of naval modernisation in Southeast Asia. Experts and practitioners from government, industry and academia discussed the drivers and enablers of naval modernisation: political,

strategic and technological. The conference addressed such key questions as whether a naval arms race or arms dynamic is taking place, and whether contemporary naval developments are enhancing or undermining regional security. Constraints and challenges facing regional navies were also identified, as well as policy implications for Southeast Asia and the wider region.

## OPENING REMARKS



*Ambassador Barry Desker  
Dean, S. Rajaratnam School of International Studies*

Ambassador Desker noted that Southeast Asia has made great strides in modernising its defence, including naval forces, over the last decade. The driving forces behind the military build-up are complex and varied. Among the important questions to be considered: is there a naval arms race in the region? What are the security implications of such a development? Is there a shared

interest in cooperation and confidence building? What are the challenges in developing such a framework?

Southeast Asia sits astride key choke points for shipping between the Indian and Pacific oceans. The region is economically and strategically important to the economies of Northeast Asia, the United States and the emerging maritime powers of Asia. Many countries see themselves as stakeholders as far as good order at sea is concerned. However, low intensity conflicts and political differences can affect behaviour and relationships. Most countries in the region have shared maritime boundaries. Misunderstandings could lead to potential conflict. The presence of major maritime players including the US, Japan, South Korea as well as the rising capabilities of India and China will have implications for Southeast Asia.

Another area of concern is the increasing vulnerability of the region to emerging non-traditional threats including piracy, armed robbery, maritime terrorism, arms trafficking, illegal migration and environmental degradation. Navies should share the responsibility of maintaining the safety and security of sea lines of communication (SLOC) and to ensure the freedom of navigation.

## SESSION I

# INTRODUCTION

### NAVAL MODERNISATION IN SOUTHEAST ASIA: NATURE, CAUSE, CONSEQUENCES AND PROBLEMS OF ASSESSMENT



*Prof. Geoffrey Till*

Geoffrey Till began by encapsulating the importance of studying navies. Navies tend to reflect broader developments in the international security architecture. Navies also shape the strategic environment. This is particularly applicable to a region as maritime dependent as the Asia Pacific, where the inter-relationship is felt between naval development and “soft” maritime security, such as counter-piracy and fisheries conservation. A second area of concern was the harder issue of evolving naval defence relationships. There was a tendency to focus on Northeast Asia, with the complex naval relationships of the US, China, South Korea and Japan, and increasingly the Indian Ocean. By comparison, Southeast Asia and its naval development has hardly featured in the analysis. It is hardly surprising that there has been such remarkable growth in the size, composition and operational aspirations of local fleets in Southeast Asia given the fact that countries have made great achievements in economic development over the last decade.

Over 70 per cent of the Asia-Pacific’s projected naval spending over the next 20 years will be on submarines, destroyers, frigates and amphibious warfare vessels. By contrast, spending on off-shore patrol vessels (OPVs), auxiliaries and patrol craft - all associated with

maintenance of good order at sea - is comparatively lower. This does not necessarily imply something to worry about. The preference of most naval planners is to preserve a “balanced” fleet that maximises their range of potential options in times of uncertainty. On one hand, navies retain a traditional deterrent role. At the same time they are also expected to maintain good order at sea though naval cooperation. Countries are aiming for more capable navies, not necessarily larger ones. The number of submarines is expected to increase markedly over the next couple of decades, not least among the smaller and lesser naval powers where submarines are seen as a force equaliser. The growth of the region’s interest in naval network operations may be even more significant. It is widely recognised that networks and connectivity of fleets is a particularly important aspect of naval modernisation. Navies in the region aspire to build up their national capacity, where this is possible, though indigenous production.

Sea control is a preoccupation for all navies since it is a precondition for conduct of any operation at sea. In peacetime, navies will continue to collaborate to deal with transnational maritime security concerns such as piracy or maritime terrorism, which may be too much for an individual country to deal with autonomously. Moreover, the development of niche specialisation may also require a cooperative role from other navies to fill in the gaps to achieve certain common goals.

There are three ways to analyse such an important but complex nature of navies:

- First, study what the navies have actually said;
- Second, examine the composition of fleets navies and their operational priorities; and
- Third, observe the activities of navies, including training, exercises and deployments.

However, this is a difficult area of analysis and explains to a certain extent why maritime arms control has had such a spotty record. Moreover, it is difficult to compare priorities between countries.

## THE DEFENCE ACQUISITION PROCESS: STAKEHOLDERS, MOTIVES AND PROCEDURES



*Prof. Ron Matthews*

Ron Matthews approached naval modernisation in the Asia-Pacific through the methodology of the “iron triangle”, inter-linking the armed forces, defence ministries and the defence industrial base. He underlined the importance of economic disparities among countries in the region, as well as differing cultural attributes and historical legacies, which may also offer a partial explanation to some of their procurement activities.

Defence economics sees a positive relationship between increases in national income and rising military procurement. This is especially so if defence is perceived as a public good. However, the influences bearing on

defence acquisition are complex. Countries with the ability to procure defence equipment tend to look at what is happening in their neighbourhood. Hence, there are common waves of procurement in combat aircraft, submarines, and frigates. It is not easy to infer from this that there is an arms race. The principal defence economics question is affordability. Can countries afford all that they want? Nearly every time the answer is “no”. This ambition versus capability gap is particularly prevalent in some of the countries of Southeast Asia. The relationship between defence expenditure and national income is termed as the “defence burden”. It is therefore important to look at the broader economy and its vitality for generating resources for progressive and sustained procurement of advanced defence equipment.

One must also recognise the divergences in defence spending across the Asia-Pacific region. China is making significant progress in indigenous manufacturing and its shipbuilding industry was designated as a key priority. A problem in this area is the lack of any reliable data on budgets. There was also a region-wide move towards development of OPVs and disaster relief platforms. Some countries in the Asia-Pacific have a strong military technological and industrial skills base. There is a need to move towards closer calibration of defence policies and operational strategies in the region. The inaugural ASEAN Defence Ministers' Meeting Plus (ADMM-Plus), held in October 2010, may herald a move towards greater collaboration in naval development, mirroring what has already occurred historically in the European sphere.

## SESSION II

# COMMON THEMES

### NAVAL MODERNISATION IN THE US AND INDIA: CONTRASTS AND COMPARISONS



*Mr. Richard Bitzinger*

Richard Bitzinger began his presentation by highlighting the difficulties in comparing the US and India given their very different requirements and objectives, and the vast capability gulf between the US Navy and other navies. Nonetheless, some common strands can be seen in their respective naval modernisation efforts. Both countries see a blue water navy as a core requirement. The US aims to maintain the capacity to patrol the oceans and project power globally. India has the ambition to achieve some kind of power projection capability for their navy, from a more modest base. Currently it is focusing on sea control and sea-based deterrence into the Indian Ocean. Both navies emphasise aircraft carriers. The US Navy predominates in the carrier battle group. It currently operates and is committed to maintaining 11 carriers. India also aspires to become a modernised, carrier-based navy and is planning to replace the ageing INS Viraat with two new carriers, including the former Soviet carrier *Admiral Gorshkov*.

There are clear differences between the US and Indian's modernisation efforts. The US navy emphasises cutting-edge technology so as to maintain a qualitative advantage. It considers technology a force multiplier to compensate for a declining number of ships. The Indian Navy, on the other hand, aims to transform into a modern navy but may not be the technological equal of the UK Royal Navy or Japan's Maritime Self Defense Force. It has focused on certain capabilities, such as aircraft carriers. This is going to continue to guide Indian naval modernisation in the next few decades. However, the big question is whether

they can afford or effectively implement such a step-change in naval development.

Enablers behind naval modernisation efforts include funds, technology and level of the industrial base. In the case of the US it outspends the rest of the world combined. Its ship-building industry is declining but it has over-capacitised naval production. In some senses, the US is the victim of its own technology, engaging in an arm race with itself. For India, the problem is that its defence industry is over-politicised, under-capitalised, and under-technologised. Nevertheless, both countries are highly committed to maintaining a competent naval fleet and will certainly achieve some of their goals.

### NAVAL MODERNISATION IN CHINA, JAPAN AND SOUTH KOREA: CONTRASTS AND COMPARISONS



*Dr. Ian Storey*

Ian Storey began his presentation by noting that an arms dynamic exists among the Northeast Asian countries. China, Japan, and South Korea are increasing outlays on their naval forces and acquiring major strategic assets such as large amphibious landing ships, aircraft carriers, destroyers, frigates and submarines. These developments are changing the military balance of power in Asia, and altering the strategic context of the most contested territorial disputes in the region, particularly the South China Sea.

It is not surprising that the locus of current and projected naval ship building capacity is in Northeast Asia. The economic powerhouses of China, Japan and South Korea are acquiring or expanding their blue water navy

capabilities, providing them with the ability to project or sustain power in the world ocean spaces. Drivers of the naval modernisation efforts in Northeast Asia include re-capitalisation or replacement, reactive acquisitions, SLOC security, territorial and maritime boundary disputes, global stability, humanitarian assistance and disaster relief (HADR) operations, and in the case of China, great power aspiration. The enablers are large GDP size, national shipbuilding infrastructures and an advanced defence industry level.

It has been debated whether there is a naval arms race underway in Asia, particularly in Northeast Asia. Although a classic arms race is not happening in the sub-region, there is a discernible action and reaction to major procurements. It is often believed that countries are reacting to China's naval build-up, but China is reacting to the naval capacity building of other countries as well. SLOC defence has been another important driver for naval modernisation in the region. Asia's economic development is highly dependent on the free flow of maritime trade. Sea-based trade generated 87 per cent of East Asia's GDP in 2005, up from 47 per cent in 1990. Northeast Asian countries rely heavily on SLOCs for energy security. All three countries have also articulated global stability and HADR missions in their strategic policy documents.

China, Japan and South Korea all have territorial and maritime boundary disputes with each other. The modernisation of the PLA-N has strengthened China's hand in the South China Sea, and rising nationalism puts pressure on all governments to resolve and uphold their territorial claims. Lastly, in the case of China, a factor which should not be discounted is the desire to pursue a great power status.

Ian Storey then compared and contrasted Northeast Asian countries' naval modernisation efforts with those of Southeast Asia. Both sub-regions share similar features in terms of their motivations and consequences. First, SLOC security is a common priority. Second, territorial disputes are another important driver. Vietnam is particularly concerned by China's growing assertiveness in the South China Sea. Third, Southeast Asian countries have the intention to share some global HADR responsibility. There is also an observable action and reaction acquisition dynamic in Southeast Asia, as seen in the widespread ambition to acquire submarines. But the sub-regional differences are also very clear. The defence spending of Southeast Asia is much smaller. In addition, most Southeast Asian countries lack the technical and industrial capacity, and rely primarily on foreign acquisitions and/or technology transfer.

## TOWARDS A THEORETICAL MODEL FOR ANALYSING WEAPONS ACQUISITIONS



*Mr. Adrian Kuah*

Adrian Kuah introduced a model for analysing the weapons acquisitions process and weapon systems. The Weapons Acquisitions Process (WAP) is the flow of decisions and actions by various actors geared towards the conception, development, and production of technically advanced weapons for ultimate use by the military. The analysis of the weapons acquisition process can be reduced to four basic questions:

- What/how many to buy?
- Who to buy from?
- How to buy?
- When to buy?

An alternative approach may be needed to explain the acquisition process in Southeast Asia. As the political and institutional context is different in each country, the weapons acquisition process is basically a two-actor game between the defence bureaucracy and the armed forces. With this method it is assumed that WAP is subjected to budget constraints and that a more advanced weapon system is preferred to a less advanced one.

Three potential outcomes flow from this. The first is the rational Actor Model, in which the defence bureaucracy and armed forces enjoy an equal relationship. It can be treated as a unitary rational actor and the outcome is driven solely by the imperatives of the military mission. It best fulfills military requirements, given the budget. The second is the dominant Armed Forces Model, where the armed forces dominate the bureaucracy in the acquisition process. Under this model, the armed forces have information superiority vis-à-vis technical information and military requirement. Consequently, armed forces

engage in self-interested behaviour and extract private benefits from the weapons acquisition process. The third is the Dominant Bureaucracy Model, through which the defence bureaucracy engages in self-interested behaviour, seeking private benefit. In this case, the bureaucracy has veto power over military requests. Mr Kuah identified several limitations to his theory; for instance it does not explain how the budget is determined and assumes that the budget is “maxed out”.

## COMMENTARY



*Mr. Mingi Hyun*

Mingi Hyun argued that naval development need not necessarily equate to naval modernisation. Sometimes it simply means transforming the navy to better meet requirements. Naval development proceeds ultimately from the formation of political requirements. It starts with conception, then proceeds to design and construction, then operation, and finally moving to the integration phase. A question central to naval development is whether transforming the navy meets requirements in the most effective, efficient and lasting fashion.

The development of the Republic of Korea Navy (ROKN) has some significance as a case study for Southeast Asian navies. The ROKN was transformed incrementally into an ocean-going navy, capable of deterring not only threats from North Korea but also of meeting potential regional contingencies, or providing blue water contributions to maritime coalitions beyond the region. Since former president Kim Young-Sam (1993-98) decided to approve construction of a blue water navy, the ROKN has not drastically increased its procurement budget. This fact is surprising, given its impressive capabilities. The ROKN was built on the foundation of serious commitment from political leaders, support from industry, long-term planning and R&D.

SESSION III  
SOUTHEAST ASIA CASE STUDIES I

**NAVAL MODERNISATION IN SOUTHEAST ASIA:  
VIETNAM**



*Mr. Nguyen Hung Son*

Nguyen Hung Son stressed from the outset that Vietnam was not joining an arm race in the region. Neither the political or military leadership have any such interest. However, the maritime space around Vietnam has historically been subject to foreign domination, and exploited illegally by the regional states. Since 1997, the Communist Party has sought to enhance the marine-based economy and to transform Vietnam into a strong marine country. In 2007, a concrete strategy towards fulfilling these objectives by 2020 was adopted by Party Central Committee. The resolution set three broad strategic directions:

- First, Vietnam should make a clear cut target to turn itself into a marine country, benefiting from the full potential of a marine-based economy.
- Second, Vietnam will fully integrate the marine economy and national defence.
- Third, it will conduct international cooperation toward that goal and firmly protect national sovereignty and territorial integrity.

By 2020, Vietnam's marine based economy will account for 55 per cent of the national economy and 60 per cent of total exports. Since 2005, revenue from fisheries and offshore hydrocarbons has already accounted for more than half of GDP. Therefore, the nation naturally requires

a strong navy to protect its economic interests. The 2007 resolution claims that defence policy to protect marine interests should combine political, legal-diplomatic, economic and military factors. The navy, air force and coast guard will effectively protect Vietnam's fisheries, maritime resources and exploration activities.

He then talked about how Vietnam views the security environment in the South China Sea. The 2009 Defence White Paper declared that Asia Pacific region had become increasingly important, posing several challenges to national defence. The South China Sea is one of the potential conflict hotspots identified. There are increasing cases of foreign ships ignoring the security zones of the country's offshore oil exploration and installment and threatening safety and security. China's recent reiteration of its "U-shaped" claim line in the South China Sea has drawn concern. This is not only a claim, but China is increasingly enforcing it, creating a perception of threat among the Vietnamese public. With that perception in mind, Vietnam is clearly conducting a defence plan, in particularly, the modernisation of its navy.

Based on the 2009 white paper, the naval force has responsibility for managing and controlling the maritime zones under Vietnam's jurisdiction. It stated that naval forces were currently equipped only to perform search and rescue operations, and should be further strengthened with modern weapons and equipment to successfully undertake other duties to protect national sovereignty. The modernisation path that Vietnam is undertaking is for diversification both in terms of platforms and sources. Vietnam is also undertaking indigenisation of some naval production.

It can be seen that Vietnam has a broad development strategy, and a strategic focus on the marine element. Because of that, Vietnam needs to have a strong defence and strong navy. Implementation of the navy's modernisation plan is likely to be assisted by the high economic growth rates of recent years. There is little evidence that Vietnam's naval expansion action is in reaction to a naval arm race in Southeast Asia. In conclusion, Vietnam's military modernisation efforts should not alarm the regional countries.

## THE MODERNISATION OF THE ROYAL MALAYSIAN NAVY: CHALLENGES, TRENDS AND IMPLICATIONS



*Mr. Nizam Basiron*

Nizam Basiron stated that the maritime realm is pivotal to Malaysia's security and socio-economic well-being. The Straits of Malacca and Singapore and South China Sea are vital sea lanes of communication for trade and navigation. The task of securing the regions' maritime realm rests with Royal Malaysian Navy (RMN). Like other Southeast Asian Navies the RMN typically performs traditional maritime security services as well as constabulary roles, particularly in resource protection. However, the RMN is increasingly being looked upon as a guarantor against non-traditional maritime security threats such as crime at sea and terrorism.

The RMN's modernisation efforts have been driven by five factors: defence of national interests, external and regional factors, emerging issues, economic growth and the 2010 National Defence Policy. Defence of national interests is a key driving force and related mainly to maritime territory, sovereignty, SLOC security, resource protection and environmental protection. Mr Nizam continued to note that external and regional factors, such as development of South China Sea disputes, naval modernisation efforts of other regional countries as well as the interests of external powers strongly influence Malaysia's naval modernisation efforts. Emerging issues, such as piracy off the Horn of Africa and terrorism have also highlighted the importance of developing the navy. He added that Malaysia's naval modernisation efforts have been strongly supported by economic growth. Finally, the 2010 National Defence Policy has a very big role to play. It defines Malaysia's strategic maritime interests and areas, and envisages a navy that can protect and secure its maritime interests.

He concluded that the RMN's modernisation path corresponds to the evolution of Malaysia's maritime priorities, from coastal defence to EEZ and SLOC protection,

to the expansion of Malaysia's maritime territory. Non-traditional security threats prompted urgent operational requirement and the 2010 National Defence Policy would probably determine the future acquisition trend.

## PHILIPPINE NAVAL MODERNISATION, NATURE, CAUSES, CONSEQUENCES



*Dr. Rommel Banlaoi*

Rommel Banlaoi started with an overview of the Philippine Navy (PN). In the 1950s, the Philippines was the only country in Southeast Asia with an operational navy composed of all naval and marine forces, combat vessels, auxiliary craft, naval aircraft, shore installations, and other supporting units. However, PN capabilities deteriorated rapidly in the 1970s. It is now facing the obsolescence of its floating assets and lacks adequate replacement parts to maintain existing ships, machinery, electronic communications, and fire control systems.

He argued that Philippine naval modernisation programme is guided by the overall objectives of the 1995 Armed Forces of the Philippines (AFP) Modernisation Programme, which intends to make the AFP a worthy player in any regional or international security arrangement. The PN's modernisation efforts are also based on the premise that the PN shall be at the forefront of external defence and a bastion in the promotion of Philippine maritime security. Naval modernisation, therefore, may be viewed as the cornerstone of force modernisation. The PN identifies its three primary missions as: ensuring territorial integrity; protection of the EEZ; and contributions to regional peace and stability. These three primary missions are consistent with PN operational concepts that pursue naval modernisation with the main intent of establishing an inshore territorial defence navy. The PN also takes cognizance of its supporting role in international peace support operations, humanitarian assistance and disaster relief operations, and in the enforcement of Philippine national laws.

He continued his presentation by discussing causes of Philippine naval modernisation. This may be considered part of the regional trend of maritime capacity building in the Asia Pacific region. Domestically, the main causes of Philippine naval modernisation are based on what the PN describes as the “Imperatives of Naval Defence”. It aims to address a series of interrelated maritime security concerns, such as territorial sovereignty, protection of the marine resources, maritime crimes, and maritime terrorism. For Southeast Asian countries, force modernisation is simply an attempt to upgrade their obsolete military assets so they can effectively protect their sovereignty and enhance

military capacities to deal with non-traditional security challenges in the era of globalisation.

He concluded that based on the type of naval assets that PN wants to procure under its naval modernisation programme and acquisition plans, the navy has no intention to create a navy with blue water capability. The main intention of naval modernisation in the Philippines is to create an inshore territorial defence force to secure archipelagic borders and protect territorial waters, particularly with the passing of 2009 Archipelagic Baselines Law.



## SOUTHEAST ASIA CASE STUDIES II

**REBALANCING INDONESIA'S NAVAL FORCES:  
TRENDS, PROSPECTS AND CHALLENGES***Mr. Evan Laksmana*

Evan Laksmana noted that internal security threats have been predominant since 1945, resulting in an army-centric military. However, in recent years, the rise of non-traditional threats and security sector reforms have driven a wider defence transformation.

Indonesia's Ministry of Defence recently laid out a new ideal defence posture, and has also outlined a Minimum Essential Force (MEF), defined as "a minimum and essential standard of standing forces for the TNI critical and fundamental to address actual threats". One of the guiding principles of the MEF, flashpoint-based scenario planning, underlines a shift in focus from a Java-centric defence towards the defence of potential flashpoints, with army and naval resources being filtered to the other islands. This is reflected in the increase from five to 11 primary naval bases, with most of the new bases situated in eastern Indonesia. In the period 1997-2010, naval manpower remained stable at 20 per cent of overall TNI personnel, while weapons platforms have remained largely unchanged. The majority of platforms are patrol ships and amphibious craft, reflecting the TNI's long-standing preoccupation with internal security threats, although this is expected to change in the future.

Naval development priorities in the coming years are: patrol and transport ships to replace ageing ships, safeguard borders, enhance logistical capabilities and support HADR; revitalisation of the domestic defence industry; development of "transformational bridge" technology; and the decommissioning of ageing ships. The navy currently has a standing order for eight corvettes, two submarines, three LSTs and four patrol craft. By 2029,

the navy aims to have a striking force of 110 vessels, a patrolling force of 66 vessels and a supporting force of 98 vessels, divided into four fleets. These ideal developments may be difficult to realise due to budgetary constraints, as the navy has seen declining spending in recent years. Naval re-balancing in Indonesia has been enabled and driven by changes at the political, strategic and institutional levels. At the political level, some of the key enablers are: military reforms leading to increasing professionalisation of the navy, the militarisation of marine management in response to UNCLOS taking effect, and the rotation of the TNI Commander position between the service chiefs. At the strategic level, change has been driven by the rise of both traditional and non-traditional maritime security threats, and the resultant military-police rivalry as the two lobby for budget share. Finally, at the institutional level, the drivers of change have been the decline of the domestic defence industry and ageing ships, as well as increases in the number of naval officers in the TNI leadership, and in the number of foreign-educated naval officers.

Finally, Laksmana raised the constraints and challenges facing the navy. Political problems include bureaucratic politics and turf wars with the police and other agencies, a lack of leadership and vision, budgetary inflexibility and parliamentary meddling. On the institutional side, challenges included platform diversification leading to a lack of interoperability, and dependence on external suppliers for combat ships and patrol boats. Finally, operational constraints included the lack of defence resource management, and the weakness of the civilian sector in shipbuilding and maintenance.

**THAILAND'S NAVAL MODERNISATION***Capt. Kiatiyut Tiansuwan*

Kiatiyut Tiansuwan began by explaining the role of the Royal Thai Navy (RTN) and Coast Guard in maritime issues. Even though Thailand has various maritime agencies in charge of marine and coastal resources, these agencies look to the RTN to assist them in their functions, resulting in many competing demands on the RTN's resources. The RTN itself frames its priorities as the maintenance of territorial integrity; protection and conservation of marine assets, whether man-made or natural, maintenance of coastal peace and order, and the protection of marine transportation.

Kiatiyut Tiansuwan enumerated the sources of conflict and threat perception of the RTN, namely: insurgency, natural disasters, territorial disputes, maritime terrorism, transnational crime and piracy, environmental destruction and illegal seaborne immigration. Mapping these onto a threat spectrum of likelihood against impact, he noted that insurgency and natural disasters were both high-likelihood and high-impact. Transnational crime and piracy as well as illegal seaborne immigration are high-likelihood but low-impact, yet media and public opinion has forced the RTN to react to them. On the opposite end of the spectrum, territorial disputes were unlikely in the immediate future, but high in potential impact. The RTN is thus faced with the challenge of balancing these multiple threats, and is presently engaged in counter-insurgency, HADR, countering drug smugglers, piracy and illegal immigration, while having to prepare for counterterrorism and limited warfare.

RTN modernisation has been driven by the evolution of its operational concepts and area of operations (AO) over three distinct phases: Cold War, Post-Cold War (1990s) and 21st century. During the Cold War, Thailand's security environment was dominated by traditional threats and the strategic concepts of realism and balance of power prevailed, resulting in RTN taking a defensive posture and limiting its AO to coastal waters. Today, Thailand's security environment presents both traditional and non-traditional threats, resulting in RTN's expanding its AO to the littoral straits as part of an operational concept of proactive defence, and its transformation from a coastal navy into an offshore navy.

The RTN has come a long way since the Cold War period, where it had only World War II legacy vessels and small patrol boats. In the 1990s, RTN purchased frigates from China, secondhand frigates from the US, and commissioned an aircraft carrier and Harriers from Spain, enabling it to deal with traditional threats. The emergence of non-traditional threats created demand for indigenously-built OPVs and Singaporean Landing Platform Docks (LPD), and has resulted in the aircraft carrier assisting in humanitarian assistance and disaster relief operations. RTN is now

considering the purchase of submarines, re-establishing the submarine capabilities that Thailand had before the Second World War. Kiatiyut Tiansuwan concluded by raising the possibility of the RTN's aircraft carrier taking part in future regional maritime cooperation efforts such as joint exercises.

## **SEEKING BALANCE: FORCE PROJECTION, CONFIDENCE-BUILDING AND THE REPUBLIC OF SINGAPORE NAVY**



*Mr. Collin Koh*

Collin Koh presented part of his doctoral research, on how the Republic of Singapore Navy (RSN) can reconcile the build-up of force projection capabilities with confidence-building measures. He began by examining small coastal states as a distinct breed from major maritime nations, characterised by a primary maritime area of concern up to the EEZ, mission scope of territorial defence and policing, resource constraints leading to naval force flexibility, and a tendency to rely on cooperation and international law to safeguard their maritime interests. He cited Scandinavian navies as a case study, elaborating on their transition from defensive postures during the Cold War era aimed at preventing amphibious landings towards more external orientations post-Cold War as their primary area of concern expanded to the boundaries of their EEZs. Accordingly, their force structure modernisation has focused on increasing force-projection capabilities by acquiring larger ships with extended sea ranges.

Koh drew a broad parallel between the RSN and the Scandinavian navies in terms of force modernisation, but noted differences such as Singapore's geostrategic circumstances and lack of strategic depth. With a wide coastline to defend, and economic dependence on the sea, the further the RSN can project its force offshore, the better it can protect its shore.

Moving on to a discussion of Singapore's naval policy, Koh noted this involved an element of academic guesswork as the RSN does not produce white papers. However, the RSN has been increasingly vocal since the 1990s in the form of public statements by successive Chiefs of Navy. These statements have been consistent in affirming Total Defence as the overarching national security philosophy, based on the twin-pillars of deterrence and diplomacy, and in emphasising the need for RSN to become a more balanced navy with a full spectrum of capabilities. The RSN faces the challenges of resource constraints, and a shortage of manpower due to Singapore's falling fertility rate, and has been leveraging technology to overcome these.

Koh then traced RSN's modernisation across three stages: the 1980s, 1990s and 2000s. In the 1980s, the RSN focused on sea-denial and comprised mainly patrol ships with limited anti-air, anti-submarine and mine countermeasure capabilities. The 1990s saw the acquisition of the three aforementioned capabilities, and the significant purchases of corvettes and submarines, while the 2000s saw the acquisition of LPDs, frigates, and more advanced submarines, reflecting the RSN's focus on expanding its force-projection capabilities. Koh noted that the purchase of LPDs had raised eyebrows, but argued that these did

not fit the definition of destabilising naval armaments. Koh highlighted that Singapore had not acquired large ships such as cruisers or destroyers, and noted an absence of logistics support vessels for sustained force projection. In terms of diplomacy, the RSN has displayed peaceful behaviour in operations in politically sensitive areas such as Pedra Branca. Furthermore, the RSN has been cumulatively increasing its participation in naval cooperation activities from none in the 1980s to 23 in the 1990s, and 46 in the 2000s. These activities include coordinated patrols, and are indicative of the RSN's efforts to project a confidence-building naval posture.

Koh concluded that the RSN faces an increasingly complex maritime geostrategic environment and constant change driven by demography, economics, geopolitics and technology. Because of resource constraints and demographic challenge, the RSN will have to leverage technology further to expand its capabilities, utilising force multipliers such as unmanned technologies, network C4I and more sophisticated submarines. Future combat platforms may be fewer in number but larger in size, and incorporate modularisation, increased endurance, and high levels of automation. Finally, the RSN will need to balance its acquisition of force projection capabilities with a corresponding increase in cooperative activities.

## NAVAL MODERNISATION: ALTERNATIVE PERSPECTIVES

### VIEWS FROM INDUSTRY



*Adm. Walter F Doran*

Walter Doran began by challenging the audience to think about naval modernisation from the perspective of defence contractors. He sketched out various reasons for naval modernisation, including possible confrontations, asymmetric threats, ballistic missile defence and humanitarian relief. He noted that modernisation is not a new concept, and that it is natural for countries to modernise as they become more affluent and review their security environments. Modernisation is a global phenomenon, and the US defence industry is exploring markets overseas, in the face of flat or declining spending from the US Department of Defense.

Doran then discussed the various ways in which navies can modernise: through acquisition of new platforms, upgrading of legacy platforms, or the purchase of second-hand platforms from other navies. He focused on the first two, describing their “pros” and “cons”. Upgrading legacy platforms has the advantage of being usually cheaper and quicker, but disadvantages include compatibility issues with integrating disparate technologies, the retention of the limitations of the older hulls or platforms, and the lack of logistics and training support.

In acquiring new platforms, countries have the advantages of being able to customise the platforms to fit their maritime strategy, use current technologies, and gain in prestige. On the other hand, the disadvantages include expense, cost creep, delays in delivery, and the risk of introducing technology that adversely impacts the capability of the platform. Doran cited the new Zumwalt-class destroyers as an example: after many cost overruns

and delays, the final order was for three ships, which would integrate 11 different new technologies at once. Nevertheless these three ships will serve as test-beds for the new technologies, which could then be replicated throughout other naval platforms, and may eventually be exported.

Doran ended with a description of how the US defence industry approaches export contracts. In evaluating whether to commit resources pursue a contract, US defence contractors have to consider such questions as: does the country have a genuine requirement for the platforms; is funding available; does the country want US products; can the defence contractor obtain the necessary export licenses; and the appropriateness of co-production, partnering, or acquiring the domestic defence industry? In addition, there are two sales mechanisms for exports: direct commercial sales and foreign military sales in which the US government purchases from the defence contractor, and sells it government-to-government to foreign militaries. These mechanisms differ in terms of licensing, transfer of technology and knowledge issues, and are each suited to different navies. Interested customers will need good lawyers to help them navigate the complexities of defence contracts.

### SUBMARINES: A SPECIAL CASE?



*Cmdre. Jack McCaffrie RAN [Retd]*

Jack McCaffrie started by sketching out the various submarine programmes and acquisition ambitions in Southeast Asia. Indonesia acquired two Type 209 submarines in 1977 from Germany, and is currently looking to purchase two new submarines from either Russia or South Korea. Singapore acquired four Challenger-class

submarines from 1995, and has recently taken delivery of two Archer-class submarines. Because these submarines are nearing the end of their service lives (at 40 years and 25 years old respectively), Singapore is on the lookout for replacements. Singapore has also purchased a submarine rescue system and conducted a submarine rescue exercise. Vietnam purchased two Yugo-class submarines in 1997, and has ordered six Kilo-class submarines from Russia, while Malaysia entered the game in 2009 with two Scorpene-class submarines. The Royal Thai Navy may be next, as it seeks to re-establish its previous submarine capabilities.

McCaffrie examined the motivations behind the submarine programmes, noting that as small navies seek to achieve more balanced capabilities, submarines are a logical next step. Submarines are particularly useful for small navies in deterring potential adversaries as they are stealthy and anonymous, increasing their sea denial capabilities. They also attract a disproportionate response in the development of anti-submarine warfare capabilities. The timing of submarine acquisitions could also reflect of a change in threat perception regarding the South China Sea. Finally, there might be a minor element of envy, as regional navies inevitably compare armaments.

McCaffrie spoke about the regional implications of the submarine programmes, noting that the submarines are mainly European in origin and relatively small in size and number, reflecting a focus on defensive local operations, although the introduction of the Kilo-class submarines would raise the bar. The submarines would add to complexity in maritime security, raising the possibility of incidents at sea. The regional waters have limited ocean areas and several points of geographical significance for submarines, necessitating a waterspace management regime. Lastly, submarines have potential for cooperation in multilateral exercises.

McCaffrie moved onto the implications of the submarine programmes for operators, noting that the complexity of maintaining the submarines meant that countries need to train a sizeable number of skilled technicians. Furthermore, it takes around ten years for a crew to gain in operational experience, and crew members need to stay on longer than that to pass down experience and skills. Current submarine numbers were too small for operators to maintain general operational capabilities. McCaffrie concluded by answering the question posed in the title: are submarines a special case? The answer is “yes”, in that submarines represent a new capability that demands a disproportionate response. On the other hand, the answer is also “no”, since they represent a logical and still limited addition to naval force structures.

## **SURFACE SHIP BALANCES: THE BALANCE BETWEEN FRIGATES, CORVETTES AND PATROL BOATS**



*Mr. Bob Nugent*

Bob Nugent introduced the AMI data set on naval portfolios, drawing on 25 years of continuous open-source research, to forecast Southeast Asian surface ship investments over the next 20 years. The forecast defined ship types based on standard classifications and ship characteristics, noting the increasingly elastic definition of frigates, with a displacement range of 2-5,000 tonnes. Refits and used-ship purchases were excluded.

Nugent presented the world naval market forecast of new ship purchases, estimating that 3,131 hulls would be built at a cost of US\$744 billion over the next 20 years. Of this, frigates and corvettes would account for 11 per cent of volume and 18 per cent of value, while patrol craft and OPVs made up 45 per cent of volume and 5.6 per cent of value. Over the next 20 years, the Asia-Pacific would become the largest naval market in the world by volume (28 per cent) and the second largest by value (25 per cent), overtaking Europe in both volume and value. The global trend towards frigates and OPVs would also prevail in the Asia-Pacific region.

Nugent identified three drivers behind the global trend towards frigates, corvettes and large OPVs. First, the post-Cold War shakeout had led navies to adapt force structures to new security environments. Legacy navies were cutting larger ship programmes in the face of budgetary pressures, while transition navies and coast guards moved up the capability chain. Second, “low-end” threats to navies had emerged since 2000, resulting in market demand for ships with anti-submarine warfare capabilities, better evasion and soft-kill capabilities. The third driver was the adoption of frigates as flagships in countering high-end threats anticipated from 2010-20 such as high-speed anti-ship missiles, anti-ship ballistic missiles and cyber mission

killers. This had shaped preferences for small ships with increased range, sophisticated radar, SAM capabilities and investments in C4ISR.

Nugent summarised the portfolio changes of the Southeast Asian navies. Most of them plan to balance spending between frigates, OPVs and PVs. No arms race appeared evident. The region would be building 145 new OPVs/PVs through 2030, at an average rate of seven to ten hulls annually. However, spending on frigates would be four times the amount devoted to OPVs/PVs. This could be prompted by increasing submarine spending. Furthermore, many Southeast Asian navies have recently completed frigate and OPV programmes, and may be shifting spending towards other programmes. The next

wave of corvette/frigate programmes is expected around 2025 as the current crop of ships begins to exit service. Finally, the naval budget cuts and internal competition in Europe and the US may make used/refit ships attractive substitutes to new-built vessels in Southeast Asia.

Nugent concluded by proposing future research directions to obtain a fuller picture of the small surface ships portfolio. He suggested that refit and used ships be added to the database, with the addition of new categories for submarines and amphibious ships. Additionally, Southeast Asian naval investment patterns could be compared and contrasted with peer navies in other regions, or against an “optimum” balance determined through a tradespace study.



## NAVAL MODERNISATION AND SOUTHEAST ASIA'S SECURITY

### NAVIES AND COASTGUARDS IN SOUTHEAST ASIA: STRIKING THE BALANCE



*Dr. Sam Bateman*

Bateman focused on the role of national coastguards in contemporary naval security, with particular focus on Southeast Asian maritime security. He highlighted the increased complexity of naval warfare, with the relationship between maritime law enforcement and security forces becoming more legally complex. Bateman provided examples of coastguard activities in the Southeast Asian region, emphasising the active role of the Japanese coastguard in capacity-building initiatives in the area, China's use of its civil maritime security forces in the recent fishing trawler dispute, and the regional activities of the US Coastguard.

He outlined the reasons for the existence of a separate national coastguard fleet, bearing in mind legal and constitutional considerations. In his opinion, law enforcement agencies tended to misemploy naval assets for various purposes, at times, overstressing the functions and duties of the navy. The existence of a national coastguard would relieve the navy of certain law enforcement functions. The coastguard is also less sensitive to deploy than naval assets in disputed waters. Furthermore, the existence of a separate coastguard provides access to sources of funding beyond a country's defence budget. Coastguards can access international aid money for the purposes of search and rescue operations, maritime environmental protection, and helping to secure maritime trade. In this manner, the existence of a national coastguard need not threaten the navy's budgetary share. Bateman also elaborated on the roles of the Chinese, Japanese and Indian coastguard fleets, with particular focus on China's Maritime Surveillance Force (CMSF) that

operates under the State Oceanographic Administration (SOA). CMSF has started to implement its plans to build thirty new 4,000-ton vessels over the next five years. These would be used to bolster deployments to protect Chinese interests in the East and South China Seas.

Bateman outlined an increase in positive trends within the Southeast Asian region concerning coastguard cooperation. Examples concerned coastguard exercise cooperation between South Korea and China in the Yellow Sea, India and Japan's anti-piracy cooperation and the setting up of the Heads of Asian Coastguard Agencies (HACGA). Under the auspices of the HACGA, a coastguard exercise conducted towards the end of 2010 involved the coastguard fleets of India, Japan, South Korea and the Philippines.

Towards his conclusion, Bateman highlighted the changing and enmeshing roles between the navy and the coastguard – the coastguard potentially provides support for navies in the military role, whereas navies are supporting the coastguard in policing and law enforcement. Meanwhile coastguards are assuming a more prominent role in diplomacy and support of foreign policy. Bateman concluded his talk by questioning the nature of power shared between the coastguards and the navy: does the coastguard employ a form of soft power, and is the navy's exercise of power a form of hard power? Recent trends regarding the increase in prominence of the role of national coastguards suggest this shift in maritime strategic thinking, with coastguards eventually paving the way to stronger regional maritime cooperation, through preventive diplomacy and confidence-building measures.

### ARMS RACES OR ARMS DYNAMICS



*Dr. Bernard Loo*

Bernard Loo's talk focused on the theoretical foundation of arms racing and naval modernisation in the Southeast Asian region. He began by defining the concept of arms racing as manifested through an extraordinary and consistent increase in defence spending. He juxtaposed the concepts of arms dynamic and arms racing, with the former being defined as the process by which states acquire and maintain their armed forces, which is seen as a legitimate implementation of national security goals, as opposed to the latter where two or more states fear mutual threat, and therefore increase their military arsenals in a manner of passive aggression.

Bernard Loo presented data with a long-run view of naval modernisation in the Southeast Asian region. The data showed an increase in the number of frigates, corvettes and air weapons system acquisition in the four decades from 1970 to 2009, for Indonesia, Malaysia, Singapore, Thailand and Vietnam.

In noting the trend towards increased acquisition, Bernard Loo explained the drivers of naval modernisation in the Southeast Asian region. There are military-strategic drivers such as the increasing salience of the maritime domain, particularly owing to the growing concerns related to piracy and armed robbery at sea incidents, the Revolution in Military Affairs (RMA) emphasis on joint warfare doctrines, and the emergence of new strategic challenges for Southeast Asian countries. The non-strategic drivers to naval modernisation that include national prestige and showcase, supply-side pressures that arise from the availability of relatively cheap platforms and weapons systems.

In his conclusion, Loo analysed the potential for arms racing in the Southeast Asian region, stating that much depends on how the phenomenon is defined. Bernard Loo is of the opinion that there is limited evidence for an arms race in the region, despite a general and consistent increase in defence spending and acquisitions. There is also little evidence of an action-reaction phenomenon between the countries in the sub-region. Owing to the absence of a sudden increase in defence-related expenditure, or defence purchases amongst the countries in the region, naval modernisation in Southeast Asia can be characterised as an arms dynamic, as opposed to arms racing, that carries security implications not only for the sub-region, but for the Asia-Pacific.

## **CHALLENGES AND OPPORTUNITIES OF COMMON SECURITY IN THE MARITIME ENVIRONMENT**



*Dr. Stanley Weeks*

Stanley Weeks' talk provided an optimistic overview of the areas of maritime cooperation in the Southeast Asian region, with an emphasis on the role of the US Navy and coastguard to enhance the security of the Asia-Pacific maritime environment. He distinguished between two types of maritime coalitions: national navies that are used for defence and national security purposes, and collective navies that are used for tackling non-traditional maritime threats like piracy and human trafficking.

A key imperative of maritime security, according to Weeks, is international naval partnership, as the issue of maritime security has increasingly become an international problem that requires joint cooperative solutions. The overall goal is the safeguarding of the maritime commons. This requires an increase in maritime domain awareness. Weeks went on to explain the situation of maritime security in the four sub-regions of the Asia-Pacific: Northeast and Southeast Asia, the Indian Ocean and South Pacific. Northeast Asia, according to Weeks, is still influenced by traditional big power maritime disputes. Southeast Asia faces sub-regional problems like territorial disputes, terrorism, human trafficking, piracy and other serious non-traditional security threats. But with organisations like ASEAN and the ARF, the region looks to build on existing coalitions for joint solutions. Noting America's role in the region, Weeks called for sensitivity to sovereignty concerns for Southeast Asian countries. The sub-region of the Indian Ocean will witness an intense increase in Sino-Indian maritime competition in the coming decades. The South Pacific sub-region presents the most optimistic case where the US must "follow, not lead". With the strengthening of the ANZUS alliance, maritime cooperation appears promising in Oceania.

In conclusion, Weeks pointed to areas of partnership development, particularly the development of maritime operational relationship between the US and China, and stronger maritime cooperation between the US and India.

## CONCLUDING REMARKS



*Mr. Kwa Chong Guan*

Professor Till and Mr Kwa Chong Guan, RSIS Head of External Programmes, summarised the key points discussed over the two days of the conference. It had emerged that countries in Southeast Asia have differing threat perceptions which lead naturally to different naval acquisition practices in terms of types and numbers of weapons, operational and deployment patterns. The varying domestic and external challenges at the national level also have a significant impact on the modernisation process. When considering Southeast Asia as a whole there were also common factors driving the naval modernisation process: the need to defend territorial integrity and provide offshore stability; to ensure the protection of SLOC and seaborne trade; the capacity to respond to emerging non-traditional security threats and a willingness to contribute to HADR.

There is a general correlation between economic growth and the pursuit of military advancement. Given that

Southeast Asia has made great achievements in economic growth over the last decade, it is hardly surprising that there has been such remarkable growth in the size, composition and operational aspirations of naval fleets. Whether there is a naval arm race or naval dynamic in this region much depends on how the phenomenon of naval modernisation is defined. It might be too soon to determine the nature of naval modernisation, or enhancement, in Southeast Asia, and its impact on the wider region. Nevertheless, we should not exaggerate its extent in Southeast Asia, or forget that it trails Northeast Asia significantly in scale.

Looking to the future, there are both challenges and opportunities for naval cooperation in the Southeast Asia. The overall goal for naval partnership is to safeguard the maritime commons and to increase awareness in the maritime domain. One area for future development concerns the buildup of coast guard forces in the region. This has potential to release navies from some of their constabulary functions to concentrate on more traditional defence roles.

The conference had also set out to answer whether naval modernisation or enhancement in Southeast Asia would create problems or provide security for the region. The final session prompted the encouraging conclusion that there was no naval arms race in this region, although a reactive dynamic was observable in some cases. The spectrum of both competitive and cooperative navies in nature should be balanced. It was suggested that navies could be used as a platform for improving regional cooperation and developing further the concept of partnership. The knowledge and ideas produced by the conference would be fed into other forums in the region including the Council for Security Cooperation in the Asia Pacific (CSCAP). The full conference proceedings are to be published as an edited volume.

# PROGRAMME

## Tuesday, 25 January 2011

1900 **Welcome Reception (Speakers only)**  
**Vanda Ballroom, Level 5,**  
**Marina Mandarin**

## **Naval modernisation in the US and India: Contrasts and Comparisons**

Richard Bitzinger  
 Senior Fellow, S. Rajaratnam School of International Studies

## Wednesday, 26 January 2010

0800 **Registration**

## **Naval modernisation in China, Japan and Korea: Contrasts and comparisons**

Ian Storey  
 Fellow, Institute of Southeast Asian Studies

0830 **Opening Remarks**  
 Ambassador Barry Desker  
 Dean, S. Rajaratnam School of International Studies

## **A Theoretical Model for Analysing the Acquisition of Weapon Systems**

Adrian Kuah  
 Associate Research Fellow, S. Rajaratnam School of International Studies

0840 -1000 **SESSION I:**  
**Introduction: Setting the Agenda**  
 Chairman: Sam Bateman, Senior Fellow and Advisor, Maritime Security Programme, S. Rajaratnam School of International Studies

**Commentary:** Mingi Hyun, Korea Institute for Maritime Strategy (KIMS)

## **Discussion**

**Naval modernisation in Southeast Asia as an issue: Possible issues, nature, cause and consequence. Problems of assessment**

1300-1400

**Lunch**  
**Pool Garden, Level 5,**  
**Marina Mandarin**

Geoffrey Till  
 Visiting Professor, Maritime Security Programme, S. Rajaratnam School of International Studies

1400-1600

**SESSION III:**  
**Southeast Asia Case Studies I**  
**Naval Modernisation: nature, causes, consequences**

Chairman: Jane Chan,  
 Research Fellow, RSIS

**The defence acquisition process, stakeholders, motives and procedures**  
 Ron Matthews  
 Head of Graduate Studies and Deputy Director, Institute of Defence and Strategic Studies, S. Rajaratnam School of International Studies

**Vietnam**  
 Nguyen Hung Son  
 Deputy Director, Diplomatic Academy of Vietnam

## **Discussion**

**Malaysia**  
 Nizam Basiron  
 Research Fellow, Maritime Institute of Malaysia

1000-1030 **Coffee Break**

1030-1300 **SESSION II:**  
**Common Themes: Comparators and Templates**  
 Chairman: Dr Euan Graham, Senior Fellow, RSIS

**Philippines**  
 Rommel Banlaoi  
 Executive Director, Philippines Institute for Peace, Violence and Terrorism Research

## **Discussion**

1600	<b>End of Day 1</b>		<b>Submarines – a Special Case</b> Cmdre Jack McCaffrie RAN [Retd]
1900	<b>Conference Dinner</b> <b>Aquamarine, level 4, Marina Mandarin</b>		<b>Surface Ship Balances: The balance between frigates, corvettes and patrol boats</b> Bob Nugent AMI Washington
<b>Thursday, 27 January 2010</b>			
0900-1100	<b>SESSION IV:</b> <b>Southeast Asia Case Studies II</b> Chairman: VAdm Song Keun-Ho, ROKN [Retd]		<b>Discussion</b>
	<b>Naval Modernisation: nature, causes, consequences</b>	1300-1400	<b>Lunch</b> <b>Pisces &amp; Aquarius, Level 1, Marina Mandarin</b>
	<b>Indonesia</b> Evan Laksmana Researcher, Centre for Strategic and International Studies, Indonesia	1400-1530	<b>SESSION VI:</b> <b>Naval modernisation and Southeast Asia's security</b> Chairman: Kwa Chong Guan, Head of External Programmes, RSIS
	<b>Thailand</b> Kiatiyut Tiansuwan Captain Naval Warfare Analyze, Center for Naval Strategic Studies, Royal Thai Navy		<b>Navies and Coastguards in Southeast Asia; Striking the Balance</b> Sam Bateman Senior Fellow and Advisor, Maritime Security Programme, S. Rajaratnam School of International Studies
	<b>Singapore</b> Collin Koh Associate Research Fellow, Military Studies Program, Institute of Defence and Strategic Studies, S. Rajaratnam School of International Studies		<b>Naval Arms Race or Naval Dynamic</b> Bernard Loo Associate Professor and Coordinator, Military Studies/Transformation Programmes, S. Rajaratnam School of International Studies
	<b>Discussion</b>	1530-1600	<b>Coffee Break</b>
1100-1130	<b>Coffee Break</b>	1600-1700	<b>PANEL DISCUSSION</b> Chair: Prof. Geoffrey Till
1130-1300	<b>SESSION V:</b> <b>Naval Modernisation: Alternative Perspectives</b> Chairman: William Choong Senior Writer, Straits Times		<b>The Nature of Naval Partnership</b> Stanley Weeks Senior Naval Advisor, Science Applications International Corporation United States
	<b>Views from Industry:</b> Admiral Walter F Doran USN Rtd President, Raytheon Asia		<b>END OF CONFERENCE</b>

## PRESENTERS / DISCUSSANTS

\*in alphabetical sequence according to first names

Mr. Adrian Kuah  
Associate Research Fellow  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Block S4, Level B3, Nanyang Avenue, Singapore 639798  
Tel: +65 6790 6623  
Email: ISWJKuah@ntu.edu.sg

Ambassador Barry Desker  
Dean  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: isbdesker@ntu.edu.sg

Dr. Bernard Loo  
Associate Professor and Coordinator,  
Military Transformations Programme  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Block S4, Level B3, Nanyang Avenue, Singapore 639798  
Email: ISFWLoo@ntu.edu.sg

Mr. Collin Koh  
Research Analyst  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Block S4, Level B3, Nanyang Avenue, Singapore 639798  
Email: ISCollinKoh@ntu.edu.sg

Dr. Euan Graham  
Senior Fellow, Maritime Security Programme  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: isesgraham@ntu.edu.sg

Mr. Evan A. Laksmana  
Researcher  
Centre for Strategic and International Studies (CSIS),  
Jakarta  
The Jakarta Post Building, 3rd Fl.  
Jl. Palmerah Barat 142-143, Jakarta 10270  
Tel: +6221 5365 4601  
Fax: +6221 5365 4607  
Email: evan@csis.or.id

Nguyen Hung Son  
Deputy Director General of the Institute for Foreign Policy  
and Strategic Studies; Diplomatic Academy of Vietnam  
Diplomatic Academy of Vietnam  
69 Chua Lang Str.; Dong Da Dist.; Hanoi; Vietnam  
Email: nguyenhungson2005@yahoo.com

Dr. Ian J. Storey  
Fellow  
Institute of Southeast Asian Studies  
30 Heng Mui Keng Terrace, Pasir Panjang, Singapore  
118722  
Tel: +65 68704507  
Email: ijstorey@iseas.edu.sg

Prof. Geoffrey Till  
Emeritus Professor of Maritime Studies and Director of  
Corbett Centre for Maritime Policy, King's College, London  
Email: GTill.jscsc@da.mod.uk

Commodore Jack McCaffrie  
Visiting Fellow  
Australian National Centre for Ocean Resources and  
Security  
University of Wollongong  
Wollongong NSW 2522 Australia  
Email: jackmccaff@bigpond.com

Ms. Jane Chan  
Research Fellow and Coordinator of the Maritime Security  
Programme  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Tel: +65 6513 2733  
E-mail: isgychan@ntu.edu.sg

VAdm(R) Song Keun-Ho  
President  
Korea Institute for Maritime Strategy  
460-1 Seogyo-Dong, Mapo-Gu, Seoul, Korea  
Email: kims@kims.or.kr

Capt. Kiatiyut Tiansuwan  
The Center for Naval Strategic Studies  
Department of Naval Education, Salaya, Buddhamonthon,  
Nakhonprathom 73170  
Email: kiatiyut@yahoo.com

Mr. Kwa Chong Guan  
Head of External Programmes,  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: iscgkwa@ntu.edu.sg

Mr. Mingi Hyun  
Research Fellow  
The Korea Institute for Maritime Strategy (KIMS)  
460-1 Seogyo-dong, Mapo-gu, Seoul, Korea 121-841  
Email: mingi.hyun@gmail.com

Mr. Mohd Nizam Basiron  
Research Fellow  
Maritime Institute of Malaysia  
Unit B-06-08, Megan Avenue II  
12, Jalan Yap Kwan Seng. 50450 Kuala Lumpur  
Email: nizam@mima.gov.my

Mr. Richard A. Bitzinger  
Senior Fellow  
Military Transformations Program  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: isrbitzinger@ntu.edu.sg

Mr. Robert Nugent  
Vice President, Advisory Services  
AMI International DC Operations Office  
1001 19th St N Suite 1200  
Arlington, VA 22209  
Tel: 360 850 7444  
Email: bnugent@amiinter.com

Prof. Rommel Banlaoi  
Chairman of the Board and Executive Director  
Philippine Institute for Peace, Violence and Terrorism  
Research  
Unit 101 Sterten Place Condominium, 116 Maginhawa  
Street, Teachers Village East, Diliman, Quezon City,  
Philippines  
Email: rbanlaoi@pipvtr.com; rbanlaoi@yahoo.com

Prof. Ron Matthews  
Head of Graduate Studies and Deputy Director,  
Institute of Defence and Strategic Studies,  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: isrmatthews@ntu.edu.sg

Dr. Sam Bateman  
Senior Fellow  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: sbateman@uow.edu.au;  
issambateman@ntu.edu.sg

Dr. Stanley Weeks  
Research Analyst, Center for Strategic Studies  
Center for Naval Analyses  
4825 Mark Center Drive  
Alexandria, VA 22311-1850 USA  
Email: stanley.b.weeks@saic.com

Admiral (Retired) Walter Doran  
President  
Raytheon International Inc – Asia  
600 North Bridge Road. #09-06 Parkview Square  
Singapore 188778  
Email: Sofia\_Khatoon@raytheon.com

Dr. William Choong  
Senior Writer  
The Straits Times  
1000 Toa Payoh North, News Centre, Singapore 318994  
Email: williamc@sph.com.sg

## PARTICIPANTS

Mr. Alok Bansal  
Executive Director  
National Maritime Foundation  
execdir.nmf@gmail.com

Mr. Andrew Jesmain  
Booz Allen Hamilton  
jesmain\_andrew@bah.com

Mr. Andrew Sawka  
Booz Allen Hamilton  
andrewsawka@gmail.com

Ms. Anushree Bhattacharya  
Research Associate  
National Maritime Foundation  
bhattacharyya.anushree@gmail.com

Mr Brian Chang  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
brianchang@live.com.sg

Ms. Elaine Tan  
Singapore Armed forces Academy  
Nanyang Technological University

Mr. Gary Barnabo  
Booz Allen Hamilton  
barnabo\_gary@bah.com

Mr. Han Nack Hoon  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
NACK1@ntu.edu.sg

CAPT John Wood  
Defense and Naval Attaché  
U.S. Embassy Singapore

LTC Joshua Ho  
Senior Fellow  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
Email: ISHHHo@ntu.edu.sg

Mr. Jung Kwanghang  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
KWANGHAN1@ntu.edu.sg

Mr. Justin Goldman  
Associate Research Fellow  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
isjmgoldman@ntu.edu.sg

Ms. Kang Harnit  
Research Analyst  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
HARNIT1@e.ntu.edu.sg

Capt (N) Karl Henriksson  
Embassy of Sweden  
karl.henriksson@foreign.ministry.se

Mr. Lee Jong Chul  
Korea Defence Attaché

Dr. Li Mingjiang  
Assistant Professor  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
ismjli@ntu.edu.sg

Mr. Lim Sze-Yuk  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
SYLIM2@ntu.edu.sg

Ms. Ramkumar Manaswini  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
MANASWIN1@e.ntu.edu.sg

Mr. Michael D Froemke  
U.S. Embassy Singapore

Mr. Neil Gadihoke  
Research Fellow  
National Maritime Foundation  
neilgadihoke@rediffmail.com

Mr. Paul N. Nagy  
Booz Allen Hamilton  
nagy\_paul@bah.com

Mr. Raymond Corrigan  
Country Manager  
Raytheon International Inc – ASIA

Mr. Ristian Atriandi Supriyanto  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
SUPRIYAN1@ntu.edu.sg

RDML Ron Horton  
Scott.Wagner@fe.navy.mil

Scott McKee  
brigitteandscott@mac.com

Ms. Sharon Awang Sitai  
Ministry of Foreign Affairs  
sharonsitai@gmail.com

Mr. Shishir Upadhyaya  
Research Fellow  
National Maritime Foundation  
shishirupadhyaya@gmail.com

COL Soh Guan Huat  
Singapore Armed forces Academy  
Nanyang Technological University

Ms. Tan Ai Ping  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
APTAN1@ntu.edu.sg

Dr. Tim Huxley  
Executive Director  
International Institute For Strategic Studies  
Huxley@iiss.org

COL(NS) Tim Walshe  
New Zealand High Commission  
nzdasling@pacific.net.sg

Ms. Wang Yinghui  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
YWANG7@ntu.edu.sg

Ms. Yang Fang  
Associate Research Fellow  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
isyangfang@ntu.edu.sg

Mr. Zhang Hongzhou  
Research Analyst  
S. Rajaratnam School of International Studies  
Nanyang Technological University  
ishzzhang@ntu.edu.sg

## ABOUT THE S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES

The S. Rajaratnam School of International Studies (RSIS) was officially inaugurated on 1 January 2007. Before that, it was known as the Institute of Defence and Strategic Studies (IDSS), which was established ten years earlier on 30 July 1996. Like its predecessor, RSIS was established as an autonomous entity within the Nanyang Technological University (NTU).

The School exists to develop a community of scholars and policy analysts at the forefront of Asia-Pacific security studies and international affairs. Its three core functions are research, graduate teaching and networking activities

in the Asia-Pacific region. It produces cutting-edge security related research in Asia-Pacific Security, Conflict and Non-Traditional Security, International Political Economy, and Country and Area Studies.

The School's activities are aimed at assisting policymakers to develop comprehensive approaches to strategic thinking on issues related to security and stability in the Asia-Pacific and their implications for Singapore.

For more information about RSIS, please visit <http://www.rsis.edu.sg/>.





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