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Director of Exercise Division, Operations Department, Royal Thai Navy
PREFACE AND ACKNOWLEDGMENTS

For those speakers who provided written papers, they have been printed as supplied by the authors, with only minor changes to achieve some consistency in layout, spelling and terminology. The remainder of the papers have been compiled from the audio recordings and the PowerPoint presentations. Unfortunately, transcripts of the discussion periods could not be produced due to the poor quality of the recordings of these sessions—very few of the speakers during these discussions were identified and many of the questions and answers were inaudible.

Keith Brent
Air Power Development Centre
Canberra

May 2006
LIST OF DELEGATES

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Australian Army
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Coastwatch Australia
Mr Greg Buchanan
Coastwatch
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Department of Operation
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Royal Malaysian Air Force

New Zealand
Group Captain Kevin Short
Officer Commanding 485 Wing
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Colonel Gregorio E. Macapagal    Philippine Air Force
Captain Willie A. Ilustre        Philippine Navy
Captain Lino H. Dabi             Philippine Coast Guard

Singapore
Lieutenant Colonel Lim Yeong Kiat Base Commander Changi Air Base
                                         Republic of Singapore Air Force
Lieutenant Colonel Alex Chong       Republic of Singapore Air Force

Thailand
Captain Chatchai Podhipak         Director of Exercise Division
                                         Operations Department
                                         Royal Thai Navy
Group Captain Narit Sudjaitham    Deputy Director of Operations
                                         Royal Thai Air Force
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>ADF</td>
<td>Australian Defence Force</td>
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<tr>
<td>AEW&amp;C</td>
<td>Airborne Early Warning and Control</td>
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<td>AFP</td>
<td>Australian Maritime Identification System</td>
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<tr>
<td>AM</td>
<td>Area of Responsibility</td>
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<td>AMIS</td>
<td>Australian Maritime Identification System</td>
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<tr>
<td>AR</td>
<td>ASEAN Regional Forum</td>
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<tr>
<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<tr>
<td>ASW</td>
<td>Area of Responsibility</td>
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<tr>
<td>AWACS</td>
<td>Airborne Warning and Control System</td>
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<tr>
<td>COSCOM</td>
<td>[Republic of Singapore Navy] Coastal Command</td>
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<tr>
<td>CSC</td>
<td>Conspicuous Service Cross</td>
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<tr>
<td>DMO</td>
<td>Defence Materiel Organisation</td>
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<tr>
<td>DSC</td>
<td>Distinguished Service Cross</td>
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<td>DSTO</td>
<td>Defence Science and Technology Organisation</td>
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<tr>
<td>EASTROC</td>
<td>Eastern Region Operations Centre</td>
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<tr>
<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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<td>EiS</td>
<td>Eye in the Sky</td>
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<td>EO</td>
<td>Electro-Optical</td>
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<td>ESM</td>
<td>Electronic Search Measure</td>
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<td>EW</td>
<td>Electronic Warfare</td>
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<td>FPDA</td>
<td>Five Power Defence Arrangement</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>HF</td>
<td>High Frequency</td>
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<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
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<tr>
<td>INS</td>
<td>Indian Navy Ship</td>
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<td>IR</td>
<td>Infra-red</td>
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<td>ISCP</td>
<td>Indo-Sin Coordinated Patrols</td>
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<tr>
<td>JMSDF</td>
<td>Japan Maritime Self Defence Force</td>
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<td>JOPC</td>
<td>Joint Offshore Protection Command</td>
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<tr>
<td>JORN</td>
<td>Jindalee Over-the-Horizon Radar Network</td>
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<tr>
<td>JPDA</td>
<td>Joint Petroleum Development Area</td>
</tr>
<tr>
<td>MALSINDO</td>
<td>Malaysia, Singapore and Indonesia [Operation MALSINDO]</td>
</tr>
<tr>
<td>MECC</td>
<td>[Thailand] Maritime Enforcement Coordinating Center</td>
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<tr>
<td>MILF</td>
<td>Moro Islamic Liberation Front</td>
</tr>
<tr>
<td>MMA</td>
<td>Multi-Mission Maritime Aircraft</td>
</tr>
</tbody>
</table>
MNLF  Moro National Liberation Front
MPA  Maritime Patrol Aircraft
MUAV  Maritime Uninhabited Aerial Vehicle
MV  Motor Vessel

NORCOM  Northern Command
NORFORCE  North West Mobile Force
NZDF  New Zealand Defence Force

PAF  Philippine Air Force
PC  Personal Computer
PLAAF  People’s Liberation Army Air Force
PN  Philippine Navy
PPMT  Pusat Pengamatan Maritime Terpadu [Indonesian Center for Integrated Maritime Surveillance]
PSI  Proliferation Security Initiative

RAAF  Royal Australian Air Force
RAN  Royal Australian Navy
ReCAAP  Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia
RFSU  Regional Force Surveillance Unit
RI  Republic of Indonesia
RMAF  Royal Malaysian Air Force
RNZAF  Royal New Zealand Air Force
RP  Republic of the Philippines
RSN  Republic of Singapore Navy
RTAF  Royal Thai Air Force
RTN  Royal Thai Navy

SAR  Search and Rescue
SATCOM  Satellite Communications
SLOC  Sea Lines of Communication
SURPIC  Surface Picture [Project SURPIC]

UAV  Uninhabited Aerial Vehicle
USN  United States Navy

VHF  Very High Frequency
WMD  Weapons of Mass Destruction
WELCOME AND KEYNOTE ADDRESS

COMMODORE CAMPBELL DARBY, DSC, AM, RAN
COMMANDER NORTHERN COMMAND

Welcome to the top end of Australia. As Group Captain Bennett said, I am Commander Northern Command, so my area encompasses all of the top end of Australia—essentially, the Northern Territory and the top end of Western Australia. Up until a few months ago my surveillance area was the area that stretched from the Queensland/Northern Territory border all the way across the top of Australia through to about the middle of Western Australia and all the adjacent sea areas there. That was an area of about 1.6 to 1.7 million square miles. With some changes that were instituted earlier in the year when the Government determined that we would have an ‘Offshore Protection Command’, my surveillance area—my area of interest—now actually stretches all around Australia and encompasses all the Australian maritime areas, and the area has gone out to something in the region of about 3.2 or 3.3 million square miles.

The institution of the Joint Offshore Protection Command (JOPC) was a recognition by the Government that there were some major holes in our ability to look after our offshore assets, more than anything else, and there were also some major legislative problems in our offshore areas. So I am now part of the Joint Offshore Protection Command and my Headquarters really manages all the military input into what is, essentially, a civil-led surveillance operation in our maritime area. So I think it is timely that this Regional Air Power Conference is here talking about surveillance, because it is a problem that engages me and my limited intellect on a daily basis about how we manage some of these problems.

We work against a range of threat profiles; everything from illegal fishing, illegal immigration or unauthorised people arrivals, to trafficking in illegal goods, drugs and firearms—pure criminal activity—to piracy and terrorism. I think it is that range of threats and what we actually need to do these days in the surveillance environment which probably drives us to having to look at surveillance in a slightly different way. While there are a variety of threats, there are some common processes and attributes that really determine how we must approach the surveillance problem, and we really do need probably three things. One is flexibility, one is timeliness and the other is quality of information. We need to be very, very flexible in how we use our assets. Using high-tech assets against low-tech threats and sometimes it might be the reverse, where we are using fairly low-tech surveillance assets against what might turn out to be a very, very high technology threat that we do not yet know about. We must be flexible in the way we respond with those assets and we also need to be very flexible in how we employ the force that they have, which has got to be able to be graduated and proportional depending on what the threat actually is. It might be just warning shots, or even the dropping of some sort of ordnance from an aircraft to get somebody to stop, all the way to actually taking out a tanker or a hijacked vessel which might be approaching our oil and gas installations. We need information which is very, very timely and we need the ability to get the information back from the aircraft or surveillance assets to those decision-makers and, similarly, the information from the
decision-makers back to those surveillance assets so that they can be directed, repositioned, tasked in a very, very rapid manner. Finally, the quality of that information is also very, very important.

Now all of this leads me to a conclusion, which is one of my favourite subjects, and that is that we have got to get away from some of the stovepipes, seams and boundaries that work between all organisations. I have come to the conclusion over a number of postings that we in the Australian Defence Force (ADF) have probably gone past ‘joint’. We have got past that issue of having trouble working with our own Services and what we need to look at nowadays is more of an interagency approach. Within my Headquarters we do it all the time. We are working closely with civil agencies, not just those who are doing surveillance but industry organisations as well, who are providing us information back into my Headquarters about fishing vessels which are coming inside the 500 metre exclusion zone around oil rigs. So an interagency approach and, more so in this day and age with the range of threats we face, an intergovernmental approach, where we actually have to do away with all those barriers to information flow which do currently exist. We have got to break down those stovepipes, do away with the seams or boundaries, which really are the weaknesses in our organisation that can be employed by an adaptive enemy. And believe me, the enemy that we face in the higher end of the scale is very, very adaptive. Some of those seams will be geographic, some will be by Service and some will be by culture. There may be financial seams there. But the enemy that we face is adaptive enough to find those seams, find those boundaries and exploit the weaknesses that those boundaries represent. So I think it really is important for an audience like this, who come from a whole range of countries and range of approaches, that we are able to build in the future a fully integrated, interagency surveillance system and a surveillance organisation which is able then to link closely between all the nations of South-East Asia and all the nations from where we come. From my perspective that is really is the only way we are going to be able to defeat the threats which all our nations face today.

One of my other roles up here in the north really is regional engagement with our near neighbours, so it is particularly pleasing to welcome you all here today for this Regional Air Power Conference. I wish you well in your discussions and deliberations. I hope you enjoy Darwin. It does have a lot to offer, although at this time of the year it is just becoming a little bit problematic in terms of the weather. We actually do not see many visitors up here at this time of the year. The visitors start to drop off very quickly as soon as we get into the October–November period, when all those people from the south who like to come north to avoid the cold Canberra winters decide that it is much nicer down south than it is in Darwin. But I hope you enjoy the conference. I am sure you will get a lot out of it. As I said, I really do believe that we have to start building a more interagency approach and more intergovernmental approach to all the things we do if we are going to be able to defeat the types of threats that are represented in the future.

So thank you Mike for the opportunity to open your conference and I wish you well. Unfortunately, I will not be able to spend much time with you as I am on my way to Canberra tomorrow afternoon and I have got a few things on at the moment in terms of other presentations and that. I am actually speaking in Singapore in about three or four weeks’ time and we have a few things on in the Headquarters which I need to
manage. So again thank you, welcome, enjoy Darwin and I hope you get the most out of the conference.
Introduction

Good morning, lady and gentlemen. I am very pleased to be invited to speak at this workshop; the topic being ‘Maritime Security Issues and Regional Cooperation’ but our main focus, of course, is on maritime air surveillance. Before the start of this session I spoke to our Filipino visitors and I discovered that they have just completed a huge surveillance mission, having come from Manila to Sydney to Melbourne and then to Darwin to join us. I think that is more air surveillance of Australia than most of us have done.

I am from the International Policy Division in the Australian Department of Defence. This Division is responsible for managing Australia’s defence relations and international cooperation. My aim today is first to tell you a little about International Policy Division and also to give you some of the broader context—from our perspective—for our later discussions and to focus on cooperative maritime security issues, particularly those relating to air surveillance.

International Policy Division

International Policy Division has two roles. The first is to provide quality policy advice. We keep our Minister for Defence informed of international policy developments and provide him with policy advice, as the basis for government decision-making. We also provide advice to our Departmental Secretary, to the Chief of the Defence Force, to the single Service Chiefs and to other senior officials in our Defence organisation. In addition, we provide policy advice to the Government’s security apparatus more broadly. Because Defence international engagement policy is an integral part of the Government’s international policy, we work closely with other government departments, in particular the Department of Foreign Affairs and Trade and the Department of Prime Minister and Cabinet. We work with them on all issues to provide coordinated advice to the Government and Defence. But we do more than simply advise. We are actively developing new and creative policy options in response to our changing strategic circumstances and also we are implementing the advice that we have provided to Government. In implementing international engagement, we work closely with and use other Defence groups, particularly the three Services for military cooperative activities, the Defence Science and Technology Organisation (DSTO) for scientific issues and the Defence Materiel Organisation (DMO) for materiel and industry cooperation.

Our second principal role is to manage Defence’s international relations. International Policy Division is the lead Defence agency tasked with developing and promulgating
Defence’s international engagement policy and managing our relationships. In this we conduct a wide-ranging program of international engagement, through means such as:

- high-level dialogue;
- organising reciprocal visits by officials;
- managing Australia’s overseas defence attaches and additional advisers, who between them are accredited to some 50 overseas missions;
- managing cooperative defence activity with regional allied and global defence organisations;
- managing foreign defence attaches and advisers accredited to Australia and also visiting foreign officials or foreign defence personnel; and
- managing Australia’s Defence Cooperation Program.

**Defence Cooperation Program.** The Defence Cooperation Program is one of the most important pillars of the Defence International Engagement Program. It embraces cooperative defence activities with the countries of South-East Asia and the South-West Pacific. International Policy Division is responsible for the funding and management of the program, which also includes over 100 Defence Cooperation officers who are posted throughout the region.

**Maritime Security – Australia’s Interests**

Successive Australian Governments have recognised that a secure region is in Australia’s interests; that is, the more secure our region, the more secure Australia is. This is primarily a reflection of Australia’s geography. We are an island continent and are dependent on secure lines of communication with international markets for our national economic wellbeing. International trade now makes up a very large part of our national wealth—about 10 per cent—and probably one in five Australian jobs now rely on international trade. It is in Australia’s interests, therefore, that our neighbours are able to ensure their own immediate maritime environment, to ensure that this environment is secure and that it is well-monitored. By this I mean ‘security’ in the broadest sense; in particular the ability to monitor and, where necessary, to control maritime activity in their own immediate environment. This is a longstanding interest of ours and it will long endure into the future.

Threats that are prevalent in our maritime environment include:

- proliferation of weapons of mass destruction (WMD) and that is addressed through the Proliferation Security Initiative (PSI), which has received support from more than 60 countries worldwide;
- piracy and armed robbery against ships, and
- the potential threat of maritime terrorism.
Regional Defence Cooperation

We promote security in the region both through immediate assistance with individual security problems and also through helping regional countries improve their own defence and security capabilities over the longer term. Australia also has an interest in developing transparency between countries in our region and in increasing the level of mutual understanding. So these are the main reasons why Australia conducts such a large range of cooperative defence activities with the countries of the region; the International Policy area alone conducts something like 1200 separate activities every year. An important point to note is that all of our cooperative activities are based on the principle of mutual benefit, and this is the best way to ensure that activities will continue and that all countries are happy to participate.

Australia conducts Defence activities with over 40 countries. As I have already suggested, the focus is on defence cooperation with the countries in our immediate region, in particular the ASEAN countries, Papua New Guinea and the Pacific Island countries. In addition to these countries, we also enjoy relationships with our allies, such as New Zealand and the United States, and friends in the Middle East, the subcontinent, China and Japan. But, as I said, the focus of cooperative activities is very much on the countries of ASEAN and the South Pacific. Some of our Defence relationships are very old, well-established and involve a complex set of cooperative activities. Other relationships are newer and still developing; these include relationships with Vietnam, East Timor and Cambodia, for example.

As you would expect, the nature of our cooperative activities varies from country to country but the broad categories include the following:

- **Training and education.** Training and education activities include staff college exchanges, postgraduate scholarships, specific military training in areas such as logistics, mine warfare and so on, seminars and conferences, individual courses and workshops such as this one.

- **Exercises.** The aim of bilateral exercises is for each country to become familiar with the operating characteristics of the other, and to improve the capability of both countries.

- **Special Projects.** We also conduct a number of special bilateral projects and these are usually designed to improve a specific area of defence capability, such as logistics or communications.

Each type of activity is conducted across a range of capability areas and a range of regional countries. For example, most ASEAN countries participate in activities such as land warfare, Special Forces, mine countermeasures, surface ship warfare, air transport and maritime air surveillance.

**Maritime Air Surveillance Cooperation**

Maritime air surveillance is just one area of defence capability where Australia is working closely with regional countries but it is, without doubt, one of the most important areas of capability and it is certainly one of our highest priority areas.
Maritime air surveillance is a key element of regional security because of the predominantly maritime and littoral geography of South-East Asia and the South-West Pacific. Every country in our region, including Australia, relies on the sea for both trade and security. Maritime air surveillance is a very effective means of ensuring transparency and, therefore, visibility across the maritime environment. Cooperative maritime surveillance can also help regional countries work together to combat problem areas, such as drug and people smuggling, fisheries protection and piracy, and Australia has an interest in working with regional countries to address these problems. Terrorism is a new threat with a maritime dimension that needs to be addressed. As I said before, a secure region for us means a secure Australia and helping our neighbours helps us. Maritime air surveillance is an activity that, by its nature, lends itself to cooperation between countries. It leads to a better understanding of maritime activity in the region and is a significant confidence-building measure. So this is where cooperative maritime surveillance sits in relation to Australia’s broader Defence Cooperation Program and why we consider it to be such an important area.

**Bilateral Activities.** Now let me talk about the types of activities we undertake in cooperative maritime surveillance. In general terms, our cooperative maritime air surveillance activities with ASEAN countries focus on improving maritime air surveillance capabilities, increasing transparency and mutual understanding, and, in some cases, monitoring maritime activity in areas of mutual interest. The South-West Pacific is a little bit different because the countries there have very limited maritime air surveillance capabilities. So the Australian Defence Force conducts maritime surveillance patrols in the South-West Pacific and we share the information gained with those countries. We also conduct cooperative maritime surveillance activities with allies and major powers, including the United States, the United Kingdom and New Zealand, and these are usually aimed at improving and practising our own maritime air surveillance capabilities.

**Types of Activities.** I will now briefly describe the types of cooperative maritime air surveillance activities Australia conducts with the ASEAN and South Pacific countries, and the logic behind them.

- **Information Sharing.** An important type of activity involves arrangements for information sharing from maritime air surveillance. These arrangements allow surveillance information gathered by Australia to be shared with regional countries. As an example, Australia and Malaysia have a long-standing special arrangement for the Royal Australian Air Force (RAAF) to conduct maritime air surveillance from the Royal Malaysian Air Force (RMAF) base in Butterworth and the information that is gathered from those patrols is shared with Malaysia. Another example is the arrangement in support of the Forum Fisheries Agency in the South Pacific. Under these arrangements, Australia, New Zealand and France conduct maritime air surveillance in the Exclusive Economic Zones (EEZs) of participating South Pacific countries. This information is forwarded to a control centre in Honiara, in the Solomon Islands, where it is collated and distributed to Pacific Island countries. This program allows those countries to

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1 The Pacific Islands Forum Fisheries Agency (FFA) was established in 1979 to help countries manage their fisheries resources by providing expert fisheries management and development advice and services to member countries.
gain an understanding of maritime activity in and around their EEZs and to manage their maritime resources more effectively.

- **Exercises.** Australia also conducts combined maritime air surveillance exercises with a number of countries. In our region, most of those exercises are conducted with Malaysia, Thailand, Singapore and Indonesia. We typically conduct at least one maritime air surveillance exercise involving each country every year. These exercises are aimed at developing capabilities and increasing interoperability and mutual understanding.

- **Capability Development and Special Projects.** The third type of activity takes the form of special projects focused on logistics, training or other special assistance.

- **Education and Training.** The final type of activity is education and training. This helps to improve maritime air surveillance capabilities and also increases mutual understanding. Activities include specific training—for example, simulator training or training on particular sensors—and education on the general principals of maritime air surveillance.

**Conclusion**

In concluding, I would comment that this is an interesting and busy time for those of us who deal with maritime security policy issues and it is certainly an interesting and busy time for the practitioners. I hope that my brief presentation has provided some useful context for our future discussions in this workshop. For our overseas visitors, may I just say welcome and I very much hope that you will enjoy your time in Australia.
EVOLVING RAAF’S SURVEILLANCE CAPABILITY
2005–2006

GROUP CAPTAIN JOHN MEIER
DIRECTOR COMBAT CAPABILITY MANAGEMENT – AIR FORCE
AIR FORCE HEADQUARTERS

INTRODUCTION

While Commodore Darby and Mr Tom Ciesniewski spoke about high level issues, in this presentation I will tell what the Royal Australian Air Force (RAAF) is doing over the next 15 odd years to develop and improve its maritime surveillance capability, both air and ground-based. I will talk about the ground-based systems first, then I will talk about airborne systems—aircraft, which is our bread and butter.

Where We Were in 1945

We are a small air force now, with about 13,500 people, but in 1945 at the end of World War II there were 196,000 people in the Air Force. We had excellent microwave radar coverage around most of our coastline and operated a significant fleet of maritime patrol aircraft. Following the end of the war, both the radars and aircraft were quickly stood down and most very quickly ceased to exist. We actually went down to three radars—not radar units, but three radar heads. Since that time, like most militaries, there has been a series of ups and downs but the RAAF is now in an ‘up phase’. We are getting new equipment, replacing a lot of the older stuff, and we are getting a better capability. We are also moving towards an integrated system of platforms and sensors that will provide Australia with an effective surveillance system. As the audience is mainly from aviation, I intend to speak only of RAAF issues but I would note that both the Royal Australian Navy (RAN) and Australian Army are getting new systems with better capabilities in this regard that will add to this system—the RAN is getting new air warfare destroyers, which will have a significant maritime surveillance capability, and the Army is getting uninhabited aerial vehicles (UAVs). If you have any questions on these Navy and Army capabilities, I am sure the representatives here from those Services will be happy to talk to you later.

GROUND-BASED SYSTEMS

Unlike many air forces, the RAAF operates both microwave and HF ground-based radars. The microwave radars are similar in function and capability to others in service but the HF radars give the RAAF a capability uniquely suited to our large operating area. We operate the Jindalee Over-the-Horizon Radar Network (JORN) and we are doing some developmental work on HF surface wave radars. For those who do not know, JORN is an HF radar that uses backscatter off the ionosphere. We have a lot of experience in this field, and JORN forms one of the core components of the Australian surveillance capability. I will talk a little about the HF surface wave
radar in a few minutes; it is a trial program and is still very much in the developmental stage.

Currently, the various ground-based radar systems, both civilian and Defence, provide Australia with a level of coverage that is concentrated around the major urban areas in the south and east of the continent and in the north-west (Figure 1). The range for JORN varies with the ionosphere conditions, the time of day etc—standard HF propagation.

![Figure 1 – Current Ground-Based Radar Coverage](image)

**CURRENT GROUND BASED COVERAGE**

- GBR
- JORN
- ATC
- AsA

**Indicative coverage only**

**Microwave Radars**

For many years the RAAF, like just about everybody else who has American equipment, has operated the TPS-43 radar but its age has led to a marked reduction in its capability and it has a lot of maintenance problems. The RAAF has selected the TPS-77 radar (Figure 2) as its replacement—a much later generation radar with better height discrimination, better angular resolution, tactical ESM, a planar array antenna and improved reliability and availability. We are buying four of these radars, which will allow us to maintain our ground-based microwave radar coverage for local area air defence and surveillance. The TPS-77 radars themselves are mobile and will be moved around as required, and we will have a number of pre-surveyed positions both in the north and the south where we can exercise and use them on operations. The radars will be operated by No 3 Control and Reporting Unit, based on the east coast at RAAF Base Williamtown, and No 114 Mobile Control and Reporting Unit, based up here in Darwin. The new TPS-77 radars will be introduced progressively into service in the near future, and they should be fully operational in the first half of 2006.
Jindalee Over-the-Horizon Radar Network

As I mentioned before, JORN is our over-the-horizon radar and it has been developed exclusively in Australia. Essentially, it takes HF radar waves, bounces them off the ionosphere down to the surface and then they come back, and we use bunch of very smart computers to take the surface clutter out of the picture and give us a surface picture of what is going on in a particular area. I believe the French also have a small over-the-horizon HF radar system called ‘Nostradamus’, the Americans have a trial system and I think the Russians might have one as well.

Development of the Jindalee system started in the 1970s when our Defence Science and Technology Organisation (DSTO) built an experimental receiving station some 40 kilometres north of Alice Springs in Central Australia, together with a transmitting station about 100 kilometres north-east of the receiver. Since then it has evolved into three operational systems. One, the original unit north of Alice Springs, is now coming on line both as an operational radar unit and as a trials unit. We have another radar at Laverton in the south-west of Western Australia and a third at Longreach in the centre of Queensland. Essentially, they provide us with pretty good coverage out to reasonably long distances (1000–3000 kilometres from the radar sites) from the western half of Western Australia right around the north to the north-east, basically to about Cairns.

However, like many of the older software systems, it was suffering from very clumsily written software and very, very older generation processors. We have now replaced and upgraded the computers and tidied up the software to make it more
effective. I guess the biggest problem with JORN when we first got it was that it was
designed by scientists for scientists. So if you had a scientific brain you could operate
it very easily, but if you had a ‘normal’ brain, like aviators and ‘ship drivers’, you
could not. So we spent a lot of money redoing the interface between the operator and
the system; it took a lot of time and money, but it seems to work reasonably well now.

The radar units are quite long—several hundred metres in length—but are basically
just big HF transmitters and receivers. The raw information is taken back and
processed at RAAF Base Edinburgh, where we have No 1 Radar Surveillance Unit.
That is where you will see the Air Surveillance Operators working—these are the
guys who look at the information and generate the second stage of a radar picture.

**HF Surface Wave Radar**

I am sure you are all aware that HF does not work particularly well at dawn or dusk; it
is just one of those things that you cannot do anything about. However, our scientists
also noticed that at other times of the day HF surface waves worked reasonably well
and DSTO research into this matter has lead to the possibility of HF surface wave
radar becoming an effective system for extended surveillance of the Australian coastline. So we are now conducting a trial—a Capability and Technology Demonstrator—of an HF surface wave system in the Torres Strait (Figure 4). Should this prove successful, there is a possibility that an operational HF surface wave radar system may be developed to fill in the gap between the microwave radars and the JORN over-the-horizon HF radars.

![Figure 4 – HF Surface Wave Radar Trial – Torres Strait](image)

We picked the Torres Strait for this trial for several reasons, one of which was that it is a very cluttered environment. There are lots of little islands in this area and there are large numbers of local fishermen from Australia, Papua New Guinea and Indonesia, so there are lots of targets there all the time and they are difficult targets to detect. The theory is that if the HF surface wave radar can work there, it should be able work just about anywhere we want to use it. The trial will go on for a couple of years, because it takes a while to generate enough information to allow us to determine whether an operational system will be feasible somewhere in the future.
Where the Information Goes

While the sensors provide the raw information for surveillance, it only becomes useful when it is processed and made available for the users. So all this information from our radar systems goes to the Eastern Region Operations Centre (EASTROC) (Figure 5), located at RAAF Williamtown where some of our F/A-18 Hornet squadrons are based and where the airborne early warning and control (AEW&C) aircraft will be based. EASTROC takes all this information and generates the integrated operating picture. This is the first piece of second stage or stable information that has come out of all the integrated sensors that we have got scattered around the country. From EASTROC, the information is sent out to whoever needs it (Figure 6). So it goes to higher commands, such as the Joint Operations Command in Canberra, Headquarters Air Command and Northern Command; and it goes to tactical users, such as Air Combat Group and No 92 Wing. So something that is generated by a microwave radar unit can be sucked out of there and given to an air defence controller to control an F/A-18 doing a practice intercept over Amberley or Williamtown, for example, or it could go to No 92 Wing to assist them when they are doing their patrols up in the north.

Information also goes to other intelligence and surveillance agencies, such as the Defence Intelligence Organisation, Coastwatch (our civil maritime surveillance and response organisation), Customs, the Australian Federal Police and Fisheries Australia, and also to Airservices Australia to help the civilian air traffic controllers do their job as well.
In theory, my air defence controllers tell me, when all this is developed we will have a better coverage; it will be a much more refined coverage, it will be a much more stable and, in air defence terminology, it will be a ‘recognised’ air picture and a ‘recognised’ surface picture that we will be able to push around and, depending on where you are in the Defence Force, will allow you to access the information you need to do a particular job. It will not actually improve or extend the area covered but what it will do is improve the quality of the information that the crews flying the aircraft or the crews on the ships use for their job.

**AIRBORNE SYSTEMS**

Currently, the airborne component of the force resides in the AP-3C Orion maritime patrol aircraft but it will soon include the B737 AEW&C aircraft and, further into the future, a multi-mission maritime aircraft (MMA) and a maritime uninhabited aerial vehicle (MUAV).

**Airborne Early Warning and Control**

Our AEW&C aircraft is based on a B-737 airframe (Figure 7). It is the first of its class and, excluding the Russian IL76 version, it is the first medium-size AEW&C/AWACS aircraft. It fits into a niche between the E2 Hawkeye that Singapore uses and the US E3 AWACS or the Japanese B-767 AEW&C. The RAAF AEW&C aircraft has a Northrop Grumman phased array antenna on top, a wide range of capabilities...
of other sensors, an extensive communications suite and a reasonably well-developed man-machine interface that was designed by operators for operators.

Figure 7 – B-737 AEW&C Aircraft

We will start getting the aircraft this year and generate an operational capability towards the end of next year. The six aircraft will be operated by No 2 Squadron, based at RAAF Williamtown on the east coast. However, we will deploy probably one or two aircraft up into the north on a regular basis to operate with the fighter squadrons based at RAAF Tindal in the Northern Territory.

The aircraft will be capable of operating in several roles. It will do the obvious airborne air defence controller role that all AWACS-type aircraft do and, with the sensor fit on board, it will also do broad area surveillance as well. It will supplement the AP-3C force, it will supplement JORN and it will provide additional coverage if we have problems with any of our ground-based radars. The sensor fit is very good. Besides the radar, it will have a very good electronic warfare (EW) suite—much the same as that going into the AP-3C only slightly more modern—and it will have a range of countermeasures on board. We also will generate enough crews to be able keep most of the aircraft airborne if required, when they are not in maintenance. The aircraft is capable of being refuelled in flight to extend its endurance considerably. It has integral fuel tanks in the under floor area, where you would normally have baggage compartments in a B737, so its inherent endurance is very good. It will have an extensive communications suite, including all the usual Link 11, 16 etc, so it will be able to talk to everyone. The operators on board are sufficient in number so that we can rotate crews while airborne—they will take off with a few extra sensor operators.
Maritime Patrol Aircraft

I will not talk too much about our maritime patrol aircraft, as Group Captain Ludwig will address this later in the workshop. We operate 19 aircraft and have just finished a major upgrade program that upgraded the sensors in the aircraft, the communications suite and addressed some of the problems that we are experiencing with an old aircraft—the first 10 of these aircraft are now 27 years old. We have had to look at obsolescence issues for aircraft spares and to look at structural work and corrosion problems, plus the need to maintain combat effectiveness. We have had some good success with some of the sensors, including the new infra-red turret that replaced the old one under the nose that will go across the fleet. The EW fit, as I mentioned earlier, is basically a baseline version of what is going into the AEW&C aircraft and we have just fitted some EW self protection to the aircraft.

We have determined that around 2015–2018 the AP-3C force will need to be replaced by a new aircraft or a refurbished P-3. The Royal New Zealand Air Force (RNZAF) has done some work on this regarding their P-3s and we will be looking at their findings. But bearing in mind that our aircraft are fairly old and in another 10 years time they will be very old—up to 37 to 38 years old—it is probably getting a bit late in their life to be thinking about doing another airframe refurbishment, plus you would still have to upgrade the mission sensors to make them an effective aircraft.

I am sure that most of you are aware that the United States Navy (USN), along with the Canadians and Italians and ourselves, are looking at the P-8 multi-mission maritime aircraft (MMA) as a possible option for the replacement of the P-3. We have been involved in initial discussions on this. I believe the Americans see the replacement aircraft as being developed in around five years or so, so it would be in USN service for quite a while before we saw it. This is good for us as we would not be trying to introduce a brand new aircraft into service. The MMA will basically do what a P-3 does only much faster, much more economically, with a better sensor suite and a more supportable sensor suite, and probably a much improved communications suite.

The whole P-3 force will be replaced by a lesser number of aircraft. We have 19 maritime patrol aircraft now but we will not be buying 19 P-8s or MMAs, simply because they will be too expensive. What we will also be doing is breaking the new maritime patrol aircraft fleet up into two components. There will be the MMA—the manned aircraft component—and the MUAV, the maritime uninhabited aerial vehicle. The MUAV will do the long, the boring and the routine surveillance tasks off the coastline. It will do it day in and day out, and the information will be fed back to a ground station, probably at RAAF Edinburgh where the AP-3Cs are based now and probably where the MMAs will be based in the future.

Essentially, we have only two choices for MUAVs at the moment. We can either have Global Hawk or we can have Mariner—they are the only options. We have done some trials a few years ago with Global Hawk, which you may have heard about. We hired a Global Hawk, brought it out to Australia and did about four or five weeks of trials with it. Unfortunately for us, Global Hawk is designed around an over land environment; we want the aircraft to operate over water, so we have got to put our own sensors into the aircraft. DSTO are developing a unique sensor suite package for
Global Hawk if that is the one we finally choose. We can look at the other option, the Mariner, which is essentially a long look Predator. The difference is that the Global Hawk to us is a dedicated, high altitude, long endurance UAV, while Mariner is a medium altitude, long endurance UAV. We believe we would be pushing the envelope of the Mariner to get it where we want it to go and to get the endurance we expect of the aircraft.

The problem we see with operating an aircraft such as this is the amount of data that is going to come out of these aircraft. They would be operating 24 hours a day with a full sensor suite equivalent to the AP-3C. That data will be dumped down and has got to be processed and be pushed out to the other agencies that use it. That is where the problems are going to occur. I think we are all aware of the problems that the Americans have had with the amount of information that comes out of their sensor suites that they are operating in and over Afghanistan and Iraq. The amount of information that is dumped down is too much and people simply cannot get through the process of looking at all the information. We are looking at how we will support that and what sort of squadron organisations we will have. Obviously, the flying part of an MUAV is pretty simple; it is two people to keep an eye on the aircraft when it is flying. Developing the systems to support the interpretation and use of the data is another question. Our Minister for Defence would like these aircraft in service as soon as possible, and I would think in about five years you will start to see these aircraft become more common in Australia.

When we get all the component parts in, we will be using SATCOM to start punching the information around. The MUAVs will probably be based at RAAF Edinburgh, reasonable weather, good airfield, used to operating large aircraft there—certainly, if it is a Global Hawk, you are talking about an aircraft with the same wingspan as a B737; it is a big aircraft.

**How the Airborne System Comes Together**

I mentioned EASTROC before; this is where the information will come together. It will come out of whatever sensor we have used and it will go to some of the operators. Figure 8 illustrates how the airborne system will come together. We can see some of this information going back to the AEW&C and both ways, probably using Link 16. It will go to the Amphibious Readiness Group and the air warfare destroyers as well, and then it will go out to our Special Forces and the routine Army operators. Essentially, it will go out to whoever needs it—we will put it out to Coastwatch and we will put it out to Fisheries, depending on the classification of the data that we provide and the final user’s needs. Most of the communications links required, with the exception of the MUAV, are essentially in place now. We hire satellite time like everyone does, we have the AP-3C out there doing the job, we will have the AEW&C aircraft up very soon and we have our integrated ground environment already functioning, already doing what is required. I guess the hard part is when all the bits turn up the amount of information that is going to be moved around that communications network will be very, very large. That is where the hard questions are going to arise.
CONCLUSION

That concludes my presentation. That is where we are going. We have got a reasonably good force now but by the time we get our projects in place and running I think our surveillance system will be fairly impressive, but it will be labour intensive. To make the best use of those sensors, those systems and aircraft, especially, we are going to need a lot more operators available to look at the information, to be able to process it and pass it around the system. We will need a robust communications system to pass the information out to the users and we will need people who can fly and operate aircraft, be they manned or unmanned, 24 hours a day, seven days a week.
Introduction

Good morning, I am Group Captain Warren Ludwig, the Officer Commanding No 92 Wing. Welcome to this conference.

As a nation with a large coastline and maritime areas of jurisdiction, Australia relies heavily on maritime surveillance to safeguard its waterways, seas and its natural resources. Australia’s maritime surveillance challenges are shared by all nations in the region, and the lessons of recent years that threats to maritime security and resource protection are borderless mandate a collective and cooperative effort within the region to defeat the modern menaces of illegal migration, resource poaching and, of course, terrorism.

In this paper I will outline some of the key facets of airborne maritime surveillance from the perspective of the Royal Australian Air Force (RAAF). As this capability for the RAAF is resident primarily in the Orions of No 92 Wing, this paper will be focused mainly on that area. Accordingly, I will:

- provide a brief overview of No 92 Wing’s P-3 Orion maritime patrol and response capability,
- comment on the key traits and challenges of contemporary maritime surveillance,
- describe No 92 Wing’s interfaces with Australia’s national maritime surveillance architecture,
- discuss regional cooperation issues and interoperability, and
- address some of the key technologies relevant to maritime aviation surveillance.

AP-3C Orion Aircraft

No 92 Wing, an element of the RAAF’s Surveillance and Response Group, has over 1000 personnel and operates 19 P-3 long range maritime patrol and response aircraft from its home base at RAAF Base Edinburgh in South Australia. No 92 Wing currently operates detachment sites at RAAF Base Darwin, in the Middle East and from RMAF Butterworth. The unit has recently introduced the AP-3C Orion weapon system, which provides a comprehensive sensor and system upgrade over the previous P-3C Orion. The RAAF expects to operate the AP-3C well into the next decade, with a range of system upgrades planned to ensure that the platform remains effective in all
of its assigned roles. The AP-3C has considerable advantages in range and endurance when compared to smaller maritime patrol aircraft. Under surveillance conditions the AP-3C can patrol for up to 12 hours and search up to 400,000 square miles of ocean, or it can search up to 150,000 square miles of ocean when 1000 nautical miles from its base. However, the AP-3C Orion is an expensive platform to operate and it is best reserved for missions that require its long range and endurance, or for its specialised military applications.

Figure 1 – RAAF AP-3C Aircraft over Darwin

Key Traits and Challenges

Like most regional nations, Australia is fortunate in that it possesses abundant natural resources and a precious marine ecology. Australia also relies heavily on the security of its maritime transport sector to ensure unimpeded access to the sea lanes of the world. Australia’s Exclusive Economic Zone (EEZ) is the third largest in the world, comprising some 8.6 million square kilometres (Figure 2), and its ports handle around 20,000 major vessel calls each year.
No 92 Wing’s success as part of Australia’s wider surveillance architecture relies on achieving a number of important synergies and overcoming a range of common challenges. In particular, search areas are large, contact densities can be high and there are limited assets available to conduct surveillance. To overcome these variables, accurate and timely intelligence for the cueing of surveillance and response platforms and sensors is vital. Without accurate cueing, surveillance resources, both platforms and crews, can quickly be expended on tasks that provide little return.

Because many of the threats to the region’s maritime security are transnational in nature, cooperation between nations, particularly those which share common borders or resources, is essential if surveillance resources are to be applied effectively.

**No 92 Wing Interface with National Maritime Surveillance Architecture**

No 92 Wing’s AP-3C maritime surveillance operations include contributions to border and resource protection, anti-smuggling patrols, protection of sea lines of communication, and search and survivor assistance. The planned introduction of the Boeing 737 Wedgetail AEW&C aircraft from around 2007, as part of No 42 Wing, is expected to enhance this capability further, particularly in regard to illegal airborne traffic.

While AP-3C aircraft are often employed on purely military surveillance tasks, they are also closely integrated into broader Australian surveillance architectures. The Joint Offshore Protection Command (JOPC) links the Australian Defence Force responsibility for counter-terrorism, prevention and response with the existing civil
maritime surveillance response coordination and enforcement roles undertaken by Customs. Its purpose is to streamline planning and command and control arrangements for both military offshore maritime protection functions and civil maritime surveillance activities. This arrangement facilitates effective intelligence sharing, minimises duplication of effort and allows the optimal use of valuable resources. No 92 Wing’s resources are combined with other government agencies to provide the synergy for an effective maritime surveillance system in Australia’s area of interest.

However, while the cross-organisational synergies in this Australian model may be relevant to any regional surveillance task, they will not of themselves allow any single nation to address all of its maritime security issues on its own. As I have already said cooperation between nations is essential if surveillance resources are to be applied effectively. Although this need for cooperation between regional nations appears intuitive, extant regional arrangements offer much scope for further development and I will now analyse those in more detail.

**Regional Cooperation**

Cooperation between nations on matters of maritime security will inevitably be constrained by concerns for national sovereignty or security. Accordingly, the sensitivities of all nations in the region must be understood and heeded if meaningful cooperation is to be effected. The basis of much of the earlier cooperation that has been achieved between regional nations for maritime surveillance relied on the ties established between their respective military forces. This, I suggest, may have been
due to the lack of credible offshore or long-range capabilities in the non-military organisations, such as coast guards or coastwatches, or indeed due to the lack of these organisations at all.

Military forces may well be required to combat higher level threats, such as terrorism on the high seas. A contemporary example of such cooperation involves multinational exercising on the Proliferation Security Initiative or the PSI. However, military forces are quite correctly prevented from being totally transparent in their capabilities and in sharing some of the product they collect. Hence, military cooperation for regional maritime surveillance can offer both positives and negatives, albeit that I contend such military capabilities should remain as an essential layer in any regional surveillance architecture. In comparison, many non-military forces, including police and customs units, can more effectively share information because national sensitivities are less likely to be compromised. Within Australia there exists a range of non-military and government agencies with cooperative security and surveillance ties within the region. The key to effectiveness for these arrangements would appear to require that they are coordinated and complementary. Overall then, well-coordinated cooperation between regional nations on a whole-of-government basis presents considerable benefits for individual nations within the region and for the region itself.

With the increased focus on smuggling, poaching, piracy and terrorism within the region, cooperation between nations for maritime surveillance has increased in recent years, although far greater synergies remain to be harvested. Many of the existing arrangements are bilateral in nature and while such arrangements present a simpler framework for organisation and execution, the gains in surveillance outcomes cannot compare to comprehensive multilateral arrangements. In some parts of the region the trend is towards multilateral security. For example, Malaysia, Singapore, Indonesia and Thailand have recently commenced coordinated air patrols of the Malacca Straits under the ‘Eye in the Sky’ initiative. Similarly, Australia, New Zealand, South-West Pacific nations and France cooperate for surveillance in parts of the South-West Pacific. How many other areas of common interest in the region could benefit from such cooperation and coordination?

Search and rescue is an area associated with maritime surveillance where barriers to cooperation are typically low. From a regional sense, therefore, a further strengthening of cooperation in search and rescue could provide a very useful catalyst for greater cooperation in broader areas of regional maritime surveillance.

**Interoperability**

The ability to integrate regional air surveillance activities effectively and to merge intelligence and surveillance data into a common operating picture, while communicating data to and from surveillance assets in real-time, provides the basis for effective and efficient surveillance operations. A regional command and control system that provides effective planning against regional threats, while not encroaching on the sensitivities and command and control of individual national assets, would present the ideal regional aspiration; however, one that would be very difficult to achieve. Similarly, the collation and fusing of surveillance data from a range of regional agencies would also present an ideal arrangement that would be challenging.
to implement. However, regional surveillance arrangements that do not meet these ideals will always suffer some degradation in effectiveness.

While effective regional integration and fusion of data is essential for mission planning and execution at the tactical level, it is highly desirable that data can be communicated to airborne platforms to permit refinement of search areas and for the correlation of contact data. Moreover, it is essential that airborne surveillance assets can pass contacts reliably in real-time over long distances, ideally via automated secure means. Such communications can maximise the benefits obtained from surveillance data and permit timely responses to be initiated. The use of satellite communications and data links can greatly aid in this process. As stated previously, the ability to integrate regional surveillance activities effectively and to contribute to and draw from a common operating picture are likely to present the most significant challenges for regional surveillance. Further, interoperability for advanced communications and the use of common surveillance procedures can also be expected to present challenges. As depicted in Figure 4, more realistic near term goals for the region appear to be the coordination of surveillance activities, exchanging data of interest from within national data bases and achieving interoperability for tactical communications and procedures.

Figure 4 – Interoperability Goals for the Region

Technology

Any future focus on regional maritime surveillance must maximise the use of modern technology. In addition to networked communications, which Group Captain John Meier talked about this morning, two broad areas of technology are particularly
relevant to the success of airborne maritime surveillance. They are modern search sensors and uninhabited or unmanned aerial vehicles, although the latter is still quite a developing field in the maritime arena.

**New Sensors for AP-3C Aircraft.** In the case of Australia’s AP-3C aircraft, two new sensors have resulted in significant improvements in target detection and identification, and search area coverage. Firstly, the Elta 2022 radar is a significant improvement over the radar which the P-3C had. The new radar has a much improved detection performance against small contacts, making small fishing and pleasure craft easier to detect in higher seas, while its imaging capability allows the aircraft crew to identify vessels from a longer range. The second sensor that the AP-3C uses is the Star Safire multi-band, infra-red, electro-optical system (Figure 5). This has further increased coverage by both day and night, and also increased the ranges at which targets can be identified, and also improved search area coverage.

Collectively, the AP-3C’s modern radar and electro-optical sensors allow crews to search larger areas more effectively for a given time on patrol. Further, the image outputs from these sensors can be communicated in near real-time to other surveillance assets on the ground and in headquarters. Now there is any number of similar or even more capable sensors and systems now on the market and the ability to acquire and employ such systems offers considerable benefit to regional maritime security.

**Uninhabited Aerial Vehicles.** Developments in uninhabited aerial vehicle (UAV) technology have seen a significant increase in the overall capability and effectiveness
of UAVs, such as demonstrated by the Global Hawk high altitude, long endurance system (Figure 6).

Figure 6 – Global Hawk UAV

As an example, the Global Hawk is now being designed to carry up to 3000 pounds in payload on missions that can last over 36 hours at search ceilings of over 60,000 feet. A range of smaller and less costly UAVs also exists for providing very effective maritime surveillance. The key advantages of UAVs for airborne maritime surveillance are their long endurance and persistence and, dare I say it, lack of aircrew. However, UAVs also have limitations. Under some circumstances, UAVs are not as versatile as the traditional manned aircraft, particularly in adverse weather conditions. UAVs also require extensive communications infrastructure for both control of the air vehicle and for communicating the sensor data to a ground exploitation station. Further, UAVs are generally limited to surveillance activities and have less flexibility to undertake response options, such as deploying stores. And finally, the capability of acquiring large volumes of data comes at the cost of requiring a relatively large ground-based exploitation facility. Nevertheless, from a regional surveillance perspective, the scope of employing UAVs to complement manned platforms and extend the existing maritime surveillance coverage is still considerable.

Conclusion

The borderless challenges provided by contemporary threats to maritime security and resource protection mandate a collective regional approach to provide effective deterrence in a resource-efficient manner. Australia’s surveillance architecture, which includes military assets such as No 92 Wing’s AP-3C Orion, provides synergies
across whole-of-government agencies and, I would suggest, offers an effective model for consideration within the region. There are advantages and disadvantages to using only military assets for regional surveillance. Accordingly, a mix of civilian and military assets appears to be the most appropriate for addressing the surveillance requirements and the threats that may be encountered within the region. Such a combined approach would maximise cross-nation and interagency liaisons and coordination. Various examples of bilateral and multinational surveillance cooperation employing both civilian and military assets already exist within our region. The ideal situation of integrating surveillance effort across nations and utilising a common data repository and a common operating picture will remain key challenges.

Near to medium term goals should more realistically be focused on coordinating surveillance efforts and with the sharing of relevant surveillance data from within our national databases. At the tactical level, regional interoperability for lower level communications and surveillance procedures should be achieved in the near term, with a medium-term goal of moving towards a higher level of communication interoperability.

Modern sensors, such as imaging radar and multi-band electro-optical and infra-red systems, offer considerable benefits for surveillance and resource efficiency, particularly in airborne platforms. Similarly, the further study and introduction of UAVs for maritime surveillance offers a significant potential for effective and efficient regional surveillance.
Air Commodore Green, Air Commodore Khawaja and other friends, it is indeed a privilege for me to have been invited by the RAAF to speak here today. It is also another privilege to have been told just before the workshop started this morning that I was to speak. I think this goes back to the friendly relationship between the Indian Navy and the Indian Air Force, with retired Wing Commander Sanu Kainikara springing this surprise on me this morning—you know, some things do not change! But all said and done, although I do hold his Air Force background sometimes a little against him, I must be fair enough to say that all the good things about him do have some roots in the Indian Navy. He is a ‘Navy brat’; his father retired as a Commodore in the Indian Navy, so that explains a lot of good things. So now having rubbed a whole lot of Air Force people here the wrong way, let me say once again that I am truly happy to be here and to think about how maritime surveillance, especially airborne maritime surveillance, would really help us all live in a safer world. A little later on I would like to speak about a comment that Tom Ciesniewski made that helping our neighbours helps us, and I thought that was pretty significant. I was just trying to think about what should I speak on and a number of incidents come to my mind where maritime air surveillance that originated in India has made our region a safer place, at least in terms of some of the incidents that I will briefly recount as we go on.

In terms of maritime capabilities, let me just go into a bit of the history. Until 1975 or 1976, I think, maritime surveillance in India was a responsibility of the Indian Air Force. We really had a very rudimentary capability. They were largely Super Constellation aircraft, which had been transferred from Air India when they changed over to jets. They were fairly plush aircraft to sit inside but they did not have much in the way of surveillance capabilities and the Indian Navy was really concerned about it. While taking a lot of digs at the Indian Air Force, I must say that the Air Force really was extremely cooperative in handing over this surveillance capability to the Navy. In 1976 the Super Constellations were formally handed over to the Indian Navy and thereafter, of course, we realised the limitations. We started negotiating with a number of countries for this capability and we ended up buying Russian IL-38 aircraft—I think we had five of them. Two we lost about two or three years ago in a very sad accident while they were doing a flying demonstration and they bumped into each other, and we lost two very fine sets of crews in that more than anything else. That shortfall is being made up by two modernised IL-38s. Apart from that, of course, the Indian Navy has the TU-142M maritime reconnaissance aircraft, which also have an anti-submarine warfare (ASW) capability—in fact, ASW was their primary role. We have eight of these and they operate from a Naval Air Station that is really not on the coast; it is near Chennai, but further inland.

Apart from that, in terms of shorter range surveillance—and that is an area where we have made some progress—the Navy has, I think, about 18 or 20 Dornier aircraft (I
am not too sure of the number), which were manufactured in India under license. The Coast Guard also has an important surveillance capability. We look at this as a short to medium-range surveillance capability which takes care of our Exclusive Economic Zones (EEZs). So this gives us some capability to fill the gaps along the coast, and there is a fair amount that keeps happening. I will recount a few incidents a little later on.

In terms of maritime surveillance, there are certainly a lot of vulnerabilities that we in the Indian Navy feel and the Government of India as a whole recognise. We are in the market for upgrading our TU-142s and the IL-38s with some Russian assistance and with assistance from some other countries. We are also looking at replacing and, in fact, adding more maritime patrol aircraft. Many aircraft are being considered, including the multi-mission maritime aircraft (MMA), surplus Orions from the Americans and some other options. Apart from that, I think there is some amount of work going on in terms of space-based surveillance. We realised some of the benefits of space-based surveillance even in humanitarian issues in the response of the Indian Armed Forces in the wake of the tsunami in December 2004. And I shall talk about that because that really illustrates much better than many other examples that have some sort of belligerence involved in them in terms of anti-piracy or counter-terrorism. In the case of the tsunami, all the surveillance assets that India has really helped significantly, especially in response to what happened in the Andaman and Nicobar Islands, with Sri Lanka and with the Maldives and, to a lesser extent, with the devastation that especially rocked Aceh—the Indonesian response to it was just tremendous. We were happy that we were in a position to do our little bit in our neighbourhood.

Having said that, let me look at some of the incidents that underscore the importance of cooperative effort. Firstly, I will take you back to 1988. In November 1988, mercenaries attempted a coup in the Maldives. The mercenaries overpowered the Maldivian Militia and attacked the President’s residence, and the President Gayoom was held hostage. I am not too sure of the political details of what went wrong and what happened, but that really should not concern us here. What is important is what happened after. The Maldivian Government requested assistance and India was the first to respond. The Indian Armed Forces mobilised in three or four hours and the Air Force flew in two companies of paratroopers who went and secured the airstrip in the Maldives and then rescued some of the people—the President and some government ministers who had been held hostage. However, some of the terrorists, many of them of Sri Lankan origin, had commandeered a merchant vessel, MV *Progress Light*, to escape, taking with them a few hostages, including some members of government. The ship was spotted by an Indian maritime reconnaissance aircraft. We realised that this was the ship with the terrorists on board, and here there is an Australian connection. One of our frigates, INS *Godavari*, had just finished a visit to Sydney for Australia’s Bicentennial, I think, and was on her way back to India and she happened to be closest to the area and was able to intercept this ship. She was joined by some other ships and, despite a lot of warnings being given and warning shots fired, the terrorists would not stop and therefore the ship was fired upon. Sea King helicopters were actually used to depth charge the ship and they bounced a couple of depth charges off her stern. That killed her propulsion and thereafter it was just a matter of time before the terrorists surrendered, which they did. All but one of the hostages were rescued; the unfortunate one was shot and killed by the terrorists and dumped...
overboard. It ended quite happily and President Gayoom of Maldives is still very much in power. Just recently he again acknowledged and gave credit to the ship and the Air Force and Army that took part in the operations to combat the attempted coup. Maritime surveillance—one aircraft which was lucky enough to find the ship—probably saved the lawfully appointed regime in a country in 1988. So that is the political significance of what a little bit of surveillance ability can do.

The second example I would like to talk about involves Indian Navy operations against ships carrying arms to the Tamil Tigers, the LTTE (Liberation Tamil Tigers Eelam), in Sri Lanka. On two occasions, once in 1994 and again in 1996 or 1997, Indian Navy maritime surveillance aircraft have detected ships that were carrying a whole lot of arms and ammunition to the Tamil Tigers in Sri Lanka. On both occasions, these ships had to be neutralised at sea; in one case by the Indian Navy and in the other through bilateral cooperation between the Indian and the Sri Lankan Navies. Again maritime aircraft played a critical role in looking for these ships and, as all of you who operate maritime surveillance assets know, it is like looking for a needle in a haystack. The shipping lanes south of the Indian peninsula are really crowded; they all funnel into and out of the Malacca Strait. So it is never an easy task and while I do talk about some of the successes, there have been some ships that we have just not been able to detect. That is where we are trying to plug some of those holes organisationally, in terms of agreements with countries and in terms of technology that some of the earlier speakers have talked about, and all these issues go hand in hand. In the first of these cases the Indian Navy gave a lot of warnings but nothing happened. It seemed that the ship was determined to head to the northern part of Sri Lanka and discharge a cargo which would have further aggravated the situation there, so there was no choice but to sink the ship, and that is what a couple of ships eventually did. All the people on board, and I think the crew was entirely Tamil Tigers, were lost in this first incident. In the second case the ship was shepherded into Sri Lankan waters and then the Sri Lankan Navy neutralised that ship.

This also brings into account some things that we need to talk about, at some other forum perhaps because they are legal matters, but somebody did query what legal changes were being made to enable this to happen within existing frameworks and where do the frameworks need to be tweaked a bit. In either of these cases I just mentioned I think it could be argued either way that the Indian Navy or the Indian Coast Guard probably crossed some legal limits. It is possible depending on what argument you take, but what about the effects that could have happened? There is an element of pre-emptive prevention in countering terrorism. It is a lot like drunken driving. You can argue that the driver who is drunk may still reach his destination safely and may cause no harm, but how do you take that chance? What do legal regimes do about it? I am not trying to oversimplify this, but there are challenges there, if I may put it that way. So on a regional basis what are we going to do about it?

Another incident somebody talked about was piracy and, truly, it is assuming significant proportions for maritime surveillance agencies, maritime enforcement agencies, wearing whatever colour uniform from whatever country and what they need to do. I am talking about the MV _Alondra Rainbow_, a ship that was captured by pirates and was again picked up first based on information that came from Japan and from the anti-piracy centre in Malaysia that is competently helping so many countries to counter their effect. We found that ship and it was brought back into Bombay, I
think. Only recently the crew, who had spent about six years in gaol, were released because the judge in Bombay found that under existing Indian laws they could not be held on any charges. In India, as in most other countries, the judges are the bosses and the pirates had to be released after six or seven years because of legalities. I am not too sure about what happened in the courts, but the fact was that maritime surveillance picked up the ship and homed in Indian Navy and Coast Guard ships. The ship was captured, brought back into harbour and the people were put on trial. They were duly tried and sentenced but six years later were acquitted on legalities and they have been sent back to their home countries. Now the ship had Japanese consignment and this is counted as one of the major incidents of piracy. Unfortunately it has been also been taken over by other incidents where even deaths occurred. Certainly, this is one area where we need to put our minds together and workshops such as this are a forum for this and I hope in the discussions we can talk a little about it.

With search and rescue (SAR) we found that the Coast Guard, especially at shorter ranges, is doing it all the time in India, but we have had to use high intercepts like the TU-142s as well for search and rescue. It is not the most efficient way of doing it and we are really concerned at times about the cost, but it is a humanitarian mission and it just needs to be done. There are no Japan Maritime Self Defence Force (JMSDF) representatives here, but many in the JMSDF would remember when their training squadron was coming back from some visits and going south of Sri Lanka they lost a midshipman overboard. We launched about ten TU-142 sorties because that was the only aircraft that could get within range within time and that was a significant effort, ten TU-142 sorties over the next three days, but unfortunately the body could not be located.

Coming back now to a recent event that affected so many countries, the tsunami in December 2004—Thailand is represented, Indonesia, Malaysia, Singapore was very lucky but got involved in the rescue attempts in Aceh, and Australia made a major contribution in Indonesia. So many countries are represented here which were affected by the tsunami or involved in the rescue operations after the event. I would say that maritime surveillance really helped a lot. In India’s case, the first aircraft was a Dornier, a short-range maritime surveillance plane, that took off from Trivandrum with emergency supplies and medicines, and reached Colombo within, I think, eight or ten hours of the tsunami hitting the eastern shores and Colombo. Thereafter the Indian Air Force and the Indian Navy used a fair number of aircraft on relief operations. The Air Force I think flew almost 300 sorties carrying supplies into Sri Lanka and the Maldives, and the Indian Navy flew in a whole lot of their maritime aircraft with sonobuoys and things removed and a lot of stripping done so that they could be pressed in as transport planes, and that helped us respond. Apart from that, these aircraft also did aerial reconnaissance of the devastation along the eastern coast of India, because we lost about 15,000 people, and of the Andaman and Nicobar Islands, as well as around the Maldives and Sri Lanka. This turned out to be a very good investment and some of the countries, which perhaps would have expressed a certain level of concern at India’s maritime surveillance capabilities, had reason to be less concerned because here was a clear example of a humanitarian dual role for maritime surveillance and for the Indian Air Force transport fleet. It also helped coordinate a whole lot ships that were on task. About 12 Indian Navy ships were on task off Sri Lanka from day two onwards and in the Maldives, as well as in our own
waters. I cannot overemphasise the humanitarian importance of these ships and their aircraft, and the IL-38s and the TU-142s that helped us.

Where does this take us? One point worth noting, of course, is that some of this response was possible because we had agreements in place on maritime surveillance aircraft landing in these countries through arrangements made through the high commissions or the embassies in those countries and, therefore, some procedural aspects which involved the Ministry of External Affairs in India and the host government were already in place. This happened especially with Sri Lanka and the Maldives. We already had agreements in place with Mauritius and with the Seychelles before that for such eventualities. In Mauritius, as some of you might know, the Indian Navy has supported the Mauritian Coast Guard for over 20 years now with personnel, with training and with hardware. The Dorniers that operate under the Mauritian Coast Guard insignia were also transferred from the Indian Navy, along with some patrol boats and offshore patrol vessels. Now the same model has been replicated with the Seychelles. It really is a lot like the Pacific Patrol Boat Program, which we consider such a marvellous arrangement, that you have.

Somebody talked about some of the difficulties of patrolling in the South Pacific and we completely understand that because the Indian Ocean also is just so vast and many of the countries that seek our assistance from time to time for EEZ patrolling and for SAR actually do not have assets of their own and that places a lot of responsibility and a lot of pressure on us, even in terms of wear and tear, but this wear and tear is accepted because it is for the larger good, just as Tom Ciesniewski was saying. One of the areas where we are now trying to build on this is to enter into bilateral patrolling arrangements, mainly with surface ships. Already there is a memorandum of understanding signed between the Indian Navy and the Royal Thai Navy on this. With Indonesia, for the I think the last three years—our Indonesian colleagues might correct me if I am wrong—there has been an agreement on joint patrolling, in which maritime surveillance assets are also part of the agreement, and we patrol waters along agreed zones on a bilateral basis and I think that is working very well.

In terms of space-based surveillance, I am not too sure what is happening but, as was shown following the tsunami, satellites belong to various countries, including some of our own Indian satellites as well as, I think, Russian satellites and US satellites, all worked together. I think that was a tremendous example of international cooperation in assessing the damage and determining the priority areas where we needed to deliver assistance. Currently, we are spreading the abilities of the Indian Navy in the Indian Ocean region to be a force for making these arrangements so that we can help each other and in the process, to use your line once again, help ourselves. That concludes my talk gentlemen but if there are any questions I would be happy to try and answer them.
Introduction

It is not my intent to try and cover the whole of what the Army or the land forces can do in these types of situations but to show how we do have a contribution to make to maritime surveillance and also to indicate the water surveillance tasks we have, especially across the northern parts of Australia. The aim of my presentation is to provide an overview of the contribution of land forces to maritime surveillance. What I will do in this scope is have a look at some of the land elements that are involved, specifically a particular type of unit we have, some of its characteristics and the way it is working.

Regional Force Surveillance Units

The elements I am going to talk about are the Regional Force Surveillance Units, the RFSUs. We have three and, as you can see in Figure 1, the northern part of Australia
is covered off. This is primarily a design of our history and a design of our geography. As you will come to see, they are a very interesting little force and they provide some interesting capabilities. We have recently written what would be called in our terms an ACR, an Army Capability Requirement. Basically, this is a document where we lay down what we want these units to do, what we want them to look like and how we should go about having them equipped and trained to operate.

The vision for the RFSUs is as follows:

- The RFSUs will be a flexible, pre-positioned asset capable of delivering input into reconnaissance, surveillance, intelligence, geospatial information gathering and assistance to the civil surveillance program.

I would highlight a couple of points in this vision statement. Firstly, ‘pre-positioned’; what does that mean? We will get to that but certainly it means that they actually live in the area in which they operate. They do some limited intelligence gathering, a lot of reconnaissance and geospatial information gathering, which for a lot of Australia at the moment in these areas is proving some of our maps, surprising as that may seem, both from a satellite and other technologies standpoint. We have got a lot of maps out there but from a true geospatial sense we are still actually coming to grips with some of the data and actually proving it on the ground, and that has been an interesting little activity over a number of years. The second point is the ‘civil surveillance program’ and getting some assistance to it.

**RFSU Characteristics**

Now we will have a look at some of the characteristics of these organisations; firstly, the three RFSUs. The first one, the 51st Battalion, the Far North Queensland Regiment, sits around Cape York and runs its coastline from Cardwell (just north of Townsville) north to the Torres Strait and then around to the Northern Territory border. We then have the North West Mobile Force (NORFORCE). It looks after all of the Northern Territory and then runs across the northern part of Western Australia. The third RFSU is the Pilbara Regiment, which is quite specific in that it is actually centred around the Pilbara region itself and not much more. Now what are they, these full-time and part-time soldiers? For those of you who are visitors here, or not really aware of what we talk about, part-time soldiers for us are Army Reserve. So these are guys, and girls in some cases, who do their military training as a part-time job. They have their own occupations and for somewhere around 50 to 100 days a year we use their skills in a military sense. Stationed in and around their areas of responsibility (ARs), they are very much, if you like, ‘kings in their own castles’. They understand their own environment. They operate, live, work and, in most cases, also entertain themselves within the areas that we have as their area of responsibility. They are linked with civil surveillance and other government agencies, and it is a very key part of them being on the ground in a very sparsely populated part of Australia. One of their key tasks is not only to work with our Navy and our Air Force, but also to work with our civilian agencies, such as Coastwatch, such as our Department of Immigration and with our quarantine services, even port services. So there is a whole raft of agencies with whom they work, and they are not just stuck inside a military training environment. They also link, where possible, with some airborne surveillance, both civil and military, and they certainly link on the ground
environment across the whole of their ARs, but I will concentrate more on their links with the air and maritime surveillance parts of it.

The RFSUs are a joint contribution. We set them up with two purposes in mind. The first one was that they would have a warfighting role if we go to an elevated level of conflict. But just as importantly, they have a key role in our national homeland defence and part of that, as I said, is all about working with other agencies, not just the military. For a reasonably modest contribution in terms of dollars, they actually provide what we call ‘gap coverage’ and niche or small complementary sort of capabilities. The other big plus for these units is that they provide community involvement. So it is not just the military or the government agencies, it is also all of the locals who live across the northern and north-western parts of Australia.

**RFSU Tasks**

So what are their tasks? Like most military types of surveillance or reconnaissance organisations, they have some fairly set tasks in conducting reconnaissance and surveillance. Their primary task is to conduct reconnaissance and surveillance in allocated areas of responsibility. As I said before, they also have a key task of the collection and verification of military geospatial information, and they support the Australian civil surveillance program and the execution thereof.

![Typical RFSU Members](image)

Figure 2 – Typical RFSU Members

Figure 2 shows some typical RFSU personnel. The members are a real cross-section of the type of people we have in northern Australia. So we have both indigenous or aboriginal members and also white locals, and they are virtually of shape, size or
description. It is a very, very interesting organisation to monitor and manage. They have their own selection criteria for recruiting and their medical standards are sometimes more flexible than we use in other parts of the military force to allow us to exploit or use to the full some of the chaps and the girls that live up in the north-western parts of Australia and across the north. So it is an interesting little group.

Some of their other tasks are listed below:

- Provide guides and patrol support to agencies and forces in their ARs.
- Engage with civil authorities and the community to establish information-gathering processes.
- Support peacetime tasks for the local communities in areas such as disaster relief or search and rescue.

Provision of Guides and Patrol Support. Due to their nature, from a land-based perspective, the RFSUs can provide guides and patrol support to other agencies and forces in their area of responsibility. Now that could mean linking up with P3 flights, it could be linking up with our patrol boats as they work their own responsibilities across the north-west of Australia, and they could also be taking land-based units through their ARs and putting them into certain areas where we think there is a need to have, maybe, surveillance or other reconnaissance assets. So they really are the local experts.

Engaging with Civil Authorities and the Community. Engaging with the civil authorities and the community to establish information-gathering processes. This is a good part about the history. If we go back to when they first started during World War II, across the north there was a system of ‘plane-watchers’—all those guys sitting in trees with an old radio set. We have just taken that a little bit further, but they still link all the outposts, the stations, the properties and the fishing villages, and use them to help out in filling in gaps, such as surveillance patterns. What is the normal surveillance work out there? What is a normal pattern of activity? Where do ships come and go? Where do fishing boats come and go? Their job is to log all this information and develop those patterns of activity, thereby allowing us to say what then becomes abnormal or unusual patterns and would lead us down that path of intelligence gathering to say there is an issue we may have to deal with. And they are a very key part of that.

Support Peacetime Tasks for the Local Communities. Obviously, living in that area and being a military force, a key part of their job, as we spoke about this morning, is the support to peacetime tasks, in search and rescue, in disaster relief etc.
A good example was a few years ago when Cyclone Vance smashed the areas around Exmouth and across the north, and one of the few functioning organisations with communications and a controlling organisation were the RFSUs up there and they provided very good assistance.
Conduct of Operations

So how are they likely to conduct their operations? We have equipped them, in the main, with various types of inshore small boat support (Figure 3). From that point of view they have the ability to provide gap filling, as I said before, to conduct liaison work and to provide a more persistent presence, so that after a lot of our air surveillance goes through, both from the civil and military side, we can then have our guys patrol around there for a few days or even up to a few weeks to try to give that level of persistent presence that allows us to say we have actually got some things covered. They do that across both land and the inner sea.

![Figure 3 – RFSU Small Boats](image)

So the RFSUs provide a modest contribution to the overall maritime effort, but across the northern parts of Australia they do provide a very good link that allows us to establish those patterns of normality. Most of their coordination and planning is done at the tactical level but, like most things, they are very environmentally limited. By environmental terms, I am talking about the weather. The craft they have got are very much only suitable for inshore and close inshore work. The terrain in some of the areas just close to the coast really does limit their ability because a lot of the time they will be on foot and it can be quite an inhospitable environment for them. The nature of their demographics also imposes limitations. By demographics, I mean most of them are part-time, they have their own jobs and they have certain times of the year when they will be required to work quite long and hard in their own areas and then we have a demand on them for some short-notice military tasks and that can limit our ability to use them or get the best value out of them. So a lot of that comes to a balancing act or weighing up. That said though, they have the ability to use the static and mobile
patrols, and in this area they have been doing this for quite some time and are starting to get quite expert at linking into our communications pipelines.

We also have the ability to allow them to integrate into the planning and that is probably one of the key successes over probably the last three to five years with Headquarters Northern Command, and now the joint offshore patrol organisation, that their tasking can be integrated. It is not just the local patrol leader deciding he wants to go and sit up and go fishing somewhere and claim that is a patrol. They actually have to do some proper planning and we have to invest in having them provide a capability back to the military and to the civil surveillance program. They also have the task of developing the community awareness of Australia’s approaches. So this is what I was saying before, they do have at key task of trying to harness not just the military organisations up there and those government agencies that are paid to do it, but the whole of the community. One of the strengths of the RFSUs is that they are part of the tap into a wider surveillance capability, which is anybody who lives in the north of Australia and has an eye for seeing what is unusual or what is different, or where there are people coming ashore. The locals know where the places are that people like to go fishing and they may see different boats or different patterns of activities or small aircraft coming through at night where there should not be. All those types of things contribute from a defence perspective to us establishing patterns, and also from a civil surveillance and policing side it all assists in developing this set of patterns and identifying areas where we know we can ignore things and know where we have to try and concentrate our few assets. So that is probably one of their major strengths.

Now how do they do that? This is probably an area that, with Northern Command (NORCOM), they will go into more detail but sufficient to say that the Joint Offshore Protection Command (JOPC) will be the national level controlling authority and its planning groups will feed down information into Headquarters Northern Command and for this side of its tasking. So the RFSUs are allocated to NORCOM for a certain number of patrol days per year and they will then be involved in the NORCOM intelligence and surveillance planning groups. From there, they link down into the local surveillance intelligence gathering and planning groups, and these are where Coastwatch, Customs, the local Police and Australian Federal Police get involved and do detailed low-level planning. This is where a good Corporal or one of the Platoon Commanders, one of the Lieutenants, from the local RFSU patrol area will sit inside these planning groups and actually go through their integration in detail. The reporting back of their results involves immediate results back to the local level, but then feeding up and building the picture as their more longer term and more durable information is passed back up the chain to help populate databases at the NORCOM and JOPC level. So what are their systems and processes? As I said before, the RFSUs have a direct link into our Land Headquarters in Sydney but for most of their operational tasking and for their operational performance they work through Headquarters Northern Command, and that is the level at which most of the interagency action will go on.

We are now starting to change their equipment levels and starting to develop their capacity to assist in this rather enormous tasking of keeping an eye on the maritime approaches to Australia. One of the things we are trying to introduce for them is the means of actually passing any of the electronic data that we gain. We are equipping
them with ground surveillance radars to allow them to do close in work with these radars, especially in the littoral areas. They have also got the old binoculars to fall back on, hand-held laser range finders and the Australian Mark 1 eyeball, not to be underestimated. There is also the potential for a tactical uninhabited aerial vehicle (UAV) to be employed. I say potential because we in Army have not quite sorted out the full range of tasks we are going to allocate to our future UAVs but they will have the capacity to handle those if allocated. One of our weakest links, pardon the very bad pun, is to develop their communications pipelines. Even the simplest patrols out there with a small laptop are now generating data that requires a level of data transmission that their fairly modest VHF and HF radio systems cannot handle. If anything, as we talk about building up these databases of information, getting it right from the tactical source can be a process of a good burst over a radio or over a satellite link, which will do it in minutes, or it can take a couple of weeks by hand, getting it back, downloading it, taping it and then getting it across NORCOM or wherever we are holding the data. So it does provide us with a few challenges and if we are going to invest money that is certainly one area we will be looking at over the next one to two years. The other part is about having their planners integrated into the agency and military operations planning, and that’s a two-way street. One of the strengths we have found, not only with this unit, is that the military and civilian interface is not just the one way with us working inside the civilian planning organisation. We have managed to turn that around and, when we are doing some of our military operations, bring those civilian agencies inside our planning cycle, inside our planning huddle. We have actually arranged for them to be given security clearances and so now we have a very much a party approach and we are all in the one room. Whether it is for a civilian task or a military task, the level of cooperation is becoming very much the same. And that would have to be one of the strengths or successes.

Conclusion

The main point I would like to get through is that we are all involved in this maritime surveillance. The maritime and the air surveillance systems link in together and have done for a long time. What we have managed to do now is plug in small, relatively modest contributions which can do a very, very good job of filling in the gaps and being a persistent presence in the north. I would say the key messages I was trying to get across in my short presentation are that it is a joint contribution with the land side on both warfighting and on homeland security, and it is an interagency contribution that we are aiming for and intending to develop much further. The Army contribution here, through the RFSUs, is in terms of giving some fill-ins where there is a lack of population and where there are poor performing electronic systems around, so we can fill in some of those shadows or gap areas. We can assist in the maritime area because we have such a large coastline, or such a large approach, with so few maritime assets and we can certainly provide some of that more persistent presence to assist the air surveillance organisations. The other thing, not to be understated, is community involvement. The RFSUs are part of the community and it is about harnessing not just the military, as I said, or not just the federal agencies, but harnessing the local population.

I deliberately have not gone into Special Forces because I believe in terms of their capability they are a very specific small group and they are more about response post
the surveillance or the acquisition of issues, and resolving a situation, rather than actually helping us generate the surveillance in getting to that point. The ad hoc security elements that we provide from the military are also available. We do not have a marine force but we can provide other Army units into the maritime environment to assist in that area, and we have done that in certain operations across the northern parts of Australia. I guess our high-tech and low-tech approach is the way we have to work with these RFSUs. They are very much an organisation that has a few nodes of high technology and a lot of low technology, but they are all about getting that presence out there. Like anyone else, the legal or legislative complexities do limit their ability to react in most cases other than to guide or assist the police to conduct a lot of the actual arrests and/or other actions. Some of those things may be resolved in the future as we have heard today but, in the main, getting to the point from where we find things and actually have them tracked down and then hand them off to the agency that can actually prosecute is the key aim.
SECURING SINGAPORE’S WATERWAYS

LIEUTENANT COLONEL LIM YEONG KIAT
BASE COMMANDER CHANGI AIR BASE
REPUBLIC OF SINGAPORE AIR FORCE

Introduction

Good afternoon, I am really grateful for this opportunity to share with you Singapore’s concern on maritime security and our focus. My brief is on the national effort and initiatives that we have adopted to achieve maritime security and secure Singapore’s waterways.

Singapore lies at the heart of many key water bodies, including the South China Sea to the east and of particular interest the Strait of Malacca to the west. These waterways contain the economic lifelines for many regional countries in South-East Asia. The Malacca Strait is the shortest route of the sea routes linking the Indian Ocean to the South China Sea and Pacific Ocean. It measures barely 1000 kilometres in length and witnesses the passage of at least fifty to sixty thousand ships a year. With growing Asian demand for energy, this traffic will only rise. The next shortest alternative route, the Strait of Sunda, which is just to the south, is estimated to add at least three days of sea voyage and with it the corresponding increase in freight rates, insurance and goods cost. Given the intricate weave of the global supply chain, any choke in this critical sea line of communication will devastate the economies of South-East Asian countries and, in turn, upset the world economy. A significant amount of liquefied petroleum and natural gas traffic actually travels through the Malacca Strait to Singapore, which is an international oil refinery hub. Other than the littoral states of the Malacca Strait, disruption to the oil trade through this channel will result in grave consequences to the countries that are highly dependent on oil and natural gas, such as China and Japan. Among the world’s top 20 ports—more than half are in Asia, including Hong Kong, Shanghai, Pusan and Tokyo—handling over 20.6 million twenty-foot equivalent units¹ a year, Singapore is a major shipping hub and ranked the second largest container terminal after Hong Kong. Manufacturing, accounting for 23 per cent of the country’s Gross Domestic Product (GDP), is amongst the major industries heavily dependent upon shipping. Other sectors include electronics, oil refining and related industries, and chemicals, with emphasis on high-tech, high value added and export oriented industries. With over a quarter of the world’s trade, half of the world’s oil shipments and two thirds of its liquefied natural gas shipments passing through the Strait of Malacca and Singapore, maritime security in the region is and will remain high on the international agenda.

Maritime Security

Maritime security has been an issue of concern in the region even before the events of 9/11. Traditional threats in this realm take form in piracy and armed robbery,

¹ A twenty-foot equivalent unit (TEU) is a measure of containerised cargo capacity equal to one standard 20 foot (6.1 metre) shipping container.
particularly in the Malacca Strait. According to the July–August 2005 issue of the *Asian Defence Journal*, while worldwide piracy as a whole has dropped in absolute numbers this year, at least a third is still attributed to the Strait of Malacca. The International Maritime Organization (IMO) also has recently highlighted the worrying trend of increasing violence in pirate attacks. On 11 September 2001, the world really awakened to the menace of terrorism. The recent attacks in London and Cairo are grim reminders that terrorism respects no political and geographical boundaries. Maritime terrorism is no exception. The attacks on the USS *Cole* in 2000, the French tanker MV *Limburg* in 2002 and, more recently, the Basra oil terminal in April of 2004 clearly demonstrate our vulnerability to terrorist threats in the maritime arena.

The London insurance market’s Joint War Committee has recently listed the Malacca Strait as an area of perceived enhanced risk from war, strikes, terrorism and related perils. Although this assessment has been greatly contested, global insurers have estimated that this will add an additional premium of 0.01 per cent of hull value, which will translate into approximately S$10,000 per trip for a typical container ship valued at 100 million Singapore dollars. If the piracy in the Malacca Strait continues to develop unabated, not only will there be increased economic cost to the international users but, more importantly, the confidence level in the security of the Strait may be diminished to the detriment of the regional countries. We need to keep the Malacca Strait open, safe and secure, and certainly more work needs to be done in this area.

Internally, Singapore is taking on a very pro-active role to ensure security within the Malacca Strait. Since 1988, the Republic of Singapore Navy (RSN) Coastal Command (COSCOM) has been keeping a vigilant watch over Singapore waters. Singapore’s maritime security efforts are not only limited to the Armed Forces. Working closely with other governmental agencies, like the Singapore Police Coast Guard, the Maritime and Port Authority of Singapore and the Immigration & Checkpoints Authority, COSCOM is responsible for conducting 24-hour security patrols around the Singapore Straits.

During the recent Association of Southeast Asian Nations (ASEAN) Regional Forum meeting this year, the interoperability and operational readiness of the various maritime agencies in responding to maritime threats were demonstrated. The sea displays featured the arresting of small boat infiltrators by the Police Coast Guard and an interagency security enforcement operation against a hijacked chemical tanker. The demonstrations involved Singapore Armed Forces (SAF) Commandos, which are like Special Forces, deployed via the Republic of Singapore Air Force (RSAF) Super Pumas to neutralise the rogue vessels, and the Maritime and Port Authority’s firefighting craft to deal with the consequent contingencies. Follow-on forces from the SAF Chemical, Biological, Radiological and Explosives Defence Group, Police Coast Guard, as well as the immigration and control authority, also worked synergistically to perform ship-boarding operations.

**Maritime Surveillance**

An essential part of ensuring the security of our waters is the ability to implement sufficient surveillance to provide and maintain an up-to-date comprehensive and yet accurate sea picture. Air surveillance is essential in helping build this sea picture. The
RSAF has a fleet of Fokker 50 maritime patrol aircraft (MPA) that conduct maritime air surveillance and patrol, aided by its onboard surface surveillance radar and infra-red detection system. Besides maritime air surveillance, they also undertake maritime reconnaissance, anti-surface warfare and non-conventional warfare, such as counter-proliferation and counter-piracy operations. Breaking away from the conventional mind-set is a huge step required in the new era of MPA operations. Operators must now shift mind-sets towards training for operations other than war. Conventional ship identification techniques, which centred on warships, must now expand to include the identification of specific merchant vessels. We need to adapt and build capability in undertaking these new roles. We need to develop operational solutions that leverage on appropriate new technologies that enable us to raise our situational awareness, build an accurate sea picture, gather intelligence, share information and be an effective deterrence against piracy and terror threats.

Regional Cooperation

As a small island state, Singapore recognises the necessity to work with other governments and security forces, given our limited resources. Given that our interests are also intricately intertwined, the need to operate with other countries is no longer just a ‘good to have’ but really a necessity. Regionally, Singapore has engaged our neighbours on a multitude of fronts in maritime security. As articulated by our Minister for Defence, Mr Teo Chee Hean, Singapore has always been a firm believer of three broad principles of maritime security in the Malacca Strait. The first principal is that the primary responsibility for security in the Strait lies with the three littoral states. The second principle is that the international community and the user states also have a role to play. And the final principle is that all measures employed have to be fully consistent with international law as well being respectful of the sovereignty of the states. Consistent with this belief, Singapore has actively initiated and participated in a host of regional agreements, which contribute to the security of our waters.

Indo-Sin Coordinated Patrols. Since 1992, the RSN and Police Coast Guard have been conducting joint coordinated patrols with their counterparts from the Indonesian Navy and Police to deter sea robberies in the Singapore Strait and the Phillip Channel. These arrangements, named the Indo-Sin Coordinated Patrols (ISCP), have seen significant success in the designated area of operations. This initiative created a platform for information exchange, a channel for direct communication and established procedures for cross-border pursuit. Under the ISCP, coordinated patrols are carried out throughout the year in three-month cycles.

Project SURPIC. In May this year, the RSN and Indonesian Navy officially launched Project SURPIC (Surface Picture) at Indonesia’s naval base in Batam, under the ambit of the ISCP. The project essentially consists of a sea surveillance system that allows both navies to share a common real-time sea situation picture of the Singapore Strait. This will enable better monitoring of this busy waterway as well as the exchange of information on a real-time basis, resulting in better deployment of our naval vessels in the vicinity.

MALSINDO. On 29 June 2004, the three littoral states of Indonesia, Malaysia and Singapore agreed to institute joint patrols of the Malacca Strait. This arrangement, named MALSINDO, places each Navy under their individual commands but allows
for the possibility of hot pursuit into each other’s territorial waters if the situation warrants. The agreement entails 17 warships from the three countries conducting round-the-clock patrols in the Strait of Malacca. According to an article by the Institute of Defence and Strategic Studies, these trilateral coordinated patrols have born fruit, seeing a 25 per cent drop in piracy attacks since they were initiated last year. I think Thailand is going to join this initiative and they may change that name from MALSINDO to MIST, which is Malaysia, Indonesia, Singapore and Thailand.

Eye in the Sky. Eye in the sky, was kicked off recently. Building upon the current maritime security arrangements in the region, the Eye in the Sky (EiS) initiative has just been launched on the 13 September 2005 in Kuala Lumpur. This arrangement, which was mooted by the Deputy Prime Minister of Malaysia, Dato’ Sri Najib Tun Razak, is a huge step towards regional cooperation in ensuring the security of the Malacca Strait. Essentially, it entails the conduct of joint maritime air patrols by the armed forces and maritime enforcement agencies from Singapore, Malaysia, Indonesia and possibly Thailand. In the initial stages of EiS, the participating states will provide up to two air patrols per week along the Malacca Strait. Moreover, in the spirit of close cooperation and defence relations, each MPA will carry a combined mission patrol team (CMPT) comprising a mission commander, the basic MPA crew and officers from other participating countries. In the conduct of the EiS mission the CMPT will establish a comprehensive surface picture over the designated area by broadcasting details of any suspicious contacts on designated frequencies to the monitoring and action agency, which will evaluate and undertake any required follow-on actions and responses within their respective territorial waters.

International Cooperation

Turning now to international cooperation, we recognise the need for multi-nation action in the realm of maritime security and multilateral maritime security initiatives have emerged from various international forums, such as the International Maritime Organization (IMO), Asia-Pacific Economic Cooperation (APEC), ASEAN and the ASEAN Regional Forum. In recent years many traditional regional military exercises have incorporated maritime security into their agenda.

Five Power Defence Arrangement. In 2004 the Five Power Defence Arrangement (FPDA) expanded its focus in Exercise Bersama Lima to include a maritime security serial, and I think the exercise is ongoing at this point in time.

Western Pacific Naval Symposium. In May, in conjunction with IMDEX ASIA 2005 (International Maritime Defence Exhibition Asia 2005), the 22 navies of the Western Pacific Naval Symposium initiated substantive professional exchanges on maritime security issues in their meetings and workshops, with the inclusion of a maritime security exercise.

ReCAAP. In the war against piracy Singapore participates in the initiative called ReCAAP, or Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia. This Japanese initiative brings together 16 regional countries in a framework which aims to enhance collective efforts at information exchange and capacity building through an information-sharing centre set up in Singapore.
Proliferation Security Initiative. Since its induction in May 2003, Singapore has been actively participating in the Proliferation Security Initiative (PSI). Given our vulnerability and size, Singapore is highly sensitive to the dangers of proliferation; hence counter-proliferation is one of our core security priorities. The threat of the proliferation of weapons of mass destruction (WMD) is more immediate than it has ever been with the rising extremist terrorism and the ease in which the WMD components can be acquired. In this respect, just last month Singapore hosted the 17th PSI exercise, the first ever to be held in South-East Asia. Exercise Deep Sabre was also one of the largest PSI exercises to date involving over 2000 personnel, ten ships and six maritime patrol aircraft from not only the armed forces and the coast guards, but also customs and other agencies from the ten countries. The exercise entailed interdicting, escorting and boarding a merchant ship simulated to be carrying an illegal shipment of chemicals destined for an entity of proliferation concern. The exercise was a huge success with all the critical contacts of interest being localised by the exercise participants.

Future Developments

I would now like to talk briefly about some future security developments for the Malacca Strait, as it sets the stage for us to strengthen our stance in arresting piracy and preventing terrorist acts from the Straits. We recognise the need to develop further our maritime surveillance capabilities and resources are being allocated to source and study new feasible options. This will include improving our intelligence, surveillance and reconnaissance (ISR) capabilities as well as our information-sharing capability.

One such area being looked into involves the improvement of the identification capability of the MPA. One difficulty that the MPA faces is the ability to discern critical contacts of interest from the many ships that are travelling along the sea lines of communication (SLOC). This also includes identifying a ship that has been hijacked. However, after the 9/11 attacks, the IMO implemented the International Ship and Port Facility Security Code (ISPS Code) in July 2004 to increase maritime security and suppress terrorism against shipping. One requirement was the necessity for all vessels weighing more than 500 tons to possess an Automatic Information Systems (AIS) onboard for identification purposes. Thus, one possible solution we can exploit is to tap into the existing AIS network and install such a system on the MPA. With the AIS, the exact identity of the ISPS-compliant ships will be known. Information like the identity, position, course, speed, ship particulars and cargo can be obtained easily. This enables easier classification of possible contacts of interest, as well as tracking of specific ships.

Just this year Singapore instituted a requirement for a harbour craft transponder system to be installed by the end of 2006 on all small boats operating in Singapore waters. This will effectively monitor their movements and create a recognisable sea situation picture to help address the terrorism threat of possible explosive laden small boats. Similarly, a compliance system on the MPA may also be contributory to providing a comprehensive and accurate sea picture.

As an extension of SURPIC and EiS, a collective real-time sea situation picture could be established through the integration of nuclei of information centres. Detection and
surveillance of suspicious targets could be shared between the relevant agencies and
governments so as to enable them to take action and respond. Such a system can be
augmented to include collaborative operations to handle suspicious targets that try to
make use of territorial waters to make their escape. The overall effect is that a greater
regional display of force against piracy will be achieved deterring future acts of piracy
along the Straits. Since the EiS is built on the concept of an open arrangement, other
states can possibly come on board this initiative. In time it is hope that other user
nations will step forth in this collaboration to ensure the security of this critical SLOC.

Conclusion

So to conclude I would like to reiterate the real and present dangers of piracy and
terrorism in the waterways of South-East Asia, and that the enforcement of maritime
security will continue to pose a challenge. It is heartening to note that there is progress
in cooperating on maritime security. From the humble beginning of coordinated
patrols among regional countries more than a decade ago, we now see the possibility
of joint air patrols being undertaken internationally. There are vehicles and means to
achieve the desired end-state of safer seas. This hopefully will promote greater
information sharing, allow us to leverage on technology to do our job better and
facilitate closer collaboration and even joint operations. More than ever, regional and
international cooperation to handle maritime security is critical and the very
convening of this conference is proof enough that the international committee
recognises this fact. I would like to thank the Royal Australian Air Force for
organising this conference and allowing us the opportunity to exchange professional
views on this subject.
MANAGING MARITIME SECURITY THREATS AND CHALLENGES IN THE ASIA–PACIFIC REGION

COLONEL FENG FUHAI
CHIEF OF BATTLEFIELD DIVISION, DEPARTMENT OF OPERATION, CHINESE PEOPLE’S LIBERATION ARMY AIR FORCE HEADQUARTERS

Introduction

Good afternoon, my talk is on managing the maritime security threat and challenge in the Asia-Pacific region. It is well known that the Asia-Pacific region is one that is linked primarily by seas. At present, the maritime security situation in this region is peaceful and stable on the whole, with common interests increasingly shared by the regional states. However, factors leading to uncertainty and insecurity are also on the increase. The scope of my paper is as follows:

- Maritime security challenges and threats.
- How to manage maritime security threats and challenges.
- Maritime surveillance in China.

Maritime Security Challenges and Threats

I believe that there are two kinds of challenges and threats in the region. One is the hard, the other is the soft:

**Hard Challenges and Threats.** The hard challenges and threats include traditional and non-traditional security issues:

- **Traditional Security Issues.** Traditional security issues consist mainly of armed conflicts and threat of war caused by disputes over sovereignty, territory, ethnic and religious issues. Outstanding issues presently in the region include the nuclear issue, disputes on the ownership of islands and islets and on maritime interests, and the sovereignty issue. If these problems are not well handled, the impact will surely be negative to regional maritime security.

- **Non-Traditional Security Issues.** Non-traditional security issues are characterised by their transnational and trans-regional operations and non-state bodies as operators. Presently, non-traditional security threats in the Asia-Pacific sea areas are developing, including piracy, maritime terrorism, multinational crimes, such as illegal immigration, smuggling and drug trafficking, and marine environment pollution. These problems will not only affect the regional political and social stability, but also tamper with their normal economic development.
Soft Challenges and Threats. The soft challenges and threats involve increasing extreme hostility moods and the development of traditional war thinking. At present, extreme hostility moods caused by poverty, inequalities, ethnic and religious issues are constantly being developed. They are one of the root causes of the development of expanding and extremely harmful terrorism. And at the same time, traditional security concepts and traditional war thinking are developed that rely on the use or the threat of force, such as the strategy of pre-emptive strike and of waging war to interfere in the internal affairs and topple the government of sovereign states without approval from the United Nations. The onset of military transformation further increases the intensity, risks and destruction of war, and also stimulates further development of terrorism.

As far as the challenges and threats facing us, the extreme hostility moods and the traditional war thinking are bigger. After all, any action is controlled by thinking, and the hard and the soft challenges and threats could be related and infectious, and could transform each other.

How to Manage Maritime Security Threats and Challenges

Traditional and non-traditional threats are complex and sometimes interrelated. Security issues, being transnational and multifaceted, cannot be solved with any single means or by a single state. They have to be dealt with by the synergy of political, diplomatic, economic and military means. To manage maritime security threats and challenges, therefore, we must enhance the awareness of collective security, cooperative security and comprehensive security, enhance international cooperation and take comprehensive measures to deal with them. Personally, I believe it is important to do the following:

- Maintain the authority and the leading role of the United Nations, abide by the purpose and principles of the United Nations Charter and other well-acknowledged norms of international law, make full use of existing international organisations, such as the International Maritime Organization (IMO), and respect the sovereign rights of coastal states and their leading role in solving maritime security issues.

- Adhere to the ‘Five Principles of Peaceful Coexistence’ and seek to address both the phenomenon and the root cause of maritime security threats and challenges. ‘Mutual respect for territorial integrity and sovereignty, mutual non-aggression, non-interference to each other’s internal affairs, equality and mutual benefit, and peaceful coexistence’ are conducive to the democratisation of international relations, to making states that vary in social institutions and ideology coexist peacefully, to finding common ground while reserving differences, to conducting friendly cooperation and achieving a win-win situation based on mutual interests. Thus, we may hope to control and root out security threats and challenges.

- Respect the diverseness of national realities, strengthen mutual trust and vigorously promote multi-level and multi-function regional security cooperation mechanisms. In recent years, security dialogues and cooperation have grown in various regions or sub-regions in the Asia-Pacific arena. There are regional
security mechanisms, such as the Shanghai Cooperation Organization (SCO), East Asia 10+3 Dialogue and ASEAN Regional Forum (ARF). There are also the Northeast Asia Cooperation Dialogue (NEACD), the Council for Security Cooperation in the Asia Pacific (CSCAP), Asia-Pacific Roundtable Meeting, and the Western Pacific Naval Symposium (WPNS) of the military, many of these being directly related to maritime security cooperation. In addition, the ARF Security Policy Meeting is going to be held soon. Although there will still be some time before a general security mechanism is established in the Asia-Pacific region, we could make better use of the existing mechanisms, promote dialogue and cooperation of various kinds, enlarge consensus and gradually set up a regional security framework that is acceptable to all parties. And that will be beneficial to a more effective response to maritime security threats and challenges.

- Further explore and take substantial security cooperation measures to react to and deal with maritime security threats and challenges. In the light of fast growing non-traditional security issues, regional countries have adopted some substantial cooperative measures. For example, Singapore, Malaysia and Indonesia have formed a joint maritime task fleet to conduct joint patrols at sea so as to safeguard navigation safety in pivotal areas like the Malacca Strait; the IMO’s International Ship and Port Facility Security Code (ISPS Code), and China and the ASEAN countries also have some cooperation plans covering issues such as anti-drug and anti-terrorism operations. Countries should make efforts to coordinate for further substantial cooperation.

Maritime Surveillance in China

China’s maritime area is physically large. Maritime surveillance is an essential part of the environmental protection of our waters and coasts, of the sustainable management of the resources in our Exclusive Economic Zone (EEZ), and of national sovereignty. China has developed some effective means of maritime surveillance; for example, aircraft, satellites, patrol ships, helicopters and also AEW&C aircraft and UAVs. We also have many kinds of radars and electro-optical sensors. With these means, China has an increasing capability for maritime surveillance.

The People’s Liberation Army Air Force (PLAAF) responsibility for maritime surveillance is to defend China and its territorial waters and airspace. Most of the surveillance operations are conducted in the approaches to China. These national or sovereignty tasks include surveillance of China’s EEZ, search and rescue, peace support operations, and pursuit of offenders.

In recent years, China has shown an increasing presence in international military maritime security cooperation. China and the United States established a consultative mechanism to enhance military maritime security, under which the two sides have conducted more than ten bilateral talks. Since 2003, we have conducted four bilateral joint military exercises at sea, which gained special attention in the international community. The PLAAF also sent personnel to observe the Cobra Gold joint military exercises. This year, the PLAAF took part in China-Russia bilateral joint military

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1 Refers to the ten ASEAN member states plus China, Japan and Korea.
exercises at sea. As is said in China’s 2002 Defense White Paper, ‘China intends to selectively and gradually participate in more multilateral joint military exercises in the non-traditional fields of security in the future’. Therefore, the PLAAF will engage in more diversified cooperation with foreign air forces according to the demands of our country as China expands its international security cooperation activities.
Introduction

The Australian Coastwatch aerial surveillance capability has been developed over many years and now provides the Australian Government with a high level of confidence in its civil maritime surveillance operations. Coastwatch is also responsible for the distribution of surveillance data and the coordination of maritime response activities. These surveillance and response roles are met using a combination of contracted surveillance aircraft, Australian Defence Force aircraft and patrol boats, and sea-going Customs vessels.

Continuous coverage of the vast Australian area of national interest is not feasible. Consequently, surveillance patrols are generally planned based on stakeholder requirements and informed by data analysis, risk assessment and historical patterns of activity.

Although the Australian maritime environment has its own unique characteristics, the Coastwatch model may also be suitable for consideration as a means of providing aerial surveillance in other regions.

Aim

The aim of this paper is to describe the Australian Coastwatch system, particularly the aerial surveillance capability.

Coastwatch – The Australian Civil Maritime Surveillance System

The Coastwatch mission is to deliver effective civil maritime surveillance and to coordinate maritime response services that will safeguard the national interest.

Coastwatch is an operational division of the Australian Customs Service, headed by the Director General Coastwatch,1 who is responsible for:

- delivering effective and efficient civil maritime surveillance and response,
- determining national surveillance planning priorities, and
- administering the contractual and overall financial aspects of the national surveillance program.

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1 The Director General Coastwatch is also the Commander Joint Offshore Protection Command. The appointment is held by a serving Royal Australian Navy Rear Admiral.
Coastwatch activities and effort are determined by the surveillance and response needs of the various government agencies that form its client base. Surveillance flights are undertaken to detect and report activities as diverse as people smuggling, attempts to import or export prohibited goods, illegal trafficking in flora and fauna; and human incursions on the Australian coast, coral reefs and other protected areas, the latter representing potential quarantine, health and marine habitat threats. Coastwatch clients include Customs, the Australian Federal Police, Immigration and Fisheries. Defence is considered to be a partner, rather than client of Coastwatch, particularly given the creation of the Joint Offshore Protection Command (JOPC). A complete list of Coastwatch clients and stakeholders is provided at Annex A.

The National Surveillance Centre, located in Canberra, provides the command structure and arrangements to plan, mount and conduct civil maritime surveillance operations and exercises in the Australian area. Analysts in the Centre collate, analyse and disseminate the data received and provide information to inform surveillance planning. All Coastwatch and Defence civil maritime surveillance activities are monitored in the National Surveillance Centre.\(^2\)

The Coastwatch area of interest covers the Australian coastline, Australia’s offshore territories, the Australian Exclusive Economic Zone (EEZ) surrounding these areas and offshore oil and gas installations located in the Joint Petroleum Development Area (in the Timor Sea). This amounts to approximately 37,000 kilometres of coastline and an offshore maritime area of nearly 15 million square kilometres. The area stretches from Antarctic to tropical waters and shares maritime borders with Indonesia, East Timor, Papua New Guinea, New Zealand, France and the Solomon Islands. A map of the Coastwatch area of interest and responsibility is provided at Annex B.

**Coastwatch Surveillance and Response Assets**

The main components of Australia’s current civil maritime surveillance effort are:

- visual and electronic aerial surveillance provided by contracted aircraft,
- 250 hours of dedicated RAAF AP-3C Orion patrol effort per year,
- 1800 sea days per year provided by RAN patrol boats,
- up to 2400 sea days per year with Customs sea-going vessels, and
- the capacity to charter additional air or surface resources as required.

Apart from the RAAF AP-3C Orion effort, Coastwatch aerial surveillance is provided by commercial contract. The contracts are ‘turn-key’ in nature with the contractor providing aircraft, aircrew and administration and engineering support. Coastwatch controls the operational aspects of aircraft tasking and maintains a comprehensive

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\(^2\) The Joint Offshore Protection Command was established in March 2005. It is a partnership between the Australian Defence Force and Australian Customs Service and integrates all military and civil maritime surveillance activities through the National Surveillance Centre.
performance measurement regime, including involvement in training and aircrew monitoring programs. The current surveillance contracts are based on aircraft using visual, radar and electro-optical surveillance techniques. The Coastwatch aircraft fleet currently comprises the following:

- six Pilatus Britten Norman Islander aircraft and one Shrike AC500 Aero Commander aircraft for visual surveillance,
- five de Havilland Dash 8 Series 200 aircraft fitted with digital radar and electro-optical sensors for offshore electronic surveillance,
- three Reims F406 aircraft equipped with radar and night vision equipment for both visual and radar work adjacent to the shore, and
- one Bell 412EP helicopter and one Bell Longranger IV helicopter.

In a typical year the mixed, fit for purpose fleet of Coastwatch aircraft flies in excess of 20,000 hours. Given that the fleet includes relatively short duration helicopters and smaller aircraft for visual observation this represents a very significant outcome and amounts to about 4,500 sorties per year, and is ample testimony to what can be achieved with a contracted surveillance capability. Coastwatch does not have the worry of aircraft logistics, maintenance, crewing and training. The contractor delivers the flying program determined by Coastwatch and does so with aircraft in Coastwatch livery and aircrew wearing Coastwatch uniforms. The capabilities of the current surveillance platforms are summarised in Annex C.

**Coastwatch Surveillance Operations**

The length of the Australian coastline dictates that the surveillance effort should be concentrated ‘in the right place at the right time’. Routine activities therefore tend to be focused along the northern coastline and nearby waters. Coastwatch also uses client generated threat assessments and surveillance requests to plan flying through areas that have the greatest likelihood of achieving an operational result. The threats change with time in both type and priority, but currently include people smuggling, quarantine, illegal fishing and terrorism.

Transit time is reduced by basing aircraft close to the main area of operations; that is, in Cairns, Darwin, Broome and Horn Island. Deployment and redeployment to these and other bases are undertaken as necessary to maximise on task surveillance time for each sortie.

The civil surveillance program is comprised of both wide area planned (WAP) surveillance and tactical surveillance. WAP surveillance forms the majority of the flying and involves the development of flying programs based on planned, risk-assessed tasking that has been submitted by client agencies. Each sortie is planned to gain the maximum possible benefits for the cost incurred. Generally, the optimal economy of effort is achieved through multi-tasking of aircraft. For example, an aircraft conducting a surveillance task into an area of particular interest to the fisheries authority would also undertake surveillance tasks for all other agencies with interests in the area being covered. Tactical surveillance, on the other hand, comprises flying
which is the result of specific information, usually received with little notice and which normally presents a more demanding situation. Such operations are usually given priority until they are concluded or cancelled.

Post Flight Reports are forwarded electronically to the National Surveillance Centre, where the information is automatically entered into the Coastwatch database and forwarded to Defence and relevant client agencies and Coastwatch Regional Offices. This arrangement is currently being reviewed in conjunction with the JOPC-led development of the Australian Maritime Identification System, which will fuse all existing sources of information relating to the maritime domain into a consolidated maritime picture with associated databases. The intention is for sighting reports from surveillance aircraft to be entered into this picture in near real-time.

When a Coastwatch aircraft detects an incident that the crew considers to be a potential or actual breach of Australian law, it reports to the National Surveillance Centre, which immediately consults the relevant client agency to determine any follow-up action. If a surface response is requested, the National Surveillance Centre arranges for the most appropriate vessel, usually a naval patrol boat or a Customs vessel, to undertake the response. Coastwatch aircraft will often continue to provide forward air support to the response vessel until it reaches the scene of the incident.

**Civil Maritime Surveillance Contracts**

The Australian Coastwatch experience has shown that the provision of maritime surveillance on a commercial contract basis can be effective and cost efficient. Contractors are driven to keep costs to a minimum, without compromising capability, and a competitive bidding process can achieve considerable cost savings when compared to a military solution. A fixed term contract means that the capability is periodically reviewed and upgraded as necessary. It also avoids obsolescence. While various aspects and levels of the task can be contracted, the optimum solution has been demonstrated to be a complete ‘turn-key’ approach, where the contractor is responsible to provide all aircraft and equipment, aircrew, training, administration and logistics. The contracting parties retain full operational and tasking control of the surveillance resources.

The current contracts for fixed and rotary wing aircraft are held by Surveillance Australia Pty Ltd and Australian Helicopters Pty Ltd respectively.

**The Future**

The future for Coastwatch is busy. The new contract for Coastwatch fixed-wing surveillance is currently under negotiation while the helicopter fleet contract was signed last month (August 2005). The new contracts will commence in 2007 and run for 12 years. Meanwhile, Coastwatch continually investigates new and emerging technologies that may be applied to the conduct of surveillance, so that it can continue to provide high level service to clients. Coastwatch is currently engaged in a joint Customs/Defence trial in the Torres Strait of Australian HF surface wave radar technology; the Director General Coastwatch sits on the steering group for Project *Wedgetail*, the Air Force’s new airborne early warning and control capability; Coastwatch is actively engaged in trialling unmanned aerial vehicle technology, both
independently and in partnership with Defence; and Coastwatch is actively pursuing satellite surveillance options. Additionally, many other forms of technology remain under active consideration.

Conclusion

The Coastwatch story is a good news story: through a whole-of-government approach to civil maritime surveillance and response, and the use of a professionally operated, contracted air surveillance capability, Coastwatch is achieving great outcomes for the people of Australia. The main component of the surveillance effort is the visual and electronic surveillance provided by contracted aircraft and crews. A variety of aircraft types, with capabilities matched to respective tasks, are used against the threats defined by the client agencies.

There is little doubt that the Australian civil maritime surveillance program represents a big task, but it is one that Coastwatch, its contractors and the other government agencies involved perform very well. The Australian Coastwatch system has proven to be an effective and cost efficient means of providing civil maritime surveillance to support Australia’s maritime security requirements. The Coastwatch approach might serve as a model for other nations facing similar civil maritime surveillance challenges.

Annexes:

A. Coastwatch Client Departments and Agencies
B. Australian Coastwatch Area of Interest
C. Australian Coastwatch Aircraft Details
ANNEX A

COASTWATCH CLIENT DEPARTMENTS AND AGENCIES

Coastwatch activities and effort are determined by the surveillance and response needs of the various government agencies that form its client base. These include the following:

- Department of Agriculture, Fisheries and Forestry
- Australian Fisheries Management Authority
- Australian Quarantine and Inspection Service
- Department of Immigration and Multicultural and Indigenous Affairs
- Department of Foreign Affairs and Trade
- Department of the Environment and Heritage
- Great Barrier Reef Marine Park Authority
- Department of Transport and Regional Services
- Australian Maritime Safety Authority
- Attorney-General’s Department
- Australian Federal Police
- Australian Customs Service
The Coastwatch area of interest covers the Australian coastline, Australia’s offshore territories, the Australian Exclusive Economic Zone (EEZ) surrounding these areas and offshore oil and gas installations located in the Joint Petroleum Development Area (in the Timor Sea). This amounts to approximately 37,000 kilometres of coastline and an offshore maritime area of nearly 15 million square kilometres. The area stretches from Antarctic to tropical waters and shares maritime borders with Indonesia, East Timor, Papua New Guinea, New Zealand, France and the Solomon Islands.
## COASTWATCH SURVEILLANCE AIRCRAFT DETAILS

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>No</th>
<th>Based</th>
<th>Crew</th>
<th>Surveillance Type</th>
<th>Surveillance Capability</th>
<th>Maximum Flying Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilatus Britten Norman Islander</td>
<td>6</td>
<td>Broome, Darwin, Cairns, Horn Island</td>
<td>3</td>
<td>Day</td>
<td>Visual</td>
<td>5 hours</td>
</tr>
<tr>
<td>AC500 Shrike Aero Commander</td>
<td>1</td>
<td>Broome</td>
<td>3</td>
<td>Day</td>
<td>Visual</td>
<td>6 hours</td>
</tr>
<tr>
<td>Reims F406</td>
<td>3</td>
<td>Broome, Darwin, Cairns</td>
<td>4</td>
<td>Day and Night</td>
<td>Visual Radar Night Vision</td>
<td>4.5 hours</td>
</tr>
<tr>
<td>Bell 412 EP</td>
<td>1</td>
<td>Horn Island</td>
<td>4</td>
<td>Day and Night</td>
<td>Visual Infra-red, TV Night Vision</td>
<td>Range: 300 nm</td>
</tr>
<tr>
<td>Bell Longranger</td>
<td>1</td>
<td>Horn Island</td>
<td>1</td>
<td>Day</td>
<td>Visual</td>
<td>Range: 260 nm</td>
</tr>
</tbody>
</table>

Table 1 – Coastwatch Inshore Surveillance Platforms

<table>
<thead>
<tr>
<th>Bombardier De Havilland Dash 8 Series 200</th>
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<tr>
<td>Crew</td>
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<td>Maximum Take-off Weight</td>
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<td>Fuel Capacity</td>
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<td>Maximum Payload</td>
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<td>Maximum Flying Time</td>
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<td>Sensors</td>
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<td>Ferry Range</td>
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<td>Distance on Surveillance (no transit)</td>
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<td>Area Covered</td>
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<td>Flight Time</td>
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<td>Maximum Cruise Speed</td>
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<td>Maximum Operating Altitude</td>
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<td>Nominal Hours per Year</td>
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Table 2: Coastwatch Offshore Surveillance Platform - Dash 8 Series 200
JOINT OFFSHORE PROTECTION COMMAND

GROUP CAPTAIN NOEL DERWORT, CSC
DEPUTY CHIEF OF OPERATIONS NORTHERN COMMAND

Introduction

I think it is fairly pertinent that Coastwatch and the Joint Offshore Protection Command (JOPC) are discussed at the same time because, at the end of the day, they both work very, very closely together to try and achieve the same outcome; that is the protection of Australia’s offshore interests. On Monday you will recall there were a lot of questions about JOPC, the legislation, what we are trying to do, how we are trying to do it and what some of the implications are. So I will to talk about some of those things and, hopefully, answer some of your questions. In particular, I will talk about JOPC, what it is and where it has come from, the Australian Maritime Identification System (AMIS), the augmented security patrols, some things about our operations and also cover some of the questions that were asked about our legislation implications.

Joint Offshore Protection Command

If you think about some of the things Greg Buchanan has just mentioned, a lot of vessels running around doing things off the Australian coast—whether it be shark fishing, catching sharks and chopping their fins off; or illegal entry, whether it be people trying to gain entry into Australia for the purpose of illegal immigration or whether it be illegal entry with respect to a foreign fishing crew going for a cache of supplies—they are problems. Equally, we have a rather large offshore oil and gas industry sitting just to the north of Australia. The estimated income or the input to the Australian economy from offshore oil and gas is in the region of A$80 billion a year. So we are talking about a significant input into our economy. Those inputs also go towards the Indonesian economy and Timor-Leste when you look at areas within the Joint Petroleum Development Area (JPDA) and some of the crosspollination areas.

One of the things that led to the establishment of JOPC was an incident in the past where there was a Customs operation mounted against a particular vessel. The only problem was they had to do an opposed boarding and, of course, our SAS in their ‘black pyjamas’ were the only people who could do the job and so we then had to find out how we could have military people doing a Customs-based operation or Customs people doing a military level operation. These things led to a whole lot of questions, which resulted in the establishment of a task force to investigate offshore maritime security. Driven by the Prime Minister, the task force reported to Cabinet late last year (2004). Unfortunately, the initial announcement got a lot of our near neighbours rather upset, primarily because of the words that were used. That led to a lot of rushing around to make sure we could fix all the problems and JOPC was established in March of this year with our first augmented security patrol starting shortly thereafter.
JOPC Tasks

The tasks that we are trying to achieve are as follows:

- Developing a command structure to simplify and strengthen planning, as well as command and control arrangements.
- Planning, mounting and conducting operations and exercises.
- Developing, implementing and managing an Australian Maritime Identification System (AMIS).
- Liaising with foreign, Commonwealth and State/Territory Governments and government agencies.

Mission

Our mission is to safeguard Australia’s national interests through the conduct of surveillance and coordination of maritime response in the Australian Exclusive Economic Zone (EEZ) and adjacent areas, and to prepare for, support and/or command directed offshore maritime, joint and specified operations to defend Australia and its interests.

Command Structure

![Command Structure Diagram](attachment:Diagram.png)

Figure 1 – JOPC Management Construct
Figure 1 illustrates the JOPC management construct. In very simplified terms you have this overarching command, inside of which are Coastwatch, Headquarters Joint Operations Command (HQJOPC) and part of Northern Command (NORCOM). One point I would stress is that even though this slide may make you think that Coastwatch is being consumed, or it is a Defence takeover, this is not the case. I also would note that a large portion—the majority—of NORCOM’s work effort goes into JOPC; however, we also have some very military-specific roles that we have to meet, which is why we sit slightly to the outside. If we could hand back those military-specific roles, we would be entirely consumed within JOPC.

Figure 2 provides a more refined view of the arrangement.

Figure 2 provides a more refined view of the management construct. ‘Customs Core Business’ and a ‘Customs Operation’ are shown on the far left-hand side of this diagram—again, I would stress that JOPC has no intention or desire to take over what is a Customs role. Equally, JOPC has no intention or desire of taking over the military roles shown on the far right-hand side as ‘Defence Core Business’. What you have, however, are two very large organisations—Customs Coastwatch and Defence—and at the moment they are sitting somewhat apart. JOPC is merely the bridge that brings these two organisations together. If you imagine an operation that is being run by Coastwatch—entirely Coastwatch run—they might call upon a Fremantle Class Patrol Boat to do something to assist, so there is a slight Defence input. As that operation merges further across to the right of this diagram and things get a bit ‘hotter’, so to speak, and you have a higher Defence input, you move across and the red dashed line portrays a sliding scale to show where Defence has a greater input. But the
Coastwatch input remains along the way until we get to the very high end when Special Forces may take over.

![JOPC Command Structure Diagram](image)

**Figure 3 – JOPC Command Structure**

Figure 3 shows this same management construct with a command structure overlaid on top. Commander Joint Operational Command (COMDJOPC) answers to both the Chief Executive Officer (CEO) Australian Customs Service and to the Chief of the Defence Force (CDF) because we have to transition smoothly and seamlessly from a civil maritime surveillance operation to a military operation. Therefore, JOPC has two bosses. They each have their own Minister so we answer to both of those Ministers, and you can also throw in there the Attorney-General and a few other people. So we have one of the most complicated command structures within the ADF.

We are very much a joint organisation and have direct links and work with all of the following agencies:

- Australian Security Intelligence Organisation
- Australian Federal Police
- Australian Defence Force
- Department of Agriculture, Fisheries and Forestry
- Australian Quarantine and Inspection Service
- Australian Customs Service
- Department of Immigration, Multicultural and Indigenous Affairs
- Department of Environment and Heritage
- Australian Maritime Safety Authority
Australian Maritime Identification System

If you look at the amount of water surrounding Australia, and our responsibility is to make sure we know what is coming in or going out of it, that is a huge piece of water to look at and we do not a whole lot of assets with which to do it. I am sure you all have the same kind of scenarios around your regions, where you have a very large area and you cannot just put an observation post out in the middle of the water and leave it there. So we have introduced the Australian Maritime Identification System (AMIS)

The whole aim of AMIS is to coordinate and integrate the maritime information that has already been collected by a number of Australian government agencies. AMIS is a graduated information system. When it was introduced, the announcement made said that we were going to start looking out to 1000 miles. What 1000 miles really means is 48 hours steaming time and at that point you would be giving basic entry information—something along the lines of a flight plan with which we are all familiar. You have already got your diplomatic clearance so you put in a flight plan. Your flight plan tells the next country when you are going to get to somewhere and what they can expect—for example, it is going to be a C130 aircraft and it is going to arrive at this point at this time. Really, that is getting to the limit of the information we are asking for at that point. They are looking at pushing that out to 96 hours just to enable time for processing, but it is information that has already being asked; there is nothing new here.

At 500 miles, which strangely enough equates to about 24 hours steaming time if you are in a large commercial tanker, you have to give some advanced voluntary information. The whole idea of this is to help facilitate and process your arrival into the country, making sure we know who is onboard, what gear you are carrying, what stores are onboard etc. It is not about trying to delve too deeply into what is going on, but it is trying to make sure we are sharing the appropriate information to make it work a lot easier and quicker on arrival. Now, remembering that we are actually getting some of this information already, it is already being provided, this is nothing new.

Within 200 miles, that is within our EEZ, we have a requirement to identify all vessels, other than recreational boats. Now you might think that is relatively easily done. Well, there are a lot of boats out there and we have Coastwatch and Surveillance Australia flying lots and lots of sorties, and when they go out and find a boat, if it is an Australian fishing vessel they still have to go and look and actually make sure it is an Australian fishing vessel. If we have an identification system—sort of like air traffic control radar, where you know exactly what it is—then you can actually cut down the amount of surveillance you need to do because you are not going and chasing targets that have been previously identified. So it really is about a defence in depth kind of scenario.
Figure 4 – AMIS

What is AMIS? Figure 4 provides a pictorial representation. I would have liked to provide a more simplified picture, but I do not think one exists. In the top left-hand corner you have got ‘Maritime Domain Awareness’—what we are trying to achieve. As you go down the left-hand side, you will notice at the bottom ‘Separate Pictures and Databases’—we are getting information from multiple sources. Those sources might be the Federal Government, whether it be Defence, Customs, Department of Transport and Regional Services (DOTARS), the Australian Maritime Safety Authority (AMSA) and our search and rescue organisations, or the Australian Fisheries Management Authority (AFMA). All that information is collated together, as is that from State and Territory government agencies, private enterprise organisations and foreign governments and agencies as well. It goes into this system of systems that is called AMIS.

The ‘COP’ in the centre box, the Common Operating Picture, is something that we are debating fiercely within Defence at the moment because everyone has their own view of what a Common Operating Picture will be. What we really need it to be is something that, when you pick up your computer or your bit of paper and you look at it, you see the same information that has gone through the same filters as everybody else, so when we are talking about apples, we are all talking about apples, whether it be coming from a civil organisation, a foreign government or Defence. That is what AMIS is trying to achieve.

You will notice the products on the right-hand side—our ‘Customers’—Commonwealth agencies, State and Territory agencies, private enterprise and industry and, at the bottom but not the least important, are foreign governments. This is all
about trying to make the security of our region stronger. This is information that will be shared. We had the discussion in the round table earlier on about the idea of sharing information like we are foreign police forces rather than defence forces holding it together. One of the beauties of JOPC is that Coastwatch is more like the police force and so they can share that information easier—one of the strong benefits of working together with them. All that information goes back in to feed AMIS and help drive where we are going to start to search, where we are going to look to make sure we find those people we need to find.

Augmented Security Patrols

Augmented security patrols are something that we are now doing. The whole idea is about security and deterrence. We are using a pulsing technique and we did our first one a few months ago, not long after JOPC started. The whole idea is, if we have an A$80 billion industry sitting off the coast, we need to make people aware that we are trying to do something to protect it. Now remember, these are private enterprises out there, so we are doing our role as a Defence Force to protect those installations. In the JPDA, we are doing it on behalf of the Australian Government and in support of Timor-Leste as well. Why? Because they do not have the capacity to do so. So we are working together to achieve these things.

Figure 5 – Typical Oil Rig

Figure 5 shows one of the typical oil rigs—essentially, a ship that has been turned into a rig. As you can imagine, it would not take much for someone to sail up alongside and set off some form of explosive device, as we have seen in the Middle East, and cause a significant environmental disaster that would impact on all of us. That environment is where traditional fishermen from Indonesia fish and it is where our people go. So we are out there trying to do the right thing and Surveillance Australia, with Coastwatch, is absolutely critical in making that work for us.
Operations.

Figure 6 – Patrol Boats

Figure 6 shows the new Armidale Class Patrol Boat, on the right-hand side next to the smaller Fremantle Class. It’s sort of like the sister ship of the Armidale Class, except it’s the bigger, uglier sister—the Armidale probably has nicer lines.

Figure 7 – Foreign Fishing Boat

We are looking at lots of things. We mount operations to combat illegal entry and foreign fishing boats. Figure 7 shows one such fishing boat to give you an idea of their sophistication—note the radars and all those things on top of it. Figure 8 is a
close-up view of that same vessel after it was intercepted by a Customs vessel, a Defence vessel in fact.

![Close-up of Foreign Fishing Boat](image)

**Figure 8 – Close-up of Foreign Fishing Boat**

If you look carefully just above the gunnels you will notice steel poles that have been basically drilled and welded into place. You will also notice that the person standing beside the master is holding a machete and the person next to him is holding a spear. These are the things they use to throw at our crews who are trying to board.

Now the suggestion was made yesterday that it is a lot like drink driving. We try to stop drink drivers, because it is better to stop a drink driver than to try and live with the consequences. If someone tried to prevent your policeman from stopping their car by putting steel poles on the outside or started to throw things at the policeman, all of our nations would do exactly the same thing. We would cart the person off and would have words to say, because what are they trying to hide? These are some of the questions we need to deal with and these are some of the things that JOPC is trying to deal with, both from a Defence perspective, Coastwatch Customs perspective etc.

**Legislation**

Some of you asked about legislation. We, JOPC, recently had a workshop down in Canberra led by the lawyers. Not unsurprising, one of the big things we came up with was that the legislation is not simple. The sort of legislation we have to deal with, and it is all concurrent, is the International Law of the Sea, the Customs Act, oil and gas platforms which have their own rules, the Fisheries Act, the Quarantine Act, the Immigration Act with associate legislation, the Environmental Heritage Act, the Great Barrier Reef Marine Park Act and sub-legislation, the Memorandum of Understanding
with Indonesia, the JPDA and so on. If you look at JPDA, one of the things that makes it even more complex is that, if you think about the issues regarding the EEZ and how far the EEZ extends, we do not actually own the water column underneath that oil and gas platform, but we do own the seabed. So when you start looking at which bit of legislation you are going to use to board a vessel that is going inside the 500 metre exclusion zone, you have to apply all of those. And inside JPDA, one of the things you have to look at is International Law, which has not yet recognised some of these issues. So if you do not get invited on, if it is registered under another nation with their flag, if it is not fishing etc, then you have almost no right to stop them until they actually go inside 500 metres and even then you can only go on there to establish their bona fides. So you can imagine if you are a terrorist, and I know we talk about that a lot lately, and you sail up to an oil rig, essentially there is nothing anyone can do until you hit 500 metres from it and that is a bit too late to stop it when it is happening. We are trying very hard to come up with ways to address this. An interesting aside, if you are on an oil rig and someone comes within 500 metres and they are not an authorised vessel, you are meant to abandon the oil rig. We have not seen a lot of oil rigs abandoned lately, so we are guessing that they are not necessarily abiding by that.

**Conclusion**

I think the main point that comes from all of this is that JOPC is a government initiative to try and tie together some very disparate organisations. It is a government initiative to make sure we can all get all the information we need so we can actually do the job properly and it is certainly the intent to share that information both inter-government, interagency and internationally. If there are any questions about what we are doing, how we are doing or why we are doing it, we would rather have those questions asked so we can get the information on the table because, as Greg Buchanan said, this is about transparency and making sure we all know what we are doing.
Introduction

Good morning everyone. I am Colonel Greg Macapagal from the Philippine Air Force and will start off with a short talk from the Air Force perspective.

Our Constitution mandates our armed forces to secure the sovereignty of the state and the integrity of national territory. Along with this mandate is the task of territorial defence of the country. The task includes the protection of the country’s territory and marine resources against foreign intrusions and illegal maritime activities. Among the major Services of our armed forces, the Philippine Navy (PN) and the Philippine Air Force (PAF) are specifically tasked with the country’s territorial defence and environmental resource protection. The Philippine Air Force is, of course, in charge of air defence and maritime air surveillance, and the Navy takes charge of naval defence and patrol. Both Services conduct maritime patrol, which includes monitoring the entry and exit of foreign vessels in the country’s territories as well as surveillance of our maritime areas.

Maritime surveillance is an interagency activity and Figure 1 shows the agencies involved in the Philippines:

![Figure 1 – Philippine Agencies Involved](image)

On top is the Department of National Defense, which is where the Air Force and the Navy belong. Next is the Department of Transportation and Communications—this is
now where our Coast Guard belongs; it used to be that the Coast Guard was with us. Then we have the Department of Environment and Natural Resources, the Department of Energy—we have an offshore oil rig, the Malampaya natural gas project—the Bureau of Fisheries and Aquatic Resources, the Bureau of Customs and then the National Police.

**Maritime Security Issues**

![Figure 2 – Philippine Territory](image)

Figure 2 shows our territory. We have 7100 islands to protect and that is only during high tide; at low tide we have more islands popping up. To emphasise the importance of our sea lanes in South-East Asia, 50 per cent of world oil and some 25 per cent of the world’s cargo passes through our area, with some 600 ships sailing through every day. Compared with other South-East Asian nations, the Philippines has the highest territorial water-to-land ratio, approximately three to one. We have a land area of 298,170 square kilometres, but our Exclusive Economic Zone is 964,336 square kilometres. Our coastlines are porous, with piracy and terrorism now on the rise.

For the Philippine Air Force, equipment is a concern. We do not really have a dedicated long-range patrol aircraft or maritime patrol aircraft. We have the old RF27—the reconnaissance Fokker F27—and an Aero Commander and we also use the OV-10s on reconnaissance missions.
Figure 3 shows the different maritime surveillance equipment characteristics. The different interests of the agencies—the Philippine Air Force (PAF), the Navy (PN) the Coast Guard (PCG), the Bureau of Fisheries and Aquatic Resources (BFAR) and the National Police (PNP)—are reflected in the different systems employed. A survey of the maritime surveillance systems provides an unmistakable picture. While other government agencies employ surface ship surveillance systems, the sheer vastness of our maritime territory shows their inadequacy. What is obviously needed, from the perspective of the Air Force of course, is an aerial platform that can provide the best surveillance coverage in the shortest possible deployment time for the least number of platforms and for the least operating cost.

The estimated total economic loss due to smuggling is about 100 billion pesos, with further losses to drugs and people smuggling of about 8.8 billion and 12 billion pesos respectively. However, we do not seem to lack legislation. As shown in Figure 4, we have all these executive orders, regulations and the Republic Act etc—clearly, with regard to legal and policy mandates, the Philippines is sufficiently armed. These various statutes and executive issuances cover practically all aspects requiring maritime surveillance but, on closer look, one can see that what is lacking is policy at the operational level. Specifically, there is a policy requirement for interagency cooperation. The differing institutional priorities and methods of different government agencies dissipate the potential for a strong maritime surveillance regime. We do need to improve on that aspect, much more so now with the rise of terrorism.
**MARITIME SECURITY ISSUES**

**POLICY – PHILIPPINE LEGISLATION**

<table>
<thead>
<tr>
<th>Year</th>
<th>Legislation</th>
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<tbody>
<tr>
<td>1987 Constitution</td>
<td>Basic Law on National Territory / Conservation of National Patrimony</td>
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<tr>
<td>EO 311 [2003]</td>
<td>Creation of Office of Transportation Security</td>
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<tr>
<td>RP-US MDT</td>
<td>Common Defense of RP and US</td>
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<tr>
<td>Transport Security Bill</td>
<td>Currently before Congress (to replace EO 311)</td>
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<td>MARSEC Regulations</td>
<td>Maritime Specific Regulations (draft)</td>
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<td>EO159 [1987]</td>
<td>Police Authority to PPA</td>
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<tr>
<td>EO265 [2004]</td>
<td>Combating Transnational Crime</td>
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<td>RA 8550</td>
<td>Protection of Fisheries &amp; Aquatic Resources</td>
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<td>PD 705</td>
<td>Protection of Forests</td>
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<td>PD 979</td>
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<td>PDs 1219, 1698, 1980</td>
<td>Conservation of Coral Resources</td>
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<td>RA 6969</td>
<td>Anti-Toxic/Nuclear Waste Dumping Law</td>
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<td>RA 7586</td>
<td>National Integrated Protected Area System</td>
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<td>RA 9147</td>
<td>Protection of Wildlife Resources &amp; Their Habitat</td>
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<td>RA 3185</td>
<td>Revised Penal Code</td>
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**Figure 4 – Philippine Legislation**

Evidence of the rise in maritime terrorism since the 1970s is shown by the following incidents:

- 1970s, 1980s and 1990s – rise in terrorist activities by Moro National Liberation Front (MNLF) and Moro Islamic Liberation Front (MILF)
- September 1975 – 30 Muslim rebels attacked the Japanese vessel *Suehiro Maru* in Zamboanga
- July 1981 – *Illana Bay I* hijacked and ship master killed
1982 – MNLF placed an explosive device aboard the ferry *Santa Lucia*

Abu Sayyaf Group – ambushes, bombings, kidnappings and executions, including:

- August 1999 – bombing of floating library ship MV *Doulous*
- 2000 – explosion of two passenger buses aboard MV *Our Lady of Mediatrix* as the ship was preparing to dock in Ozamis City
- 27 May 2001 – attack on Dos Palmas beach resort in Palawan
- 2 April 2003 – Sasa Wharf bombing in Davao
- 27 February 2004 – bombing of passenger ferry *Superferry 14*, killing 116 people

Other security issues are associated with declining fisheries production and include:

- land and marine-based pollution,
- unauthorised fishing and poaching, and
- fishing involving the use of explosives and poisonous substances.

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<th>KEY CONSIDERATIONS IN MARITIME SECURITY COOPERATION</th>
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<tr>
<td>Violations</td>
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<td>Foreign Vessel Intrusion</td>
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<td>Naval Intrusion in Kalayaan Island Group</td>
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<td>Piracy</td>
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<td>Smuggling</td>
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<td>Illegal Logging Trafficking</td>
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<td>Poaching / Coral Gathering</td>
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<td>Illegal Fishing</td>
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<td><strong>Total</strong></td>
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*Figure 5 – Reported Maritime Violations*
Figure 5 shows the reported violations within our national territory, and highlights the requirement for interagency cooperation on maritime surveillance.

**Maritime Security Development**

We need a long-range patrol aircraft to address all of this and we are looking at aircraft like the Dash 8. The acquisition project has still to be approved by the President, but our Department of Budget and Management has assured us of their support, and we are planning to acquire the aircraft through a multi-year obligation authority; meaning we can take delivery and the payment will be made down the years. Currently, we are looking at delivery in 2007 and our Capability Upgrade Plan involves leasing six of these long-range patrol aircraft, but for the first six years we are just looking at about three.

The Philippine Navy will also acquire patrol vessels and my colleague may talk more about this, or at least answer your questions as regards to the Navy. The acquisition of additional Navy patrol vessels will complement the PAF in the conduct of maritime patrol operations to reduce the incidence of maritime violations in the country’s territorial waters particularly in the south-western Philippines.

**Conclusion**

The Philippines as a maritime country takes the threats to maritime security as a primary concern and recognises the urgent need to institute comprehensive measures to address these maritime threats. The maritime security challenges include:

- illegal trafficking (drugs, people and goods);
- marine environmental protection;
- maritime terrorism;
- fisheries protection; and
- piracy.

To counter these threats we indeed need to upgrade our maritime surveillance capability, enhance interagency cooperation and enhance defence cooperation with other countries.

That concludes my short presentation. Captain Ilustre will now talk to you about the Navy.
PHILIPPINE NAVY
CAPTAIN WILLIE A. ILUSTRE

Introduction

Good morning lady and gentlemen, I am Captain Willie Ilustre, Commander of Naval Aviation Group of the Philippine Navy, and I will be presenting on the part of the Navy. I will not be talking about the acquisition of aircraft or any improvements, but I will be giving you a maritime surveillance overview. The scope of my presentation is as follows:

- brief overview of the Philippine maritime surveillance issues and threats,
- responses to maritime security threats,
- development of national capabilities, and
- regional cooperation assistance and resource utilisations.

The Philippines

A short country brief on the Philippines is provided at Figure 6.

Location: South-Eastern Asia, archipelago between the Philippine Sea and the South China Sea, east of Vietnam

Area: Total: 300,000 sq km
Land: 298,170 sq km
Water: 1,830 sq km

Coastline: 36,289 km

Maritime Claims:

a. **Territorial sea:** irregular polygon extending up to 100 nm from coastline as defined by the 1898 Treaty of Paris; since late 1970s has also claimed polygonal-shaped area in South China Sea up to 285 nm breadth

b. **Exclusive economic zone:** 200 nm

c. **Continental shelf:** to depth of exploitation

The Philippine archipelago is made of 7,107 islands; favorably located in relation to many of South-East Asia’s main water bodies; the South China Sea, Philippine Sea, Sulu Sea, Celebes Sea, and Luzon Strait.

Figure 6 – Philippine Country Brief
Maritime Threats

The maritime threats to the Philippines include intrusions, terrorism, smuggling, drug trafficking, piracy, poaching and illegal fishing. In response to these maritime security threats, the Philippines has enacted a threefold response; namely:

- the development of national capabilities,
- engagement in bilateral activities, and
- participation in multilateral initiatives.

Development of National Capabilities

The development of national capabilities is identified as one of the primordial concerns of the Philippines in securing the maritime boundaries. At present, the Philippine Navy is further strengthening its monitoring capabilities in the southern Philippines through the establishment of coastwatch stations strategically located between and along the territorial boundaries, with the main Maritime Information Data Centers in the southern Philippines located at Zamboanga and Davao, as shown in Figure 7.

![Figure 7 – Coastwatch Stations](image)

The Maritime Information Data Centers are tasked to collect, integrate, process and share information from among the various maritime agencies and border crossing
stations. The Maritime Information Data Centers are directly linked with the regional offices or stations of the government agencies concerned, as shown in Figure 8.

![Diagram of Maritime Information Data Center Links to Other Agencies]

The absence of an institutional mechanism for coordination among maritime agencies is one of the main issues confronting the development of national capabilities on maritime security. This institutional mechanism covers the formal structure of coordination, the standard operating procedures to coordinate, the equipment necessary for coordination, such as interoperable communications between the Philippine Coast Guard, the Philippine Navy, the Philippine National Police and the Philippine Air Force, and the necessary skilled manpower to effect efficient and effective coordination.

On the other hand, the coordinating mechanism at the national level must be complemented with availability of interdiction capability by law enforcement agencies. As of this moment, the maritime patrol and interdiction capability of the Philippine Navy is limited to a small fleet of patrol craft and short-range aircraft—we use the Islanders and the BO105 helicopters. The assets of the Philippine Coast Guard are more suited for search and rescue, and they also have the same type of aircraft as the Navy.

Engagement in Bilateral Initiatives

I will now talk on engaging in bilateral initiatives as one of the responses to maritime security threats. By far the most concrete security arrangements between the Philippines and other countries are those we have with Indonesia and Malaysia.
Philippine–Indonesia Bilateral Engagement

The existing cross border and joint border patrol agreements between the Philippines and Indonesia are a system of control for entry of vessels and to secure the border areas of our respective countries.

The Concept of Operations for the border patrol operations under the RP-RI Border Patrol Agreement of 1975 primarily consists of air and/or naval patrols in the border areas between the two states. Further detailed operational requirements and procedures to enhance the patrol effort and make it responsive to the purpose of this Agreement were left to the operating levels to plan coordinate and implement. The Border Patrol Agreement also established a border crossing system in the border areas of the two countries. Under this agreement, border crossing stations were established where citizens of each country residing in the aforesaid border areas can secure border crossing passes.

The border crossing card issuing stations as well as border crossing entry and exit stations are located as shown in Figure 9—in the Philippines at Batuganding, Tibanban and Bongao, and in Indonesia at Miangas, Marore and Tarakan. However, not all the border crossing stations in the Philippines are presently functioning as they were initially envisaged. The border crossing stations at Batuganding and Tibanban both hold office at the SOUTHCOM Liaison Office in Davao, and their officers merely go to the border crossing stations on occasions. This is understandable considering the security situation in Mindanao.
Only residents of the border areas identified under the Border Patrol Agreement are eligible for a border crossing card.

**RP-RI Bilateral Engagement Issues.** Four issues underline our present bilateral engagement with Indonesia:

- Foremost of these issues is the limited capability of the Philippine Navy to engage in regular coordinated patrol as provided in the agreement. This lack of capability is not only due to the small number of ships that can be devoted to this particular activity but also to the obsolescence of communications equipment aboard these ships. This limits the interoperability of Philippine Navy assets with their counterparts in Indonesia.

- Likewise, the capability of border crossing stations to monitor and prevent the entry of illegal aliens in our respective territories with Indonesia is severely limited. Border crossing stations do not have a database of individuals who are eligible for issuance of a border crossing pass. Likewise, border crossing stations for persons entering Indonesia from the Philippines are manned by Philippine Navy enlisted personnel, instead of being jointly manned with immigration, Customs, and Coast Guard personnel. Thus, appropriate immigration, Customs, and safety of life at sea regulations are not implemented properly.

- Moreover, the system of controls for the entry and exit of people and goods through the border crossing stations must be reviewed and strengthened. One example of a control mechanism that needs to be reviewed is the limit of 250 border crossing passes that can be issued within a quarter of a year. This regulation may force the citizens of both countries to bypass the border crossing stations, especially during cases when the 250-pass limit has already been met within a certain period.

- Finally, differences in government systems and bureaucratic processes affect the pace of decision-making processes necessary for the efficient implementation of the memorandum of agreement. Although the agreement itself allows operational commanders to work out the details of their operations, this is hardly the case for the Philippines as all decisions of local commanders must be cleared first with higher authorities.

**Philippine–Malaysia Bilateral Engagement**

The existing border crossing arrangements and the joint Border Patrol Agreement between the Philippines and Malaysia are also a system of control for the entry of vessels and to secure the common border areas of the two countries.

Similar to the arrangement between the Philippines and Indonesia, citizens of the Republic of the Philippines who are bona fide residents in the Philippine border areas and all Philippine government officers resident in the aforesaid area, who are required in the course of their duties to cross into the Malaysian border area, will be eligible for border crossing passes to be issued by the authorities in the Philippines to serve as passports. They will then be allowed entry into the Malaysian border area by
Malaysian authorities, provided that such entry is for a specified purpose and is effected at an immigration control post. The same goes for citizens of Malaysia who are bona fide residents in Malaysian border areas and all Malaysian government officers resident in these areas.

Areas were designated for the establishment of border crossing stations as the sole entry and exit points to and from the border areas of the Philippines and Malaysia. As shown in Figure 10, in Philippine territory they were to be located at Balabac, Mapun, Taganak, Sitangkay and Bongao, and in Malaysia at Labuan, Kudat, Sandakan, Lahad Datu and Semporna. However, the border crossing stations have yet to be established.

One of the most significant additions of the Second Protocol is the conduct of border patrols: ‘The enforcement agencies of the Philippines and Malaysia shall conduct coordinated border patrol operations in the maritime border areas of the two countries for the prevention of illegal activities’. Consequently, a coordinated patrol zone was established under the DAGAT-LAUT SOP, which shall be the area between Malaysia and the Philippines subject to coordinated patrol.

**RP-Malay Bilateral Engagement Issues.** The main issues affecting RP-Malay bilateral engagement are as follows:

- The main issue concerning the RP-Malay Protocol is the establishment of the border crossing stations as the sole entry and exit points for ships, vessels, trade and human traffic. Likewise, the role of the issuance of border crossing passes must be reviewed in line with the establishment of the border crossing stations.
with the end view of developing more responsive regulations that will enhance security without affecting legitimate activities in the border areas. The capability of the border crossing stations to be established must also be developed in line with the enhanced regulations.

- Compounding the problems in the absence of border crossing stations is the lack interoperability between the Philippine Navy (PN) and the Royal Malaysian Navy (RMN), and between the Philippine Coast Guard (PCG) and the Royal Malaysian Coast Guard (RMCG). This lack of interoperability hampers the conduct of coordinated patrols that could interdict suspected vessels transiting the waters between Malaysia and the Philippines.

- Differences in bureaucratic processes and governmental systems also affect the pace of decision-making that is needed to respond to any contingency arising from maritime activities in the border areas of the two countries.

**Proposed Multilateral Engagement**

Multilateral initiatives being undertaken by the Philippine Navy are detailed in the following paragraphs.

**Establishment of Communications Hotlines.** The Philippine Department of National Defense is actively pursuing regional cooperation activities, such as the ASEAN Navies Interaction 2005. During this event, the Philippines proposed the immediate implementation of a system where contiguous local commanders of naval operating units in neighbouring countries will have direct communications and interaction. A hotline has now been set up between the Philippines and Malaysia, and we hope to establish a similar system with Indonesia in the near future.

**Maritime Situational Awareness.** Our Department of National Defense is working for the establishment of a mechanism, consistent with sovereignty and international law, that will afford the Philippines and countries with which we share common waters, such as Indonesia and Malaysia, to have constant situational awareness through efficient exchange of intelligence and information. This will enhance, among others, the efficiency of our respective border patrols and provide seamless security coverage in these important maritime areas.

**Situational Awareness in the Celebes and Sulu Seas.** As stated earlier, the Philippine Navy is currently developing its monitoring and surveillance capabilities in the southern Philippines to cover the Celebes and Sulu Seas. The soon to be established Maritime Information Data Center in Zamboanga is envisioned to be the focal point of information exchange between Philippine and Malaysian authorities, while the one to be established in Davao will exchange information with Indonesian authorities. This will enable our three countries to have a complete picture of the maritime activity in our common waters, including vessel traffic, human migration, trade and fishing activities. Appropriate Naval Task Forces will be assigned as the reaction forces for the stations. Malaysia and Indonesia, on the other hand, will determine, consistent with their laws, the manner in which to respond to the information that will be passed on to them.
Benefits of the Arrangements:

- These arrangements, once they are operational, will impact on the overall security of the regional countries. For one, they could provide a blueprint for the development of similar arrangements with other ASEAN countries in their contiguous waters, such as between Indonesia, Malaysia and Singapore in the case of the Malacca and Singapore Straits.

- Our proposals are also a form of a confidence-building measure that will enhance the cooperative environment within South-East Asia. It develops a culture of transparency in the region. The proposals will not impinge on the sovereignty of each country as they will have full discretion on the information they share, the organisational structure of their centres, the mode of responding to information and the manner of using the information that will be shared by each country.

- A seamless security coverage over our common borders will also benefit the emerging economic hubs, such as the BIMP-EAGA. The protection of shipping lanes and waters of this region is essential in facilitating trade and investments in the area.

- Finally, the information that will be gathered and shared among the three countries is a powerful decision-making tool that could assist the governments of our countries to allocate resources in the specific areas where they are needed.

Situational Awareness Issues

Among the issues confronting the development of situation awareness between the Philippines, Malaysia and Indonesia is the absence of established mechanisms for exchange of information among the three countries. These formal mechanisms should be outlined in separate agreements to be signed by representatives of the three countries.

Among the issues confronting the development of situational awareness between the Philippines, Malaysia, and Indonesia is the absence of an established mechanism for information exchange among the three countries. This formal mechanism should be outlined in a separate agreement to be signed by representatives of the three countries.

The type, nature and extent of information to be shared through the trilateral mechanism should also be discussed with respect for each country’s sovereignty. Thus, it is important for the three countries to agree mutually on the extent of information exchange as well as the type of information that could be shared, based on their respective laws and government regulations.

How and in what manner the authorities of each country would respond to actionable information that will be shared in the trilateral mechanism to be established is also an
issue that has to be addressed. Which agency will respond and whether such agency has the capability to respond is a matter that needs to be discussed in formal dialogue.

Finally, whether or not there is to be assistance from or involvement by other countries in the development of the trilateral mechanism must be agreed upon by the three states. This matter should be discussed, bearing in mind that littoral countries have primary responsibility and sovereignty over their waters and maritime jurisdictions.

That ends my presentation. I will now hand over to Captain Dabi to conclude our talk.

**PHILIPPINE COAST GUARD**

**CAPTAIN LINO H. DABI**

**Introduction**

May I take the opportunity on behalf of my colleagues to express our gratitude to the host and organiser, the Royal Australian Air Force, for giving us the opportunity to participate in this workshop.

My presentation will provide additional information to that already given by my colleagues.

**Philippine Maritime Environment**

As my colleagues have already said, the Philippines is an archipelagic state comprising about 7100 islands. The country has a vast maritime jurisdiction, covering an area of 2,795,962 square kilometres of sea area, dwarfing its land area of only 299,000 square kilometres. It boasts a long coastline of 35,000 kilometres, which is twice as long as that of the United States. Significant to note is that 58 out of the country’s 77 provinces, 914 of the 1385 municipalities and more than 11,000 barangays\(^2\) are located in coastal areas considered as maritime zones, with their economy primarily anchored on the sea.

Water transport is the primary and the most economical mode of transportation in the country. There are about 27,000 domestic vessels and about 200 international vessels of various types that navigate through the country’s maritime jurisdiction, using about 215 sea routes. Water transport in country is supported by as much as 904 ports, of which 94 are national ports, 528 are municipal ports and about 282 are private ports.

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\(^2\) The ‘barangay’ is the smallest unit of local government in the Philippines. It is the basic community unit of the Philippine political system. In rural areas the barangay is a village, and in urban areas it is a neighbourhood. Each city or municipality contains numerous barangays, and there are thousands of barangays in the Philippines. Eachbarangay is administered by a chief executive and a community council, whose members are elected by the residents of the barangay.
The Philippines is about 800 kilometres away from the Asian mainland. It is located in the middle of Asia’s maritime heartland, giving the country a strategic advantage by being at the crossroads of the Asia-Pacific region and lying adjacent to the maritime highway of the South China Sea. Clearly, this fact places the country along the heavily used through roads between the Middle East, East Asia and the United States. Malaysia and Indonesia are the country’s closest neighbours.

Maritime Security Threats

The topographical picture and the present economic state of the country make it vulnerable to a lot of maritime infractions, which threaten its maritime security not only at domestic, but at transnational level as well. Major maritime infractions in the country include the following:

- **Piracy.** Average annual statistics of 90 piracy incidents show the size of the problem; important to note is the decreasing yearly trend. However, it should not be construed that the national government has been able to provide countermeasures to arrest the problem, but perhaps it is more an indication of the inability of our maritime patrol force to establish presence and control in the country’s vast maritime jurisdiction and, understandably, the inability to provide a clear picture of the true situation. Piracy occurs nationwide where most of those victimised are small fishing boats and rarely bigger vessels—it seems that the country’s working poor is suffering the brunt of piracy. The volatile situation in Mindanao is a contributory factor in piracy incidents in the south-western Philippines. Oftentimes, pirate leaders are also ranking officers of the Moro Islamic Liberation Front (MILF). They conveniently use piracy as a means to raise funds to sustain their fight against the government forces. At transnational level the emergence of regional terrorist networks based in South-East Asia constitutes a parallel crisis that provides impetus to the piracy plaguing the southern Philippine waters. It was observed that there has been a resurgence of piracy in the waters between Indonesia, Singapore and Malaysia. The annual report of the International Maritime Bureau (IMB) marked Indonesian waters as the most pirate-infested region in the world, followed by the Malacca Strait. As these regions are adjacent to the Philippines, there is a clear and present danger of more pirates venturing into the country’s territory.

- **Smuggling.** Smuggling is one of the most rampant illegal maritime activities in the country and the items being smuggled in vary from commercial goods to agricultural products. Most of the smuggled goods come from neighbouring countries, such as Indonesia, Malaysia, Vietnam, Thailand and even China. While good statistics are not yet available, reports show that guns are also being smuggled in and out of the country. Guns, mostly small arms locally manufactured in Cebu, an island province in the Central Visayas region, are being smuggled out of the country for organised crime syndicates. Guns and assorted arms of high calibre, on the other hand, are being smuggled into the country from the southern borders intended for the MILF rebels. Similar to piracy cases, smugglers take advantage of the long porous coastline of the country to effect their illegal operations.
• **Illegal Drug Trafficking.** The Philippine Drug Enforcement Agency revealed in 2003 that there were about 215 local drug syndicates operating in the country. Eleven syndicates have been known to have international links. Again, just like piracy and smuggling, the operators take advantage of the vulnerable maritime environment of the country to effect their operations. Over 95 per cent of the drug Methamphetamine Hydrochloride, which is most commonly known as ‘Shabu’, enters the country via seaborne routes. Syndicates in China are believed to be the source of 85 to 90 per cent of the contraband, using vessels intruding into the country’s internal waters. Large quantities of Shabu have been transported into the country by ocean-going vessels and then transferred to local fishing boats for distribution to different destinations. The Government is tightly monitoring the drug trafficking problem as it may have links in funding terrorism.

• **Intrusion or Illegal Entry.** Several intrusions or illegal entries were reported in the country’s maritime jurisdiction, but these are mostly illegal poaching from foreign fishing vessels taking advantage of the porous maritime environment. These illegal activities usually happen in the western and northern part of the country where there are rich fishing grounds. From Coast Guard records there are about an average of about eight to ten apprehensions of illegal entry in the country annually.

• **Terrorism.** The country’s maritime sector is also gravely confronted with the terrorist menace. Though not substantial in number of incidents they have, however, caused significant impact on the country’s state of maritime security and successfully delivered their message of sowing terror and fear in the maritime community. Records show that terrorist activities in the country started in 1982 when the Moro National Liberation Front (MNLF) placed an explosive device aboard the ferry vessel *Santa Lucia*. In August 1999 the Abu Sayyaf Group detonated a bomb aboard the floating library ship *MV Doulous* and in February 2000 the MILF rigged explosives in two buses aboard the *MV Our Lady of Mediatrix*—the bombs exploded as the vessel was preparing to dock at Ozamis City in Northern Mindanao. The Abu Sayyaf Group kidnapped a group of local and foreign tourists at the Dos Palmas beach resort on Palawan, an island province in the west of the country, in May 2001. In February 2004 the passenger vessel *Superferry 14* caught fire in Manila Bay after an explosive device was ignited aboard—it is believed that a local terrorist group of the Abu Sayyaf Group, aided by Indonesian-based Jemaah Islamiyah, was behind the dastardly act. More recently, on 28 August 2005 another bomb exploded on board the *MV Dona Ramona*, a ferry vessel, while in port in Basilan, an island province in the Autonomous Region of Muslim Mindanao. Terrorist groups like Abu Sayyaf and the Jemaah Islamiyah continue to threaten to bomb ports and vessels in the country.

**Maritime Security Agencies**

There are several maritime agencies that play appropriate roles in the maintenance of maritime security in the country. These agencies, among others, include the Philippine Navy, the Philippine National Maritime Police, the Philippine Air Force and, lastly, the Philippine Coast Guard. In promoting and maintaining the maritime security of the
country, the Philippine Coast Guard works closely with its sister agencies under the Department of Transportation and Communications, such as the Philippine Ports Authority and the Maritime Industry Authority.

By its mandate in the organisation, however, it is the Philippine Coast Guard that serves as the lead maritime agency and assumes the greater responsibility in preserving the country’s maritime security. But I would like to make it clear that it is not the vocal agencies that should be given much attention when it comes to regional maritime security cooperation. I believe, just like Colonel Macapagal has told you, that we still have to work on interagency cooperation and who should properly take the responsibility as the umbrella organisation to work on this. The Philippine Navy, which is the major maritime force of the country, has to limit its role in maritime security to purely maritime military issues of war covering territorial defence and protection of the sea lines of communication. On the other hand, the Philippine Coast Guard can broadly deal with peacetime maritime security covering non-military maritime issues, such as terrorism, piracy, drug trafficking, illegal movement of arms, other illegal maritime activities, search and rescue, navigational operations and marine environmental protection. Moreover, the Philippine Government, as a signatory to several conventions that have binding obligations as to maritime safety and security, recognises the Philippine Coast Guard as the lead implementing agency. Hence, the agency serves as a focal point for the maritime authorities of all other countries that are signatories to these conventions. These conventions include the International Convention for the Safety of Life at Sea (SOLAS), Suppression of Unlawful Acts at Sea (SUA) conventions and other related International Maritime Organization (IMO) resolutions, particularly relating to port and ship security.

The Philippine Coast Guard also has the advantage of having in place infrastructure and systems that, although inadequate, can work modestly for the agency to perform its functions on maritime security along with its sister agencies under the Department of Transportation and Communications. Working well under its dispensation, the Philippine Coast Guard has its Maritime Rescue Coordinating Centers. It is now being proposed that these also act as coordinating centres for other illegal maritime activities—just as has been proposed by the IMO—because they serve as a warning and alerting system using the Global Maritime Distress and Safety System (GMDSS). The Philippine Coast Guard has a three-tiered Maritime Security Program. Soon to be established are a Vessel Traffic Information System at major ports by the Philippine Ports Authority and a Vessel Automatic Identification System by the Maritime Industry Authority, as required by the IMO. Just recently the Philippine Coast Guard has created two task forces, Task Force Sea Marshal and Task Force Neptune, to protect its domestic shipping against terrorism.

Conclusion

The Philippines as a nation is greatly dependent upon its maritime areas of interest for its economic prosperity. It also lies at the strategic crossroads of the Asia-Pacific region, serving as the door for seafarers from the Eastern and Western parts of the world that significantly contribute to the economic growth in the region. But for many years the country’s vast maritime environment has remained porous and vulnerable against various maritime threats, both at domestic and at the transnational levels. As explained in the previous discussions, the Philippine Coast Guard serves us as one of
the lead maritime authorities responsible for maintaining maritime security. The agency, however, has limited infrastructure and resources describing the weak maritime security system in the country to improve its maritime surveillance. It is a fact that maritime surveillance is very important to the maintenance of maritime security, as well as the protection and sustainable management of the marine environment of the country. Clearly, the Philippines is at risk to maritime threats, particularly terrorism. And what is at stake is its economic growth and stability as a nation. An unstable state of maritime security in the country will mean an unstable state of maritime security in the region, which would mean uncertain economic prosperity for many nations in the region.

The Philippines recognises the importance of maritime security within its vast maritime jurisdiction as well as in the region. The country’s maritime security infrastructure and systems, however, are not adequate to conduct effective maritime air and surface surveillance and interdiction in its maritime areas of interest. The Philippine Coast Guard serves as one of the country’s lead maritime authorities but, despite the agency’s desire to fulfil its obligations in maritime security, it is constrained by several debilitating factors. In this regard we recognise the need to develop regional maritime security initiatives and to develop, maintain and sustain regional cooperation in maritime security in terms of training, the build up of capabilities, intelligence sharing and participation in joint maritime operations in critical maritime areas of interest.
Introduction

Good morning. This morning I will look at the following broad areas from the Royal New Zealand Air Force (RNZAF) perspective:

- where we operate;
- the current operations that we undertake and, of course, that will cover the roles and tasks; and
- the capabilities we have now and those that we will get in the future.

Royal New Zealand Air Force

![Figure 1 – RNZAF Infrastructure](image-url)
To put things into perspective, the RNZAF is an extremely small Air Force—if the RAAF has 13,500 people, we have got 2650 in our Air Force. We have three bases as shown in Figure 1, with our Defence Headquarters in Wellington.

Our Maritime Patrol Force, No 5 Squadron, is based at RNZAF Base Auckland. The role of the Squadron, and this is government priority, is to conduct maritime surveillance of the New Zealand Exclusive Economic Zone (EEZ) and those of the South Pacific Islands region and of the Southern Ocean, to undertake search and rescue, and to conduct maritime air operations. We have six P-3K Orions and at the moment, because we are undergoing a major aircraft upgrade plus embodiment of some other equipment, we realistically expect to have three to four airframes available for tasking from now until 2010. The Squadron has about 150 people. We are established for six crews but because of a manning shortage in the RNZAF we have only four crews at present. Our maintenance side is also short of people with about 75 per cent manning. Over the last 13 to 15 years we have slowly increased the hours that we fly per annum from around 2000 to 2600, and we expect that to increase to 2800 hours as demands on the new capabilities are made by our intergovernmental agencies. About 30 per cent of our flying is undertaken doing civil tasks (maritime surveillance and search and rescue) and another 32 per cent is dedicated to core training and exercises.

Shown in Figure 2 are some of the exercises and readiness training activities in which we participate in order to maintain our proficiency in the warfighting roles.

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**CURRENT EXERCISES**

- **Exercises:**
  - Korea - ROKKIWI
  - Australia – FXP, KAKADU, ASWEX, TASMANEX, TAMEX
  - South-East Asia – ADEX, FPDA, Bersama Lima
  - United Kingdom - JMC
  - Canada - CANEX
  - Fincastle
  - Singapore / Thailand

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_Figure 2 – Current Exercises_
This list of exercises shows the emphasis on regional engagement that the New Zealand Government has for us. For instance, we operate on an annual basis with Korea, Australia, South-East Asia—Malaysia, Singapore and Thailand—the United Kingdom and Canada.

**New Zealand Maritime Area**

If you look at our region you can see that we are a maritime nation. Our Defence policy obviously relates to that and states ‘within New Zealand and its neighbourhood, the New Zealand Defence Force (NZDF) will be used to ensure the sovereignty of our EEZ and territorial waters’. We have the fourth largest EEZ in the world—some 4.8 million square kilometres—only Russia, Australia and the US have larger EEZ areas. At its furthest point, when we are patrolling from Auckland, the outer area of our EEZ is some 1400 kilometres from home base. This does not include the EEZs of the South Pacific nations; if we include them the area is about 12 per cent of the earth’s surface. If you look at our trade, 99 per cent by volume and 90 per cent by value of New Zealand’s trade is by sea, so it is very important to us. Over a fifth of our GDP comes from trade.

New Zealand is a signatory to the United Nations Convention on the Law of the Sea (UNCLOS) and that places responsibilities on us for protection and preservation of our maritime environment in terms of sustainability.

New Zealand Government policy is ‘to contribute to global security and peacekeeping through participation in UN and multilateral peace support operations’.

![Figure 3 – New Zealand Maritime Area of Responsibility](image-url)
Figure 3 provides an indication of the size of not just our EEZ (in blue) but also those of the South Pacific Islands. We conduct 400 flying hours on an annual basis for government agencies within New Zealand and another 400 hours within the South-West Pacific. We have an extremely large search and rescue (SAR) region (shown in red)—the largest SAR region in the world—of some 36 million square kilometres, which includes the Nadi area, and stretches from the equator down to McMurdo in the Southern Antarctic regions. The areas outlined in purple show the treaty obligations we have with Niue, Tokelau and Cook Islands, including their EEZs.

We undertake our operations in conjunction with the following government agencies:

- Fisheries and, obviously, input into the Forum Fisheries Agency;
- Customs;
- Foreign Affairs;
- Maritime Safety;
- Conservation; and
- our Defence Technology Agency (DTA).

So it truly is an interagency operation and we are tasked, in effect, with 800 hours support to them.

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1 The Pacific Islands Forum Fisheries Agency (FFA) was established in 1979 to help countries manage their fisheries resources by providing expert fisheries management and development advice and services to member countries.
Operations

No 5 Squadron core roles and tasks are shown in Figure 4:

**5 SQUADRON ROLES**

- **Core Training**
  - Ab Initio, Conversion-to-type, Continuation, Upgrade
- **Surveillance**
- **Reconnaissance**
- **Coordinated Protective Operations**
  - Anti-Surface Warfare
  - Anti-Submarine Warfare
- **Search and Rescue**

Figure 4 – No 5 Squadron Roles and Tasks
The national tasks we undertake are shown in Figure 5.

**CURRENT SURVEILLANCE OPERATIONS**

- **Surveillance/Reconnaissance Tasking**
  - NZ EEZ Patrols
  - Deep South Operations
  - South Pacific Surveillance

**Figure 5 – National Surveillance Operations**

**New Zealand EEZ Patrols.** As I said earlier, we conduct a large number of New Zealand EEZ patrols; we call these *Tapestry* patrols.

**Deep South Operations.** We do a number of deep south operations—Operation *Mawsoni*—where we look at Patagonian Toothfish resource protection, right on the edge of the Antarctic ice shelf.

**South Pacific Surveillance.** We undertake a large number of South Pacific surveillance patrols—Operation *Norpat*. In fact, we do one week in every month in the South-West Pacific.

We are expanding our operations; we do have a problem in operating in the deep south and we will be flying a P-3K out of McMurdo on the ice runway later in November.
Future Roles and Tasks

Figure 6 illustrates the direction in which we are looking for the future and our future roles and tasks. We are moving away from the ‘traditional’ maritime patrol aircraft (MPA) tasks to the multi-mission maritime aircraft (MMA) capabilities and concentrating on intelligence, surveillance and reconnaissance (ISR), anti-surface warfare (ASUW) and anti-submarine warfare (ASW)—the last two are shown in a smaller font size to indicate where we think the emphasis will be in the future.

We have a problem at the moment with our current aircraft equipment fit. Supportability is now a major issue, with spares becoming unavailable for many systems. Our current systems are a mix of 1960s and 1980s era technology, with a data handling system (DHS), radar and infra-red detection system (IRDS) that was put in the aircraft and completed in 1983. The acoustic processor was developed by our Defence Technology Agency on a PC-based capability. The magnetic anomaly detector (MAD) and our electronic search measure (ESM) equipment are 1960s technology. So, at the moment, we cannot move away from the traditional maritime patrol aircraft tasks. In order to maintain our capability, we have fitted interim pieces of equipment, primarily based on PC technology. Examples of this equipment are shown in Figure 7.
Figure 7 – Current Capability Additions

On the upper right of Figure 7 is the acoustic processor that we developed in-house and have flown with for the last five years. Underneath that is an Iridium satellite telephone to give us some satellite capability and also a digital data transfer so we can take a picture of a fishing vessel, for instance, and transmit that to headquarters. On the bottom right is a moving map capability, which is no more than a portable PC strapped to a table with the right software and being fed by the navigation system. The middle upper picture shows the Link-11 capability that we put into the aircraft for operations in support of Operation Enduring Freedom. Underneath that and to the left are the PC-based displays; again, because we were running out of spares and capability on the aircraft. So these additions will give us a capability out until about 2008. From 2008 to 2010, we should get upgraded aircraft back in country.

In the interim we are fitting an MX-20 sensor, an electro-optical (EO) system, as shown in Figure 8. It is probably going to be one of the most capable EO sensor systems available for airborne use. The system has an IR capability and an electro-optic wide view and a narrow view.
Long-Term Development Plan

In our long term development plan we have money earmarked for the P-3 systems upgrade as follows:

- P-3 mission systems upgrade,
- P-3 communications and navigation systems upgrade,
- NZDF torpedo replacement,
- P-3 self-protection, and
- P-3 anti-ship missile.

It will not be until these new sensors and equipment are embodied in the aircraft that we can start to look at a multi-role capability.

In the aircraft mission systems upgrade we are going to get a new radar, new electro-optics, electronic surveillance and data management systems and a new flight deck, which will be a glass cockpit version. In the communications and navigation systems upgrade we are going to upgrade both internal and external communications equipment, including data link which will be Link-16, and we will be upgrading the navigation systems. Obviously, as part of the aircraft upgrade, mission support—our
ground support—also will be upgraded to make sure this aircraft can be maintained over a 15-year period.

The radar is actually the Elta 2022, a very capable radar. The options available on this particular radar system include the normal PPI display, ground feature profiling, a moving target indicator capability, air-to-air mode and a target classification system.

The new mission management system will give us workstations that interface and control the sensors. In addition to integrating and allowing us to analyse the data that comes into the aircraft, it also will do the recording and processing of information. We will get seven workstations and each of these workstations will be able control the sensors and do data analysis; so in other words each one is a replication of the other.

Figure 9 provides an indication what the upgraded aircraft will look like along the Tactical Rail (TACRAIL).

Figure 9 – P-3 Upgrade – Tactical Rail
Figure 10 gives a view of the new flight deck, with its glass cockpit.

Figure 10 – P-3 Upgrade – Flight Deck
Of concern to the RNZAF is the likely call by other government agencies, once they see this capability, for increased hours to undertake their tasks.

The graph at Figure 11 shows that over the last 13 years the number of hours we have flown on our aircraft has increased, and will continue to increase in the future, but that comes at a cost to the RNZAF. We are struggling at the moment, because of people, actually to maintain 2600 hours.
Figure 12 illustrates the sort of capability—the ‘system of systems’ concept—that, theoretically, will be available.

I keep showing this slide because, when people see the capability that we will have, there will be more and more demands placed in the intelligence, surveillance and reconnaissance area. It is a very busy slide, but where does it stop? We heard earlier about the systems of systems concept, but what that requires is the capability to analyse, test and evaluate the combined capabilities of individual systems (existing, emerging or proposed) that must work together to provide a broad mission area capability, and that is something all of our defence forces will be struggling to do—the integration of individual systems and the concept of a systems of systems picture. But there will be an expectation that we will provide coverage in a broad area on our aircraft.

Conclusion

In conclusion, if you look at the RNZAF, we are focused on preparing for coalition operations and that means being focused on regional cooperation. We are going to see the aircraft go from a traditional maritime patrol aircraft to a multi-mission aircraft, undertaking intelligence, surveillance and reconnaissance, and it is technology that will give us that capability and will force that change. The other interesting feature is that I believe you will see is an aircraft out on a mission conducting tactical operations and undertaking an operational task and even a strategic one all at the same time. We are going from an aircraft that was based primarily on military requirements to that of a whole-of-government requirement for these capabilities, and that has required
internal legislative change, particularly for interagency cooperation. We have gone from a national focus to a regional cooperation focus for coalition operations and that requires, as we heard earlier, bilateral and multilateral agreements. So we still have to overcome some issues—national sensitivities, attitudes and stovepipes, whether they be service, cultural, technical or geographic—and we have got to overcome bureaucracy and processes which slow that down. But I think we are on the way there and I think this workshop is a great forum for addressing these issues and breaking down some of those stovepipes.
MARITIME SURVEILLANCE – THE VIEW FROM JORDAN

LIEUTENANT COLONEL ABDELMAJID BANIMELHEM
SQUADRON COMMANDER
ROYAL JORDANIAN AIR FORCE

Introduction

At the beginning let me on behalf of my friend and of our Air Force commander thank you for the invitation to attend this workshop. It is beneficial for us to have a good idea about these matters because we have little experience in maritime security issues since our borders are mostly land borders rather than territorial waters. The main role of the Royal Jordanian Air Force is concerned with defending our country, but not as a maritime issue; it is focused mainly on our land borders and cooperating with neighbours and some mutual exercises with neighbours and other countries from Europe and the USA. Our experience in maritime security issues is limited but I can outline some of the things we are doing and let you know about the problems and difficulties we are facing.

We are trying as much as we can to make our country secure and stable, and our King Abdullah II is working hard to foster good relationships with our neighbours.

In this briefing I will cover the following aspects:

• our location and borders,

• our water territory,

• our capabilities,

• security issues, and

• our role.
Location and Borders

Figure 1 shows a map of the Middle East region. If you look at Jordan I doubt that you will recognise that we have territorial waters. Jordan is situated near the south-eastern corner of the Mediterranean Sea and we share land borders with Syria to the north, Iraq to the east, Israel and the West Bank to the west, and Saudi Arabia to the east and south. So we have land borders and we are trying to protect these borders from smugglers, infiltration and drug trafficking. The official name of Jordan is the Hashemite Kingdom of Jordan (HKJ) and its total area is 92,300 square kilometres. The population now is about 5.3 million and in the 1970s it was 2.5 million. The population increase started with the beginning of the Gulf crisis in the early 1990s with people coming from Kuwait and, more recently, in 2003 from Iraq. With the increase in our population, our style of life has become very expensive. In the 1970s our King Hussein went to China and had a meeting with the President of China. The President asked our King what the population of Jordan was. King Hussein replied, ‘We have two and a half million people.’ The President of China said, ‘Why did you not bring them with you?’
Figure 2 – Jordan – Water Territory

Figure 2 shows our water territory. If you look at the Gulf of Aqaba to the south, there is about 30 kilometres of water territory, and then in the middle of the country there is the Dead Sea to the west; it is about 60 kilometres. The Dead Sea is actually protected by nature; it is very hard to swim in the water and if you want to cross it you need to have a special boat because it is very thick water. Our Royal Coast Guard initially started its operations in the Dead Sea in 1951 and then moved down to the Gulf of Aqaba. In the 1970s they had about 200 people and were there primarily to protect the border of Aqaba from smuggling and drug trafficking. In 1991 the Coast Guard was renamed the Royal Naval Force.

Around Jordan there are troubles in the West Bank—between Palestinians and Israelis—there are troubles in Iraq right now and in Saudi Arabia, as you heard in the news. That makes the task for us to protect our borders very hard. As you may know, since 1948 possibly up to 1.5 million Palestinians have lived in Jordan. They live in our cities and some of them have formed relationships with our people and there may be relatives who want to cross the border. We have a long border with Israel, about 600 kilometres. That makes it very hard for our armed forces to maintain a secure border and not to let anybody get through who may be going to carry out a bombing or something that will lead to conflict between us and our neighbours.
Capabilities

The Jordanian armed forces consist of the Jordan Arab Army, the Royal Jordanian Air Force and the Royal Naval Force, formerly the Royal Coast Guard. Our Army is responsible for guarding the land borders and our Air Force is responsible for air defence. The Air Force also provides support at any time on request to the Army and the Navy. As an Air Force we do not have that much involvement in maritime security but, just lately, we have had some communication with them and we provide them with helicopters to aid them in guarding our coastline. The Navy operates in the area down to south in the Gulf of Aqaba and their objective is to protect Jordan by preventing people crossing that border area, our territorial waters, because it is narrow and professional divers may be able to swim across.

Security Issues

Our main security issues are as follows:

- surveillance,
- protection of shipping,
- smuggling and drug trafficking,
- pollution, and
- terrorism.

We conduct surveillance in the Gulf of Aqaba—that little region—and we provide protection for shipping from terrorist attack, both inshore and offshore. As a result of the peace treaties with our neighbours, it may be that our role will change to internal security rather than outside security because we have treaties and agreed conventions on such things and we have good communications and coordination with our neighbours to protect our borders. So we are concentrating now on internal security to keep our country safe and secure.

We also conduct operations to prevent of smuggling and drug trafficking, and a new issue is water pollution from ships in our area of the Gulf of Aqaba.

The Royal Naval Force started with four boats in 1975—our King bought them personally—and these boats were used to keep the coast safe from anybody trying to commit any act in our Gulf area or cross our borderline. After that, in the 1980s, we brought in new modified boats that had radar and other equipment that could do surveillance in that region. Because our Gulf area is so small, we thought that this may be enough for us to do surveillance in our territorial waters. However, it is not enough for us just to keep this area secure; we have to communicate with others because it is a long way from the Gulf of Aqaba down through the Red Sea. Although our neighbours should protect this area and prevent any smugglers or drug traffickers coming from the south and then moving north, we have to communicate and cooperate with these neighbours, Saudi Arabia and Egypt and Israel.
Another new security issue is terrorism. About two months ago on 23 July 2005 a terrorist attack occurred in Egypt in Sharm el-Sheikh. The authorities think that these weapons were brought in from the sea, reached the Sinai and were then used in the attack on Sharm el-Sheikh. Following this attack, we expected the next one would be in our area and we did a study and started working on steps to prevent any further attack in our Gulf of Aqaba area or in our capital. We had information that somebody might try to cross our border to do this. A month ago on Friday 19 August 2005, three Katyusha missiles were fired at the port of Aqaba from a warehouse on the edge of the city—one of them narrowly missing a USN ship, which was in port at the time. Investigations were conducted and we discovered that the people involved used time delays to launch these three rockets to enable them to escape from the country about 24 hours before they were launched. We captured one of the terrorists and, after investigation, we are now in bilateral talks with the Iraqis to bring the others back to Jordan because they appeared to have crossed over from Iraq to do this terrorist act and then they went back. They used a Mercedes vehicle and adapted the fuel tank to hide the rockets inside so nobody would discover them as they crossed the border.

Our Role

Our role is to maintain security, either on our land borders or territorial water borders. As I mentioned earlier, the Navy was initially established in 1951 as the Royal Coast Guard and it operated in the Dead Sea until 1967 when it moved down to the Gulf of Aqaba. On 13 November 1991 the Coast Guard was renamed as the Royal Naval Force. Figure 3 shows the areas for which the Navy is responsible, primarily the Gulf of Aqaba and a little in the Dead Sea.
The role of the Navy is to:

- defend military and civilian installations;
- conduct surveillance patrols;
- control all our maritime military operations (they take part in exercises with other Navies);
- protect shipping;
- counter smuggling, both into and out of Jordan;
- protect the Aqaba coast against pollution; and
- protect Jordan from terrorism.

As I mentioned before the Air Force does not have that much involvement in maritime security but we do communicate with the Navy and we provide them with helicopters on request to do surveillance.

That concludes my brief. Thank you.
INTEGRATED SECURITY SYSTEM OF
NATIONAL MARITIME TERRITORY

COLONEL SETIYO HARYONO
TENTARA NASIONAL INDONESIA - ANGKATAN UDARA
[INDONESIAN AIR FORCE]

Good morning lady and gentlemen, we are very glad to be here and would like to express our appreciation for the invitation to attend. The topic of my presentation is ‘Integrated Security System of National Maritime Territory’ and I will cover the following:

- background,
- current issues,
- lessons learned from recent surveillance operations,
- Indonesian Air Force roles,
- integrated security concepts, and
- maritime surveillance coordination with adjacent countries.

Background

Indonesia is an archipelagic country of 17,000 islands, with about 6000 inhabited. It occupies a strategic location straddling the equator. Almost two thirds of its territory is water. Weaknesses in our maritime surveillance capabilities are causing huge losses of natural resources and environmental damage. Furthermore, maritime security has become a prominent regional security concern but increasing sea traffic along with the increasingly globalised economy make it a huge task for us, as the guardian of the state, to defend, secure and protect the water territory. Therefore, there is a need to develop a comprehensive and integrated security of defence system within our water territory to defend, secure and protect the state’s interests against all illegal activities. Illegal activities so far can only be monitored and cannot be prevented. Resource constraints are the major reasons for this. These constraints should not be viewed as an inability to defend, secure and protect the water territory but as a base to achieve a new improved security system. Maritime air patrol by the Indonesian Air Force should be viewed as part of an integrated system in coordination with the Indonesian Navy. By integrating the limited resources of the two forces, we will be able to optimise resources utilisation for the best outcomes. Once the desirable outcomes are achieved, they can eventually be translated into the optimum utilisation of resources for the prosperity of the nation.
Current Issues

Current issues are as follows:

- There is an imbalance between the size of the Indonesian territory and the national assets available to protect our resources.
- Sea combat capabilities have been improved, but improvement of technical combat capabilities has been limited.
- No political will to increase defence budget. Therefore we are only able to utilise and deploy second-rate hardware capability.
- Opening our waters for shipping passage for trade will increase security disturbances on the sea.

Apparentl, the width of the Indonesian sea territory makes it almost the biggest archipelagic nation in the world. Indonesia also has suffered in the past from significant sea power problems. This imbalance between the size of our territory and the availability of sea power makes it difficult to prevent violations. The Navy and Coast Guard are left with no choice other than just to monitor the coastlines at the southern limits, and are able to counter only minor illegal activities. Large-scale illegal activities usually cannot be prevented. In a statement on 12 May 2003, the Ministry of Sea and Fisheries estimated that Indonesia loses about US$2.5–4 billion
per year from illegal fishing, US$600 million from illegal logging and much more from other illegal activities.

The opening of our waters for shipping passage for trade may increase security disturbances on the sea. Foreigners will take advantage of our weakness to protect our territory to steal sea resources. Diplomatic approaches, such as bilateral treaties, as a way to stop these illegal activities are often ignored.

Our sea combat capabilities have been improved but this has been limited. Unfortunately, significant improvements have not been made to our hardware capabilities. There are increasing illegal activities to undermine the integrity of our sea territory. However, there is no political will to increase the Defence budget to allow us to upgrade our hardware. Therefore, we are able to deploy and utilise only second-rate hardware capabilities.

Lessons Learned from Recent Surveillance Operations

The importance of the surveillance mission is recognised. Surveillance operation data can be utilised by our government bodies for both civil interests and military intelligence data. This data could be information about sea resources or a problem occurring on the sea. At the moment, however, there is a fragmented approach to sea surveillance activity with many institutions and government bodies conducting their own missions. These practices can be costly and inefficient. Therefore, there is an urgent need to develop an integrated surveillance system involving all interested parties, such as the Sea and Fisheries Department, Indonesian Navy, Indonesian Air Force, Indonesian Customs and fishermen.

Indonesian Air Force Roles

Sqadran Udara 5 (5 Squadron), based at the Indonesian Air Force Base at Makassar, conducts maritime surveillance using Boeing 737 maritime patrol aircraft. Air surveillance information from the aircraft is reported to Indonesian Air Force Operations Command (Koopsau) and Air Force Headquarters. Koopsau then reports to Indonesian Defence Force Headquarters, Fleet Command and the Sea and Fisheries Department for further processing in order to confirm the details and accuracy of the report. The Indonesian Defence Force uses a communications net that has the capability to send data in real-time. For this purpose, the Indonesian Air Force installed a fixed ground station for monitoring the whole nation by using communications and a digital video imaging transmitter with a video downlink system at Headquarters. The data collected is shared with other institutions for national purposes. Since 2002/2003, cooperation between the Department of Defence, Indonesian Air Force and the Sea and Fisheries Department has increased in order to improve integrated security action.

Integrated Security Concept

The current institution to coordinate the protection of our water territory is the Sea Security Coordinating Agency. But this body was developed by one institution only; therefore, it is not adequate enough to secure the vast water territory in Indonesia. The development of a Center for Integrated Maritime Surveillance, or PPMT (Pusat
Pengamatan Maritime Terpadu), is a way to strengthen surveillance for security on the sea. The PPMT is a cross-governmental institution and comprises a force with maritime surveillance capability, the Navy to enforce the law of the sea, the Police to enforce the law, Indonesian Customs to ensure economic interests, and the Department of Sea and Fisheries. As a coordinating agency, therefore, we now have a strategic institution which is able to secure synergistically and effectively national interests in our water territory. The development of such an institution is now a common practice around the world, such as a Maritime Enforcement Coordinating Centre.

The PPMT is an institution to protect all water territory within Indonesian jurisdiction, to defend against illegal foreign ship incursions, to secure natural sea resources for economic development, to enforce the law of the sea, to give safety to ship passage for trade, to protect traditional and modern fishermen, and to prevent border disputes with neighbouring countries. In short, the PPMT is an institution which is able to secure and protect our water territory and sea resources for the development and prosperity of the Indonesian people. Therefore, it has taken over the Sea Security Coordinating Agency roles.

**Maritime Surveillance Coordination with Adjacent Countries**

Indonesia has a number of neighbouring countries and the boundaries are both sea and land. As a result, it has been essential to coordinate with those countries for our mutual advantages. For instance, in 1999 when East Timor became an independent state through referendum, the Australia-East Timor maritime delimitation established partial maritime boundaries over part of the Timor Gap. We also can do something to share the responsibilities for security in that border area.

In the Malacca Strait, an area considered for an international sea traffic lane, Indonesia, Malaysia, Singapore and Thailand can set up a new agreement to prevent many illegal activities in that area. Military surveillance coordination with other countries can be accomplished in order to use military assets and budgets more effectively. In addition, coordination with other countries can strengthen good relationships for mutual benefit and peace in our territory.

Thank you.
MARITIME SECURITY IN THE STRAIT OF MALACCA
ISSUES AND CHALLENGES

COLONEL HJ IBRAHIM BIN HASHIM
BASE COMMANDER LABUAN AIR BASE
ROYAL MALAYSIAN AIR FORCE

Introduction

Air Commodore, gentlemen, thank you for inviting me. In the next ten minutes or so I will give you the Malaysian perspective on the maritime issues that we have been discussing for the last three days. Everybody has been talking about maritime surveillance and I would like to move away slightly from the traditional kind of surveillance presentation and give you a more focused presentation on the issues that are highly debatable at present. What I am going to talk about today is ‘Maritime Security in the Strait of Malacca – Issues and Challenges’.

The scope of my presentation is as follows:

- maritime organisation and assets of the Royal Malaysian Air Force (RMAF) and other maritime agencies;
- facts and figures on the Strait of Malacca;
- issues and challenges on the Strait of Malacca;
- action plans by the member states;
- political impact on the situation; and
- personal analysis and conclusion.
Maritime Organisation

Figure 1 shows our maritime organisation in Malaysia. At the top we have the National Security Council (NSC), which is chaired by the Prime Minister himself. Then we have four organisations under the National Security Council. First is the Armed Forces Council (AFC), headed by the Chief of Defence Force. Then we have the National Maritime Coordination Centre (NMCC) and the Malaysian Maritime Enforcement Agency (MMEA), and on the dotted line we have the Malaysian Institute of Maritime Affairs (MIMA). We also faced the same problems as other nations of interagency cooperation and interagency coordination, so what we did was to set up this organisation where the NMCC does all the coordination. So all other agencies—Customs, police, immigration, marine police, all other agencies—we put under the NMCC just for the coordination purposes. Whereas, the MMEA is the enforcement agency, which equivalent to the coast guard. It was set up in July 2004. The Armed Forces Council is headed by our Chief of Defence Force, who is a Navy officer, and the NMCC is also headed by Navy. The MMEA is headed by a civilian from the Prime Minister’s department and MIMA is a civilian organisation. Under the Armed Forces Council we have the three Services, the Army, Navy and the Air Force, and for this particular maritime task it is the Air Force and the Navy who play the roles of the maritime agency.

Some off the assets that we have for maritime air surveillance are as follows:

- We have the C-130 to do our maritime surveillance, with a limited kind of surveillance system onboard, and we have the Beechcraft King Air B200
equipped with surveillance radar and navigation equipment so it can do day and night surveillance. These two aircraft conduct the 24-hour type of surveillance.

- We supplement these aircraft with other types, such as the CN235 which has a limited maritime surveillance capability.
- We also will be getting AEW&C aircraft and are presently in discussions with three different countries. The three aircraft under consideration are the E-2 Hawkeye from the US, the Brazilian Embraer and the Saab from Sweden. The Government should be making a decision very soon on this aircraft.

So gentlemen, these are the assets that we have for maritime air surveillance.

**Strait of Malacca**

As I said at the start, today I am focusing on the Strait of Malacca, which is a hot issue now for the littoral states of Malaysia, Singapore and Indonesia. As you know, the Strait of Malacca is one of the busiest waterways in the world, joining the Indian Ocean to the Pacific. It is about 900 kilometres long and about three kilometres wide at its narrowest point between Singapore and Sumatra. It has traffic of about 50,000 vessels annually passing through the waterway. One third of the world’s trade and half of the world’s oil pass through the Strait. The waterway is a strategically located channel and is vital for international trade and, therefore, global security.

**Issues and Challenges**

Let me begin with the issues. There were 70 piracy and armed robbery incidents in the Strait of Malacca in 2000. In 2004 there were 37 and so far this year there have been only eight cases. The main issue I would like to highlight here is the declaration of the London-based Joint War Committee (JWC) that the Strait is a ‘high war risk zone’. The three littoral states, Malaysia, Singapore and Indonesia, protested against this declaration by the Joint War Committee. I presume there was some other hidden agenda behind why they declared it a ‘war risk’ area because they did not consult with any of the three states beforehand. There is no war in the region—there are no missile boats attacking shipping and there are no aircraft bombing or attacking ships in the area.

The challenges that I mentioned just now are from these particular organisations, which have been mentioned in the media:

- the International Maritime Bureau (IMB), a bureau of the International Chamber of Commerce;
- the International Maritime Organization (IMO), which is a United Nations agency;
- the Lloyd’s Market Association, which is purely a private business entity that had the Joint War Committee declare the Strait as a ‘high risk war zone’; and
the private defence consultants, Aegis Defence Services, who provide security for ship owners in the Strait of Malacca and are said to have carried out risk assessments in the area.

So, this is just a risk assessment and, gentlemen, the point I would like to make here is that the Strait of Malacca is very safe and that we have a very few incidents. It is just that some small incidents have led one organisation to declare the area as a high risk area.

Action Plans

Some of the action plans that have been considered since last year are detailed below:

- The United States and Japan offered to send troops to secure the Strait. However, this was rejected by the littoral states who were sensitive to questions of national sovereignty.

- The Malaysian Defence Minister has called for international assistance in the area but this is just to provide resources and other equipment, and not at the expense of national sovereignty and territorial integrity.

- Then we have the International Maritime Bureau (IMB), who actually do not endorse armed escorts. Instead, they have said that the aim is to protect the waters and to apprehend and prosecute the pirates. The IMB have made this very clear. Even so, some of the member states have provided armed security escorts, but not onboard the ship or the vessel, it has just been an armed escort.

- A few weeks ago Malaysia, Indonesia and Singapore agreed to conduct coordinated anti-piracy air patrols to ease international fears over maritime security in the Strait of Malacca.

Political Impact

Our political masters have expressed concern over the Joint War Committee’s declaration of the Strait of Malacca as a ‘high risk’ area and have called on the Committee to review its position, citing efforts to increase security. In August, following a two-day meeting focusing on security in the Malacca Strait, Foreign Ministers from Malaysia, Indonesia and Singapore said that they had ‘made significant progress in establishing a framework for cooperation in areas such as air surveillance, coordinated air patrols and information sharing’. Singapore’s Foreign Minister, George Yeo, said further, ‘It is regrettable that they have classed the Strait as a high risk zone … We hope that they will take a close interest in what we are doing and factor this into account in the Straits of Malacca and Singapore.’

Our Prime Minister, Abdullah Ahmad Badawi, also has warned foreign forces to keep out of the Malacca Strait, stating that ‘we are firm in our stand that it is our responsibility to safeguard the Strait of Malacca’ and ‘we will view any uninvited presence as an intrusion and a sign of disrespect for our independence and our
sovereignty’. This statement by our Prime Minister explains why he did not agree with the presence of US forces on the area.

**Economic Impact.** The current situation in the Strait of Malacca will have an economic impact through the additional cost imposed by the insurance underwriters. Ship owners will have to pay higher premiums for their ships to ply the Strait and the goods they carry will become more expensive.

**Military Options.** We in the military are mobilising our existing assets to conduct air surveillance. The three littoral countries, Malaysia, Indonesia and Singapore, started coordinated air patrols about two weeks ago. We believe Thailand is also going to join in on this. As I was leaving home to fly down here for this conference, I heard on the radio that Australia and New Zealand are also offering their services to provide anti-piracy air surveillance over the Strait of Malacca. I think we will probably welcome this offer. We have agreement from ASEAN for us to conduct multilateral operations with Australia under the provisions of the FPDA and this is probably the best way in which we can carry out coordinated air patrols over the region. I certainly would welcome this as the best option for us to conduct these operations.

**Diplomatic Relations.** We have also the issue of the ASEAN way of doing things; the ASEAN policy of non-interference with other states and nations. The Malacca Strait security situation could possibly change ASEAN policy to have a security agreement. At present, ASEAN is based only on a trade and commercial agreement, not on security agreement. Furthermore, for Malaysia, we are only on a bilateral relationship, not multilateral. So this issue of security in the Strait of Malacca could change the whole system.

Gentlemen, that is the overall picture of the Strait of Malacca. How bad is this situation? I would like to refer again to the declaration that it is a ‘high war risk zone’. Through the detail I have given you can see that there is no terrorism, there is no high war risk; it is just piracy that has happened in the Strait and it has happened only on barges and small boats. There have been no incidents of terrorism and there have been no incidents of war in the area. So, I think we can state it as fact that this is a very safe passageway.

**Superpower Intervention.** What we are worried about is the proposal from the United States to provide troops in the region. We are concerned that if we bring United States forces to the region it may start a terrorist situation. I am very sorry to have to say that we believe it is better not to have United States forces on our soil because that may result in an increase in terrorist incidents. I stand to be corrected by our Indonesian friends, but I believe Japan has given assistance and provided four patrol vessels to the Indonesian Navy to assist in keeping pirates at bay along the coast of Sumatra. We are committed to Malaysia, Indonesia Singapore and Thailand providing real-time security in the Strait of Malacca and we do not want superpower intervention in the area.

Other than anti-piracy and anti-terrorism operations, the coordinated air patrols also could be used to counter drug smuggling and human smuggling, to monitor oil spillage, for search and rescue and for many other applications.
The Strait of Malacca is territorial water but it was declared as international water. So the problem now is, is it international water or is it territorial water? If it is international water, then it is an international duty to provide security. On the other hand, it is territorial water because it is still within the 12 mile contiguous zone and we have to provide security. What we are facing now is international pressure for the littoral states to provide maritime security in the region but we have only a limited capability among the four states to provide maritime security around the clock. There is also the issue of bilateralism against multilateralism because, even though we are four littoral states, we do have differences in our national policy regarding these issues. However, our national policy states very clearly that regional cooperation is possible and ASEAN assistance is needed whenever required.

Analysis

The following analysis of the issues is provided:

- The risk assessment by the international organisations probably is overly dramatic. The situation is part of the complex global security issue now, so we should not be taking the assessment of private company too seriously.

- To conduct coordinated air patrols with different nations and different capabilities is going to be complicated and complex.

- There have been no incidents involving large trading ships; only relatively minor cases involving barges and small ships where the pirates go onboard and get some ransom money here and there. Of course, the pirates are good at what they do and they know which boats to board.

- Intervention by foreign forces may lead to other security and sovereignty issues about which our political leaders a very concerned.

- The littoral states are determined to ensure full security of the Strait of Malacca.

- The ASEAN policy of non-interference will be studied by the member states.

- There is the possibility of a US presence if the international assessment of a ‘high war risk zone’ continues.

The Way Ahead

Where are we going from here? For operations to be successful, it is very important that we establish a proper command and control centre to coordinate the air patrols and to include other national agencies involved in information sharing, intelligence gathering and data management. Information sharing and intelligence gathering is very important for the national leaders and the military commanders for the decision-making process. This is very important and is very difficult for us to do. All the littoral states have to sit down and deal with this command and control problem.
All vessels and ships passing through the Strait should establish communications and they should have warning systems on board. At the moment, because of the Strait of Malacca is international water, they do not have to establish communications. But, for security, it is been suggested that all ships passing through the area should establish communications so that if anything happens we can be ready to scramble our forces to deal with the issue. I was very pleased to hear about the Singapore Government requirement for all vessels to be fitted with an identification system to ensure that whatever happens to a ship they know about it and can take appropriate action.

Of course, it is very difficult for the three or four littoral states to acquire dedicated maritime patrol aircraft with suitable surveillance systems. We would probably have to join together and jointly procure identical aircraft.

The international organisations (Joint War Committee) should drop their declaration that the Strait of Malacca is a ‘high war risk zone’. There is probably a hidden agenda behind this for the insurance underwriters to make more money by charging a higher premium to the users of the Strait for ‘war cover’ insurance, which is not necessary.

**Conclusion**

The Strait of Malacca is one of the safest in the world. Through MALSINDO (Malaysia, Singapore and Indonesia), which is the naval surface patrol initiative, and MIST (Malaysia, Indonesia, Singapore and Thailand), the air patrol initiative, we are committed to make sure that the Strait is secure and we keep this important sea line of communication open. Articles 73 and 84 of the United Nations Convention on the Law of the Sea state very clearly that it is the responsibility of littoral states to provide for the security of their straits.

Gentlemen, piracy is not terrorism. I have noted that some speakers have mentioned terrorism, but terrorism is a different kind of thing and we have not had to deal with it in the Strait of Malacca. To date, there have been no terrorist incidents or intent in the area—there have been no missile boats firing at commercial ships—it is only piracy. Therefore, we should not declare it as a ‘war zone’.
THAILAND – MARITIME AIR SURVEILLANCE

CAPTAIN CHATCHAI PODHIPAK
DIRECTOR OF EXERCISE DIVISION
OPERATIONS DEPARTMENT
ROYAL THAI NAVY

Introduction

In this era of globalisation, the occurrence of a mishap, either accidental or intentional, together with its ramifications, could have damaging effects in all countries, both in the same and different regions or continents. These events include threats that affect societal security or the stability of a government. Undoubtedly, the ramifications of such an event in this region would surely affect Thailand’s economy.

Apart from working towards the benefit of the country, the ultimate aspirations of the armed forces are the continuous safety of its citizens, as well as the stability of the state. We are all well aware that these aspirations will not be realised solely from activities within one country, but through international cooperation, either bilateral or multilateral. Only through cooperative actions between countries in this region will we achieve this greatest of aspirations—peace for the people and the stability of all nations within the region.

With this expectation, we also are aware that any viable international cooperation must take place within the framework of the Charter of the United Nations, comply with any treaty organisations of which Thailand is a member and also take place within the jurisdiction of the constitutional law of individual nations.

Strategic Implications for Thailand

Threats occurring at present and in the future are threats that directly affect all mankind. They are ‘low level conflict’ types of threat that occur from organisations that are not affiliated with any government. These threats are not restricted by political borders and include threats arising from social disorder, such as international terrorism, nationwide crime syndicates, international drug trafficking, money laundering and human trading. Although these threats or problems may occur in a single country, they can have equally severe consequences in other countries. Often enough, solving these problems cannot be undertaken solely by the actions of a single country. Solutions to these problems in a country will rely on cooperation both within and outside the region.

The Royal Thai Government has a policy of seeking strategic alliances and developing cooperative initiatives not only with near neighbours but throughout the entire region. The frame of operations is aimed at developing solutions to international problems and shielding Thailand, as well as every other country in the region, from external threats. Within the scope of regional confederations, the Royal Thai Government must operate within the framework of the Charter of the United
Nations, the bounds of international law and the scope of any treaty to which Thailand is a party.

In the present climate, threats from terrorism remain the most prominent in the region. The Royal Thai Navy has developed activity protocols to respond to extant threats in line with government policy as follows:

- to participate in activities within the framework of the Charter of United Nations, the bounds of international law and the scope of any treaty to which Thailand is a party;

- to maintain the integrity of every sector of the Thai economy related to maritime activities, under the name of the ‘Thailand Maritime Enforcement Coordination Center’ (Thai-MECC);

- to maintain maritime security under all circumstances; and

- to encourage joint maritime patrol operations between the Royal Thai Navy and the navies of neighbouring countries.

All of these activities must fall within the standard operating procedures of the Royal Thai Navy and within international legal agreements.

**Security Concerns**

Apart from following guidelines provided by the United Nations, international law and treaties to which Thailand is a party, or is in the process of becoming a party, many other guidelines have been proposed in regional conferences, such as the following:

- Asia-Pacific Economic Cooperation (APEC);

- ASEAN Regional Forum (ARF) convention to develop regional security cooperation between nations for the prevention of severe conflicts within the region;

- ASEAN Ministerial Meeting on Transnational Crime (AMMTC);

- AMMTC+3 (AMMTC plus China, Japan and the Republic of Korea);

- US Personal Identification Secure Comparison and Evaluation System (PISCES);

- US Advance Passenger Processing (APP) system;

- Australian initiative on the Advance Passenger Information (API) system;

- Container Security Initiative (CSI);
• Proliferation Security Initiative (PSI); and
• Regional Maritime Security Initiative (RMSI).

Procedural Overview

Maritime Security

It is the duty of security units to ensure maritime security to create a feeling of safety and confidence for the citizens involved. Continuous national stability and the growth of legitimate business and recreational use of maritime resources must proceed in order to create wealth and trust for a country’s citizens and its neighbours.

In the local context, the conceptual framework of maritime security for the Royal Thai Navy includes maritime operations with related sectors of the Royal Thai Armed Forces, under the name of the ‘Thailand Maritime Enforcement Coordination Center’ (Thai-MECC). This context also covers the operations of warships, naval air power and special operations units to maintain security within the Gulf of Thailand and Andaman Sea maritime boundaries. In the international context, the conceptual framework of maritime security for the Royal Thai Navy includes the conduct of joint naval patrol operations and bilateral and multilateral joint training exercises with the armed forces of allied countries. These initiatives include:

• cooperative intelligence activity and exchange, in accordance with agreements to which Thailand is a party;
• the wise use of specialist tools and resources for the greatest benefit to Thailand and its confederates;
• training of personnel to a level consistent with immediate deployment requirements; and
• joint training exercises to ensure interoperability with friendly forces to a level consistent with immediate deployment requirements.

Thailand Maritime Enforcement Coordination Center

The Royal Thai Government, on the Navy’s recommendation, established the Thailand Maritime Enforcement Coordination Center (Thai-MECC). It is located at the Naval Command Center in Bangkok. The role of the Thai-MECC is to cooperate with other concerned agencies to work hand-in-hand in protecting the national interests. It is also supported by managerial boards of many organisations. The main operators are permanent staff of the Royal Thai Navy who man the Center 24 hours a day. The major forces that conduct operations in the territorial waters and contiguous zones are the Royal Thai Navy, Marine Police, Customs, Marine Department and Fisheries Department.

The Thai-MECC has been assigned the duties of maritime law enforcement, which includes preventing and suppressing crimes at sea, aiding those in need of assistance,
protecting national interests and other tasks designated by the Government. The job covers all areas of responsibility and is accomplished primarily through close coordination between agencies within the following categories:

- maritime law enforcement (prevention and suppression of drug trafficking, piracy, illegal immigration and other transnational crimes);

- providing assistance to people encountering distress at sea (search and rescue, and disaster relief);

- preserving and protecting national maritime interests;

- conserving and restoring the maritime environment; and,

- other missions designated by the Government.

**Regional Fleet Spheres of Operation**

![Map of Naval Area Commands](image)

**Figure 1 – Naval Area Commands**

The Royal Thai Navy has divided the responsibility for maritime security in the Gulf of Thailand and Andaman Sea into three operational regions as shown in Figure 1:

- 1st Naval Region Fleet – Upper Gulf of Thailand Area;

- 2nd Naval Region Fleet – Lower Gulf of Thailand Area;
3rd Naval Region Fleet – Andaman Sea Area.

The regional commander of each operational region has responsibility for all operations involving marine warships, maritime air power, coast guard and special warfare units. These assets perform 24-hour on watch under the coordination of the Thai-MECC. Each regional naval fleet has limited abilities to operate in the following spheres:

- maritime patrol by surface warships,
- maritime air surveillance,
- maritime special operations,
- coastal protection, and
- search and rescue operations

**Maritime Air Surveillance**

Maritime patrols by Naval Air Forces within Thailand’s exclusive economic zone are performed continuously, with support from the Royal Thai Navy, on both sides of the peninsula, the Andaman Sea and the Gulf of Thailand. Aerial patrols deploy both civilian and military airports on both sides of the peninsula. Long-distance aerial patrols deploy P-3T, while medium-distance patrols deploy either F-27 or DO-228.

**Cooperation**

Historically, the Royal Thai Navy has maintained cooperation with friendly navies through joint training exercises and joint operations. The Royal Thai Navy encourages and supports such types of cooperation to strengthen communication channels and to expand relationships with all countries within the region.

Nowadays, the Royal Thai Navy conducts both bilateral and multilateral joint training exercises with the armed forces of many countries, such as Malaysia, Singapore, Indonesia, Philippines, Australia and the United States. In addition, the Royal Thai Navy conducts cooperative security operations, such as bilateral patrols, with the armed forces of Malaysia, Vietnam and India.

Aerial patrols by the Royal Thai Navy, in conjunction with aircraft from other countries, are performed using P-3T, F-27 and DO-228 aircraft as follows:

- **Exercise Taa Nok In Sii** [Eye of the Eagle] (RTN – RAAF)
- **Marsea Exercise** (RTN – USN – PAF)
- **Exercise Cobra Gold** (RTAF – US Forces)
- **Exercise Sea Survex** (RTN – USN)
Exercise Minex (RTN – USN)

Conclusion

It is clear that supporting the joint maritime training and operations between the countries within the region is a crucial sign of mutual cooperation of friendly nations. This workshop readily reaffirms our commitment to developing relationships and cooperation within the region. We are all agreed that this sort of cooperative involvement should be developed and maintained as long as possible, and we promise to do our best to keep it so. Thailand, as a member of this region, is ready and willing to forge close ties with all its neighbours. The Royal Thai Armed Forces are committed to take any and all steps necessary to maintain maritime security.

I do hope that the Royal Thai Armed Forces will become an important partner and contributor in the development of regional security efforts, now and far into the future.