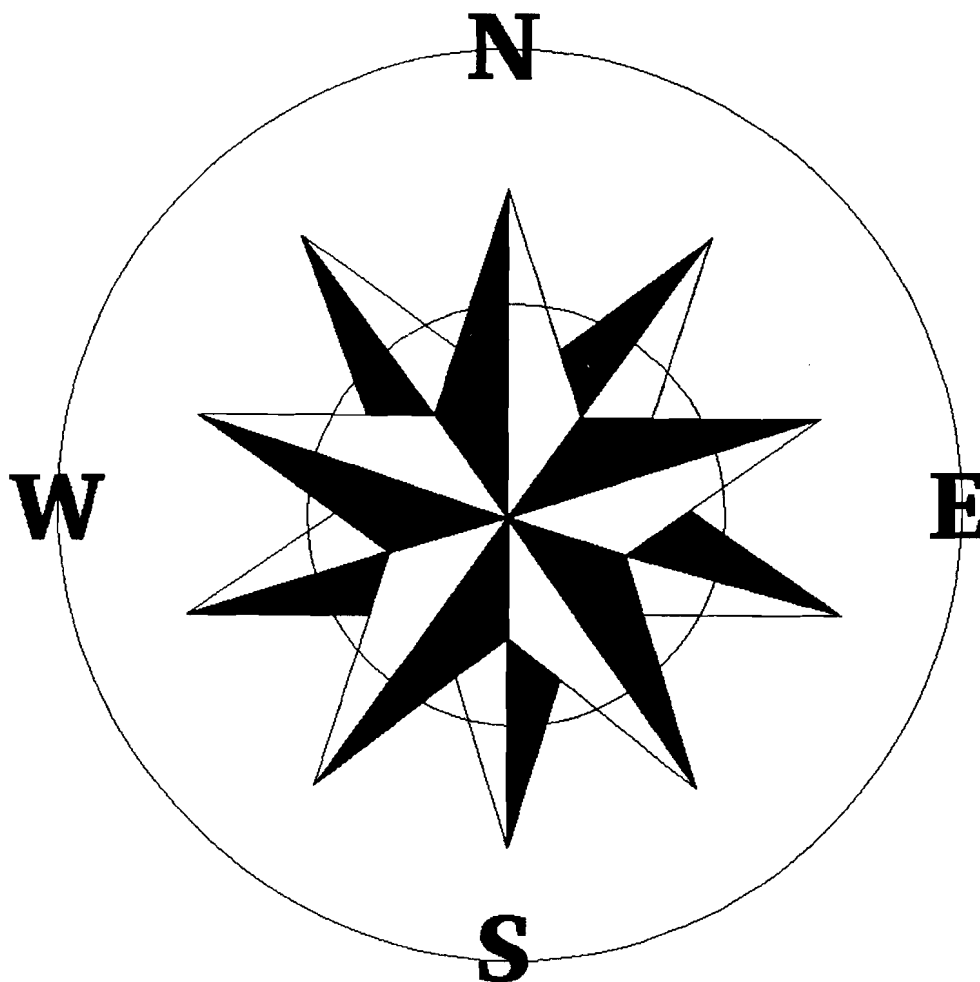




NATIONAL DÉFENSE
DEFENCE NATIONALE

THE MARITIME COMMAND VISION



CHARTING THE COURSE TO NAVY 2008

MARITIME COMMAND

OUR MISSION

Maritime Command's mission is to maintain balanced, combat capable, general purpose maritime forces to meet Canada's defence commitments.

THE NAVAL VISION

The Navy exists to protect Canadian interests in the ocean areas adjacent to the Canadian coast and beyond. To do this, we need a combat capable fleet, which entails far more than simply possessing modern warships. Achieving combat capability requires, above all, dedicated people, ashore and afloat, who have the opportunity to practice and develop their skills. The Navy of the future must sail, it must sail often, and it must be ready. Our job is to make it so.

4 June 1993

FOREWORD

Introduction

"The Maritime Command Vision: Charting the Course to Navy 2008" is issued under my authority as Commander Maritime Command as a maritime staff reference document. It represents the long-range plan for the Navy, focusing on the capital plan and its implications for operations, personnel and training, and support. It is based upon my interpretation of Defence Policy and various orders, instructions and guidance provided to Maritime Command, and it is meant to complement the Maritime Commander's Operational Planning Guidance (CFCD 117).

Successful naval force development relies on a clear understanding of three fundamental elements: the current state of the Navy, the limitations and constraints faced now and in the future, and the end state to which we aspire and which we wish to maintain. It is the intention of this foreword to summarize briefly these elements, some aspects of which will be expanded considerably in the main text of this book. This summary represents my "vision" for the Canadian Navy.

Policy

Although emphasis and approach have varied somewhat from time to time, Canadian Defence Policy remains much the same now as it has been for the past thirty years. The government seeks to protect Canadian vital interests within areas of direct responsibility through the maintenance of capable forces-in-being. These forces also enable the government to contribute to the maintenance of international peace and security, generally in concert with those of other nations and under the auspices of the United Nations. To safeguard against the possibility of direct attack by a military force, Canada subscribes to two military alliances: NATO and NORAD. These alliances contribute to security at home, and carry with them an obligation to assist in the defence of member nations abroad.

In a maritime sense, it can be seen that there are two areas of interest in Canadian Defence Policy. The first is the ocean area adjacent to the Canadian coast, in which vital interests relate to a wide range of activity and responsibility. The second is areas of instability throughout the world, where Canadian interests tend to be restricted to issues of allied defence, stability, peaceful change or human suffering. In either case, the protection of Canadian interests requires a wide

range of capability and suggests a diverse set of operational challenges.

In order to meet the diverse operational challenges alluded to above, Maritime Command has been instructed to maintain combat-ready, general purpose maritime forces. These forces must be suited to all intensities of operations, from peacetime patrol through skirmish to high intensity warfare. They must therefore have a broad base of capability and a wide range of expertise. Finally, they must have a balanced capability; in other words, they must be capable of operating and addressing threats in all three dimensions of ocean space: above, on and under the surface.

The object of maritime defence within Canadian coastal areas of responsibility is the establishment and maintenance of maritime presence. This includes surveillance and patrol of maritime regions, and the possession of a credible response capability for cases when Canadian interests are threatened or challenged.

The object of maritime defence outside Canadian areas of direct responsibility is the provision of tactically viable forces, made up of a mix of ships, aircraft and submarines as appropriate, in support of alliance or UN operations throughout the world, or to protect Canadian interests wherever they are directly threatened.

Organization and Resources

In order to achieve the above objectives, the Navy has been organized into two Coastal Commands, Atlantic (MARLANT) and Pacific (MARPAC), and the Naval Reserve (NAVRES). Each Coastal Commander is responsible for the day-to-day operations and readiness of naval forces under their command, organized in task groups. These task groups together, east and west, will be sufficient to maintain maritime presence within their areas of responsibility and to sustain a deployed force indefinitely. The Commander Naval Reserves is responsible for the readiness of the vital Reserve component of the Total Force.

Maritime Command Headquarters (MARCOMHQ), the National Naval Headquarters in Halifax, along with the headquarters of the Coastal Commands, will be structured along functional lines. These commands will be staffed to conduct joint operations, either from their own facilities or while deployed with a Canadian force.

In the future, the number of regular force personnel will decrease in Maritime Command, while the size of the naval reserve will grow. There will soon be twenty-five Naval Reserve

Divisions across the country, administered by the Naval Reserve Headquarters in Quebec City. The Total Force nature of Maritime Command will see naval tasks distributed throughout the force, placing a number of important ones in the hands of the reserves. Common training and organization will ensure that the Total Force is ready and able to perform all tasks, and also that augmentation of one component by members of another is possible with minimal loss in efficiency.

There are two factors influencing resource availability: persistent cuts in the naval funding base, and related initiatives aimed at increasing efficiency. The former factor has influenced all aspects of the defence budget: capital acquisition, operations and maintenance, and personnel funding have been reduced several times over the last few years. There is some expectation that these cuts will continue, and certainly it is true that the financial climate within which the Navy must operate in the next few years will be constrained.

In order to operate in this environment, a particular effort has been put forth to improve the efficiency with which we conduct our day-to-day business. In particular, more authority has been delegated to individual commanders to arrange the affairs they know best in the most cost-effective way, and to achieve as much as possible within a limited financial framework.

Fleet and Capital Plans

The object of the Fleet Plan (and of the Capital Plan by which it is supported) is the maintenance of a balanced, general purpose combat-capable maritime force able to meet the objectives outlined above. At present, the Canadian fleet is in a period of transition from a thirty-year-old anti-submarine warfare force to a modern, general purpose fleet with equipment and training to meet current and future challenges in all three warfare areas. At the end of this transition, just after the turn of the century, the Canadian fleet will consist of four air-defence/command and control ships, twelve patrol frigates, two replenishment vessels, four to six submarines, twelve coastal defence vessels, thirty-five ship-borne helicopters, six corvettes, a variety of maritime patrol aircraft and a host of smaller tenders, cutters and auxiliary craft. These forces will be distributed equitably between the two Coastal Commands.

The Capital Plan is meeting the requirements of the Fleet Plan through several major and numerous minor projects. The most significant of these are the Tribal Update and Modernization Project (TRUMP), Canadian Patrol Frigate (CPF), Maritime Coastal Defence Vessel (MCDV), New Ship-borne Aircraft (NSA - EH101), and Canadian Patrol Submarine Projects (CPSP), as well as the CP 140 (AURORA) Update Programme.

Many other projects and studies are important to realizing the goals of the Fleet Plan. Fixed seabed sensors will provide a significant enhancement to surveillance of remote regions of Canadian responsibility. A study is underway into the future requirements for afloat logistic support, including sea lift and resupply. Another study with long-term programme implications is investigating the maritime surveillance requirements for Canadian areas of responsibility. This and other initiatives seek to define the requirements for information compilation and analysis in order to maintain a comprehensive picture of maritime activity within our areas of responsibility. In addition to the national military value of this system, it will enhance the work of other government departments and contribute to the effectiveness of allied operations.

Operations and Readiness

Recent operations in the Canadian Navy have been constrained by two factors. The first is the frequent reduction of the operating budget mentioned earlier, and the second is the new equipment trials programme. The former has resulted in a decrease in administrative support to the Navy as we try to shield operational activity as much as possible. Nevertheless, the cuts have resulted in the loss of a significant portion of operational sea-time available each year. Several deployments and national exercises have been cancelled. Furthermore, our naval participation in international exercises has been withdrawn or reduced in a number of cases. Over the last few years, incremental cuts have amounted to a twenty-five per cent reduction in our operations budget. We must prepare ourselves lest similar downward pressure continue into the near future.

Despite these reductions, our operational commitments continue, as do the new equipment trials programmes. Canada continues to deploy a ship to NATO's Standing Naval Force Atlantic, and periodically commands the entire squadron. A number of missions in support of the UN have been undertaken in the last few years, ranging from the provision of humanitarian relief, through support to land operations and maritime economic sanction enforcement, to participation in the Gulf War.

The first of the converted air defence and command and control destroyers (TRUMP) re-entered the operational fleet early in 1993. A number of the new Halifax Class frigates (CPF) have been delivered, and will soon be operational as well. Although these programmes have run behind at some stages, we have shaken most of the bugs out and we are confident that the projects as a whole will end on time and that the results will meet or exceed every expectation we had for these excellent ships. Until then, however, the pace and demands of the trials programmes will continue to consume a large portion of fleet operations funding.

Given the reduced level of operations in the fleet as a whole, a certain price will have to be paid in readiness. A smaller number of our ships will be prepared for short-notice deployment, but a longer period will be required to bring most units to high readiness states. This lead time must be factored into our response to a crisis.

Personnel and Training

There are several challenges facing the people who make up the Canadian Navy. Our departmental goal is to create a bilingual force, particularly within the officer corps, by the end of the century, if not before. The training system as a whole has to be rationalized, adjusted to the loss of some dedicated units, re-focused on the requirements of our Total Force, and updated to respond to the needs of the new vessels and equipment in the fleet. The naval establishment of the Total Force must be reviewed to distribute personnel equitably east and west, improve sea/shore ratios in certain areas and accommodate reductions in the regular force and increases in the reserves. Finally, career patterns, management methods and practices, and facilities need to be improved to enhance the quality of life and to improve the benefit our men and women earn from their service to the nation. Training remains the essential element in maintaining combat capability, and in enhancing our ability to do the job at sea efficiently and effectively.

Materiel Support

The naval materiel support function is an aggregate of all those processes governing the design, development and acquisition, the modification, the safe and efficient physical operation, and the maintenance, repair, warehousing, transport, supply support and disposal of the materiel resources allocated to Maritime Command. In the current financial climate, an overriding concern of materiel support must be to achieve efficiency while maintaining effectiveness, or, in other words, to find innovative ways of reducing costs while maintaining the same level of service. Given the influx of new requirements introduced with the new ships and aircraft, this will be a formidable challenge indeed.

Infrastructure

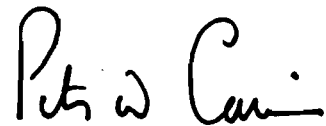
In the Canadian Forces as a whole, significant savings can be realized by eliminating redundant, inefficient and out-dated infrastructure in the next few years. As a result of the new Command organization, the balancing of the fleet east and west, the growth in the naval reserve, the introduction of new

vessels, the need to renovate or replace older facilities and the establishment of fixed surveillance sensors, Maritime Command will experience considerable change over the next two decades. Practically all of this activity, however, will be conducted on or adjacent to existing bases and properties. Here again, the need to achieve long-term efficiency and a reduction in costs are fundamental criteria.

Conclusion: The Canadian Navy of the Future

In summary, the Canadian Navy of the future will consist of balanced, general purpose, combat-capable forces, fully supported on each coast. The fleet will be capable of establishing and maintaining maritime presence in Canadian areas of responsibility. It will also be capable of the self-sustained deployment of a tactically viable task group for a wide variety of tasks, anywhere in the world, and for an indefinite period. The Fleet Plan and the Capital Plan, along with operational, personnel, training, materiel support and infrastructure policies within the Command, must be geared to this objective. Progress towards this objective must be measured, opportunities to hasten its achievement must be sought out and exploited, and it should be made clear to all -- sailors and aircrew, servicemen and women in general, our civilian employees and the Canadian public as a whole -- what the objective is and why it is important. This MFDG is designed to facilitate the realization of these goals.

This publication will also provide more detailed guidance with respect to our other objectives and their attainment. Recommendations for its amendment should be forwarded through normal channels to the Maritime Command Headquarters, Attention: Chief of Staff.



**P.W. Cairns
Vice Admiral
Commander Maritime Command**

PREFACE

Aim

The aim of "The Maritime Command Vision" is to provide the Maritime Commander's statement of the Navy's long-range development plan in and beyond the Department of National Defence's 15-year planning period.

Scope

This publication first translates the fundamentals of Canadian Defence Policy into specific requirements for maritime forces. In subsequent chapters covering capital, operations, personnel and materiel the long range plans needed to support these maritime requirements are identified.

Application

This publication has three roles. Within the Department it supports the activities of the Defence Planning and Force Development process by providing analysis, background work and rationale on maritime force structure to departmental planning documents. For the Navy, it is the Maritime Commander's statement of his long term planning guidance and vision. Finally, the it seeks to provide the Canadian public with a clear idea of their maritime forces' role and future direction.

Relationship to the Departmental Force Development Process

The Canadian Defence Policy (April 1992), the CDS Guidance, and the Canadian Forces Development Plan are the endorsed departmental documents which provide the direction for how the department, and the Navy, plan and execute force development. This publication, in concert with the Maritime Commander's Operational Planning Guidance (CFCD 117), further develops the Navy's direction from conclusions reached in these documents.

"The Maritime Command Vision" is of specific interest to those responsible for initiating and developing maritime capital projects. It provides the strategic and policy framework in which these projects should be considered and understood. It will also act as a guide for initiating and guiding future R&D projects.

This must be a dynamic publication, subjected to periodic scrutiny and revised to reflect changes in the Canadian maritime strategic environment.

Collation and editing of this publication will be the responsibility of COS MARCOM. He will convene a Working Group as necessary to revise the publication.

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LIST OF ABBREVIATIONS

AIP	Air Independant Propulsion - a means of allowing conventionally powered submarines to remain submerged for an extended period of time.
ALSS	Advanced Logistics Support Site
AOR	Auxiliary Oiler Replenishment - a naval replenishment and supply ship
CANMARNET	Canadian Maritime Network - a project to link together maritime surveillance information from all government departments
CASSEV	Canadian Surveillance and Sovereignty Enforcement Vessel
C³I	Command, Control, Communications and Intelligence
CFDP	Canadian Forces Development Plan
CFFS(Q)	Canadian Forces Fleet School (Quebec City)
COS	Chief of Staff
COTC	Coastal Operations Training Centre
CPA	Coastal Patrol Aircraft
CPF	Canadian Patrol Frigate
CPSP	Canadian Patrol Submarine Project
DFO	Department of Fisheries and Oceans
DGMD	Director General Maritime Development
DMFD	Director Maritime Force Development
DND	Department of National Defence
DPMS	Defence Programme Management System
FLS	Forward Logistics Site
MARCOM	Maritime Command
MARLANT	Maritime Forces Atlantic
MARLINK	Maritime Link - a project to improve the current tactical data link system
MARPAC	Maritime Forces Pacific
MCDO	Maritime Coastal Defence Organization
MCDV	Maritime Coastal Defence Vessel
MCM	Mine Countermeasures
MCOIN	Maritime Command Operational Information Network
MSBP	Materiel Support Business Plan
NCS	Naval Control of Shipping
NDHQ	National Defence Headquarters
NDOC	National Defence Operations Centre
NRD	Naval Reserve Division
NRMP	Naval Reserve Mine Countermeasures Project
NSA	Naval Ship-borne Aircraft
OGD	Other Government Departments
RCMP	Royal Canadian Mounted Police
ROV	Remotely Operated Vehicle
SAR	Search and Rescue
SOR	Statement of Operational Requirement
SOV	Seabed Operations Vessel
SSK	Designator for a conventionally powered patrol submarine
TRUMP	Tribal Update and Modernization Project

CHAPTER 1

UNDERSTANDING THE CHALLENGE

Aim

The aim of this chapter is to translate the fundamental elements of Canadian Defence Policy into requirements for maritime forces. It will review maritime strategic considerations for Canada, identify the fundamental elements of defence policy, discuss the maritime implications of these elements, and outline a number of planning factors for the development, structure, and operations of the current and future Canadian Navy.

SECTION 1

STRATEGIC FACTORS

There are several strategic factors which have a bearing on Canadian maritime defence. These factors suggest certain threats and challenges in maritime regions, and they can be grouped as geographic, geo-political and economic.

Geographic Factors

With an area of almost ten million square kilometres, Canada is one of the largest countries in the world. Yet, there is a second, seaward Canada that is even larger than the land mass itself. Canadian areas of responsibility under NATO and CANUS agreements are even greater, reinforcing the fact that Canada's maritime areas of responsibility are enormous.

Canada has national interests in the Atlantic, Pacific and Arctic Oceans. The Atlantic and Pacific Ocean areas are of far greater importance to the interests of Canada due to the broad scope of economic and military activity there. Nonetheless, the ability to demonstrate presence and exercise control in the Arctic is highly desirable. Canadian interests must be safeguarded in all three ocean areas of responsibility. It remains to be seen whether these goals may be fully realized.

Geo-political Factors

Canada will maintain its traditionally friendly relations with the leading western maritime powers, expressing these in a military sense through alliances such as NATO and NORAD. This will limit the scope of threats with which Canada must deal

unilaterally. The inextricably linked nature of our economies, shared value systems, politics and geography all dictate that the United States will remain our closest ally. The extent of integration of the North American economy is such that a major disruption of Canada's maritime interests would, in all probability, be treated by the United States as a threat to its vital interests. The reciprocal is also true, and Canada has an obvious interest in hemispheric stability.

It is worthy of specific mention that the Pacific has increased significantly in strategic importance over the last few decades. In terms of trade, strategic vulnerability, resource availability, and proximity to areas of potential conflict, the west coast of Canada presents the same magnitude of challenge to national security as its Atlantic counterpart.

It is not appropriate, because of the ill-defined nature of the threat, to base our long term planning on a specific threat or scenario. Nevertheless, it is necessary to define broadly the types and levels of threat that can reasonably be expected in order to provide a focus for the development, operational planning, and employment of Canadian maritime forces. In addition, our planning cannot restrict itself to those alliance systems that currently exist; Canada's alliances have changed over time and they will continue to evolve. Therefore, alliances will only be considered in the most general sense.

The prospect of the concerted use of strategic nuclear weapons is considered remote. The threat posed by conventional weapons is more difficult to project, but the likelihood of general war is very remote. Even in the event of conflict, it is most unlikely that any maritime power would risk, or could achieve, a sustained concentration of forces in the maritime approaches to North America. At the same time, however, the likelihood of international regional conflict of low to medium intensity has increased. Maritime platforms intended to operate in support of multilateral efforts to deter or terminate such conflicts will require a range of capabilities sufficient to counter the wide array of modern weapons available in countries which are neither friendly nor, in some cases, responsible members of the world community. This array includes a significant number of submarines, sophisticated anti-air and anti-ship missiles, modern aircraft, and other high technology weaponry.

Canada, with one of the world's largest economies, has significant international interests. With the geopolitical shift away from superpower confrontation, and the seeming revitalization of the United Nations, developed nations such as Canada are exerting a greater influence on international security issues.

Economic Factors

Economic factors of strategic significance include shipping and trade, the fishing and shipbuilding industries, and the potential for seabed resource development.

Of the world's industrialized nations, Canada ranks among those most reliant upon external trade for its economic well being. Shipping accounts for nearly 25% of all commercial movement of goods in Canada. Canada's traditional resource-based economy has always been heavily dependent on ships for the efficient transport of bulk merchandise, even to our closest markets in the United States. This dependence is now even more pronounced, due to the rise in trade with Pacific Rim countries, and recent trends toward high-technology manufacturing destined for European markets. The annual volume of commercial maritime traffic into and out of Canadian harbours is quite staggering (in the order of 100 million in and 200 million tonnes out), and these figures continue to increase each year.

Fishing is a major Canadian industry which employs about 90,000 fishermen. The value of fishery production is about \$2.5 billion in annual sales, with 80% being exported. Fish processing employs another 25,000 people. The economies of the Atlantic provinces are dependent on the vitality of the fishing industry, and on the west coast, British Columbia has the largest commercial fishery in Canada. In the last decade, however, overfishing within and just outside Canadian areas of jurisdiction has led to a sharp decline in some species.

Accessible seabed resources within Canadian areas of jurisdiction include extensive deposits of gas, oil, sand and gravel, silica, precious metals and calcium carbonate. Between 1985 and 1989, almost \$4 billion were spent in exploration for undersea gas and oil, with very large reserves discovered inside Canadian maritime areas of jurisdiction. These resources represent a multi-billion dollar industry for the future.

The maintenance of a minimum shipbuilding capability offers a distinct strategic advantage, while at the same time contributing to regional economic stability. Here, in addition to the industries discussed above, there are currently more than 8,000 defence-related jobs in naval shipbuilding and repair, representing 72% of the workforce in this industry. Clearly, naval construction and repair now represent essential components of this traditional Canadian industry. Although shipbuilding was once diversified across many shipyards, increased rationalization has reduced the number of yards to only a handful in British Columbia, Ontario, Quebec and the Atlantic provinces, all of which tend to be highly dependent on federal and provincial government projects.

Overlaying the predominantly regional issues discussed in this section is the fact that Canadian economic interests, more than before, have taken on a global dimension. Many will relate to the use of the seas and will be subject to external threats and challenges.

Given the broad range of economic interests which affect Canadian security, and the changes in the international climate which may increase the priority accorded to them, any consideration of maritime security must recognize the potential for military involvement in the protection of those interests. Increased maritime responsibilities in the areas of living and non-living resource exploitation will require considerable attention by the Canadian government and may well involve the use of naval forces.

SECTION 2

THE MARITIME COMPONENTS OF CANADIAN DEFENCE PRIORITIES

The History of Canadian Maritime Defence

Canadian maritime defence efforts in the first two decades following the Second World War were focused on meeting the threat posed by the Soviet submarine fleet. By the 1960s it was recognized that Canada required a broader capability than that provided by a maritime force designed for a specialized role within an alliance. This recognition produced a trend in defence policy to call for a balanced, general purpose maritime force. The end of the Cold War has strongly reinforced this trend, and Canadian defence policy will likely continue to place progressively less emphasis on the defence of alliance territory and more on the maintenance of national sovereignty and international security and stability.

An equally durable trend since the 1960s has been the ongoing challenge of protecting that part of our defence dollar devoted to capital replacement in order to avoid block obsolescence or rust-out. Recent pressures to reduce the federal deficit have accelerated this trend, and the constraints imposed by decreased funding and the concomitant requirement for efficiency are features which will colour the approach to maritime force development in the future. We must structure our maritime forces to achieve the greatest value for money. Most importantly, they must retain core capabilities to meet the requirements of defence policy. Finally, we must accept the broader view of maritime security offered above and ensure our forces are designed and maintained to provide the broadest possible range of capabilities.

Canadian Defence Priorities

The fundamental elements of Canadian Defence Policy have withstood the test of time, and there is nothing to indicate that they will not continue to do so. Listed in no particular priority the elements are:

- * defence, sovereignty and civil responsibilities in Canada;
- * collective defence arrangements through NATO, including our continental defence partnership with the United States; and
- * international peace and security through stability and peacekeeping operations, arms control verification and humanitarian assistance.

These policy elements provide a framework within which to explore the maritime context of Canadian defence.

SECTION 3

NATIONAL DEFENCE, SOVEREIGNTY AND CIVIL RESPONSIBILITIES IN CANADA

The Concept of Maritime Presence

The defence of Canada and Canadian interests requires, inter alia, the establishment and maintenance of a maritime presence within our areas of jurisdiction. This is a military concept, and it involves a capability for surveillance, patrol and response. These capabilities represent the building blocks of national sovereignty, and they apply equally in the near-shore and off-shore areas.

Surveillance is the systematic observation of the maritime area of responsibility with the object of detecting activity on, under or above the ocean surface.

Patrol is the physical presence of a naval unit within the maritime area of responsibility with sufficient mobility or in sufficient numbers to provide visible evidence of governmental commitment to the regulation of activity.

Response is the ability to protect Canadian interests wherever and however they are threatened. This implies a wide range of capability, from monitoring an activity and deterring threats to interdiction and elimination of the source of the

threat. Here, the possession of a response capability in all three dimensions of ocean space is vital to comprehensive and lasting maritime security.

Related Areas of Activity

Surveillance, patrol, and response within Canadian areas of functional jurisdiction are also requirements for other government departments. Fisheries and Oceans, Transport Canada, the RCMP, Customs and Excise, Employment and Immigration, and Environment Canada are all responsible for the enforcement of some aspects of Canadian law within our maritime areas. Here the Department of National Defence is in a position to provide the other government departments charged with maritime security interests the assistance of military assets to provide surveillance, patrol, and response. In extreme cases requiring the threat or use of graduated force, these assets may even be used in support of the department concerned in the arrest of violators of Canadian law. This arrangement makes sense in the current fiscal environment, and it also results in a more comprehensive approach to maritime security and enforcement in Canada.

The establishment and maintenance of maritime presence in Canadian areas of responsibility has other benefits as well. It allows DND to take an active role in the maritime search and rescue of those in distress at sea, this combined with the Canadian Coast Guard, has resulted in one of the most effective SAR organizations in the world. Additionally, it allows the government to achieve other objectives, such as demonstrating Governmental concern through facilitating the visit of officials to remote coastal communities and the promotion of national unity through ship and aircraft visits throughout our maritime regions.

SECTION 4

COLLECTIVE DEFENCE ARRANGEMENTS

Rationale

Canada has never been in the position of having sufficient maritime forces to meet all possible threats without assistance from our maritime allies. In fact, Canada has always been allied with the predominant maritime power, first the British Empire and now the United States. It goes without saying that Canadian defence will rely on a collective approach in conjunction with like-minded nations in the future, and this may introduce certain planning factors which are additional to strictly national requirements.

This dependence on collective defence in partnership with a much larger maritime power raises the problem of maintaining Canadian national control and influence within the alliance. Experience has shown that the only way that this may be accomplished reliably is through the contribution of sufficient forces when they are needed, and the demonstration of competent control of alliance forces operating within Canadian areas of responsibility.

North Atlantic Treaty Organization (NATO)

Canada is involved in two alliances, (NATO and NORAD), the most visible of which, from a maritime perspective, is NATO. In addition to the promise of naval forces in crisis and war and regular participation in exercises, the Canadian Navy has supported this organization through a continuous contribution to the Standing Naval Force Atlantic. As a minimum this has consisted of the provision of a destroyer on a continuous basis, command of the squadron in rotation with the other members, and occasionally we assign an AOR.

In addition to continued participation in standing naval forces, Canadian maritime forces are assigned to NATO's crisis response organization. Specifically, a Task Group (comprised of an AOR, submarine(s) and numerous escorts) will be available to respond on short notice to NATO requirements.

CANUS

As detailed earlier, the United States is Canada's closest ally. There is a large network of military agreements between the two countries covering the full spectrum of national security. Naval agreements cover responsibilities for the defence of North American maritime regions. CANUS cooperation has increased in a number of areas such as in the increased military involvement in operations to prevent the trafficking of illegal drugs. This trend in cooperation is expected to continue.

SECTION 5

INTERNATIONAL PEACE AND SECURITY

Types of Operations

With interests spread throughout the world and relatively small forces-in-being, Canada cannot hope to address all conflicts that may pose a threat or challenge. Additionally, our small forces are best suited to resolving distant crises before

they develop into major conflicts. These considerations have factored in the decision to address Canadian security at "arm's length" through the maintenance of international peace and security.

There is a requirement to respond quickly and appropriately to a wide range of "contingency operations", wherever they occur. It should be stressed that in very few of these cases would Canadian forces act unilaterally; rather, action will normally be taken in conjunction with other states and under the auspices of the United Nations. While it is clear that Canada will not have to respond with military forces to every disruption to the international peace, we have seen over the last few years that Canadian involvement is actively sought by the UN in many cases, and that the number of these operations has increased.

Although we have referred to responding with military forces, the response itself need not be military in nature. Future contingency operations will straddle the wide spectrum of conflict, and may include such diverse tasks as humanitarian relief, peacekeeping and enforcement operations. They may also be specifically aimed at the protection or promotion of national interests, or they could focus on preventing conflict through confidence-building. Naval forces have unique capabilities which can be brought to bear in each of these scenarios.

Humanitarian relief may include the provision of supplies to remote communities in need, the transportation of large amounts of goods to aid famine victims, support for the restoration of basic services where devastated communities are only reachable by sea, and provision of aid to large numbers of people in distress at sea. Naval peacekeeping could call for the patrol of maritime areas in dispute or the prevention of hostile naval activity in certain ocean regions. Naval enforcement might entail support for operations ashore in a situation similar to the Gulf War, the threat or use of naval force to intercede between parties to a conflict, or the clearance of mines laid by a third party in the coastal areas of a another state (or even in international waters). It may also involve the enforcement at sea of economic sanctions, disarmament agreements or other stipulations.

Protection/Promotion of National Interests

Although, traditionally, Canada has avoided the unilateral use of naval power to address threats to national interests, on certain occasions it has proved useful. These have generally related to the safety of Canadian citizens or the support of our peacekeeping land forces in areas of instability abroad. Naval evacuation is a capability which has been expected in the past, and which may be required in the future.

Preventive Measures

In addition to the threat of force which they convey to an adversary, naval forces can send a clear statement of national resolve and a strong signal of support or friendship to other countries. Port visits, joint exercises, exchange tours and professional interaction all serve to build confidence in Canada as a responsible member of the world community and as an impartial or supportive nation.

SECTION 6

ORGANIZING FOR THE FUTURE

There are two general principles which emerge from the discussion of the maritime aspects of defence policy. The first is the existence of two distinct areas of maritime interest and responsibility, each of which demand concurrent attention in Canadian defence:

- * the oceans areas contiguous to the Canadian coast; and
- * regions of international instability.

The second is the need for a balanced, general purpose, combat-capable maritime force able to sustain operations in either of these areas.

That said, certain deductions follow from the discussion above with respect to present and future naval requirements.

A Balanced, General Purpose, Combat Capable Force

Naval forces must be capable of performing the full range of missions in both our contiguous ocean areas and in regions of international instability, and they must be able to operate in the full spectrum of conflict.

Balanced capability refers to the ability to operate in all three dimensions of ocean space. Integral to fleet structure must be an effective air, surface and sub-surface capability.

There is no realistic alternative to this concept of balance. If one removes, for example, the maritime air component, significantly more is forfeit than just that single capability. In addition to the loss of the ten-fold increase in area surveillance which this component provides, ship and submarine performance as a whole would suffer. The elimination of aircraft would remove the precise cuing that ship and

submarine sensors and weapon systems require. In this case, the range of our CPF's Harpoon anti-surface capability would be reduced by a factor of three without aircraft-supplied data. Given the "team" approach within the Canadian Task Group, the removal of single portions of capability results in a loss in total capability out of proportion to the units withdrawn.

Balanced forces also involve an option for varying the visibility of maritime presence. The clear, unambiguous presence of a frigate contrasts nicely with the standoff capability of patrol aircraft and the stealth offered by submarines. Different operations, both military and non-military, require different levels of visibility for maritime forces.

The term "combat-capable" indicates an ability to operate effectively in an intense, modern, warfare environment. In a tactical sense, this includes a defensive capability against a sophisticated threat and an offensive capability sufficient to attain mission objectives.

Fortunately, general-purpose maritime forces are inherently flexible, providing a range of response options. This general purpose characteristic is one which describes fleet capability as a whole; indeed, the essence of combat capability and survivability in a modern combat environment is the possession of a degree of expertise and tailored capability in each warfare area. Therefore, whereas individual units may be oriented towards specific types of tasks, the force as a whole must be structured so as to provide a balance or a full range of capability. This has given rise to the Task Group concept within the Canadian Navy.

A Task Group is a group of naval and air units optimally suited to the full range of expected tasks associated with their mission. It is capable of self-sustained operations for a fixed period of time in any accessible maritime region of the world. The number and type of units attached to a deployed Task Group would depend upon the particular mission; each unit would be optimally suited to the specific operational requirement. The Task Group together, however, would be capable of responding to the overall challenge - it would have achieved a condition called tactical viability.

Maritime Presence

Given the requirements for maritime presence (surveillance, patrol and response) discussed in section 3, there is a necessity to procure equipment which is capable of performing this task on, under and over our maritime areas of responsibility. In practical terms, a distinction can be made between near-shore and off-shore presence, as these two regions have different implications with respect to platform

requirements.

Surveillance of the huge Canadian area of interest is a formidable task, involving three dimensions and often adverse environments. This task can best be accomplished with a mix of fixed and mobile systems.

Effective presence of these areas requires a mix of ships, submarines and aircraft capable of regular and visible visits to areas of marine activity.

Finally, the wide range of response capability required is best fulfilled by the general purpose forces discussed above. Here, there is a need to operate effectively in all three dimensions (over, on and under the ocean surface).

Total Force

Fiscal realities have limited the size of the regular force in all areas. In the Navy, certain essential features of maritime defence have been undertaken by the Naval Reserve. Particularly in the areas of Coastal Defence (including limited mine counter measures) Naval Control of Shipping and augmenting Regular Force crews, this revived and expanded force is making a significant contribution to the day-to-day management of Canadian security.

The Total Force will have implications across the full spectrum of the naval environment, including structure, operations, manning and training. Some of these implications are highlighted in subsequent chapters.

East-West Distribution

In order to provide an effective response capability in our Atlantic and Pacific maritime areas of responsibility, it is essential that each coast maintains sufficient forces to constitute a tactically viable Task Group. Each coast must also have sufficient ashore infrastructure to train, maintain, and sustain that Task Group. For the same reasons outlined for the maritime force as a whole, each Task Group must have a balanced composition of subsurface, surface and air capability. Such a capability ensures that Canada has adequate forces to participate in national and multi-national operations beyond Canadian waters.

Joint and Combined Operations

Particularly in the context of contingencies, maritime operations will more often than not involve support to or work with other elements of the Canadian Forces (Joint Operations), as well as with forces from other nations (Combined Operations). These Joint and Combined Operations will dictate certain types of

capability and ways of operating in the future.

Support to Other Government Departments (OGD)

This area has become increasingly important as federal government departments with an interest in the marine environment increasingly share information and resources in safeguarding our offshore resources. As part of this overall concept of presence DND allocates blocks of ship days and aircraft hours in support of the Departments of Fisheries and Oceans, Environment, and the Solicitor General. A substantial allocation is performed at no cost to those departments, for any additional allocation DND is reimbursed base operating costs. As well all maritime operations, irrespective of their actual mission, conduct routine surveillance against illegal ocean activities.

Command, Control, Communications and Intelligence (C³I)

Modern conditions of maritime conflict require the coordinated actions of all arms to accomplish meaningful military tasks, making command and control a critical combat capability.

Given the huge areas of Canadian maritime responsibility, as well as the diverse range of security interests and threats, it is essential that an effective system for data management be available in each coastal region. Although its primary purpose is to process and disseminate information for military purposes, it also can provide a comprehensive "ocean" or "surveillance" picture for use by other government departments.

The requirement to exercise national control of Canadian naval operations is a permanent feature of defence policy. Likewise there is a requirement to exercise control of non-national forces operating within Canadian areas of responsibility. This involves the maintenance of long range communications facilities capable of conducting reliable operations out to the edge of our maritime areas of responsibility, a surveillance and intelligence collection system, and a weather and oceanographic observation system that each cover the assigned area.

The focus on operations with other national elements and agencies, as well as with allied forces, underlines a requirement for inter-operability in command and control systems.

Sustainment/Logistics

The increased likelihood of operations in support of our alliances or international security and stability will exacerbate the problem of resupply to deployed naval units. In order to maintain and sustain a deployed Task Group there will be a

continuous demand for petroleum products (POL), ammunition, food, medical and dental facilities, and spare parts. This requirement must be addressed if the Task Group is to remain deployed for any extended period and if it is to provide adequate support to joint forces ashore.

Environmental Concerns

While not the 'lead' department, the naval role in this area is significant. Our surveillance capability within Canadian maritime areas of responsibility, our timely response capability and our command and control facilities, both ashore and at sea, make the Navy a valuable partner with the other agencies concerned with the protection and preservation of the marine environment.

Readiness and Availability

In the current strategic environment, a major threat to Canadian interests is not likely to arise without some advance indication. Accordingly, the readiness and availability of maritime forces, with the exception of a few rapid-reaction units, can be reduced. This will result in significant savings, while retaining the ability to respond to unforeseen developments.

CHAPTER 2

MEETING THE CHALLENGE - STRUCTURE AND CAPITAL

INTRODUCTION

Chapter 1 derived maritime force requirements from Canadian Defence Policy and introduced various planning factors for force development. From this discussion it is clear that maritime forces in Canada must be balanced, they must possess general purpose combat capabilities, and they must be able to operate anywhere in the world. These forces will be organized into Task Groups with one on each coast. The basic Task Group elements are: flexibility, survivability, tactical viability, command and control, and sustainability.

Given the three dimensions of the maritime requirement, it is useful to distinguish among warfare areas in organizing capability and assigning specific missions. There are three principal warfare areas: anti-air, anti-surface and undersea warfare. Related to all three are the need to control and exploit the electro-magnetic environment, the need to exercise effective command, control and information management, and the need for interoperability within the Task Group and between the Task Group and other combat formations.

This section will examine each of the broad requirement areas from Chapter 1 and identify the level to which they are supported by the planned force structure and capital equipment plan. Deficient areas will be highlighted and future force development issues will be raised.

SECTION 1

BALANCED GENERAL PURPOSE COMBAT CAPABLE FORCES

The requirement for balanced, general purpose combat capable platforms will be met through a range of platform replacements and upgrades within the Task Group. The major projects include the Canadian Patrol Frigate (CPF), TRIBAL Update and Modernization Project (TRUMP), Canadian Patrol Submarine Project (CPSP), New Shipborne Aircraft (NSA) and Aurora Update programs.

The CPF project, which replaces all but the two Annapolis Class ships in the steam-driven destroyer fleet, will deliver 12 Halifax Class ships to the fleet by 1996. These ships are technologically advanced general purpose frigates, whose weapons and sensor fit will allow them to conduct operational tasks at

all levels of conflict and in a wide variety of operating areas, singly or in company with other naval and air units.

TRUMP will provide four upgraded IROQUOIS Class destroyers. The ships of this Class remain the only surface units with the space and technical facilities for supporting an embarked Task Group Commander; indeed, within the TRUMP project they have been redesigned as command ships. In addition to providing a Command, Control and Communications (C³) capability to the Task Group Commander, the IROQUOIS Class also provides local air defence coverage for other units of the Task Group.

CPSP will replace the OBERON Class submarines now operating only in the Atlantic with up to six conventionally-powered submarines distributed between both coasts. In addition to its considerable surveillance and response capability in the Canadian areas of interest, the CPSP offers the most cost-effective undersea warfare capability of all maritime units. It is also our only covert maritime unit. Project implementation is expected to commence in 1997 with delivery of the first submarine in 2003.

The New Shipborne Aircraft (NSA) project will replace the aging SEA KING fleet with 35 EH 101 helicopters for deployment with CPFs, TRUMPs and AORs. The EH-101 will provide a substantial surface and sub-surface surveillance capability through the use of multiple sensors and C³ equipment and provide a quantum improvement to the reach and safety of the current shipborne air fleet. Their improved sensor and time on task capability will also provide substantially enhanced ship-based search and rescue capability and support to other government departments. As an integral part of the Task Group, the NSA provides a vastly extended surveillance and reaction capability in a rapid response, long range all weather platform. This has the effect of enhancing the combat capability of the Task Group out of proportion to its singular capability.

The CP-140 Aurora Update project will upgrade the surface surveillance and acoustic suites, increase survivability and replace outdated computer systems in this long-range maritime patrol aircraft. This project will provide the Aurora with a greatly enhanced surveillance capability, which will allow the aircraft to perform a wide variety of missions.

When grouped together in a Task Group, the planned mix of surface, subsurface and air platforms will satisfy the majority of the balanced general purpose combat capable force requirements outlined in the first chapter. Nevertheless, the current Capital Plan is deficient in some requirement areas.

The Task Group remains restricted to operations in ice-free

waters. An Air Independent Propulsion (AIP) capability is required to provide the means for a conventional submarine to conduct under ice operations, and research and development work is currently progressing to meet this need. Therefore, the CPSP SOR will stipulate that it is essential that the basic submarine design be retrofitted with AIP.

The rapid pace of technological advancement in modern weapons systems and the worldwide proliferation of this technology underline the need for regular upgrades to combat systems. Ships and aircraft in the fleet will require regular updates if they are to retain the elements of survivability, flexibility and tactical viability as weapon technology progresses.

The ability of the Navy to retain the necessary elements of a tactically viable Task Group is also of concern in the long term. The IROQUOIS Class destroyers will reach the end of their lives by 2010 when their hulls will be over 35 years old. Strictly in terms of numerical capability, failure to obtain suitable replacements for the IROQUOIS Class will reduce the Navy's DD/FF Fleet by 25 percent. More importantly however, without a suitable and timely replacement for them, the Navy will lose its ability to exercise effective tactical command and control within its Task Groups. Planning has begun to study the options for a replacement of this capability. The loss of it would dramatically reduce the effectiveness and flexibility of each coast's Task Group.

A similar problem exists with the Aurora aircraft, which will be approaching 30 years of age by 2010. The Aurora is our only quick response and long range vehicle capable of providing vital area surveillance, patrol and response functions in our maritime areas of responsibility (both for DND and other government departments). Failure to replace or extend the life of the Aurora will unacceptably reduce the flexibility and capability of maritime forces on both coasts as it is our only fast response long range vehicle.

SECTION 2

MARITIME PRESENCE

A significant portion of the surveillance, patrol and response requirements will be realized through the forces described above. In the areas of surveillance in particular, and to a lesser extent for patrol and response, additional measures are necessary to cover the vast areas involved effectively. This will entail the addition of some new surveillance systems and platforms. The major projects along these lines include the

Canadian Sovereignty and Surveillance Vessel, the Arctic and Maritime Surveillance Aircraft, the Coastal Patrol Aircraft and East and West Coast surveillance arrays and associated support centres.

The acquisition of up to six Canadian Sovereignty and Surveillance Vessels will relieve the major surface fleet of much of the patrol requirements within Canadian areas of maritime responsibility. Since they will be designed primarily for surveillance and patrol of Canadian waters and operations at the low end of the spectrum of conflict, they will possess sufficient weapons, sensors and C³ equipment for this purpose. An important feature of their design will allow integration into the Task Group should they be required for overseas operations at the low end of the spectrum of conflict.

Specifically designed to support surveillance requirements, the Arctic and Maritime Surveillance Aircraft (CP-140A Arcturus) will complete delivery in 1993. These aircraft, a CP-140 airframe without the ASW suite of the Aurora, are intended to carry out above water surveillance. This allows the Aurora to be employed in the more demanding tasks associated with support to the Task Group.

The Coastal Patrol Aircraft (CPA) project will address the loss of coastal area surveillance capability associated with the retirement of the CP-121 Tracker. Additional aircraft will be purchased to supplement the Canadair Challenger and Aurora aircraft that are presently being used for this role. The CPA will be used for coastal surveillance and offshore patrols both for military tasks and in support of other government departments. This will free the Arcturus and Aurora for employment in a more demanding wide area surveillance role and for Task Group support operations respectively. It is expected that this project will be completed early in the next century.

With Canada's involvement in numerous alliances and international cooperative ventures, space technology must be incorporated into the defence structure if the Task Groups are to achieve interoperability. Currently, maritime military capabilities in communications and navigation are enhanced by such space-based systems. Surveillance is seen as another area where space may offer an enhanced capability. Future acquisitions must not only consider the use of space-based systems, they must address standardization and compatibility with other services both nationally and within alliances.

Given the vast and remote nature of much of Canadian maritime ocean space, the establishment of fixed acoustic sensors in strategic locations offers a good undersea surveillance capability at considerable savings. This reduces the number of

mobile platforms required for such surveillance, and allows for their concentration in areas of high activity. To this end, fixed acoustic surveillance arrays are planned for locations throughout Canadian maritime regions and an associated analysis capability will be concentrated in centres of excellence within the Canadian Navy.

The planned force structure will provide a significant increase in surveillance and patrol capability. It will not, however, meet the full requirements for effective wide area surveillance. Critical to the concept of presence is an integrated, strategic surveillance system capable of monitoring Canada's three oceans above, below and on the seas. Such a surveillance system allows patrol and reaction platforms to be cued to the location of targets of interest, thereby improving the efficiency of the response and reducing the need for standing patrols. Such a surveillance system must also support other government departments (OGD) which also share responsibility for activities off our coast. Thus, the surveillance system must not only be integrated within the Navy, it must be integrated on a national basis, jointly with other branches of the Canadian Forces and with OGD. It must also be interoperable with alliance surveillance systems, particularly those for the defence of North America.

SECTION 3

TOTAL FORCE

The Naval Reserves have been revitalized by the transfer of important tasks such as coastal defence. The NR establishment is being increased through the creation of new Naval Reserve Divisions (NRDs) and the growth of existing ones. A new MCD/NCS training capability, called the Coastal Operations Training Centre (COTC), will be provided through the establishment of Canadian Forces Fleet School, Quebec City, (CFFS(Q)). Two Minesweeper Auxiliary Vessels, HMC Ships ANTICOSTI and MORESBY, were acquired in 1989 to provide an interim route survey and mine countermeasures training capability. Twelve Maritime Coastal Defence Vessels (MCDVs) will also be acquired in the 1994-98 time-frame.

Although the MCDV program will deliver much to the Navy in the areas of coastal defence operations, training and reserve revitalization, only a limited number will be fitted initially with a mine countermeasures capability. Fiscal limitations confine the Project to a limited number of mechanical minesweeping and route survey outfits. A follow-on program will be required to provide all of the MCDVs with a credible multi-role capability in coastal defence. This is seen as a very

necessary capability to keep Canadian waterways clear in the future, and also to support Canadian forces should they again be required to operate in mined waters abroad (eg. Gulf War). In addition to their capability in mine countermeasures, these vessels will provide maritime presence in the near-shore region.

We must also identify the training methods and equipment support needed to enhance the training at each NRD. This is required to increase the productivity within each unit and to cut down on the cost of travel. Modern computer simulation techniques offer significant potential here.

SECTION 4

EAST/WEST DISTRIBUTION

The range of threats and challenges in the Atlantic and Pacific areas will be met by a more equitable distribution of maritime forces on both coasts, organized in Task Groups. Chapter 1 highlighted that a balanced, general combat capable fleet requires a mixture of destroyers, frigates, submarines, minor war vessels and maritime aircraft to fulfil those roles assigned to maritime forces. If the Task Group is required to operate in a remote location for an indefinite period, there must be an allowance for the rotation of the Task Group and for support services.

In order to reflect the balanced Task Group on each coast, there is a requirement to equitably distribute the supporting infrastructure. As a result, the TRUMP centre of excellence will be established on the west coast, while the CPF centre of excellence will be located on the east coast.

SECTION 5

C³I AND INTEROPERABILITY

As stated in Chapter 1, modern conditions of maritime conflict require the coordinated actions of all elements of a force in order to accomplish meaningful military tasks. This makes command and control a critical combat capability. The need for national and tactical C³I facilities is being addressed through programs such as MCOIN III and MARLINK. MCOIN III will provide automated Command and Control assistance to both MARLANT Headquarters and MARPAC Headquarters. Each HQ will have its own hardware/software system linked together through communications nets. Input terminals for MCOIN III will be installed in various

outside agencies such as NORAD and NDHQ. The MARLINK project will upgrade existing tactical data links.

Still lacking is a system for fusing the data resident in all the OGD fleets into a master C³I network. This would allow maximum interoperability in joint operations, speed up the decision making loops, reduce duplication of effort and allow for the cuing of targets of interest. As an interim step, a project designated CANMARNET will provide the required data fusion capability between DND, DFO, DOT, and the RCMP.

SECTION 6

SUSTAINMENT, LOGISTICS AND PEACEKEEPING

Chapter one highlights the need to maintain and sustain a deployed naval Task Group or joint forces anywhere in the world. This is achieved by assigning an AOR to each Task Group. But HMCS PROVIDER will be paid off within this decade, leaving the Navy with two AOR Class ships with which to satisfy the requirement for sustainment. With one AOR assigned to each coast, there will be availability gaps caused by refits and maintenance requirements that will degrade the capability of the Canadian Task Groups. In fact, for more than 45% of the time, one of the two Task Groups will be without the integral logistics support an AOR provides. We are studying the need for a third AOR in the fleet to cover these gaps and to provide continuous fleet sustainability. Here AOR support should not be viewed as a requirement for distant operations alone. The large size of our own maritime areas places a high value on AORs providing logistic support to surveillance and patrol platforms. By providing replenishment these platforms can remain on station longer, resulting in increased operational effectiveness of both ships and shipborne aircraft.

AORs are specifically designed to support naval forces, thus their ability to carry vehicles and other equipment to support forces ashore is limited. Here, ships designed to sealift material are required. Critical to contingency operations or any overseas joint operation is a nation's sealift capability. This is the ability to transport large volumes of equipment and supplies over long distances, in time to provide the deployed forces the support they need. Canadian contingency plans call for the deployment of a brigade and up to 2 CF18 squadrons. In order to support these forces, sealift will be essential to move equipment too large to move in a CC 130, (such as the new Heavy Logistics Vehicle, M109 howitzers, bridge layers, engineering cranes, and airfield battle damage repair equipment). Sealift has largely been ignored in peacetime. Recent experiences in the

Persian Gulf Conflict and Somalia aid efforts have highlighted both the time constraints caused by the lack of a significant, inherent CF sealift capability and the incorrect assumption that resources were readily available from commercial sources. Although current naval forces have limited capabilities to transport equipment, this capability was well short of the requirement. An inherent sealift capability would not only support military initiatives, but also broader federal government responses to humanitarian and environmental concerns.

SECTION 7

ENVIRONMENTAL SUPPORT

We have addressed the immediate problem of controlling our ship produced waste with the Maritime Environmental Protection Project and are dedicating more assets to anti-pollution surveillance as part of our overall concept of maritime presence. But in responding to the requirements of the government Green Plan we must also detail the Navy's precise role in aiding the lead government departments in environmental disaster response and then identify what naval equipment is needed to assist in this. Our examination of afloat logistic support must also consider this requirement.

SECTION 8

SUPPORTING CAPABILITIES

Access to the seabed in areas of Canadian maritime responsibility is achieved by the submersibles and divers carried in HMCS CORMORANT, and by divers carried in diving tenders attached to Fleet Diving Units. CORMORANT, based in Halifax, has operated in all Canadian ocean areas of responsibility. The vessel has recovered components from aircraft wreckage for investigation, supported scientific research for defence and civil purposes, conducted operations in support of mine countermeasures and supported the law enforcement efforts of other government departments. Diving tenders conduct similar operations nearer naval ports and provide significant engineering support to the fleet in the Naval Dockyards. Two new projects will enable Maritime Command to retain a seabed intervention capability into the next century: a Seabed Operations Vessel (SOV) replacement for CORMORANT, and new Diving Tenders (YDT). Such a capability will become progressively more important as the seabed is exploited for resources, and as new technology extends activity further out along the continental shelf.

There will be a continuing requirement for support capability in the form of Auxiliary Vessels, which are constituted under the management of Queen's Harbour Masters in Esquimalt and Halifax. Support provided is multi-faceted and is directed to HMC Ships, Ship Repair Units, weapons ranges and Defence Research Establishments. Capital funds will continue to be required for this activity in which forty per cent of current vessels are over thirty years old.

Another important support area is research and development. The Defence Research Establishments, Atlantic and Pacific, along with four other establishments across the country, provide important and timely information and proposals in a wide variety of areas directly applicable to naval capability and operations. These establishments focus on long range development, but are available to tackle vital projects in support of current operations like the Gulf War.

SECTION 9

SUMMARY

The requirement for balanced, general purpose combat capable platforms is currently being met through a range of platform upgrades and replacement programs such as CPF, TRUMP, CPSP, NSA and the Aurora Update program. However, future maritime force development issues have been identified which clearly indicate that there is still much to be done.

In order to maintain a balanced, general purpose combat capability the following issues must be resolved; a suitable replacement for the IROQUOIS Class C² capability, an Aurora replacement, and the expanding of our abilities in afloat logistic support.

Notwithstanding the present and planned fleet structure there two areas where capability is still lacking. The first is AIP capability for submarines and the second is the lack of sealift resources.

Our maritime forces must be able to react to the changing strategic environment, to respond quickly when called, and be able to represent, in a credible fashion, the interests of our government. Balanced forces, with capabilities above, on and below the surface, distributed between the coasts as two viable Task Groups, fully trained and sustained efficiently are the key to this future.

CHAPTER 3

MEETING THE CHALLENGE - FLEET OPERATIONS

Aim

The aim of this chapter is to discuss the way in which the force development guidelines presented in Chapters 1 and 2 relate to the employment of maritime forces. It will follow much the same structure as the last chapter, and will discuss fleet operations in the context of each of the planning factors from Chapter 1.

More extensive guidance for the conduct of operations by Canadian maritime forces is contained in the two volumes of the Maritime Commander's Operational Planning Guidance (CFCD 117).

SECTION 1

BALANCED, GENERAL PURPOSE, COMBAT CAPABLE FORCES

The Chief of the Defence Staff has assigned a mission and tasks to the Maritime Commander which relate to the three areas of Defence Policy discussed in Chapter 1. The basic mission is to maintain combat-ready general purpose forces for the defence of Canada. This is broken down into four elements:

- a. the maritime defence and surveillance of the ocean approaches to Canada, including the adjacent seas, territorial and internal waters, and other areas of maritime jurisdiction;
- b. the protection of Canadian maritime sovereign and jurisdictional interests;
- c. collective maritime defence through NATO, including our continental defence partnership with the United States; and
- d. a contribution to international peacekeeping and support of Canada's international interests and policies.

For the reasons outlined in Chapter 1, the Navy has organized into two Task Groups, one on each coast, to execute these elements and the various tasks that flow from them.

In practice, each Task Group exists in two different senses. In the first, or "type" sense, it is an arrangement for providing an organizational and administrative structure for the conduct of day-to-day fleet operations, maintenance and training. On each coast, this task group is equipped, trained and organized to fulfil the full range of surveillance, patrol and response requirements within Canadian maritime areas of responsibility.

In the second, or "line" sense, it consists of a tactically viable mix of ships, submarines and aircraft optimally suited to a particular mission. A deployed task group could be drawn from units of the task group on each coast, and it possesses the elements of flexibility, survivability, command and control, and sustainability.

The task group consists of sufficient numbers of units to maintain a deployed task group in any operational theatre for an indefinite period. Generally speaking, a six month maximum is used as a planning factor for the length of time a unit will spend away from the east and west coast home ports during operations. Taking this factor into account, along with travel time and extended maintenance requirements, a "rule of thumb" has been established that two to three units are required in the coastal group to maintain each unit of a deployed force. Whether two or three are required is determined by the duration of and distance to the deployment area. This has been validated by recent operational experience and has become a fundamental part of the force structure equation.

SECTION 2

MARITIME PRESENCE

The establishment and maintenance of maritime presence is an important and on-going feature of operations on both coasts. Maritime patrol aircraft are used for general, wide area surveillance in conjunction with fixed sensors. They also provide the capability for rapid response to threats and challenges in the outer reaches of our maritime areas of responsibility. For specific and expected threats or challenges, surveillance may also be undertaken by submarines, ships or aircraft.

Ships and submarines tend to deploy independently to conduct sovereignty patrols. They often work closely with other government departments, embarking their representatives and assisting these officials with boarding, inspection and enforcement where required. These patrols tend to last for a few weeks, and they cover various regions

of Canadian maritime areas of responsibility.

The response capability of the Canadian Navy is quite considerable. At all times, one ship on each coast is at sea in Canadian waters or ready to sail within hours. In addition, the entire available elements from the coastal task group, including ships, submarines and helicopters, can be applied to a major threat. Maritime patrol aircraft and fighters are also available at relatively short notice from bases in the maritime region.

SECTION 3

TOTAL FORCE

The Naval Reserve is an integral part of Maritime Command and it contributes a large proportion of our personnel resources. By performing the lion's share of two important Command missions, Coastal Defence and Naval Control of Shipping (NCS), these "citizen sailors" are responsible for fulfilling many of the surveillance, patrol and response requirements identified earlier.

The use of the Naval Reserve in the execution of day-to-day responsibilities within Canadian maritime areas of responsibilities will revitalize this important force and result in an increased naval profile throughout Canadian communities. The usefulness of our Total Force expertise in NCS and mine countermeasures is not necessarily limited to Canadian coastal areas; these valuable skills may be sought out by the United Nations, or indeed offered up by the Canadian government, in areas of tension or conflict as part of a peacekeeping or enforcement operation.

SECTION 4

EAST-WEST FORCE DISTRIBUTION

In the fall of 1992, and intended in part to pave the way for an equitable distribution of forces between east and west coasts, a Coastal Command was established on the Atlantic coast to match that in existence in the Pacific. The Commanders of Maritime Forces, Atlantic and Pacific, are responsible to the Commander of Maritime Command for the day-to-day operations and readiness of the forces within their respective areas of responsibility.

As the new HALIFAX Class and the modernized IROQUOIS Class ships join the operational fleet, they will be assigned to one or the other coastal task group. At the

same time, maritime patrol aircraft and ship-borne helicopters are being distributed more evenly east and west.

Submarines of the current force cannot be based on the west coast due to their age, and the requisite heavy and specialized maintenance requirements. Notwithstanding this limitation units will deploy into the Pacific area of responsibility from time to time. The replacement submarine force is designed to be distributed to both coasts.

One of the two AOR's hitherto stationed on the east coast has been moved west in preparation for the paying-off of HMCS PROVIDER later in this decade. The implications of a single replenishment ship for each task group have been discussed in previous chapters. It is worthy of note that, with only one AOR-type vessel, the Canadian task group concept, and therefore our fundamental approach to maritime defence, will be weakened. In those periods when the single AOR is not available, this deficiency will affect the flexibility, sustainability and possibly even the tactical viability of the deployed task group, and it may increase substantially the cost of distant operations.

SECTION 5

JOINT AND COMBINED OPERATIONS

Maritime Command has operated since the Second World War as a joint force, integrating sea-borne and air elements into a total capability. It is clear, however, that operations in the future involving maritime forces will often entail interaction with friendly forces from outside the naval element. Inter-operability with these forces is key to the success of these operations. Although inter-operability with other nations has always been a focus of Canadian maritime force training on both coasts, the joint aspects of this requirement will result in a shift in the way we operate in the future.

Particularly in terms of operational planning and direction, successful joint operations will require representation in senior staffs from the participating services. To this end, Maritime Command has established a joint organization within each coastal command headquarters for Canadian-based operations, and identified members of the Maritime Command Headquarters to act as a joint staff for the deployed task group commander if required. In addition, training and exercises within the Command now emphasize joint aspects of maritime operations and this thrust will be increased in the future.

SECTION 6

ASSISTANCE TO OTHER GOVERNMENT DEPARTMENTS

Maritime forces are operating more and more in support of other government departments in the pursuit of maritime security within our areas of responsibility. Over the last few years, we have tried to address questions of interoperability, command and control, jurisdiction, resource use, and information management with the various agencies involved in Canadian oceans regions; although considerable success has been achieved in this regard, there remains much ground to be covered in achieving a single, comprehensive approach to maritime security.

The Inter-departmental Programme Coordination Review Committee (IPCRC) was established to address common concerns among government departments interested in Canadian maritime regions. It has produced a Concept of Maritime Operations to guide the coordination of communications, procedures, command and control arrangements and resource use in support of law enforcement within the maritime regions of Canadian jurisdiction. Although much work remains to be done, the Canadian Navy has established memoranda of understanding and basic procedures with these various agencies to ensure the efficient and effective use of maritime resources in this regard.

There are two ways in which maritime forces may be used to assist other government departments. In the support role, they provide a means of transportation and information management within maritime regions for specific agencies. When a situation requires the use of force in the enforcement of Canadian law, the armed support role makes maritime forces available for this purpose, although it is strictly controlled by DND. There is every expectation that this cooperation with other government departments will continue successfully into the future, becoming a regular feature of naval operations within our national areas of maritime responsibility.

SECTION 7

FLEET SUPPORT

Operational support in the fleet is provided by the three AOR-type vessels. These ships supply fuel, food, ammunition, spare parts and even fresh water to other units of the deployed task group, both at sea and alongside. The AOR's provide the essential element of sustainability to the task group, and, without them, the range and duration of

operations of this combat formation is significantly curtailed.

On each coast, specialized maintenance and repair facilities ensure that operational deficiencies to maritime forces are either prevented or rectified as soon as possible. These agencies ensure that the number of combat capable units available to the Coastal Commander remains as high as possible.

In addition to operational and maintenance areas, there are a number of important support agencies for maritime forces. Training establishments, logistic supply and control organizations, Fleet Diving Units, Queen's Harbour Masters, and personnel support facilities all contribute behind the scenes to the readiness and effectiveness of the coastal task groups. These will be addressed in more detail in subsequent chapters.

It is important to stress that, in the current and projected financial climates, we must learn to operate more efficiently and within more stringent fiscal restraints. The large defence infrastructure which has developed within the CF as a whole over the last few decades must be re-assessed from this perspective, and we can expect to see a significant rationalization of these resources in the next few years.

SECTION 8

READINESS AND AVAILABILITY

During the Cold War, the immediate threat of a large scale attack by nuclear or conventional forces became a normal consideration in determining force posture. In the new international strategic environment, however, we can expect a reasonable indication before the fact of a major threat to Canadian territory or vital interests. As a result, we can increase the length of time within which we would expect a large number of our forces to be ready to respond to major threats.

In the current climate, we rely on a small number of "rapid reaction" forces at a high degree of readiness, and realize considerable savings by accepting a decreased level of readiness for other units of the task force. Although readiness is still measured in days, it is no longer necessary to incur the personnel and maintenance costs associated with rectifying impediments to immediate deployment as quickly as possible.

In addition to accepting reduced readiness, the decrease in the likelihood of high-intensity operations and the increase in warning time will allow for a reduced tempo of training and operations in the fleet. In the past, we have maintained an effective, but very expensive, programme of deployments and exercises. Although a certain level of operational training is still required to maintain combat capability and general skills, significant short-term savings have been realized by reducing the number, duration and scope of deployments.

SECTION 9

PROTECTION OF THE MARINE ENVIRONMENT

All maritime forces have, as an additional tasking, pollution surveillance and monitoring. Given the extensive nature and scope of naval operations in Canadian maritime areas of responsibility, these forces are ideally suited to this role. In the case of maritime patrol aircraft, the broad coverage and manoeuvrability of these assets have made them highly successful in detecting and reporting vessel-source pollution. Over the last few years, Aurora aircrews have been instrumental in the detection and subsequent prosecution and conviction of violators of Canadian environmental law at sea.

In addition to the surveillance and patrol functions which maritime forces can provide for the protection and preservation of the marine environment, the Navy can offer a considerable response capability. Along with limited cleanup assets, naval expertise in command and control, resupply, humanitarian relief, and rapid deployment can be applied directly to the management of marine environmental accidents.

CHAPTER 4

MEETING THE CHALLENGE - PERSONNEL AND TRAINING

INTRODUCTION

The naval personnel and training system has been designed to manage the personnel resources required to meet the Maritime Commander's assigned missions and tasks. This involves eight functional groups:

- a. the fleet;
- b. operational support;
- c. engineering and maintenance support;
- d. administrative and logistic support;
- e. training support;
- f. headquarters;
- g. Naval Reserve Divisions; and
- h. CF infrastructure.

SECTION 1

PERSONNEL

The personnel strength of the Command stands at approximately 16,300 Regular Force and primary Naval Reserve service men and women, and over 7,000 civilian employees. There may be a small decrease in the number of Regular force positions near the end of the century as ships are paid off without replacement; however, overall the strength of the Navy will increase with growth of the Reserve component.

It is interesting to note that, of those service men and women in Maritime Command, thirty-four per cent are in support occupations, twenty-five per cent are Reservists (many of whom work part time), eighteen per cent list French as their first official language, and fourteen per cent are women.

Although not strictly a part of Maritime Command, the Maritime Air Group is supported by 6,500 service personnel and civilians situated in major air bases on both coasts - Shearwater and Greenwood in Nova Scotia and Comox and the Victoria Airport

in British Columbia.

The naval establishment is currently under review in both the regular and reserve components. In general, it has been determined that the personnel management system of the future must have three basic components. First, a comprehensive data base, common to those of other branches of the service, must be established to cover the entire range of personnel resources available. Second, a task-oriented, Total Force establishment must be created to achieve an efficient and appropriate balance between Regular, Reserve and civilian personnel categories. Finally, there must be a system for complete resource control, allowing for the conversion of resources from one category to another, as well as resource redistribution among personnel, operations, maintenance and capital budgets. The personnel management system as a whole must be capable of catering to force expansion and contraction in the future.

Among a number of the goals of the naval establishment review, three may be of particular interest:

- a. to improve the balance of personnel East-West, and decrease the sea/shore ratio in MARPAC;
- b. to reduce the number of naval officers by using senior non-commissioned members in more shore positions; and
- c. to refine the Primary and Supplementary Ready Reserves.

This last goal is being achieved through the work of the Naval Reserve Establishment Working Group.

SECTION 2

THE TOTAL FORCE

In addition to the factors discussed in the preceding chapters, the Total Force has significant considerations for personnel in the Command as well. The active participation of Reservists in operations is going to mean that their availability will be of critical operational importance. To recognize this, the Naval Reserve has been established as a Readiness Command within MARCOM, with the Commander (COMNAVRES) responsible, simply stated, for matching people to problems.

The Naval Reserve comprises some 900 officers and 3,200 non-commissioned men and women. Its authorized strength will be slowly increased over the next decade to 5,325 by the year 2002. One area of concern is to ensure that funding levels match authorized ceilings. This is the only way in which programmes

like the MCDV can be met by fully trained and available crews and in which MARCOM tasks assigned to the reserve component can be fulfilled.

The Total Force revolves around the ability of the Naval Reserves to expand the capability of the Regular Force in fulfilling essential missions and tasks in peace, crisis and war. Two tasks - Maritime Coastal Defence and Naval Control of Shipping - are oriented primarily towards crisis and wartime requirements and are considered primarily Naval Reserve tasks. As the Total Force develops, however, there will be many ways in which the work and training of Naval Reservists will be put to practical use every day. Particularly in the area of coastal patrol, the reserve crews of the MCDVs will participate in the maintenance of maritime presence in our ocean areas of responsibility and lend assistance to other government departments on a regular basis. As well, Reservists will operate within certain areas of the Regular Force hitherto unavailable to them for employment.

SECTION 3

TRAINING

Regardless of the type of immediate employment, a significant emphasis is placed on training in the fleet. Although a lot of this strain is taken up by fleet training establishments ashore, it must all be consolidated by practical application at sea in order to gain the proficiency and experience needed to operate and maintain the complex systems found in our modern warships. At present, there is a particularly intense focus on the training required to ready the ships' companies of the twelve new Halifax class and four modernized Iroquois class vessels. In addition, the twelve crews of the MCDVs will require intensive training as well.

Training, which is so vital to the development and maintenance of our capabilities, has become increasingly expensive in terms of time, effort, and resources. Economies must be investigated and options for rationalization examined. Here, the rationalization of training will have a number of distinct components:

- a. the validation of existing training to achieve a cutback in overall training time, particularly in the technical occupations;
- b. the provision of more trades training in the French language on both coasts;

- c. the provision of more training in general on the West Coast;
- d. the decentralization of Naval Reserve training to Naval Reserve Divisions and local community training resources;
- e. the re-development of junior officer training; and
- f. the re-organization of the existing Fleet Schools and the establishment of Fleet School Quebec in 1994.

The Navy has made a commitment to the federal bilingual programme. In addition to increasing opportunities for French language training and for training in language of choice, the Navy has made plans to train almost 400 officers over the next four years. The immediate object of this officer training is to meet the current 1998 deadline to have all officers otherwise promotable to Commander functionally bilingual. The goal of the Navy is a fully bilingual officer corps early in the next century.

SECTION 4

SEA-SHORE RATIO

Most people in the Navy are trained in two officer and seventeen non-commissioned occupations that exist solely to conduct ship-borne operations. These are called the "hard sea trades". In the past, a sailor's career consisted of a disproportionate amount of time spent at sea, away from home and family. Over the last decade, steps have been taken to increase the amount of time spent ashore, or, in other words, to improve the sea-shore ratio. As well, recent decreases in operational readiness and increased availability of training in home ports will improve the amount of time sailors spend at home.

In order to maintain a reasonable ratio between time spent at sea and time spent ashore, personnel in hard sea trades will be posted to a position ashore for approximately forty per cent of the time once they have attained the rank of Master Seaman (ie. after their first six to nine years of service). Nevertheless, this time ashore may involve lengthy courses, instructional tasks and maintenance duties, all of which can be almost as demanding as work at sea in terms of dedicated time.

In distributing the fleet more evenly between the two coasts, the sea-shore ratio will improve throughout the Navy. Reduced numbers of ships on the east coast will result in an improvement in this area in MARLANT, while increased numbers of

shore positions on the west coast will achieve the same end in MARPAC.

SECTION 5

PERSONNEL SUPPORT

An affordable and flexible personnel support strategy must address a wider range of facilities and issues with the provision of needed funding for both the short and long term. This will include the creation and improvement of facilities to support the well-being of the Naval Family, both regular and reserve personnel and their dependents. In addition, it must allow for the introduction of policies and procedures to provide flexibility and imagination in coping with the increasing challenge posed by dual-service marriages, working spouses, and other factors present in the changing Canadian mosaic.

SECTION 6

FUTURE CHALLENGES

Two major challenges face the personnel and training system in the years immediately ahead. The first is acquiring the means to monitor and to control more closely the scarce personnel resources available to the Total Force Navy. This system must follow our people through every aspect of their naval service, from recruiting to retirement. In the last few years, significant advances have been made in the automated data processing network for personnel information, and these improvements will continue. Better information management will translate directly into improved career management and support, and more efficient use of people throughout the Navy.

The second major challenge is to devise the policies and procedures necessary to provide sufficient guidance in fundamentally altering the future character and culture of the Navy. Our service must reflect the society which it serves, and significant change will be required in the Navy to cope with the numerous current and future social challenges confronting all Canadians. Active policies and programmes are in place to address social issues such as sexual harassment, smoking in the workplace, lifestyle counselling, maternity leave, and equality of employment. Although the Navy is by nature a conservative organization, it has been demonstrated that our service men and women are open and positive towards change if it is instituted in the right way.

Ships and people are inextricably related; the effectiveness of the first is dependent upon the ability and will of the second. In the climate of increasing fiscal restraint we must never forget that "...the strength of the ship is the service and the strength of the service the ship". The Navy must devote considerable resources to the development and training of its people in order to obtain the maximum capability from its ships.

CHAPTER 5

MEETING THE CHALLENGE - MATERIEL SUPPORT

Aim

The aim of this chapter is to identify the contribution to be made by the materiel support function in meeting the challenges of the long-range plan identified in previous chapters.

Introduction

The Naval materiel support function has been introduced and defined in the foreword to this document as the aggregate of all those processes governing the design, development, acquisition, modification, safe and efficient operation, maintenance, repair, warehousing, transport, supply, and disposal of the materiel resources allocated to the Command. These vital processes are complex and involve a variety of interdependent line and staff organizations resident in NDHQ, Command and subordinate headquarters, bases, stations, and units across the country.

The Maritime Commander will set Naval materiel support policy, plans, procedures, and standards. He is advised by the Chief of Staff Materiel, whose staff organization reflects the natural grouping of the above processes into three main divisions: Naval Engineering and Maintenance, Naval Logistics, and Construction Engineering. Additional functions such as Materiel Resource Management, Environmental Policy generation and Auxiliary Fleet support are also comprised within the Materiel Branch and constitute a fourth division.

Day-to-day control over the materiel support function, its assigned missions and tasks and allocated resources, has been delegated to Commanders Maritime Forces Atlantic and Pacific within the guidelines set by the Maritime Commander. This delegation of authority is intended to provide these and other subordinate formations with the requisite management flexibility to meet the requirements of materiel support plans.

The growing resource constraints facing Maritime Command are well recognized. Their existence generates the need for imaginative responses to ensure the continuing ability by combat ready forces to meet an expanding spectrum of commitments. Nowhere is the necessity for new management initiatives more apparent than in the field of materiel support, which consumes the bulk of the Command's resources. Procedures and practices which served us well in the past may no longer be adequate in the austere climate which promises to be a reality for the

foreseeable future.

Recognizing that support is provided to a wide variety of users, it remains true that the materiel readiness of the fleet is the *raison d'être* for support activities within Maritime Command. The continuing mission must, therefore, be to achieve the required levels of fleet materiel readiness, over time, within the resource constraints extant within any given period. The corresponding policy criterion is that materiel support managers must establish and continuously improve their competitive advantage in the delivery of products and services to internal and external customers. This policy recognizes the reality that success will increasingly be measured in economic and business terms, and less by the single historic standard of effectiveness.

Strategic Goals

The strategic goals of the Command materiel support function that flow from this policy statement are:

- a. the systematic evolution of the East and West Coast materiel support infrastructure to satisfy existing and future fleet requirements;
- b. the development, maintenance and validation of Naval and appropriate civilian materiel support standards and practices; and
- c. the promotion of efficiencies within the materiel support function, and the introduction of increased resource accountability in the management of all materiel support processes.

The following sections outline the objectives and describe the process whereby materiel support is and will be provided to support the development plan.

SECTION 1

NAVAL ENGINEERING AND MAINTENANCE

Naval Engineering and Maintenance in Maritime Command responds to Canadian Forces policy guidance provided by the Director General Maritime Engineering and Maintenance in NDHQ. This is laid down in the Naval Maintenance Management System (NaMMS). The Chief of Staff Materiel interprets this policy for its practice within the Command.

Naval Engineering and Maintenance is carried out in the coastal formations in the Naval Engineering Units (NEUs), the

Ship Repair Units (SRUs), and the Fleet Maintenance Groups (FMGs). The NEUs are the designated Command Technical Authorities. As well, the NEUs and the SRUs, respectively, provide second and third line engineering and production support in the modification, and in the maintenance, repair and overhaul of ships and submarines and their systems and equipments. The FMGs provide first and limited second line production support to the Fleet, and serve as a Mobile Repair Unit.

The following objectives have been established in order that the Commander's future requirements may be satisfied:

- a. to conduct a functional review of Naval Engineering and Maintenance, validating and/or proposing modifications to the existing processes and the current allocation of resources, to satisfy, inter alia, a demand for improved cost effectiveness and the need to redress an imbalance in East/West engineering and maintenance infrastructure;
- b. to coordinate such activity as is necessary to satisfy the extraordinary civilian and military materiel support workforce training requirement brought on by rapidly changing technology;
- c. to contribute to the development of the Naval engineering and maintenance policies, plans, procedures and standards required to permit the cost effective execution by the operational commander of assigned missions and tasks;
- d. to coordinate such activity as is necessary to establish a DDH 280 centre of excellence within MARPAC; and, concomitantly, to establish the same for CPF in MARLANT; and
- e. to establish, in concert with the appropriate logistics authorities, a national OBERON submarine materiel support regime in MARLANT, obviating past dependence on the Royal Navy and the UK Ministry of Defence.

SECTION 2

NAVAL LOGISTICS

General

The logistics processes in Maritime Command include material supply, finance management, food services, transportation management, and electrical and mechanical engineering support. While many of these processes are centrally

controlled in NDHQ, the Command develops the policies, plans, procedures and standards necessary to satisfy unique Naval requirements.

Balanced, General Purpose, Combat Capable Force

A logistics network must be established and maintained that will respond flexibly and rapidly to the diverse requirements of Canadian Naval Forces operating anywhere in the world. This logistics network must have the capacity to sustain deployed Task Groups and their associated aircraft for periods of up to six months.

While this logistics network will draw on allied and commercial sea/air lift capabilities when necessary, Canada cannot rely on these sources. Even in a low-level conflict, for example, the amount of material to be transported to and stored in the operating area may be beyond commercial lift capacity. In short, the Navy must maintain a minimum essential sea-lift capability, with the Air Force providing a minimum essential air-lift capability.

An effective functional interface between Engineering and Maintenance and Logistics must be maintained through the development of compatible management information systems.

Logistics Support

Logistics support falls into three main areas: support to ships and units within Canada, support to ships operating in or near Canadian territorial waters, and support to ships operating in foreign waters.

Support Within Canada

Logistics support must be provided to all Command units and ships, including not only the traditional bases of Halifax and Esquimalt, but also Reserve units located throughout Canada.

Maritime Command must work with NDHQ to reduce the volume of material currently warehoused through increased standardization and improved configuration management, and through improved inventory management techniques (such as better usage tracking, just-in-time delivery systems and the removal of commercially available items from inventory).

Support Within Canadian Operating Areas

One of the primary roles of Naval Logistics is to support the Fleet while it is operating within Canadian territorial waters. Although most support will be provided by the nearest base or station, an AOR or similar vessel to provide

fuel, consignment stores and a limited second line repair capability permits increased time on station.

Support in Foreign Operating Areas

The Naval logistics network must also support ships and Task Groups operating in foreign waters in either national or international operations. This network will use the NATO Advanced Logistics Support Site/Forward Logistics Site (ALSS/FLS) concept of operations, with 3 Canadian Support Group having been established to provide third level logistics support for all deployed operations and acting as the ALSS when required.

Sea lift capability is of primary concern. At present, as indicated in preceding chapters, the Navy has no sea lift capacity per se, although AORs have been pressed into service to provide some such capability. A multi-role ship, capable of carrying containers and a broad range of spare parts for Task Group ships and aircraft, and with a limited second/third line ship and aircraft repair capability, would enhance sustainability.

The following objectives have been established to meet future requirements:

- a. to contribute to the development of National and NATO Logistics Support policies and plans to provide support to Maritime Forces deployed within or beyond Canadian shores;
- b. to validate and/or propose modifications to existing processes and the current allocation of resources in order to satisfy, inter alia, a demand for improved cost effectiveness and the need to introduce centres of excellence for the various classes of ship;
- c. to coordinate such activity as is necessary to provide extraordinary training for civilian and military logistics personnel required by rapidly changing technology;
- d. to contribute to the development and validation of logistics standards;
- e. to develop the expertise and processes required to manage changes in materiel handling methods due to the introduction of such concepts as Maintenance by Exchange and Repair by Replacement; and
- f. in concert with the engineering and maintenance process, to define, validate and implement effective methods of handling OBERON class spares.

SECTION 3

CONSTRUCTION ENGINEERING

The infrastructure associated with Maritime Command's bases and stations includes all fixed and permanent installations, fabrications, or facilities for the support or control of military forces. Construction Engineering is the sum of all those processes governing the design, construction, and maintenance of works and buildings, maintenance and management of property, operation of utility plants, and the provision of fire and crash rescue protection, together with other related services in support of the Navy.

The Construction Engineering Division, in response to an approved requirement and as defined in the Master Facilities Development Plans, is to effect the evolutionary development of the Maritime Command bases' and stations' infrastructure required to meet the needs of the current and projected fleet, and the changing roles of their operational support organizations. This could include the capability to deploy operational Military Engineer Units to another theatre of operations.

A primary factor in determining the policies and procedures for the execution of Construction Engineering services is the need to provide serviceable accommodation at minimal cost to the Canadian Forces. All activities, especially those related to domestic amenities and administration, will be continually reviewed to ensure efficiency and economy.

Maritime Command bases and stations will be retained for the foreseeable future; and, barring unforeseen changes in their assigned roles, missions or tasks, the development concepts, development objectives and programming initiatives identified in the Master Facilities Development Plans are not expected to change significantly in the next two decades. Changes in policy as a consequence of the 1992 Defence Policy statement may, however, result in additional infrastructure requirements.

While most base support activities can be expected to remain at current levels, uncertainties do exist with respect to the infrastructure required to support the Fleet. Fleet replacement projects scheduled for delivery throughout the next twenty year planning period are likely to have a significant impact on development planning. Increased requirements are foreseen in training, computer support, Ship Repair Unit, Naval Engineering Unit, Fleet Maintenance Group, and ammunition/maintenance facilities. Long-term Naval objectives, such as the balancing of the fleet, the maintenance of home port divisions, and the creation of DDH 280/CPF centres of excellence, to name but a few, may also have a significant impact on the

infrastructure and the land required at MARCOM's bases and stations.

The goals of infrastructure planning are to identify long range development objectives and establish general programming initiatives from which projects can be prepared and accommodation decisions taken. This planning ensures that departmental and, in some cases, interdepartmental, intergovernmental, or international construction and maintenance programs, and research and development, non-public fund, capital equipment, and major crown projects are coordinated.

The following consequential objectives have been developed for MARCOM's bases and stations, as identified in their respective Master Facilities Development Plans:

- a. to extend the Dockyard shorelines;
- b. to provide adequate berthing capabilities (jetty re-configuration, upgrading, replacement, and extensions) to meet the new equipment requirements;
- c. to upgrade utility systems and to replace expensive and aged systems (improved jetty services are essential);
- d. to remove from the Dockyard any facility not in direct support of the Fleet;
- e. to centralize supply facilities;
- f. to improve Dockyard and administrative site arterial and service road systems in order to improve overall support efficiencies;
- g. to redress quantity and quality inadequacies of existing space and, concurrently, to consolidate dispersed functions wherever possible. The following initiatives are considered of high priority in the near term:
 - (1) complete consolidation and modernization of Ship Repair Unit, Naval Engineering Unit, and Fleet Maintenance Group facilities;
 - (2) accommodate and improve upon evolving Fleet School training programmes;
 - (3) modernize the ammunition depots;
 - (4) upgrade messes and quarters; and

- (5) relocate, where reasonable, functions presently located on disadvantaged properties to larger central sites. Whenever possible, freed-up lands will be offered for disposal thereby saving operations and maintenance dollars.

Infrastructure must be maintained at a level that permits full operational capability throughout its design life. With reductions in O&M funding, Construction Engineering staff will strive to do this in an increasingly efficient manner. Maintenance priorities will be closely scrutinized. Maintenance associated with operations, safety, security, health, and the environment will remain a high priority; however, lower priority maintenance may be deferred with an increased potential for the premature failure of non-critical systems and the requirement for the early replacement of infrastructure. While increased efficiency and strict adherence to priorities promise some cost savings, substantive cost reductions will only be achieved through the elimination of non-essential infrastructure.

SECTION 4

MATERIEL RESOURCE MANAGEMENT, ENVIRONMENTAL AND AUXILIARY FLEET SUPPORT

Materiel Support Business Plan Development

To meet the strategic goal of promoting efficiencies within materiel support functions outlined in the introduction to this chapter, the Materiel Plans section of the Materiel Branch will take the lead in developing a hierarchy of multi-year Materiel Support Business Plans (MSBP) which will translate operational requirements into materiel support targets. In turn, these targets will provide the framework for resource allocation and accountability within the budgetary process. Post facto analysis and assessment will be conducted along with consultation with subordinate commands and formations to complete the process.

The MSBP will be compatible with other resource management initiatives within the framework of Defence 2000 incorporating single operating and salary wage envelope (SWE) concepts.

Environmental Responsibility

Maritime Command recognizes that it has a responsibility to conserve resources and to operate in an environmentally sound manner. It is committed to the federal Green Plan on the Environment and welcomes the challenge, not only of compliance, but also of demonstrating excellence in environmental matters. By its nature, MARCOM must be responsive

to land, sea, and land/sea interface environmental threats.

Accordingly, Maritime Command has adopted a total systems approach that includes both fleet and shore based activities. Ship construction and modification initiatives, such as the Marine Environmental Protection Project (MEPP), will be promoted in order to ensure environmental compliance in the conduct of operations. Similarly, shore-based activities will ensure that Maritime Command's infrastructure and support activities reflect the highest standards of environmental responsibility.

To this end, the following issues typify the environmental challenge faced by Maritime Command: pollution control and waste management; hazardous material management; ship, equipment and real property disposal; energy efficiency; the correction of unsatisfactory environmental conditions; and the training and education of personnel.

Auxiliary Fleet Support

The Queen's Harbour Master (QHM) organizations in Esquimalt and Halifax are responsible for the provision of operational support, represented by pilot services, harbour movement control, moorings, pollution control, fuelling, movement and operation of maintenance equipment and marine emergency response. This support is provided to the Naval Fleet, the associated Base, Ship Repair Unit (SRU), and Defence Research Establishment (DRE), other designated government departments and foreign warships. The QHM is also responsible for the operation of the Canadian Forces Auxiliary Fleet (CFAV) consisting of tugs, harbour craft, floating industrial equipment, as well as offshore vessels for CF and DRE operations.

In 1991, a Chief of Review Services study validated the requirement for continued Auxiliary Fleet support, and recommended efficiencies in providing that support. This study represents the reference point from which initiatives have already been taken, to create efficiencies in the Auxiliary Fleet. Redundant vessels will be paid off, personnel resources adjusted and further studies undertaken to meet the challenges of the development plan. Cognizant of operational requirements, environmental concerns, and limited resources, the management process of the Auxiliary Fleet will be part of the MSBP, meeting Materiel Branch strategic goals.