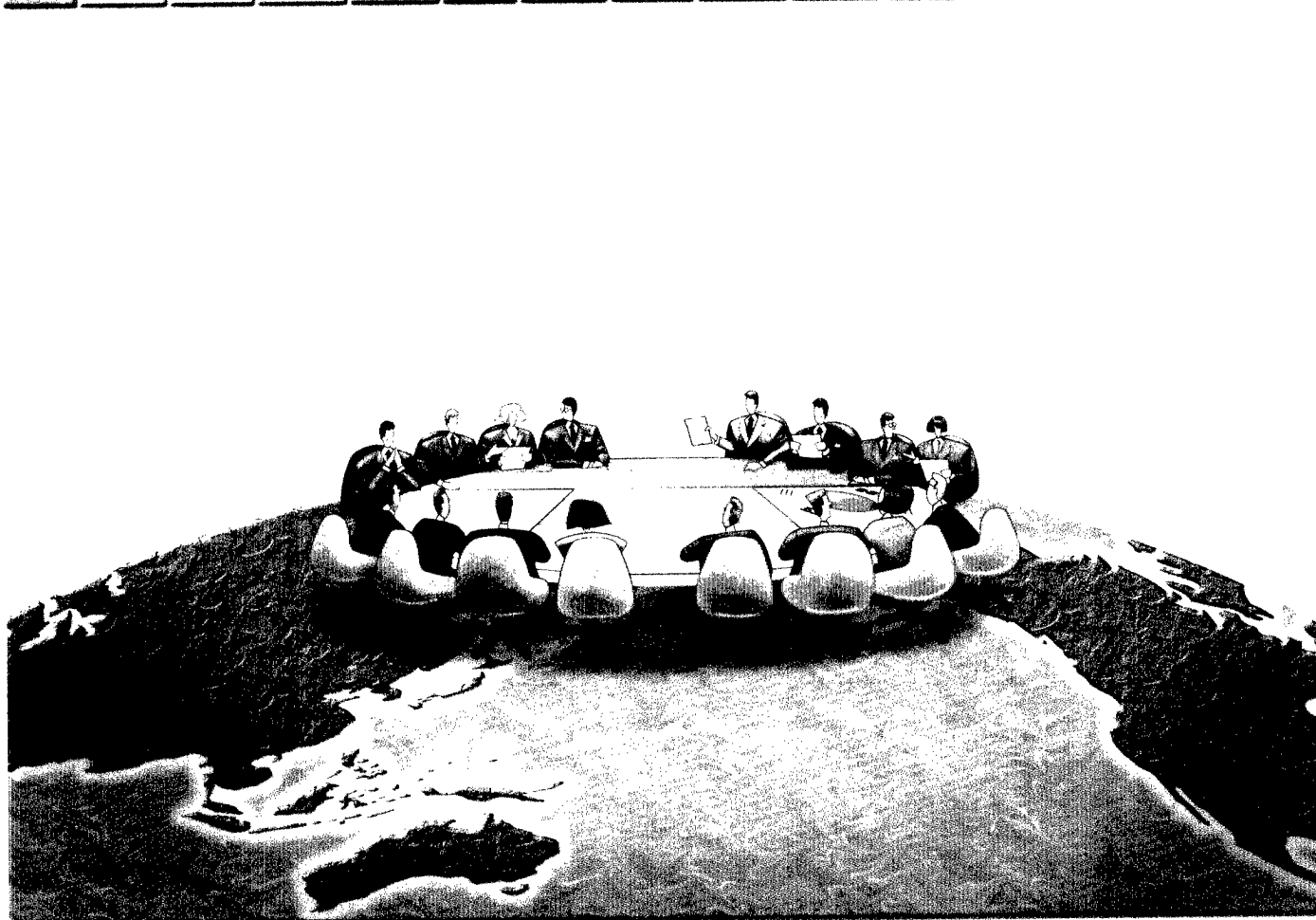




A Comparison of the Defense Acquisition Systems of Australia, Japan, South Korea, Singapore and the United States



B.A. "Tony" Kausal, Editor
Professor Stefan Markowski

DEFENSE SYSTEMS MANAGEMENT COLLEGE PRESS
Fort Belvoir, Virginia

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY) July 2000			2. REPORT TYPE		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE A Comparison of the Defense Acquisition Systems of Australia, Japan, South Korea, Singapore and the United States					5a. CONTRACT NUMBER	
					5b. GRANT NUMBER	
					5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Tony Kausal Stefan Markowski					5d. PROJECT NUMBER	
					5e. TASK NUMBER	
					5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Defense Systems Management College Attn: DSMC Press 9820 Belvoir Road, Suite 3 Fort Belvoir, VA 22060-5565					8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)					10. SPONSOR/MONITOR'S ACRONYM(S)	
					11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Unlimited						
13. SUPPLEMENTARY NOTES						
14. ABSTRACT This is a book about the national armament systems of five nations. It provides an introduction to the political environment, the acquisition organizations, systems and processes of Australia, Japan, South Korea, Singapore, and the United States. These countries were selected for two reasons; they are participants in the annual Pacific International Acquisition and Procurements Seminar (IAPS) and because as allies and friends they are likely participants in future international armaments cooperative programs.						
15. SUBJECT TERMS Defense Acquisition Systems; Australia; Japan; South Korea; Singapore; United States						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) 703-805-3364	
			Unlimited	364		

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

DEFENSE SYSTEMS MANAGEMENT COLLEGE

**A COMPARISON
OF
THE DEFENSE
ACQUISITION SYSTEMS
OF
AUSTRALIA, JAPAN,
SOUTH KOREA,
SINGAPORE AND
THE UNITED STATES**

**Tony Kausal, Editor
Professor Stefan Markowski**

July 2000

**PUBLISHED BY THE
DEFENSE SYSTEMS MANAGEMENT COLLEGE PRESS
FORT BELVOIR, VIRGINIA 22060-5565**

20000920 193

For additional information contact:

Defense Systems Management College Press

(Tel) 703.805.2248

(Fax) 703.805.2917

DSN 655-2248

ISBN 1-893833-01-1

TABLE OF CONTENTS

ACKNOWLEDGMENTS	vi
------------------------------	----

INTRODUCTION	viii
---------------------------	------

PART 1 – AUSTRALIA

Chapter 1 Introduction	1-3
Chapter 2 The Government of Australia	1-7
Chapter 3 Australia's Strategic Environment	1-15
Chapter 4 Australia's Defence Organisation	1-20
Chapter 5 Defence Budget and Resource Management	1-25
Chapter 6 Defence Reform Program	1-33
Chapter 7 Defence Acquisition Organisation	1-39
Chapter 8 The Acquisition Process	1-49
Chapter 9 Defence Industry and Defence Industry Policy	1-62
Endnotes	1-70

PART 2 – JAPAN

Chapter 1 Japan	2-3
Chapter 2 The Government of Japan	2-5
Chapter 3 The Japanese Self Defense Force	2-13
Chapter 4 JDA Acquisition Organizations	2-17
Chapter 5 Planning, Programing, and Budgeting	2-21
Chapter 6 The Defense Acquisition System	2-25
Chapter 7 Management of Defense Programs	2-31
Chapter 8 Procurement Process	2-33
Chapter 9 Test and Evaluation	2-37
Chapter 10 International Cooperation and Armament Sales	2-40
Chapter 11 The Defense Industrial Base	2-43
Further Readings	2-46
Endnotes	2-47

PART 3 – REPUBLIC OF SOUTH KOREA

Chapter 1	Introduction	3-3
Chapter 2	The Government of Korea	3-7
Chapter 3	Ministry of National Defense (MND)	3-14
Chapter 4	Defense Acquisition Structure	3-17
Chapter 5	Defense Reform	3-25
Chapter 6	Planning, Programming, Budgeting, Execution and Evaluation System	3-27
Chapter 7	The Defense Acquisition System	3-32
Chapter 8	Management of Defense Programs	3-37
Chapter 9	The Procurement Process	3-41
Chapter 10	Test and Evaluation (T&E)	3-45
Chapter 11	Cooperative Acquisition and Arms Sales	3-47
Chapter 12	The Industrial Base	3-51
Further Readings	3-54
Endnotes	3-55

PART 4 – REPUBLIC OF SINGAPORE

Chapter 1	History and Traditions	4-3
Chapter 2	The Government of Singapore	4-5
Chapter 3	The Ministry of Defence (MINDEF)	4-9
Chapter 4	The Acquisition Organization	4-13
Chapter 5	Requirements, Planning, and Budgeting	4-19
Chapter 6	The Defence Acquisition System	4-21
Chapter 7	Program Management	4-25
Chapter 8	The Procurement Process	4-27
Chapter 9	International Cooperation and Arms Sales	4-31
Chapter 10	Defence Industrial Base	4-32
Further Readings	4-35
Endnotes	4-36

PART 5 – THE UNITED STATES

Chapter 1	History and Traditions	5-3
Chapter 2	Congressional Involvement in Acquisition.....	5-9
Chapter 3	The Cabinet.....	5-13
Chapter 4	Department of Defense.....	5-15
Chapter 5	Defense Acquisition Structure	5-22
Chapter 6	Service Acquisition Organizations.....	5-26
Chapter 7	The Defense Acquisition System	5-35
Chapter 8	Defense Acquisition and Technology Workforce	5-46
Chapter 9	Test and Evaluation of Weapon Systems	5-50
Chapter 10	Cooperative Acquisition and Foreign Military Sales (FMS)	5-55
Chapter 11	The Industrial Base.....	5-60
	Further Readings	5-64
	Endnotes	5-65

PART 6 – COMPARATIVE ANALYSIS

Chapter 1	A Comparison of the Acquisition Systems of Australia, Japan, South Korea, Singapore and the United States	6-3
	Endnotes	6-16

APPENDIXES

Appendix A	Armed Forces	A-3
Appendix B	List of Acquisition and Related Organizations.....	A-4
Appendix C	Government-Owned, Government-Operated (GOGO)/ Government-Owned/Contractor-Operated (GOCO) Industrial Facilities	A-22
Appendix D	Glossary	A-25
Appendix E	Bibliography	A-29

ACKNOWLEDGMENTS

In 1998, the Australian Defence Forces Academy and the Defense Systems Management College (DSMC) co-sponsored the First International Acquisition and Procurement Seminar (IAPS)-Pacific in Canberra, Australia. The second conference was held in 1999 in Seoul, South Korea, sponsored by DSMC and the Korean Institute of Defense Analyses (KIDA). The third seminar will be held in September 2000 in Singapore hosted by the Ministry of Defence. This seminar provides a forum for Pacific Rim Nations to exchange views and discusses problems each nation faces in the acquisition of military equipment. An element of this seminar is a comparison of the various acquisition systems of each nation to provide a better understanding of other nations' acquisition environment, structure and processes and to share lessons learned from those involved with international defense cooperation programs.

IAPS-Pacific parallels the work DSMC has done with its European Allies. International Defense Education Arrangement (IDEA) is an arrangement among the "acquisition education" institutions of France, Germany the United Kingdom and the United States. In 1998 the IDEA nations sponsored an effort to publish a book which compared the acquisition approaches of the four IDEA nations. In 1999 the Defense Systems Management College published its first comparison of acquisition systems—*A Comparison of the Defense Acquisition Systems of France, Germany, the United Kingdom and the United States*. Building on the comparison work presented in the first and second IAPS conferences, this volume looks at the acquisition systems of the five primary participants involved

in IAPS—Australia, Japan, South Korea, Singapore, and the United States.

This book is the work of many people, each of whom contributed an extraordinary amount of help in developing the individual country chapters. I am indebted to many people who contributed their ideas and time to this effort. A special thanks to Faye Dufer for her tireless efforts correcting my grammar and computer errors, and providing the final editing of my chapters. All the members of the DSMC Executive Institute—Tom Dolan, Ron Register, Joanne Langston, Frank Swofford, John Wilson, Bill Lukens—who for over a year responded to my requests for information and reviewed my drafts, I owe a debt of gratitude. I also owe a debt of thanks to Lt. Col. Bob Faulk, and many other DSMC faculty who helped provide insight into areas where they are the real experts. On a personal note, my wife Mellie spent hours at home reading my esoteric material and providing me a civilian's perspective on our complicated acquisition system. And finally, to an old friend, whose editorial efforts always improve my work—Bruce Robinson—special thanks!

I also need to thank the many people who contributed their time and efforts to review and provide information on their acquisition systems. From Korea I want to provide a personnel thanks to Mr. Kang, Haeng Jung, the Director General, Analysis and Evaluation Bureau, Dr. Cho, Nam-Hoon, Associate Research Fellow, Dr. Hwang, Dong Joon, Vice President from the Korean Institute of Defense Analyses. The help of Colonel William Johnson, Major Michael Finnegan, LTC Jiyul Kim from the Joint United States

INTRODUCTION

“How do we produce affordable systems to meet our common strategic objectives?...it becomes impractical for each nation to consider independent major weapon system development and/or production...To stay ahead of the enemy and to counter the new dimension of threats we will face as coalition partners, we must develop these new defenses cooperatively.”

— Jacques Gansler,
Under Secretary of Defense
(Acquisition, Technology & Logistics)¹

As we start the new Millennium, it is worthwhile to look back to the early years of the last century in the Pacific to provide a backdrop for the security environment in this century. Japan emerged as an international power flexing its military muscle by defeating both China and Russia. Korea, as an independent vassal of China, became a protectorate of Japan. Australia declared its freedom from Great Britain and became an independent nation in 1905. Singapore, however, was still an entrepot and remained with the British Empire. Its independence was more than a half century away.

As the Century evolved, the Pacific region saw devastating wars, the disappearance of empires, revolutions and political changes. But new economic powers arose in the Pacific—Japan with the second largest economy in the world, a resurgent China, and the economic “Asian Tigers”—South Korea, Singapore, Thailand, Malaysia and Indonesia. As we left the Century, the “Asian Tigers” had stumbled, but South Korea, Singapore and Malaysia seemed to be on the road to recovery. Japan was still struggling to resuscitate its economy. Political change saw the “winds of democracy” sweep across the Pacific. Technology—aircraft, telephones and the

Internet—contributed to a changing social and cultural landscape of these nations.

Much of this can be seen as progress, but peace has yet to “break out.” The Korean peninsula still has two armies poised for combat. North Korea’s actions concern the Japanese. Southeast Asian conditions—possible political disintegration in Indonesia and the, sometimes contentious, relations with Malaysia—worry Singapore. While Australia has no immediate regional threats, UN efforts in East Timor stretch their military resources. China has contentious territorial issues in the South China Sea with its Southeast Asian neighbors and its relationship with Taiwan worries decision-makers throughout the region. With our “futuristic glasses” on, it is still difficult to know potential security threats—intimidation may come from a variety of sources—missile launches by North Korean or Iranian terrorist attacks, a nuclear exchange between India and Pakistan, or cyber attacks on military organizations.

Each of the nations in this book responds to these threats in different ways. One constant however, is the recognition of the need for technologically sophisticated weapon systems to respond

to the threats. But, technologically sophisticated weapon systems are costly. Accordingly, in each of these nations, domestic needs continually conflict with the need to maintain an adequate military capability.

Since the 1970s, cooperative armament projects have offered the often-unrealized hope of leveraging national resources. For the United States, international cooperation began with the Atlantic Alliance members. "These (cooperative) programs help strengthen the connective tissue, the military and industrial relationships that bind our nations in a strong security relationship. The political dimension of armaments cooperation is becoming increasingly important in an uncertain international security environment."² While international cooperation efforts began in the Atlantic, our allies in the Pacific have also become partners in cooperative efforts. Cooperative research and development projects are being carried out with Japan for the ACES II ejection seat, with Australia for the Over the Horizon Radar, and with Korea for the Advanced Jet Trainer/Light Combat Aircraft.

This is a book about the national armament systems of five nations. It provides an introduction to the political environment, the acquisition organizations, systems and processes of Australia, Japan, South Korea, Singapore, and the United States. These countries were selected for two reasons; they are participants in the annual Pacific International Acquisition and Procurements Seminar (IAPS) and, because as allies and friends they are likely participants in future international armaments cooperative programs.

Armaments cooperation happens for a range of reasons. Nations anticipate cost savings or desire access to better technology. The development of common requirements, common testing approaches and collaboration in development and production offer each country opportunities for reducing costs and developing

more capable equipment. In other cases, collaboration is seen as a method of transfer of technology to their own defense and commercial industries. While nations, for a variety of reasons agree to cooperate, having the will to cooperate does not mean managing an international program is an easy task. National culture and traditions complicate the job. Different time zones, different currencies, and different fiscal years add to the difficulty. Communicating complex issues through the fog of language, either verbally or in writing, offers a challenging problem for both the Program Manager and the multinational team members. Changes in government and conflicts between executive and legislative branches of government increase the turmoil faced by Program Managers in each country's acquisition organization.

Working effectively in the international environment requires knowledge of the people, organizations and cultures of each country. As its primary purpose, this book looks at the major political and military acquisition characteristics of the five countries, and provides an overview of their organizations and processes. A useful starting point for understanding an organization is to look at its organizational structure. An organizational structure indicates where activities take place, how the management system operates, and indicates where authority and responsibility rest. The managerial system, which includes the formalized policies and procedures, guides the activities of the acquisition organizations and provides an understanding of how the system operates.

This book was written for several audiences. For the acquisition practitioners, this introduction should provide a basic understanding of the other countries' systems and their approach to armaments development. This basic understanding will help identify their counterparts and more effectively and efficiently perform their assignment in the international environment. By com-

paring these different systems, a mutual understanding should facilitate the establishment of collaborative projects.

There are several secondary purposes. Every year the United States assigns large numbers of military personnel overseas to Security Assistance Organizations (SAO). These "SAOs" perform a key role in the interface between the military of our government and the host country. One of their many tasks is to work with the other country's acquisition system. This book will be a "good read" for them as they attempt to understand and work with these organizations. It will also provide an introduction to the United States acquisition system.

In preparation for this book my research of the literature of comparative politics unearthed very little research done at the ministerial level of government—comparing the practices, procedures and organizational approaches to implementing government policies. For students of comparative politics, governments, and public administration, this book provides a structured approach to understanding the organizations and approaches to managing the acquisition and development of weapons systems.

"Change has few friends," goes the old saying. While change has few friends, the political, bureaucratic system seems to find change irresistible. Change is a constant feature of the acquisition systems of these countries: new initiatives, new organizations, old and new approaches to solving the complex problems of weapons development and to compliment the changing political philosophies of administrations. Even as this book was being written, the United States, Korea and Singapore all made major changes within their organizations and processes. This book offers another perspective, i.e., a "snapshot in time," which will provide future readers a historical perspective on the acquisition systems of these countries.

"Looking at another system helps illuminate our own."³ Understanding other countries helps us to better understand ourselves. Ideally, by comparing countries to one another, we can get a "feel" for the diversity of approaches to acquisition, understand, in part, how these systems have evolved; and draw our own conclusions as to the relative merits and weaknesses of different forms of political, military and bureaucratic organizations. As we look at the different ways other countries organize, manage, and develop weapon systems, we are offered a unique understanding of our own system. Readers should be guided to look beyond similarities and differences to discern underlying principles and their political consequences in the different countries.

In reading this book and evaluating the systems in these countries, the reader should understand each country's historical political environment, the organizations responsible for acquisition, and the processes used to develop a system. Their political systems, defense and security needs, economic resources, and cultures have all evolved over time. To provide a comparative basis, the structures, the functions and the processes are presented in each section of the chapters. Also, where appropriate, each section is introduced with a short historical background to provide a setting for the current organization and its processes.

"Montesquieu says that at the birth of political societies, it is the leaders of the republic who shape the institutions but that afterward it is the institutions which shape the leaders of the republic."⁴ Organizations mold behavior, but the organizations were created for a variety of reasons to include ideology, cultural constraints and history. What is the effect of political and bureaucratic institutions on the acquisition system? What special problems arise from public accountability and political control? The view of the acquisition environment shown in this book

will provide insight for those interested in understanding how each of these countries systems operate.

The first five parts are organized around a specific country and cover four general topics—the political environment, the military and the requirements process, the acquisition system, and the defense industrial base.

Each Chapter looks at the political environment to include the legislature, the elected politicians and the roles they play in controlling and managing the executive branch and the armament organization. In looking at the acquisition organization and its structure, each chapter tries to answer these questions: How does the military part of the organization relate to the acquisition and modernization enterprise? What is the role of the military in the development of requirements? What are the military and civilian roles? What type of education and training do they provide their acquisition personnel? How does each country manage a major program? What are their approaches? What are the different budgeting and planning systems? How is the procurement process structured? What is the decision-making process in the organization? Who makes the decisions? What is the role of competition? How do they approach source selection? What types of contracts do they use? What type of oversight do they perform on their contractors? How do they test new equipment?

Finally, we look at the defense industrial base. How have each of these nations responded to the need to build defense equipment? What is the role of private enterprise? What is the public armory role? How has the relationship between industry and government been maintained? What type of industrial base does each country have?

As the commercial industrial base has become worldwide, how has the defense industry responded to the “globalization” challenge?

Chapter 6 provides a comparison of the five systems.

Throughout this book the term “Revolution in Military Affairs” is used. Commonly called by its acronym RMA, it is the banner under which military departments worldwide are incorporating advanced technology into their fighting doctrines and their war machines. Desert Storm and Kosovo demonstrated the impact of technology on the battlefield. Advanced technology allowed bombs to be delivered with precision, locate enemy targets and fly without detection. However, technology is expensive and each generation of technology is introduced at a faster pace than the acquisition cycle can respond. To free up the money needed for the RMA, a Revolution in Business Affairs (RBA) is necessary. The business side of defense needs to change—to become more streamlined, and to develop less costly weapon systems, that cost less over the life cycle. RBA is a search for the best organization, the best procedures, and the best practices. Strategies such as evolutionary acquisition (U.S.), a single RFP process (Korea), commercial specifications (Japan), a standing review board for acquisition programs (Australia) and a new agency (Singapore) are examples of nations looking for better ways of doing business. They are striving for a method of achieving “value for money”—the best weapons systems at the most affordable cost.

This book can be read several different ways. For those with an interest in a specific country, the individual country chapter will provide insight into how they do business. For those interested in a comparative analysis, Chapter 7 reviews all five countries and compares and contrasts the approaches to delivery of weapons system and how the system operates.

Recognizing the limitations of this work, the authors have added a recommended reading list to provide further insight into the culture, the

political system and the military acquisition system.

Finally, a caveat in reading this book. The students at the Defense Systems Management College (DSMC) are always looking for "best practices." What works best? The national chapters in this book are designed to draw a picture of how national systems address the complex tasks

of making defence acquisition work. While it would be nice to have exact comparisons to highlight good practices, this book is designed to facilitate successful cooperation through an understanding of our differences and similarities. Our intent is not to provide an analysis of which system is best, but rather insight into how each system operates.

to provide further insight into the culture, the political system and the military acquisition system.

Finally, a caveat in reading this book. The students at the Defense Systems Management College (DSMC) are always looking for "best practices." What works best? The national chapters in this book are designed to draw a picture of

how national systems address the complex tasks of making defence acquisition work. While it would be nice to have exact comparisons to highlight good practices, this book is designed to facilitate successful cooperation through an understanding of our differences and similarities. Our intent is not to provide an analysis of which system is best, but rather insight into how each system operates.

ENDNOTES

1. Under Secretary of Defense (Acquisition, Technology and Logistics), U.S. – Korea Defense Industrial Cooperation Committee, Rosslyn, VA, October 15, 1999.
2. Address of Under Secretary of Defense for Acquisition and Technology, Honorable Paul G. Kaminski to ComDef '96 Conference, Omni Shoreham Hotel, Washington, D.C., April 1, 1996.
3. Richard Neustadt, 1980.
4. Jean-Jacques Rousseau, *The Social Contract*, translated by Maurice Cranstron (Harmondsworth: Penguin Books, 1968), p. 87.



PART 1
AUSTRALIA

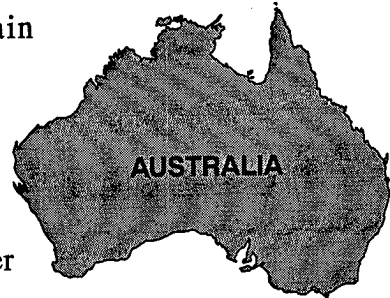
Chapter 1

INTRODUCTION

This part of the volume provides an overview of defence procurement in Australia in the broader context of the country's strategic environment, and of the management and funding of the defence organisation. It also considers the constitutional and legal framework within which the Australian Defence Organisation operates.¹ To understand defence procurement in Australia, one must understand the interplay of a number of strategic, economic, legal and institutional factors. In particular, the apparently endless succession of episodes of "reform" of the (Australian) Defence Acquisition Organisation can only be understood in the light of the broader context of defence budgeting and governance—and the commitment of successive governments to high levels of locally-sourced defence supplies in line with the doctrine of "self-reliance."

Overseas observers might be puzzled to learn that one of the best defence procurement organisations in the world has been regularly subjected to savage criticism and repeated bouts of restructuring. The same comment could be made about the Australian Defence Organisation as a whole. Yet it demonstrated in East Timor in 1999-2000, that the Australian Defence Force is highly professional, technologically sophisticated and cost-effective. But its management, command and governance were being called into question (again) as Australia entered the new century and, despite its demonstrable successes, the Defence Organisation was struggling to define its role and make a convincing case for its share of national resources. It is now an unpalatable but unavoidable fact that Australia faces a dilemma increasingly apparent to many other countries: how to structure a defence force and invest in

defence capability in the absence of an identifiable threat (see Chapter 3). Consequently, it has been very difficult to sustain national consensus about the appropriate level of spending on defence (Chapter 5 refers).



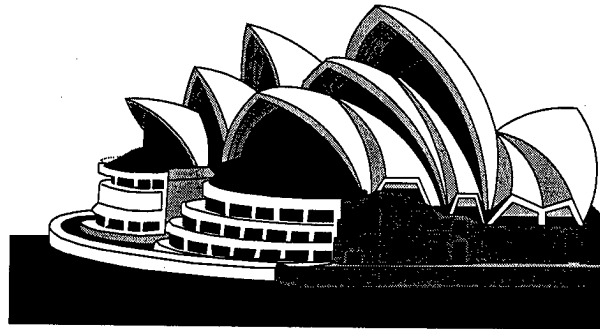
Military capability, which is provided by the Australian Defence Force, is centred on combat and combat support elements. However, it is but one element of *national defence capability*, which is shaped and sustained jointly with other elements of national power. These other elements include: the Defence Organisation; the machinery of governance; defence contractors and wider industry; national infrastructure; society at large, its national will and strategic priorities; and the country's international alliances and arrangements. In this part, key elements of Australia's defence capability are reviewed: the constitutional framework and the machinery of government (Chapter 2); Australia's strategic environment and priorities (Chapter 3); the Defence Organisation and governance (Chapter 4); the provision of resources to fund Australia's military capability (Chapter 5); the ongoing reform of the Defence Organisation (Chapter 6); the structure and operation of the Defence Acquisition Organisation (Chapter 7); the acquisition of major capital equipment (Chapter 8); and the defence industrial base (Chapter 9).

Australia is a geographically large country, with the world's longest national coastline to defend. It has a high per-capita income, though a relatively small economy for its 18 million people. The continent of Australia and the seas around it, which account for about ten percent of the total surface of the planet, are the areas of direct military interest to Australia. In view of its remoteness from major military powers and the inhospitable nature of much of its landmass, a sudden major military attack on Australia does not appear to be very probable. However, the likelihood of the country becoming involved in a major or minor military contingency is quite significant, given Australia's military obligations to its allies (see Chapter 3) and its support for international constabulary activities (peace-keeping and enforcement), in particular those undertaken under the auspices of the United Nations.

Australia has a relatively small public sector and is a medium size defence spender, with a defence budget of A\$18 billion (U.S. \$10 billion) in 1999-2000. This represents about eight percent of Government budget outlays and, *net* of the Capital Use Charge, 1.9 percent of Australia's Gross Domestic Product (GDP).² Some 85 percent of the defence budget is normally spent in Australia and over 60 percent of it goes to the procurement and maintenance of capital equipment and the purchase of consumables. On present strategic projections, defence expenditure is not expected to grow faster than the economy, that is, it is likely to stay at about two percent of GDP (again excluding the Capital Use Charge).

The ratio of military expenditure to GDP is a standard indicator of the defence burden on the economy and a reasonable indicator of threat perception. In comparison with other countries, Australian military expenditure, as a proportion of GDP, is on the low side but, in absolute terms, it puts Australia in the second tier of defence spenders in the Asia-Pacific region.

Given its small size (about fifty-three thousand uniformed personnel in 1998-99), the main qualities required of the Australian Defence Force are high levels of lethality, mobility, adaptability and flexibility to meet a very diverse range of potential threats. In part, this has been achieved through the use of professional military personnel—there is no conscription—and through the use of technologically sophisticated weapons systems as a force multiplier.³ Australian policy makers, however, have long had to balance demands for technological sophistication, based on imports of the state-of-the-art weapons systems, with *self-reliance requirements* calling for high local content in procurement of military materiel. Things have been further complicated by a reluctance to pay excessive premia for domestically sourced equipment (see Chapter 4).



Defence funding has declined by over two percent in real terms since the late 1980s (Chapter 5 refers). At the same time, its systems have become more capital and technology intensive. Staff reductions (military and civilian) in the 1990s totaled some 20 percent (see Chapter 6). On the other hand, the share of new investment in capital equipment and facilities in the overall defence budget has risen from below 20 percent in the early 1980s to over 25 percent in the late 1990s. Despite the aging of some major platforms (e.g. F-111 aircraft), the ADF inventory has become technologically much more sophisticated and its personnel more technology-oriented.

The success of policy involving the acquisition of technologically advanced equipment during a period of budgetary restraint has been predicated on the ability of the Defence Organisation to uncover surplus-to-requirement assets (e.g., buildings, equipment) and under-utilised resources, which could subsequently be released from these less-productive uses to pay for new weapons systems. A significant proportion of such “savings” was to be achieved through the shedding of civilian and military personnel resulting from market testing and contracting out “non-core” activities. But labour costs have been difficult to cut even when personnel numbers were being reduced, since the skills and expertise required of personnel were substantially increasing and employment conditions have had to compete with those outside Defence in a healthy, growing economy. Thus, real savings (resources actually available for re-deployment) have been much smaller than had been hoped for (see Chapter 6). However, even if further sources of “slack” within the defence portfolio can be identified and taken-up, a capital- and technology-intensive investment strategy is unlikely to be sustainable in the long-run unless there is an increase in real spending beyond the current level of 1.9 percent of GDP.

By world standards, the Australian Defence Force buys relatively small quantities of technologically advanced equipment and consumables. By the end of the 1990s, investment in equipment and facilities accounted for about a quarter of the annual defence budget (about U.S.\$1.75 billion), personnel for over a third of it, and operating costs for about 40 percent of the Budget.⁴ Although acquisitions of major capital assets have included large local content requirements, defence procurement has had a relatively small impact on the Australian economy as a whole. It is important, though for particular industry sectors and individual firms (Chapter 9 refers).

For most defence-specific products, the domestic requirement is too small to sustain production lines capable of achieving significant economies of scale. Exports and “dual technology” have been proposed as means of achieving longer product runs, but, by and large, Australia is an insignificant exporter of defence equipment and consumables and defence-related firms have found it difficult to combine military and civilian outputs within one production facility. In this respect, Australia’s experience is similar to that of many other countries.

Historically, defence-related industry sectors in Australia have tended to contain more producers than domestic demand for defence equipment is strong enough to sustain in peacetime. Significant consolidation has taken place in recent years (Chapter 9) but the process may well have a way to go.⁵ In the past, many of these firms have operated with a great deal of spare capacity and at scales well below those needed to stay cost competitive. Some of them have been kept viable by various forms of “demand management.”⁶ As observed by the authors of recent efficiency report, “The Australian defence market is too small to provide continuity of production, let alone sufficient new design and development work for such firms to remain viable without subsidisation in most areas.”⁷

Like other parts of this volume, this part also contains a description of the organisational structure for defence procurement in Australia (Chapter 7) and of the procurement process itself (Chapter 8). Both of these are likely to change by the time this volume appears in print but the specific nature of changes is difficult to ascertain at the time of writing. It is expected that the Defence Procurement Organisation, mainly responsible for capital acquisitions, will be combined with Support Command, responsible for through-life logistic support. The envisaged merger should consolidate the plethora of asset acquisition and logistic support tasks into an

integrated, "cradle-to-grave" capability formation, support and management process. It is also expected that the new, post-merger acquisition entity will place greater emphasis on: flexible forms of contracting (incentive and alliance contracting); non-adversarial post-contractual relationships with suppliers (integrated project teams, partnering arrangements); early involvement of acquisition personnel in requirements specification; longer term budgeting (to give more meaning to life cycle costing); and closer

collaboration with users at all stages in capability specification, formation and maintenance.

In this part, the authors have put considerable emphasis on budgetary and management issues in the Australian Defence Organisation. These issues are critical to understanding the forces shaping the broader organisational context within which the new Defence Procurement Organisation will operate.

Chapter 2

THE GOVERNMENT OF AUSTRALIA

The constitutional fabric of modern Australia may to some be rather confusing. For example, Section 1 of the Australian Federal Constitution provides that “The legislative power of the Commonwealth shall be vested in a Federal Parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called “The Parliament,” or “The Parliament of the Commonwealth.” Although Australia is an independent country, “the Queen” referred to above means the ruling *British Monarch* (Queen Victoria at the time the Federal Constitution was adopted and Queen Elizabeth II at the time of writing). She is represented in Australia by the Governor-General (at the Federal level) and by State Governors (in each State). Australia has been a Federation (of States) since 1901. However, substantial constitutional powers remain vested in each State and the exact nature of the relationship between the Federal and State Governments is at times rather blurred. These relationships may be better understood with the aid of a brief history of their origins. This chapter draws on O’Connor (1998) and for further details regarding the workings of the Australian system of government the reader is referred to that publication.

History

Australia’s name was derived from *terra australis* (Latin: “southern land”). A great southern continent appeared on maps from the early Christian era and by the mid-sixteenth century it was being identified as *Terra Australis Nondum Cognita*. The Portuguese may have

visited the continent as early as 1520 and the Dutch were making extensive and accurate maps a century later. However, they found the land harsh and inhospitable, and showed no further interest in exploring and colonising it. In 1768, James Cook was dispatched to explore the coast of *Terra Australis* for Britain. Cook’s ship the *Endeavour* arrived at the southeastern tip of the continent in 1770 and Cook set ashore to claim it for Great Britain. He named the land “New South Wales.”

In 1788, the first British settlement—and, thus, the British Colony of New South Wales—was established at Port Jackson and the principle of *Terra Nullius* was applied to establish the new system of colonial land rights. *Terra Nullius* meant that a “clean slate” approach was taken to settlement, based on a premise that the Aborigines—the indigenous inhabitants of Australia—were nomadic and therefore had no established (customary or native) rights in land. New settlers could thus claim the continent and there was no need to sign a treaty with or obtain some other form of consent from the Aborigines. In New South Wales, and later in other British colonies formed on the Australian continent (Tasmania in 1825, Western Australia in 1829, South Australia in 1837, Victoria in 1850, and Queensland in 1859), the English legal system (the English common law) applied.

In 1842, the first Colonial Parliament (Legislature) was created by the British Parliament in the Colony of New South Wales. The enabling British law became known as the *Australian*

Constitutions Act (No.1). In 1850, the British Parliament passed the *Australian Constitutions Act (No.2)*, which allowed the colonial parliaments to draft and pass their own constitutions. These constitutions were limited in scope since colonial laws dealing with so-called "controversial matters" (such as the disposal of Crown land) had to be scrutinized and approved by the British Government before they could be granted Royal Assent (the British Monarch's consent to their enactment). Each colony established a bicameral (two-house) parliament with the upper house (the Legislative Council) and the Lower House (the Legislative Assembly).⁸

By the 1860s, the new Australian Colonies, assisted by the large-scale transportation of British convicts, were so well established that the British Parliament granted their colonial parliaments "the power to create laws for the peace, welfare and good Government of their citizens."⁹ In 1865, the British Parliament passed the *Colonial Laws Validity Act*, which allowed colonial laws to apply even when they were generally different from or inconsistent with the laws passed by the British Parliament or with the English common law. However, a colonial law (an Act of Parliament) could be made invalid if it was "repugnant to British law, i.e. if the British Parliament created a law, which was specifically designed to apply to a colony, then that colony could not have its parliament pass a law which was inconsistent with that British law."¹⁰ Thus, although the *Colonial Laws Validity Act* devolved considerable law-making powers to the colonial parliaments, the British Parliament retained the overarching right to create laws, which directly affected the Colonies.

The constitutional powers vested in Australian Colonies continued to be important even after the latter became States in the New Australian Federation and the Federal Parliament was created in 1901 under the Australian Federal Constitution. The Federal Constitution expressly

preserves the constitutions, legislative powers and laws of the States (the former Colonies). As the relationship between the British Parliament and the Australian Federal Government was defined, the new Australian Constitution neither contained a Declaration of Independence nor gave the Australian Federal Parliament the right to pass laws inconsistent with or repugnant to British laws. Similar problems were faced by other ex-British colonies and dominions such as Canada, New Zealand and South Africa and, after a series of conferences in the late 1920s, the countries concerned:

"...resolved that they were independent and equal nations and that steps needed to be taken to ensure that they could create laws (through their Parliaments) without fear that such laws could be ruled to be invalid because they conflicted with British laws. The result of these conferences was that, in 1931, the British Parliament passed the Statute of Westminster. It had three main effects:

- (a) the Colonial Laws Validity Act would not apply to the Federal Government;*
- (b) no federal law would be invalid because it was repugnant to the law of England, or because it was repugnant to an Act of the British Parliament; and*
- (c) no Act of the British Parliament would apply to the operations of the Federal Government, unless the Federal Government requested such an Act to be created."¹¹*

In 1942, the provisions of the *Statute of Westminster* were accepted by the Federal Government in the (Federal) *Statute of Westminster Adoption Act*. While the *Statute of*

Westminster enhanced the independence of the Australian Federal Parliament, it did not increase the independence of the Australian State Parliaments. In principle, the British Parliament still had power to pass laws, which could directly impact on any Australian State, as long as the subject matter of such legislation was not within the power or authority of the Australian Federal Government. This anomaly was not rectified until 1986, when the Federal Parliament passed the *Australia Act*, which created independent State Parliaments similar to the independent Federal Parliament. Thus, it was not until the mid 1980s—more than 80 years after the creation of an “independent and equal” Australian Federation—that all Australian Parliaments became fully independent of the British Parliament.¹²

The Three Arms of the Federal Government

Australia is a constitutional monarchy; that is, it is a system of government in which the ruling British Monarch is the Head of State but where the powers of the Monarch are clearly defined and severely limited by the Federal Constitution. The first three chapters of the Constitution define three arms of the Federal Government. These are:

1. *The Executive*, comprising the Governor-General (representing the Monarch) and the Federal Cabinet of Ministers led by the Prime Minister, which is responsible for setting the policies of the Federal Government, overseeing the administration of these policies, and for enforcing Federal laws by prosecuting people who break them. The Public Service, controlled by the Federal Ministers, is responsible for the administration of Government policies;
2. *The Parliament*, comprising the House of Representatives and the Senate, enacts (passes) laws which give effect to the policies of the Executive; and
3. *The Judiciary* (or the *Judicature*), comprising the High Court of Australia and certain Federal courts, which applies and interprets the laws enacted by the Parliament.

Because the three arms of Government are dealt with in different chapters of the Constitution, it appears that the doctrine of the separation of powers has been applied to the activities of the Federal Government.¹³ The doctrine requires that the three arms of Government operate separately and independently of each other so that decision-making powers are more broadly distributed for the protection of all Australians.

In principle, this doctrine should have also applied to the pre-Federation Colonial Governments and, thus, to each present-day State Government. In practice though, the doctrine is sometimes ignored at the State level since the constitutions of the former Colonies do not set out the operations of each arm of Government in separate chapters.¹⁴ Even at the Federal level the doctrine is sometimes ignored or not applied as certain Government operations are occasionally undertaken or controlled by arms of Government other than the one defined in the appropriate chapter of the Federal Constitution (see below).



The Parliament

Chapter 1 of the Constitution gives the Federal Parliament (the Parliament of the Commonwealth) legislative power, the power to pass new laws (*Acts of Parliament*) and laws which amend existing Acts. The Parliament consists of the

Monarch, a Senate (an Upper House) and a House of Representatives (a Lower House). Thus, the Federal Parliament is a bicameral Parliament and the draft laws (*Bills*) must be passed by both Houses to become Acts. They must also receive the formal *assent* (approval) from the Governor-General acting on behalf of the Monarch. Thus, under the Australian Federal Constitution, the Monarch is vested with some *legislative* power. This is because any Acts passed by the Parliament cannot come into effect until the Monarch's assent has been obtained and the process of assenting to Acts is undertaken by the Governor-General as the Monarch's representative.¹⁵

Members of both Houses of the Parliament are elected by popular vote. Members of the House of Representatives are elected for a period of up to three years and Senators a period of six years but half the Senators are due for re-election every three years. Thus, Parliamentary elections must be held at least once every three years and often occur well within that span. While prospective Members of Parliament may stand as independents, nearly all of them belong to one of the major political parties: the Liberal Party, the Australian Labor Party, the National Party, the Australian Democrats, and the Greens. The political party, which has won the majority of seats in the House of Representatives is entitled to form the Government and its leader to be appointed the Prime Minister.¹⁶ The Constitution prescribes, *inter alia*, that the Parliament must sit (meet) at least once every 12 months. Figure 1-1 provides further details of both Houses of Parliament and parliamentary procedure.

The Executive

The Executive comprises both the Prime Minister and his/her Cabinet of Ministers *and* the Governor-General, as the Monarch's representative. Under the Constitution, the executive power of the Federal Government is vested in

the Federal Executive Council, which advises the Governor-General in the Government of the Commonwealth.

The Federal Executive Council comprises the Prime Minister and the Cabinet of Ministers, appointed by the political party that holds the majority of seats in the House of Representatives, and the Governor-General. As in most other countries, individual Ministers are responsible for one or more specific areas of government. For example, a member of the Cabinet in charge of the area (portfolio) of "defence" is the Minister for Defence.

PUBLIC ADMINISTRATION

Ministers are supported by Departments, which are staffed by public servants who administer the Minister's portfolio, provide policy advice and who are in charge of the delivery of portfolio services. The Ministers are also responsible for administrative rules (*Regulations*) produced by their Departments to administer the routine business of the portfolio and implement the relevant Acts of Parliament. As Ministers should ultimately be responsible for the administration of Government's business, the power of the Executive is sometimes referred to as *administrative* power.¹⁷

In principle, the passing of Federal Regulations is the prerogative of the Federal Parliament since the legislative power is vested in the Parliament and not the Executive. In practice, the doctrine of the separation of powers is not applied in this case as, to reduce its workload, the Parliament often passes an Act which gives authority to the Executive to pass Regulations to accompany the Act, so that it may be administered and effectively implemented.¹⁸

In some circumstances, Acts of Parliament or administrative Regulations may require a board or tribunal to be established to review decisions

The House of Representatives

The Constitution requires that every member of the Lower House represent roughly the same number of voters (at present, electorates of about 75,000–80,000 people). The Constitution allows the Parliament to make laws to determine the number of members in the Lower House. Since Federation, the membership has increased from 75 members to 148. The Constitution also provides for the election of a *Speaker* of the House of Representatives, whose job is to ensure that the business of the House proceeds in an orderly manner and in accordance with parliamentary rules (standing orders).

The Senate

In debates leading to the Federation of Australian Colonies, the smaller Colonies favoured the concept of a Senate as an important “house of review” which would have the power to scrutinise and, if need be, to impede the proposed legislation of the House of Representatives. Consequently, the Federal Constitution provided that all States would be granted an equal number of Senators regardless of their population. On the other hand, the inter-state distribution of the membership of the House of Representatives is entirely dependent upon the distribution of population between the States. Thus, a larger State (e.g., New South Wales) has a larger representation in the Lower House than a small State (e.g., Tasmania) but an equal number of Senators in the Upper House. Historically, this was intended to ensure that the House of Representatives would not pass legislation favouring larger States at the expense of the smaller ones. This is a source of frustration for governments with a large majority in the Lower House but no majority in the Senate. The Senate may significantly impede the passing of a major piece of legislation, when independent or minor party senators tip the balance of power.

Parliamentary Procedure

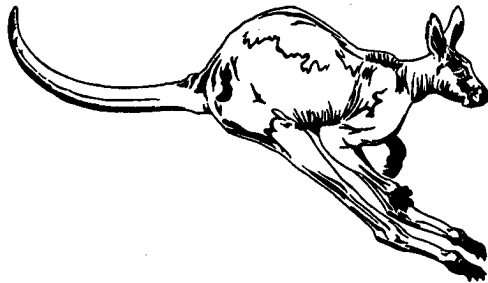
Most laws of a Government (Federal or State legislation) are contained in Acts of Parliament. As noted, an Act starts its life as a Bill (a draft Act) and is prepared by a senior Government lawyer (Parliamentary Draftsman or Parliamentary Counsel). Normally, Bills are introduced by the Government of the day. Individual members of Parliament may also introduce Bills (*Private Member Bills*). A Bill may be introduced in either House of Parliament, although it is usually presented to the House of Representatives. Money Bills (*Appropriation or Supply Bills*), which allow the Government to spend money and raise taxes, may **only be** introduced in the House of Representatives. However, regardless of where it is first introduced, both Houses of Parliament must pass a Bill before it becomes an Act.

When the House of Representatives and the Senate cannot agree upon a particular Bill—for example, when the Government commands a majority in the House of Representatives but not in the Senate—the Constitution provides that both Houses of Parliament may be dissolved and a Federal election may be called (*double dissolution election*). At such an election, all eligible citizens would be required to vote for the House of Representatives and the full Senate. The double dissolution provision is not compulsory in the case of deadlock between the Houses, but it is available at the option of the Government. It is often used as a political threat to opposition parties that may be blocking a bill in one House—particularly where those opposition parties are not enjoying high public support in opinion.¹ If the same political party has again won a majority of seats in the House of Representatives and formed a Government after a double dissolution election, the same Bill may again be passed through the House of Representatives. If the Senate **once more** rejects or fails to pass the Bill, or passes it with amendments which the House of Representatives will not approve, then a joint sitting of the two houses may be called.”

¹ O'Connor, 1998

Figure 1-1. The Australian Parliament

made by public servants in a department. Normally, the review board/tribunal is established as an element of the Executive power to review an *administrative* decision of a department. However, these boards or tribunals have sometimes been given powers, which are equivalent to those of a court. This is another example of the breach of the doctrine of separation of powers, in that the Executive may be performing a *judicial* function, which might be regarded as the prerogative of the Judiciary.¹⁹



FEDERAL GOVERNMENT POWERS

Although the Australian Constitution determines areas where the Federal Government has *express power* to pass laws, many of these powers are *not exclusive* to the Federal Government and may also be exercised by the State Governments. However, when laws are passed by both a State and Federal Government covering the same subject matter and the State law is in conflict with the Federal law, then the Constitution provides that "the latter shall prevail and the former shall, to the extent of the inconsistency, be invalid." Some concurrent powers are not exercised by the States and are, thus, *de facto* limited to the Federal Government.

Since 1904, under the so-called *doctrine of implied immunity*, the High Court has applied a principle which limits the scope of federal power by prohibiting one level of Government (be it State or Federal) from interfering in the business or operations of the other level of Government.²⁰

Constitutionally, the exclusive powers of the Federal Parliament are confined to passing laws in respect of the location of the Federal Government; managing the Federal public service; issue of currency; and, raising and maintaining a military force. The latter power is exclusive to the Federal parliament by Section 114 of the Federal Constitution, which provides that "a State shall not, without the consent of the Parliament of the Commonwealth, raise or maintain any naval or military force."

The Judiciary

The Federal Constitution creates the third arm of the Federal Government by providing that:

*"The Judicial power of the Commonwealth shall be vested in a Federal Supreme Court, to be called the High Court of Australia, and in such other federal courts as the Parliament creates, and in such other courts as it invests with federal jurisdiction. The High Court shall consist of a Chief Justice, and so many other Justices, not less than two, as the Parliament prescribes."*²¹

The High Court is the chief court in Australia. Its main functions are to: apply the laws of the Federal Government; interpret the meaning of those laws when the intent or meaning of those laws is unclear; and hear appeals from decisions regarding civil (disputes) and criminal (law breaking) matters made by lower Federal, State and Territory courts.²² The High Court may also be asked to clarify the meaning of certain sections of the Federal Constitution or rule on whether the doctrine of separation of powers has been broken.²³

In practice, the High Court is rarely called upon to make such rulings. And, in fact, the Constitution contains no specific methods by which the doctrine can be enforced.

“This is in contrast to the Constitution of the United States which does create a limited set of checks and balances between the Executive and Parliamentary arms of Government.... Our Constitution contains no such system of checks on the exercise of powers between the Executive and the Parliament.... Some people may consider that this is a fault in our Constitution, however others may argue that this allows a more liberal and realistic application of the doctrine. The latter view may be the better view, as the United States system can often result in legislative gridlock—particularly when the Congress is controlled by one political party, whilst the President belongs to another party.”²⁴

A number of other Federal courts have been created by the Federal Parliament since Federation.²⁵

PARLIAMENTARY COMMITTEES

Parliamentary Committee System

The purpose of parliamentary committee system is to perform functions which the Houses themselves are not well equipped to perform, such as carrying out inquiries, hearing witnesses, examining evidence, discussing matters in detail and formulating reasoned conclusions. This kind of work is more effectively carried out by small groups of Members. By concentrating on specific tasks or subjects, committees offer the benefits of specialisation. Through its committee system, the Parliament obtains information from the Government and is able to receive advice from experts on the matters under investigation.²⁶

An important function of committees is to scrutinise government activity. Thus, parliamentary committees oversee the expenditure of public money and may call the Government or the public service to account for their actions

and explain/justify particular administrative decisions. Public input is another important dimension of the committee system. Committee inquiries increase public awareness of and stimulate debate on matters being considered by the Parliament. Committee meetings provide public fora for the presentation of the various views of individual citizens and interest groups.

A parliamentary committee consists of a group of Members or Senators (or both in the case of joint committees) appointed by one or both Houses of Parliament. Most Members of Parliament (MPs), except Ministers and some of the principal office holders, serve on committees. Committees are normally composed of Members from the various parties in proportion to the numerical strength of each group in the House. Thus government members form a majority on each committee. In practice each committee is chaired by a government member and has an opposition member as deputy chair.²⁷

Committees have considerable powers, usually delegated to them by the House(s) appointing them. Laws establishing some committees may also include particular provisions on these matters. Committee proceedings are “proceedings in Parliament,” and therefore “privileged.” Members and others participating, such as witnesses giving evidence, are thereby protected from being sued or prosecuted for anything they may say during such proceedings. Written evidence received by a committee is similarly protected. These powers ensure that committees are able to get comprehensive and reliable information.

The committee system contributes to better public administration and policy making through committee reports and recommendations. Committee reports usually recommend government action, e.g. the introduction of legislation, a change in administrative procedures or review of policy. Such action is the responsibility of

the Executive Government. The latter responds to such committee reports by way of a prepared response to the House. The response may accept, wholly or partially, a committee's recommendations, and announce its intention to take certain action. Even though a committee's recommendations may not be implemented directly, they may exert some indirect influence as the information collected by the committee and its reasoned conclusions may nevertheless be taken into account by the Government, and may also have a wider impact on the community at large.

Joint Standing Committee on Foreign Affairs, Defence and Trade

Foreign Affairs, Defence and Trade is one of 13 joint committees. It is established by a resolution of both the House of Representatives and the Senate. Because of the role of the Joint Committee on Foreign Affairs, Defence and Trade there is no general purpose standing committee covering these subject areas. The purpose of this committee is to consider and report on such matters relating to foreign affairs, defence and trade as may be referred to it by either House of the Parliament; the Minister for Foreign Affairs; the Minister for Defence; or the Minister for Trade. The Committee may also inquire into

matters raised in annual reports of relevant Commonwealth government departments and authorities or in reports of the Commonwealth Auditor-General.²⁸ It is the most important committee dealing with defence matters. For example, current inquiries include, *inter alia*:

- Australia's relations with the Middle East, including the Gulf region;
- Australia's relations with the United Nations in the post Cold War environment; and
- the suitability of the Australian Army for peacetime, peacekeeping and war.

The Committee consists of 32 members. Of these, 12 Members of the House of Representatives are nominated by the Government Whip, eight Members of the House of Representatives are nominated by the Opposition Whip or by any independent Member. From the Senate, the Leader of the Government nominates five Senators, the Leader of the Opposition nominates five Senators and two Senators are nominated by any minority group or groups, or independent Senators. A Government member is elected as its Chair.

Chapter 3

AUSTRALIA'S STRATEGIC ENVIRONMENT

Australia's International Security and Strategic Priorities

Since World War II, Australia has faced the dilemma of how to structure defence policy in the absence of an identifiable threat. Kim Beazley, a former Defence Minister in the Hawke Government of the 1980s, put it this way:

“For most of our history, our efforts to build a cogent intellectual basis for Australian Defence Policy have foundered at the very beginning over a quite fundamental uncertainty about what our Defence Forces are intended to do.”²⁹

For most of this century, Australia's solution to this problem has been to seek protection from powerful though distant allies. Until the late 1960s, Australian defence policy assumed that its forces would normally operate in conjunction with allies in areas distant from Australia's shores. Strong traditional kinship with Britain was the lynchpin of policy until the 1950s and Australian forces were structured primarily for overseas service (doctrine of forward defence). In the Cold War, the Soviet Union and later China were identified as the most likely potential foes of the British Commonwealth in the Asia-Pacific region.

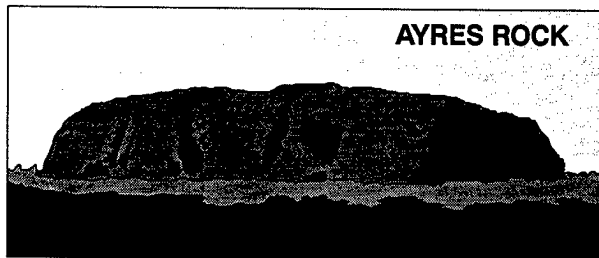
The alliance with the USA, first forged in 1942 following the fall of Singapore, rapidly grew into the main strategic alliance underpinning much of Australia's defence and foreign policy in the 1960s and 1970s. The era of Imperial Defence

came to an end in 1968 with the withdrawal of all British forces east of Suez. The same year, President Nixon made it clear that the United States was not prepared to fill the void as Australia's new imperial protector. This marked a turning point in Australia's strategic perceptions: the strategic dependence approach was no longer viable and a new policy of *self-reliance* began to take shape.

At the heart of the doctrine of self-reliance is a requirement for the capability to counter credible low level contingencies, which nevertheless may be very demanding, given the vastness of Australia's area of direct military interest. The policy of self-reliance does not aim to achieve military self-sufficiency. It merely aims to permit Australia to conduct military operations in the event of credible low and medium level threats without depending immediately on potentially unreliable sources of military support and supply. The policy of self-reliance was one of three pillars of overall strategic policy outlined in the 1987 White Paper, *The Defence of Australia*—the remaining two being Australia's alliance with the United States and the commitment to devote a certain level of resources to meet planned objectives.

Like its (1987) predecessor, the 1994 Defence White Paper, *Defending Australia* did not identify any specific source of military threat to Australia. But it acknowledged the growing strategic potential of China, Japan and India and noted the large-scale force modernization programs being undertaken by many South East

Asian countries. It also noted that the end of the Cold War has brought about important new uncertainties relating to the future strategic situation in the region and that these could result in a deteriorating security environment for Australia. In the circumstances, the 1994 White Paper regarded the concept of a post-Cold War "peace dividend," in the form of defence budgetary cuts, as somewhat implausible in Australia.



In view of the absence of an identifiable threat, the key force structure planning tools included concepts such as "credible contingencies," "warning time" and "the expansion base." Acknowledging the changing distribution of military capability in the region, the 1994 White Paper introduced the concept of a "short-warning conflict," which may range from small raids to larger and protracted operations.

The 1997 Strategic Review, *Australia's Strategic Policy* (ASP97), explains the philosophy behind ADF capability development at the end of the 1990s and identifies the strategic issues that the Government will need to address when determining Australia's defence capabilities to 2020 and beyond. Although events such as the Indonesian crisis of 1999, Australia's involvement in East Timor, the 1997-98 East Asian financial crisis, and the growing political instability of Pacific island nations have influenced the most recent strategic thinking. ASP97 offers good insights into Australia's defence planners' perceptions of strategic uncertainties in the Asia-Pacific region and their concerns with the growing capability of regional defence forces.

It is these concerns that ultimately influence the nature of the major Defence acquisitions and capability enhancements.

ASP97 reaffirms Australia's commitment to maintain and enhance its strategic standing in a region where the security environment has become both complex and very uncertain. In this environment, the ADF must have the capacity to defend Australia's territorial integrity and interests from armed attack and be able to actively support U.S. strategic engagement in the region, while continuing to foster and sustain security and defence relationships with other countries in the region. Also, the greater accuracy and lethality of weapon systems available to nations in the Asia-Pacific region will demand greater resources devoted to intelligence collection and evaluation, stealth and self-defence capabilities.

Since the release of ASP97, the complexity of Australia's security environment has become more apparent. True, there is no immediate conventional threat in that the probability of Australia becoming involved in an intensive combat against an invader-state appears to be rather remote. But Australia, as a U.S. ally, could become involved in a conventional war in the Korean peninsula or in the China-Taiwan conflict. Australia's regional security environment has recently become very unstable. Indonesia is struggling to retain its territorial integrity, Pacific island-nations and Papua New Guinea are verging on the brink of ungovernability and the Philippines is still battling separatists and insurgents. As Professor Paul Dibb, Australia's best known strategic analyst, puts it, an "arc of instability" now surrounds the continent. Only New Zealand is a truly stable nation in the region.

But threats of conventional warfighting are only a part of a contemporary security environment. It is much more likely that Australia will need

to face “unconventional” threats such as those posed by large-scale illegal immigration and drug smugglers, terrorist organizations and “cyber vandals” (e.g., computer hackers). Consequently, the ADF is more likely to be deployed in peace-enforcement and international constabulary tasks or disaster relief than an all-out warfighting.

At the time of writing, the Government is about to release a Green Paper on defence, which is to initiate a process of public debate on Australia’s strategic defence priorities and their funding. This is to lead to the publication of the new defence White Paper at the end of 2000 to map Australia’s defence strategy and policy for some years to come.³⁰

“...the issues, if they get a public hearing, will be fascinating. Should Australia have a defence force merely to defend its own continent in the air-sea gap? Should we aim to project power? If so, how far? To Northeast Asia (into the China-Taiwan dispute), or to the Indian subcontinent or to handle emergencies arising from instability near home? Should we seek our security in collaboration with our Asian neighbours? Should we try to add value or a new design to the U.S. alliance?”

The truth is that most of these will cost a lot more money. The bias of the Howard Government (the Government of the day at the time of writing) is for a defence force that can both defend the continent and project power to some extent. But our ability to do that at 1.9 percent of GDP is no longer credible.”³¹

Defence Strategic Policy Dilemma

While Defence has embraced the rhetoric of ‘new managerialism’ in its mission statements

and strategic planning documents (see the following Chapters), the fundamental strategic dilemma of Australia’s approach to its national security provision tends to have been obscured. As observed by Dr. Alan Dupont, one of Australia’s preeminent strategic thinkers:

“The only rational basis for making decisions about equipment, capabilities and tasks of the ADF is to ensure that they are consistent with informed judgments about the kinds of threats and challenges Australia is likely to face...” Reform of management and the defence acquisition process, while commendable objectives, cannot substitute for lucid thinking about the role and function of the ADF.”³²

For over two decades, successive governments have endorsed the strategic argument that the country’s security lay with the ADF’s ability to deploy modern and technologically sophisticated weapons systems so it could lay claim to having a small but potent defence force that was superior to other defence forces in Australia’s Asia-Pacific neighbourhood. The acquisition of weapons systems such as F-111 strike aircraft and F/A 18 fighters, Collins class submarines and ANZAC frigates was also intended to strengthen Australia’s international alliances by providing the ADF with long distance interoperability with the U.S. and other allied forces. As defence budgets stagnated or declined in real terms, the only way to fund the technology-based “force multiplier” was to increase the capital intensity of national defence by shifting resources away from personnel to the acquisition of (increasingly sophisticated) platforms and weapons systems.

An added complication was the determination of successive governments to have a significant part of Australia’s investment in new weapons systems and platforms directed to domestic

industry under a *policy of self-reliance* and *Australian Industry Involvement* (see Chapter 9). This not only resulted in cost penalties incurred as a result of small volumes of equipment being manufactured and supported in-country but also encouraged industry to invest in defence-specific assets, such as shipyards or assembly lines, which subsequently could only be sustained by directing further Defence work to them. As industry lobby groups pressed for more orders, the distinction between defence new capability formation and national industry support agendas became increasingly blurred.

In the 1950s, annual defence spending in Australia averaged some 3.5 percent of GDP. It fell to 2.5 percent in the 1960s and about 2.4 percent in the 1970s and 1980s. It fell to 2.2 percent in the first half of the 1990s and to a low of 1.9 percent from 1996-97 onwards. In the mid-1980s, the ADF was over 70,000 strong with 40,000 civilians. Even though the impact of resource redirection on personnel numbers has not been as severe as intended, the numbers have declined to over 50,000 ADF and 16,000 civilians.

This policy of freezing real defence budgets while directing the ADF to acquire sophisticated equipment with high local content and to be prepared to undertake a wide variety of missions, from high-tech warfighting to international peacekeeping and enforcement, was only possible given Australia's benign strategic environment. Since the ending of the Vietnam War and until 1999, there has been no serious direct threat to Australia's interests, let alone a threat to its territorial integrity. Obligations imposed by its status as a good ally and an international citizen, as evidenced by the ADF participation in the Gulf War and various UN-led peacekeeping operations, could be accommodated within the existing budgets without too much pain. Consequently, new capital acquisitions were embarked upon all to be funded within the exist-

ing budgets. Financial reform programs and market testing of activities potentially suitable for contracting out were expected to uncover and redirect enough organizational "fat" to fund, without increases in real defence budgets, future capability enhancement and other commitments imposed by the Government (see Chapter 6).

But the policy of systematic redirection of resources from personnel and operational costs in noncombat areas of Defence to the "sharp end" has not worked as well as anticipated. We shall return to some of these issues in the following Chapters. At this point we note that two particular events brought the era of over-ambitious strategic aspirations combined with the Walter Mitty-style resource allocation to an end.

First, technical problems associated with the in-country construction of the Collins class submarines have revealed the real cost of undertaking the development of sophisticated modern weapons systems in a small economy such as Australia (see Chapter 9). The question is not what a local industry could possibly do but whether it is worth doing given the international division of labour and trade, and considering the changing nature and pace of defence technology.

Second, the deployment of elements of the ADF in East Timor, some 5,000 personnel at the peak of Australia's involvement in 1999-2000, revealed the wide divide between Australia's strategic aspirations and real defence funding.³³ Without supplementary funding and the redirection of spending priorities away from capital commitments, it was simply impossible to field and sustain Australia's presence in East Timor.³⁴ It has become more apparent to the Government—although not as yet to the Australian public—that peacekeeping and enforcement operations are very costly, labour-intensive and require a degree of dedication that cannot be simply subsumed in general defence expen-

ditures. Further, it has become painfully obvious that, despite the rhetoric of "shifting resources from tail to teeth," the long-term policy of cutting personnel numbers to fund new equipment is no longer sustainable.

With constant real budgets, the strategy of investing resources in increasingly technologically sophisticated, capital-intensive but labour-saving equipment is fundamentally incompatible with labour-intensive demands on the ADF in peacetime. Future governments have a choice: either deflate their expectations with regard to the capabilities of the Australian Defence Force and, thus, narrow down the range of strategic commitments, or allow for a greater proportion of Australia's GDP to be diverted to defence. *The basic dilemma is simply this: more money for defence or less defence capability.*

International Alliances

Australia is a member of a number of international alliances and defence cooperative arrangements. The most important of these is ANZUS, essentially the Australian-U.S. alliance which extends the U.S. deterrence umbrella to include Australia and provides the latter with access to U.S. training facilities, combined exercises, intelligence sharing, the procurement of technologically advanced equipment from the U.S. and logistic support.³⁵

Another important alliance is the Five-Power Defence Arrangement (FPDA), which involves the cooperation between Australia, New Zealand and the United Kingdom in the provision of defence support for Singapore and Malaysia. The Arrangement involves various forms of military cooperation and the provision of logistic support. Australia is in a rather interesting position in that its main allies, the U.S. and the UK, are themselves members of another, and globally much more important alliance, namely, NATO. Thus, Australia benefits from institutional links

with NATO countries and has access to many NATO-specific military technologies.

All small countries face some uncertainty about the determination of their major allies, the U.S. in particular, to honour their joint defence undertakings. Since Australia cannot take the provision of U.S.-supplied deterrence for granted, it has little, if any, incentive to underspend on defence on the assumption that the U.S., the



senior alliance partner, will pick up the bill. To the contrary, Australia's traditional approach has been that of a good alliance member. To a large extent that has been the logic of the doctrine of forward defence. However, there has always been some debate about the desirability of Australia's dependence on its major allies for strategic supplies. Thus, while Australia has aimed to achieve a high degree of operational interoperability with the U.S. and other allies, it has also tried to widen its portfolio of international suppliers and maintain a credible, defence-related domestic industry.

While Australia's treaty relationship with the United States continues to be a key element of its defence policy, since the mid-1990s, Australia has tried to expand regional security "partnerships" with the ASEAN countries—in particular Indonesia, Malaysia and Singapore.

At the global level, Australia has supported international constabulary activities aimed at peacekeeping and enforcement and the provision of humanitarian aid by multi- and international agencies, particularly the United Nations. The 1990s have already seen significant Australian deployments in the Gulf, Namibia, Cambodia, Somalia, Rwanda, East Timor and the South Pacific.

Chapter 4

AUSTRALIA'S DEFENCE ORGANISATION

Defence Organisation and Governance

The *Department of Defence* is a department of state established by the Governor General pursuant to Section 64 of the Australian Federal Constitution. *The Minister for Defence* is responsible to Parliament for the management of the Department and, under the *Defence Act 1901*, has the general control of and administrative responsibility for the *Australian Defence Force (ADF)*. The Act determines powers of command and administration of the Defence Force.

Subject to the control of the Minister, the *Chief of Defence Force (CDF)* commands the ADF. CDF is responsible for planning and ADF preparedness and for the conduct of military operations. The CDF is also the *principal military adviser* to the Minister on matters concerning military strategy and force development. The Chiefs of Services command their Services under the CDF.

The (civilian) Department of Defence is administered/managed by the *Secretary*. The Secretary's duties are determined by *Defence Act 1901* and other legislation.³⁶ He/she is the *principal civilian adviser* to the Minister of Defence on matters concerning policy, resources and organisation, financial planning, programming, budgeting and control of expenditure. As described by Dr. Allan Hawke—the incumbent Secretary at the time of writing—the Secretary is...

*"...not only responsible for the delivering the 'Defence product' to the Government (Government wearing the purchaser hat), but (is) also responsible for ensuring the financial and other sustainability of Government's investment in the business (Government wearing its owner/shareholder hat). In the words of the Commonwealth's Financial Management and Accountability Act, Secretaries are responsible for managing in a way which promotes the proper use of Commonwealth resources—i.e., efficient, effective and ethical."*³⁷

The ADF and the Department of Defence are collectively referred to as the *Defence Organisation* or as *Defence*. The CDF and the Secretary are jointly responsible to the Minister for Defence—and through him/her to the Government—for the management of Defence. This joint responsibility is often referred to as the *defence diarchy*. The chain of responsibility from the diarchy to the Government of the day is sometimes misrepresented, as some people believe that the line of command runs from the diarchy to the Governor-General. This is fallacious both constitutionally and functionally.³⁸ However, the very nature of diarchy—with executive authority vested in two equals—means that neither of the two people in charge is solely responsible for the management of Defence and a degree of consensus—or synergy and compromise—is needed for the dual leadership to be effective.

As of January 2000, the Defence Organisation comprises 14 *Functional Groups*. While Defence resources are appropriated on the basis of Defence Outcome and 22 Defence Outputs (see Chapter 5), the Department manages its activities through its Functional Groups. This organisational matrix was introduced in 1997 under the Defence Reform Program (see below) and was intended to provide a means of more effective resource management to align the use of defence resources (inputs) with responsibilities for outputs and outcomes and, by devolving some authority and responsibility to *Group Managers/Authorities*, to stimulate the adoption of more cost effective delivery processes. Figure 1-2 shows the 1999-2000 Group structure of Defence.

At the time of writing, the incumbent Secretary has made it no secret that he is “not a fan of matrix management.” With regard to Defence’s organisational structure and governance, he notes the following:

“The separate acquisition and logistics organisations are both engaged in procurement. The role of the Service Chiefs must be clarified—they have essential responsibilities. The functional split within Defence Headquarters is not clearly understood by many within it, let alone those outside whom it is intended to support. The so-called corporate support groups are not seen by their customers as sufficiently responsive to

Group	Group Authority	
Defence Headquarters	Deputy Secretary Strategy & Intelligence Vice Chief of the Defence Force	DEPSEC S&I VCDF
Navy	Chief of Navy	CN
Army	Chief of Army	CA
Air Force	Chief of Air Force	CAF
Intelligence	Deputy Secretary Strategy & Intelligence	DEPSEC S&I
Support Command	Commander Support Command Australia	COMSPTAS
Joint Education & Training	Head, Joint Education and Training	HJET
Defence Personnel Executive	Head, Defence Personnel Executive	HDPE
Defence Acquisition Organisation	Under Secretary Defence Acquisition	UNDERSEC ACQUISITION
Science and Technology	Chief Defence Scientist	CDS
Defence Estate	Head, Defence Estate	HDE
Defence Information Systems	Head, Corporate Information	HCI
Defence Corporate Support	Head, Defence Corporate Support	HDCS
Finance & Inspector General	First Assistant Secretary, Resource & Financial Programs	FASRFP

Source: DPBS, 1999-00

Figure 1-2. Defence Organisation – 1999-2000 Group Structure

their needs. More importantly, our top structure is not consistent with the previous 14 functional groups or with our 22 outputs....When I asked our senior military and civilian staff to identify Defence's strengths and weaknesses, one of the most significant areas identified was lack of clarity in direction; in roles, responsibilities and structures; together with blurred and poor performance accountability—in other words, accountability, responsibility and authority are not aligned.”³⁹

It is therefore likely that the matrix structure of the Defence Organisation will soon be radically streamlined and re-shaped. The purpose of these changes will be to restructure the top management and headquarter roles to align the organisational structure and outputs with the accountability/responsibility chain. At the time of writing, the Secretary and the CDF are putting in place a set of commissioning or charter letters clarifying roles and responsibilities, accountabilities, authorities and priorities for the senior member of the Defence Executive, starting with the Service Chiefs.⁴⁰ The fundamental role of the Defence Executive is to be clarified together with the associated committee structure and the broader framework of corporate governance. The Defence Acquisition Organisation may also be merged with Support Command, which is presently responsible for in-service management of equipment.

Defence Mission and Goals

Four priority areas for the ADF capability formation have been identified by the 1997 Strategic Review:

- use of information technologies to provide a technology force multiplier (the knowledge edge);

- capability to defeat any threats in Australia's maritime and air approaches;
- maintenance of an effective military strike capability; and
- capability to defeat any incursion on to Australian territory.

To meet these ambitious objectives, the small national defence force must draw on the broader support of Australian industry and the community at large (a whole of nation approach to Australia's defence). The government's current philosophy takes a broad view of national defence capability to engage a wide range of civil support in peace on the assumption that such support will surely be needed in war.

“As a part of a broader view of national defence capabilities, the Government envisages a national support policy, which creates an environment where combat forces, Government agencies, the civil infrastructure and industry all act as a seamless continuum of capability....Warning time for unforeseen contingencies might be insufficient to source and put in place the necessary arrangements to meet changed strategic needs. To this end, Government has directed the Department of Defence to structure for war, and adapt for peace.”⁴¹

Accordingly, the Defence mission is “to prevent or defeat the use of armed force against our country or its interests.”⁴² The Defence mission encompasses two key objectives: (a) the formation and maintenance of the capability “to defeat any use or threat of armed force against Australia or its interest;” and (b) the promotion of regional and global relations that enhance “Australia's security by reducing the likelihood of armed attack against Australia or its interests.”⁴³ As stated in an earlier Defence document, Australia's

overarching defence objective is to: develop the force structure to defeat attacks on Australia and defend its regional interests; maintain forces at a state of preparedness to defeat any attack which could credibly be mounted against Australia; contribute actively to defending the country's regional and global interests; and contribute to national tasks as directed by Government."⁴⁴

To achieve its mission, Defence has developed six goals that encompass both the development of Australia's defence capability and the evolution of the Australian Defence Organisation:⁴⁵

- Goal 1:** more combat-ready capability, with a key objective of maximising the numbers in combat-related forces;
- Goal 2:** stronger future capability, with a key objective of taking advantage of technological advances that underpin the "knowledge edge;"
- Goal 3:** closer alliances and international strategic relationships, in particular with the United States and New Zealand and through bi- and multi-lateral defence relationships with countries in the Asia-Pacific region, to enhance Australia's defence capability and influence the strategic environment to make armed conflicts less likely;
- Goal 4:** enhanced national support, i.e., the increased use of support services from industry and new initiatives to promote the development of skills and capacities needed from the civil sector;
- Goal 5:** growing skills and knowledge, in particular increasing the skills and knowledge of Defence personnel and developing better incentives through competitive remuneration structures and rates; and

Goal 6: stronger leadership and better management with a view of improving the decision-making processes in Defence and greater focus on outputs and outcomes of Defence activities.

Australian Defence Force

Under the current Australian doctrine, military capability

*"...refers to the existence and nature of armed forces (their force structure—equipment, facilities, workforce, organisation and doctrine) and their preparedness. Preparedness in turn is defined as the force's readiness (availability and sustainability of the force to conduct specific tasks and operations) and sustainability (the organic military, national and international arrangements needed to support and regenerate the force)."*⁴⁶

The Australian military capability is centred on its combat and combat support elements ADF. In view of the vastness of the geographic area of direct military significance to the ADF, its small numbers and Australia's somewhat uncertain strategic outlook, the main qualities required of Australia's defence effort are adaptability and flexibility to meet diverse and rapidly changing demands.

As of 30 June 1999, the Royal Australian Navy (RAN) included three guided missile destroyers, six guided missile frigates, two ANZAC class frigates, three Collins class and one Oberon class submarines, two inshore minehunters, one minehunter coastal, one amphibious heavy ship, five heavy landing craft, 15 Fremantle class patrol boats, two landing platforms amphibious, one catamaran and a number of auxiliary, survey and support vessels. Naval aviation included 16 Seahawk anti-submarine helicopters, seven Sea King fleet utility support helicopters and a

number of training, electronic warfare and utility helicopters.

As of 30 June 1999, the Australian Army maintained 19 infantry battalions (four regular, two integrated and 13 general reserve). These provided troops at readiness levels varying from less than a month for rapid deployment elements to a year in the case of the least prepared reserve battalions. Other operational elements included reconnaissance, armoured, artillery, air defence, signals and aviation regiments, engineer regiments and workshops, Special Air Service regiment, and so on.⁴⁷ The Army aviation regiments included assets such as Black Hawk, Chinook, Iroquois, Kiowa helicopters. The armoured regiments included Leopard tanks, ASLAV 25 and

M113AI personnel carriers. The artillery regiments operated 155 and 105 mm Howitzers and air defence regiment maintained Rapier SAM and RBS-70 SAM. Developments in progress at the time of writing will add another 3,500 (mostly infantry) troops.

As of 30 June 1999, the Royal Australian Air Force (RAAF) operated from ten active, two ground training and two unmanned northern air bases. The range of assets used by the RAAF included: F/A-18, F-111C, F-111G, RF-111C, PC9/A, C-130H and 130E Hercules, DHC-4 Caribou, C47, Macchi MB326, Falcon 900 and HS 748 aircraft. The radar surveillance unit operated Over the Horizon Radar.

Chapter 5

DEFENCE BUDGET AND RESOURCE MANAGEMENT

Resource Management Framework

In line with the “whole-of-government” reforms, Defence is developing a new performance and resource management framework that builds on and integrates a number of recent reforms and initiatives in Defence management. When implemented, the new framework will allow Defence resource managers to determine the real cost of providing Defence capabilities, including indirect costs, depreciation and maintenance. More specifically, it will provide: a better understanding of what Defence is required to achieve; a clear picture of the full cost of defence capabilities; better information to manage efficiently the resources of the Department; and better communication lines to the Government and Parliament to report on priorities and achievements.

The new framework is based on outcomes and outputs, and accrual budgeting.⁴⁸ It focuses on:

- what Defence produces using departmental expenses (*outputs*);
- what resources Defence administers on the Commonwealth’s behalf (*administered items*);
- the desired results of outputs and administered items (*outcomes*); and
- the full cost (*accrual measurement*).⁴⁹

Figure 1-3 contains a selection of concepts and vocabulary associated with the new management framework.

The magnitude and complexity of this reform and the lead-time required to put new corporate systems in place will inevitably result in an incremental implementation of the new framework.⁵⁰ This is consistent with the approach being developed by the Department of Finance and Administration whereby the full requirements of the new accrual-based output management framework will not be introduced until 2000-2001 or later. However, beginning in financial year 1999-2000, Defence budgets will account for and report on the outputs it produces, and identify the contribution its outputs makes to the achievement of planned outcomes.

Defence Outcome, Outputs and Performance Indicators

Derived from its mission statement, *Defence has a single Outcome, which is the prevention or defeat of armed force against Australia or its interests*. This outcome provides the rationale for the existence of the Australian Defence Force and therefore the Defence organisation. Both must be structured and directed towards achieving this outcome.

To achieve this Outcome, Defence is committed to produce 22 outputs, which are grouped into four key deliverables:

- *the delivery of combat capability* (Outputs 1-19), which encompasses the military capabilities formed in peacetime and, if and when required, the capacity to deliver combat capabilities to achieve specific military and strategic goals set

Outcomes are the results, impacts or consequences of actions by the Commonwealth on the Australian community.

Outputs are the products or services produced by Defence on behalf of government.

Departmental Items are resources directly controlled by Defence, including salaries, allowances, military equipment and other costs associated, including out-sourced activities funded and controlled by Defence, with the operation of the Defence Organisation. These resources are used to produce outputs for government (the Australian community).

Administered Items are resources administered on behalf of the Commonwealth including grants, subsidies and benefits. Such resources may be used to produce outputs by third party organisations. The new framework allows for both outputs and administered items to be specified and costed as part of budgeting, accounting and reporting processes.

Assets are future economic benefits expected to accrue to Defence as a result of past transactions or other past events. Assets are initially recognised at the cost of acquisition. They are periodically revalued to reflect their written-down current cost and, where appropriate, enhanced value of expected economic benefits.

Liabilities are future economic benefits foregone due to Defence's obligations to other entities arising from past transactions or other past events.

Revenues are inflows or other enhancements, or savings in outflows, of future economic benefits, in the form of increases in assets or reductions in liabilities of Defence, other than those relating to contributions by the Commonwealth, that result in an increase in equity during the reporting period.

Expenses are losses of future economic benefits, in the form of reductions in assets or increases in liabilities of Defence, other than those relating to distributions to the Commonwealth, that result in a decrease in equity during the reporting period.

Capital Use Charge represents the opportunity cost of capital tied up in assets (i.e. the deemed value of the best alternative use of this capital). The rationale of this charge is to encourage good asset management practices by revealing the true costs of producing outputs. The Capital Use Charge is imposed by multiplying the *closing net assets* (i.e., total assets minus total liabilities) of Defence by the "interest" rate (currently 12 percent), based on the long-term bond rate (currently around 6 percent) plus a margin for risk (currently 6 percent). (The Department of Finance and Administration prescribes the relevant interest rate.) Defence is provided with supplementary funding based on percentage (currently 12 percent) of the sum of the opening net assets and an agreed equity injection (see below). This gives the appearance of a substantial increase in Defence funding which is not actually the case.

Equity Injection represents the additional contribution to Defence by the Commonwealth as its "equity owner." It is determined on the basis of the amount additional to the Departmental Outcome Appropriation required to fund Defence up to the government-agreed level of global funding. The Equity Injection is not tied to any specific capital projects and, within the limits of Defence's resource management discretion, it can be used for any purpose that increases the net assets of Defence. It is planned to use these funds for investment in new/replacement capital equipment or facilities.

Source: DPBS, 1999-00; pp. vii-viii

Figure 1-3. The New Management Framework: Concepts and Vocabulary

out for Defence by the Government of the day;

- *the promotion of a favourable regional and global security environment* (Output 20), which comprises those Defence activities that enhance regional and global stability and Australia's standing in the region (thus, reducing the likelihood/threat of use of armed force against Australia or its interests);
- *the delivery of services to support the nation which are possible as a result of Australia's military capacity* (Output 21), which includes the support provided to the Government and community in noncombat-related roles, such as search and rescue operations or civil surveillance; and
- *the provision of strategic military and defence policy support* (Output 22), that is, the contribution made by the Defence Organisation to the development of Government policy on strategic, military and defence issues.

The Defence Outcome also includes the items administered by the Department of Defence on behalf of the Commonwealth, such as military superannuation (pension) schemes, investments in ADI Ltd. (former government-owned but recently privatised enterprise—see Chapter 9) and the Defence Housing Authority.

Figure 1-4 contains a summary of key performance indicators that measure the effectiveness of Defence in achieving its Outcome. Figure 1-5 lists all 22 Defence outputs and their "prices" (costs to the taxpayer).

COMBAT CAPABILITY

Preparedness

- The level of preparedness of the ADF meets the standard set in the Chief of the Defence Force's Preparedness Directive and subordinate directives against each capability output.
- The ADF's major training/exercise program is met.

Operations

- Any hostile violations of Australia's sovereignty or interests are deterred or identified and responded to successfully.
- The ADF's joint task force performance in major activities meets the required standard.
- Specific Government targets for the delivery of defence capability are achieved.

NONCOMBAT-RELATED TASKS

- Planned noncombat-related defence activities contributing to national security and regional stability are met.
- Government targets for the delivery of non-combat capability, which contribute to national, regional and global stability, are achieved.

Source: DPBS 1999-00; p.7.

Figure 1-4. Defence Outcome Performance Indicators

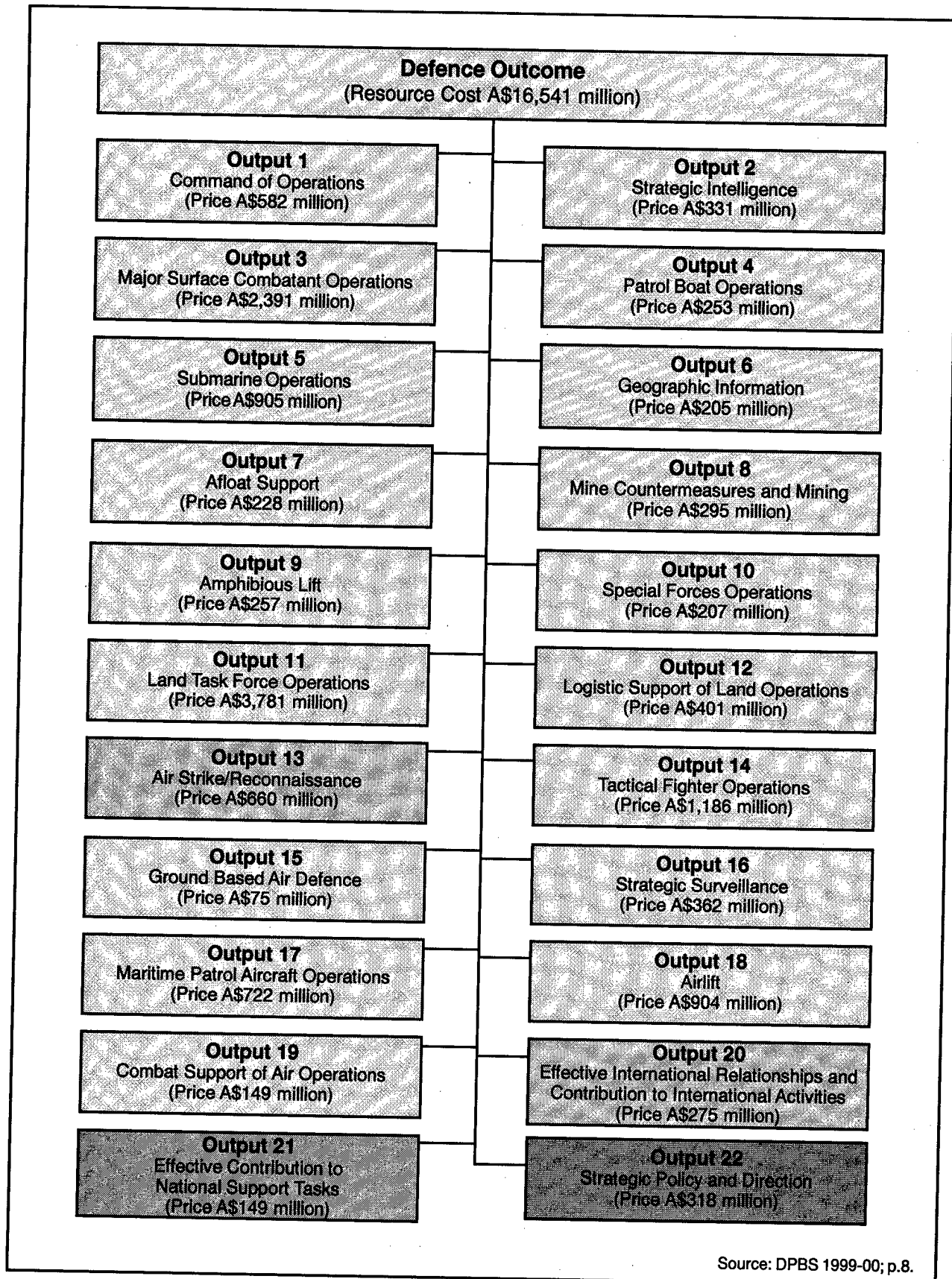


Figure 1-5. 1999-2000 Defence Outcome/Output Structure Chart

Defence Budget

Defence attracts a significant share of Government resources. Under the new accrual-based budgeting framework (see below), the total Defence budget outlay for 1999-2000 is A\$18,042 million (U.S.\$10.46 billion).⁵¹ This comprises the funding of 'Defence Outcome' of A\$16,541 million, an Equity Injection of A\$1,278 million and Capital Receipts of A\$ 224 million (see Figures 1-3 and 1-5). The Defence budget accounts for about eight percent of Commonwealth Budget Outlays (CBO) and, *excluding* the effect of the Capital Use Charge (see below), for some 1.9 percent of the Gross Domestic Product (GDP).

Financial statements in previous years did not contain the Capital Use Charge and the Equity Injection, which are present in accounting reports for 1999-2000. Thus, it will be difficult to make comparisons between prior years and future years under the new accounting system.⁵² Using a simple comparison it appears that the new accounting changes will increase the defence budget but this increase is apparent rather than real. In simple terms, the Government gives Defence more money (a larger Budget) but it then takes this money away in the form of a Capital Use Charge, which is a payment (interest charge) for the use of taxpayer-owned capital assets by Defence. Thus, Defence is not better off than it was before. For example, Defence departmental appropriations net of the Capital Use Charge, which were estimated at A\$11.09 billion in 1999-2000, would have amounted to A\$11.01 billion in 1998-99.⁵³

The funding of Defence Outcome comprises two main elements: the "Price" of the 22 Defence outputs (A\$14,588 million in 1999-2000) and Items Administered by the Defence Portfolio (A\$1,953 million in 1999-2000). Since 1999-2000, the "price" of Defence outputs includes a Capital Use Charge, which was introduced under

the new accrual accounting system. The Capital Use Charge for 1999-2000 is A\$4,643 million. It was calculated by multiplying Defence's "opening" net assets of A\$36 billion plus the equity injection of A\$1,278 million by a 12 percent interest charge (a notional interest charge on the A\$ 36 billion of taxpayer-owned capital, which, over the years, has been given to Defence to purchase its capital assets, see Figure 1-2). On 30 June 2000 (end of financial year), Defence is to be charged 12 percent on its closing net assets. Defence expresses this charge as a percentage of the value of capital in use. Thus, if Defence wants to acquire more equipment it will accumulate more capital and it will pay "interest" on it.

The Equity Injection (A\$1,278 million in 1999-2000) contributes to capital investment needed to maintain Defence future capability. It is used as a funding mechanism needed to 'top up' Defence to the Government-agreed real growth level (0 percent in 1999-2000).⁵⁴ It is effectively a residual or a balancing item. Defence is also allowed to retain certain Capital Receipts to purchase additional capital items (A\$224 million in 1999-2000).

The prospect of a real (after price inflation is taken into account) increase in the Defence Budget over the next few years is uncertain. The Government is only committed to maintaining Defence funding in real terms for 2000-03 Forward Estimates. Thus, the total funding of the Defence Outcome is expected to be A\$16,911 million in 2000-01, A\$17,336 million in 2001-2 and A\$17,839 million in 2002-03. Figure 1-6 shows the estimated Defence funding for the financial year 1999-2000 and Forward Estimates till 2002-03.

The table shows an increase in proposed funding over the Forward Estimates period. This is because the Capital Use Charge increases with the increasing net asset base and price (out-turn

Funding Arrangements	1999-2000 A\$'000	2000-02 A\$'000	2001-2001 A\$'000	2002-2003 A\$'000
Price of Departmental Outputs Appropriation from Government Before Capital Use Charge Add Capital use Charge	9,814,886 4,463,092	10,132,359 4,578,760	10,501,358 4,664,413	10,727,762 4,738,393
Revenue from Government for Departmental Outputs Add Departmental Revenues from Independent Sources	14,277,978 309,857	14,711,119 308,708	15,165,771 338,513	15,466,155 395,553
Total Price of Outputs	14,587,835	15,019,827	15,504,284	15,861,708
Add Total Administered Expenses	1,952,874	1,890,677	1,832,202	1,977,334
Total Resourcing of Defence Outcome	16,540,709	16,910,504	17,336,486	17,839,042
Add Capital Funding not included in the cost of the Defence Outcome Equity Injection Capital Receipts	1,278,230 223,535	1,061,688 198,486	914,720 273,244	919,860 190,093
Total Defence Funding	18,042,474	18,170,678	18,524,450	18,948,995

Source: DPBS, 1990-00, Table 1.7, p. 18.

Figure 1-6. Estimated Defence Funding for 1999-00 and the Forward Estimates

prices). On the other hand, the topping up in the form of Equity Injection decreases over time as capital investment is increasingly funded internally from the growing depreciation charges.

Figure 1-7 shows Defence Appropriations (equivalent to Defence Function outlays) for the period 1998-99 to 2002-03. By excluding Capital Use Charge from Defence Appropriations, the outlay on Defence before and after the introduction of the new resource management framework can be compared.

	Estimated Outturn 1998-99 (A\$ million)	Budget Estimate 1999-00 (A\$ million)	Forward Estimate 2000-01 (A\$ million)	Forward Estimate 2001-02 (A\$ million)	Forward Estimate 2002-03 (A\$ million)
Defence Appropriations	11,010	15,556	15,773	16,080	16,386
Less Capital Use Charge	0	4,463	4,579	4,664	4,738
Net Appropriations	11,010	11,093	11,194	11,416	11,648

Source: DPBS 1999-00, Table 1.10; p.20.

Figure 1-7. Departmental Appropriations Net of Capital Use Charge 1998/99-2002/03

While the projected budget for 1999-2000 is set to be equal in real terms to that of 1998-99, Defence is also required to absorb some additional expenditure.⁵⁵ By the time Defence Portfolio Budget Statements were published, two Government policy changes had already impacted on the projected allocation of resources within Defence. First, the budget had to accommodate the cost of bringing a second Army brigade to 28 days' notice to move and sustaining that level of higher preparedness for two years. Second, the projected pace of draw-down to 50,000 full-time, uniformed personnel had been changed. In addition, the budget had to absorb the cost of peace monitoring in Bougainville and the cost of Australian participation in Coalition forces in the Gulf. Transition and implementation costs of the Defence Reform Program (see below) also had to be accommodated.

The Budgetary Dilemma

The current budgetary dilemma is closely related to the strategic dilemma discussed in Chapter 3. In 1981-82, Defence spent 13 percent of its budget on "capital equipment" and 51 percent on "personnel." In the early 1980s, the share of expenditure capital peaked at 29 percent in 1986-87 (with 37 percent spent on personnel). By 1997-98, it had declined to 23 percent with personnel accounting for 38 percent.⁵⁶ Failure to decrease personnel further was not the only reason for an inadequate redirection of resources to capital acquisitions. Defence has also been forced to reallocate funding from other areas to cover the operating costs of high priority equipment programs, "for which inadequate allocation has been allowed in forward financial planning."⁵⁷

Throughout 1990s, Defence has allowed commitments for new major capital equipment to accumulate to a level, which is 160 percent higher than the corresponding appropriations.⁵⁸

To fund the current order book for major capital acquisitions of A\$46 billion, some additional A\$20 billion remain to be paid. In addition, new programs worth around A\$5 billion were approved in the 1999-2000 Budget. "Compared to A\$2,275 million allocated to capital equipment in the current budget, this obligation represents more than 10 years expenditure—some indication why Dr. Allan Hawke, Secretary of the Department, has described its financial position as 'parlous'."⁵⁹

In 2007 and beyond, the ADF will have to face massive block obsolescence of its existing equipment. The cost of replacement of these assets is estimated at between A\$88 and A\$106 billion in the period 2007 to 2020. Combined with the outstanding commitments, Defence would need to be allocated some A\$130 billion of capital funding until 2020 just to meet its present capital obligations and *replace* obsolete assets. This *excludes all additional capabilities* that the ADF may wish to acquire over the next 20 years. To pay for such a program would cost over two and a half times the current annual funding of major capital acquisitions.⁶⁰ Thus,

*"...the forthcoming public debate will have to consider a fundamental re-evaluation of the role of military forces in national security. The debate will probably consider a range of options, from greatly increased defence spending to a much reduced role for the ADF." ...changes to the ADF's capabilities over the last quarter century have owed as much to poorly foreseen financial pressures as they have to any pre-meditated decision making. It is the contention of this paper that the pressures on defence funding over the next 20 years will be such as to force radical policy changes, as defence policy on its current settings is not affordable for more than a few years."*⁶¹

Against this structural background, the cost of peace-enforcement operation in East Timor may seem to be a temporary source of budgetary stress (it is expected to cost Defence A\$907 million in 1999-2000 and A\$3,562 million over the four-year period of expected Australian involvement). But the Timor deployment has also exposed some structural problems, namely, the difficulty of *sustaining* a significant number of ADF personnel in peacetime operations and the impact of the long-term squeeze on operational cost on the ADF's readiness.

If Australia is to maintain its strategic commitment to operations that are intended to protect its long-term national interest, it must be accepted that such activities tend to be labour-intensive and, thus, require adequate spending on people as well as equipment. As a recent research paper puts it:

"...it will not be possible to fund the desired programs within the Defence Budget if kept at its current size. Defence labour costs continue to rise. Consequently, throughout 1990s, Defence has

*been obliged to find the difference from other areas of the budget. This happened again in February 2000, when A\$380 million of the proposed 1999-2000 equipment budget had to be diverted to meet defence labour and other costs. Indications are that the personnel component of the Defence budget will continue to increase over the long term."*⁶²

Finally, the current funding dilemma has also made it apparent that the long-term budgetary framework is fundamental to good defence management. Major defence investments are long-lived, expensive to acquire and sustain and the acquisition cycle itself may take up to ten years to complete. The annual Defence budget combined with the three-year rolling plan of Forward Estimates is hardly adequate for sound financial projections in this sector. Good resource management practices, such as accrual accounting and cascaded planning, are important for effective, short-term management of Defence but, as Woolner puts it, they "are no substitute for feasible and workable policy."⁶³

Chapter 6

DEFENCE REFORM PROGRAM

Force Structure Review 1991

In the 1950s and 1960s, the Defence Organisation comprised five departments: Defence, Army, Navy, Air Force, and Supply. In the early 1970s, the five departments were amalgamated into one Department with the Secretary in charge of resources and financial management and the Chief of Defence Force in charge of the ADF. The late 1980s have seen a further consolidation of capability, the centralisation of Defence Headquarters and new management structures and procedures under the heading of Program Management and Budgeting (PMB). The development of costing systems to support resource management and enhance the visibility of resources to decision-makers was also initiated in the late 1980s. There was also a growing determination to privatise Defence's interests in government factories, in particular shipyards and aircraft construction facilities. The Commercial Support Program (CSP) was introduced in 1990-91 to encourage market testing and contracting out of non-core defence activities (see below).

In 1991, following the *Force Structure Review 1991* (FSR), Defence embarked on a program of management reforms and associated efficiencies that were to allow it to produce sufficient productivity gains to fund its expenditure plans with real increase in funding. These efficiencies were to be achieved, *inter alia*, through staff reductions and outsourcing of non-core defence functions. By mid-1996, the FSR-related recurrent savings were estimated at A\$450 per year. They were expected to reach over A\$0.5 billion by the turn of the century.

These "savings" were largely utilised in improving Service and civilian remuneration, e.g., A\$340 million, or 75 percent of the FSR-related "savings", were allocated to pay for an increased remuneration in Defence.⁶⁴

1997 Defence Reform Program

In April 1997, the Minister for Defence released the report of the review, *Future Directions for the Management of Australia's Defence*—the so-called Defence Efficiency Review (DER)—and announced the Defence Reform Program, based on the review's findings and recommendations. The Defence Reform Program (DRP) has been hailed as the most significant program of reform in Defence for nearly 25 years.

*"The key principles of the DRP are that the Defence Organisation is to be structured for war and adapted for peace; and that the reforms are to act as a catalyst for substantial cultural change, away from the present preoccupation with current activities, cash and inputs, and towards management which addresses future requirements, priorities and outputs."*⁶⁵

The Government has established a high level Strategic Management and Reporting Team, including Service and civilian members, to sustain the thrust of the DER as a major driver of change. The Team's particular focus is on the change management strategy. It reports directly to the Secretary.

The DRP objectives are to:

- focus Defence on its fundamental responsibility to develop and sustain capabilities to defeat armed aggression against Australia and support the Government's wider objectives;
 - improve long-term planning, management and command structures;
 - streamline support organisations and structures within Defence to provide more efficient services to combat units;
 - compete a range of Defence activities with industry to enhance quality and achieve more cost-effective service delivery; and
 - redirect resources from enabling services to combat capabilities to enhance the overall effectiveness of the ADF.
- the amalgamation of operational headquarters to clarify command responsibilities;
 - the collocation and reorganisation of acquisition functions into groups focusing on common industry sectors or equipment types rather than on individual Service requirements; and
 - the consolidation of support and administrative functions to maximise efficiency and avoid functional duplication.

DRP initiatives include:

- the focusing of Defence administration on supporting the development and maintenance of highly capable combat forces as the key organisational output;
- the downsizing of the Defence Headquarters and reduction in the numbers of committees and senior military and civilian positions to speed up decision making and reinforce lines of responsibility and accountability;
- the establishment of an integrated joint Defence Headquarters to develop policy and provide advice to all (Defence) senior managers with the Service Chiefs given greater responsibility for the overarching policy development;

The basic framework of the restructured organisation was put in place on 1 July 1997. This included a move from an 8 Program (activity groupings) to a 14 Group (of activities) structure. Further reforms to processes and organisational structures are to continue until 2001-02.

The fully implemented DRP was expected to achieve one-off savings of A\$500 million and recurrent annual savings of some A\$900 million. In keeping with the Government's commitment not to cut defence spending, resources freed by the DRP were to be redirected to increase capital acquisitions, especially to enhance combat-related and peace keeping/peace enforcement capabilities. At maturity, annual major investment expenditure was to increase by A\$139 million or five percent of the 1999-2000-budgeted major capital equipment program of A\$2,750.⁶⁶ Figure 1-9 shows the projected reinvestment of DRP resource savings.

DRP Implementation

As noted, most cost efficiencies sought by successive governments involved progressive personnel cuts. In 1981, the ADF stood at over 72,000. Between 1984 and 1990, Defence lost 17,900 positions, of which 80 percent or 14,600 positions were civilian. The 1991 Force Structure Review led to a further loss of over 16,000

Defence Reform Program Reinvestments	1999-2000 A\$ million	2000-2001 A\$ million	2001-2002 A\$ million	2002-2003 A\$ million
Defence Reform Program Net Ongoing Resources Available	455	636	686	866
Defence Reform program One-Off Savings	19	39	110	135
Unallocated A\$125m Administrative Savings	0	0	66	117
Total Resources Available for Reinvestment	474	675	862	1,116
Reinvestment Initiative Details:				
New Capital Investment	85	169	139	139
Amphibious Capabilities 26	17	24	24	
Capability-Related Logistics Costs 120	168	74	74	
New Capabilities – Net Personnel & Operating Costs	68	96	84	66
Defence Science – Capability Projects	15	23	23	23
Provision for 50,000 ADF 45	338	434	539	
Pilot Training	5	4	4	4
Defence Reform Program Transition Costs	82	50	40	30
Total Reinvestment	447	866	822	899
Note: * Table may not add due to rounding			Source: DPBS (1999-00), Table 1.4; p.15.	

Figure 1-9. DRP Projected Cost Efficiencies and their Reinvestment*

ADF and civilian positions. By 1997, the ADF stood at about 56,000, an over 20 percent decline since the early 1980s. Australia embarked on radical restructuring of its Defence Organisation well before other nations faced the consequences of the peace dividend following the collapse of the Communist Block.

The DRP aimed to reduce the ADF permanent force to 42,700 personnel (from a baseline of 56,600) through reductions and the results of the market testing of Service positions.⁶⁷ This target turned out to be unrealistic and was soon abandoned. The ADF numbers were to be held at about 50,000 and the proportion of personnel in the combat force increased to 65 percent (from the pre-DRP level of 24,000 to 32,000 in 2001). The breakdown of the 50,000 military positions by Service was to be Navy 14,000, Army 23,000 and Air Force 13,000. Figure 1-10 shows personnel estimates provided in the 1999-2000

Defence Portfolio Budget Statements, that is, before a further increase in uniformed personnel strength was authorised by the Government.

With the less than expected drawdown of the ADF and an increased proportion of personnel in combat forces, the DRP-projected redirection of resources from personnel to capital acquisition has turned out to be unrealistic. The retention of substantially higher numbers of Defence Force personnel has been represented as “the largest reinvestment of DRP savings.”⁶⁸ In reality though, it reflect a failure of the DRP to recognise the non-feasibility of further personnel cuts. Thus, these are the “savings” that could not and have not been achieved.

Further, as the implications of Australia’s longer term involvement in East Timor became apparent, the Government agreed to an additional 3,500 Service personnel, costing around A\$240

	Personnel Numbers (Average Strength)			
	Budget Estimate 1998-99	Revised Estimate 1998-99	Estimated Actual 1998-99	Budget Estimate 1999-2000
Permanent Forces				
• Navy	13,850	13,748	13,666	13,550
• Army	24,400	24,426	24,201	23,200
• Air Force	15,785	15,500	15,130	13,250
Total Permanent Forces	54,035	53,674	52,997	50,000⁽¹⁾
Reserves ⁽²⁾				
• Navy	1,836	1,803	1,804	1,803
• Army	26,507	26,100	26,100	26,850
• Air Force	1,800	2,063	2,063	2,042
Total Reserves	30,143	29,966	29,967	30,695
Civilian	17,042	16,851	16,730	16,471
Trust Account Staff	89	89	89	89
Total Civilian	17,131	16,940	16,819	16,560
Total Staffing	101,309	100,580	99,783	97,255
Notes:				
1. Navy is unable to reach its target strength in 1999-2000 and the Forward Estimates. Accordingly Army and Air Force have been given higher allocations in the interim.				
2. Reserve numbers include Ready Reserve numbers.				
Source: DPBS (1999-00), Table 1.13; p.23.				

Figure 1-10. Summary of 1998-99 and 1999-2000 Personnel Estimates

million per annum at 1999-2000 salary levels.⁶⁹ The combined additional personnel cost is estimated at A\$900 million per annum, about the same as the projected recurrent DRP “savings.”⁷⁰

The efficiency programs of the 1990s have not been able to divert sufficient funds to capital (equipment) acquisition to fund all the outstanding contractual obligations. Although obscured by the rhetoric of “new managerialism,” their failure has been quite apparent. First, the FSR-related “savings” were not achieved as—in the words of Admiral Beaumont, the then Chief of the Defence Force—“we intended to

divert funds into major capital equipment. However, we’ve had to use a lot of these funds to pay our people salary increases, and therefore we have not been to put as much into capital equipment as we wanted.”⁷¹ Second, the DRP-related “savings” were predicated on Defence achieving a personnel reduction in the ADF down to 42,500. As the latter target was abandoned, nearly 90 percent of the anticipated recurrent “savings” of A\$730 million was no longer “harvestable.”⁷² The post-Timor increases in personnel numbers and other non-capital expenditures have reduced the scope for harvesting residual “savings” even further.

Market Testing Initiatives

The Australian market-testing program (the Commercial Support Program or the CSP) begun in 1990-91 and has been progressively expanded throughout the 1990s. It is a competitive tendering and contracting initiative through which commercial and in-house bids compete for the provision of services. CSP contracts are to be awarded on the “best-value-for-money basis.”⁷³ Since the mid-1990s, the Commercial Support Program has become a major agent of change forcing resource managers to embrace the new culture of market testing. Recently, the CSP has been subsumed into the Defence Reform Program. Figure 1-12 provides a summary of market testing activities as of April 1999.

The market-testing program has been accelerated under the Defence Reform Program. In 1999-2000, 28 market testing activities, covering approximately 7,000 positions, are to be decided. The market testing of base support services (messing, cleaning, guarding services, domestic services, etc.) across Australia is to be completed in 1999-2000. The testing of clerical and administrative support functions across Australia has

commenced and the results of this activity are to be announced progressively during 1999-2000.⁷⁴ Definition/scoping studies have been under way for the market testing of: F-111 and C130 aircraft maintenance; medical and dental supplies; explosive ordnance storage and distribution; and Army laboratory and engineering support. Other activities under consideration include physical warehousing distribution and some regional maintenance activities of Defence logistics in 26 locations across Australia, publishing and printing services, and so on.

Several joint agencies have been created with a view of rationalising the delivery of logistic services. These include the Joint Ammunition and Logistics Agency, the Joint Fuels and Lubricants Agency, and the Joint Logistics Systems Agency. Defence Support Command has commenced a number of other projects, including a revised defence supply management chain, the Defence Inventory and Purchasing Segmentation Framework, which aims to increase vendor-held stock, direct vendor delivery and forward purchasing agreements to enable Defence inventory to be managed better in terms of availability, usage and value.⁷⁵

Progress as of April 1999	
Evaluation Decisions Made	87
In-House Options	23 (26%)
Commercial Contracts	59 (68%)
Status Quo Retained	5 (6%)
Projected Recurring Annual Savings	A\$206.0m
Savings to April 1999	
Mean Projected Rate of Annual Savings	33%
Number of Positions Tested	9,390
Total Value of Commercial Contracts	A\$2,026.3m

Source: DPBS (1999-00); p.11.

Figure 1-12. Defence Market Testing (The Commercial Support Program)

There may be some long term benefits in terms of "change of culture" (greater awareness of the opportunity cost of resources) but this is yet to be demonstrated. In the short run, the purpose of the reform was to identify "fat" (mostly from reductions and asset sale) and trim it to release resources for new capital acquisitions. Thus, the acquisition of billions of dollars worth of capital equipment were approved on the assumption that the "savings" would materialise in due course.

But, since the cost of personnel has not been cut (even though the numbers were reduced), the "savings" turned out to be apparent rather than real. We are now underfunded and overcommitted in that the capital equipment commitments exceed budget appropriations by billions. In the private sector, this situation would have been referred to as "bankruptcy" and a receiver would be called in.

Chapter 7

DEFENCE ACQUISITION ORGANISATION

DAO Mission and Enabling Strategies

The Defence Acquisition Organisation (DAO) is responsible for the procurement and delivery into service of the weapons and other major systems and equipment required by the ADF to preserve and enhance its combat capabilities. It is also responsible for the maintenance of supply chains from industry to Defence and the delivery of a range of “Department of State” functions, for example, the administration of defence exports regulations. DAO’s *Strategic Plan 1998-2001* translates these broad objectives into five strategic policy goals. These are to:

- meet the Government’s priorities for the development of Australian defence capabilities through the timely and cost effective (“to budget and on schedule”) acquisition and delivery to users of appropriate equipment and services;
- enhance Australian industry capabilities that contribute to Defence self-reliance and national security;
- achieve international leading practice in the capital acquisition process by being proactive and innovative while maintaining a clear focus on clients and stakeholders;
- ensure that DAO personnel are capable, motivated and well equipped to achieve its mission; and

- effectively implement the initiatives of the Defence Reform Program applicable to the DAO.

To achieve these goals, the DAO has been tasked to:

- play a major role in capability development through its participation in the Defence Capability Committee and Capability Forum (see Chapter 8);
- provide specialist assistance to sponsors of major capital equipment projects in defining capability requirements (i.e., functional requirements or technical specifications), developing schedules, cash flow projections and cost estimates, and addressing industry and contracting issues;
- manage major weapons and systems projects, including:
 - the development of Equipment Acquisition Strategies that determine the method of procurement, define schedule and decision making authorities for individual projects, encourage innovative approaches to acquisition, and comply with Government procurement policies;
 - monitoring of the financial and physical performance of major capital equipment projects to ensure that they

- meet capability, acquisition, and industry involvement objectives;
- management, jointly with the ADF Operational Commanders, Support Command Australia and the Training Commanders, of the transition into service of major capital equipment;
 - implementing and promoting the initiatives contained in the Government's 1998 Defence Industry Policy Statement including:
 - the definition of Defence's needs of industry,
 - securing industry input to force development and acquisition processes, so that wider support issues may be considered when capability requirements are defined,
 - the implementation of the Australian Industry Involvement Program, defence exports facilitation and material cooperation initiative, and quality assurance procedures,
 - fostering a Defence procurement environment that encourages best practice in acquisition processes, promotes the adaptation of best practice models, uses performance benchmarks to facilitate continuous improvement, and applies Quality Management System across the DAO;
 - improving management practices and standards, including:
 - contracting professional support to supplement in-house expertise,
- the development of a more robust corporate memory through a greater focus on process evaluation and documentation of lessons learnt,
 - communication across the Program and with stakeholders,
 - the rationalisation and improvement of the DAO's existing information technology (IT) applications, systems and resources,
 - the introduction of accrual budgeting, accounting and reporting to support more informed decision making,
 - the achievement of savings resulting from reductions in personnel numbers, especially at the senior officer level, civilianisation, reductions in the DAO regional presence, and the efficiencies gained from business process re-engineering; and
 - provide a more outcome-oriented working environment that:
 - offers enhanced staff training and career-development opportunities,
 - promotes teamwork and good staff relations, and
 - strengthens the linkages with other organisations involved in force development and in-service operation and support.

In 1999-2000, Defence planned investments (new capital formation) comprising: major capital equipment (A\$2,750 million), facilities (A\$428 million), minor capital equipment (A\$247 million), and other assets (A\$152 million). Of the total capital investment of A\$3,578

million (U.S.\$2.1 billion), the DAO is primarily responsible for major capital equipment, which accounted for about 25 percent of the 1999-2000 Defence budget.⁷⁶ Most of the DAO acquisition activity takes the form of “projects.” In 1999-2000 it managed a portfolio of nearly 200 projects, 50 of which cost over A\$100 million each.⁷⁷

Divisional and Branch Structure

The DAO divisional (sub-program) and branch structure at the beginning of 2000 is shown in Figure 1-13. The allocation of branch responsibilities is outlined below. This structure was introduced in the late 1990s as a part of the Defence Reform Program. In essence, there are

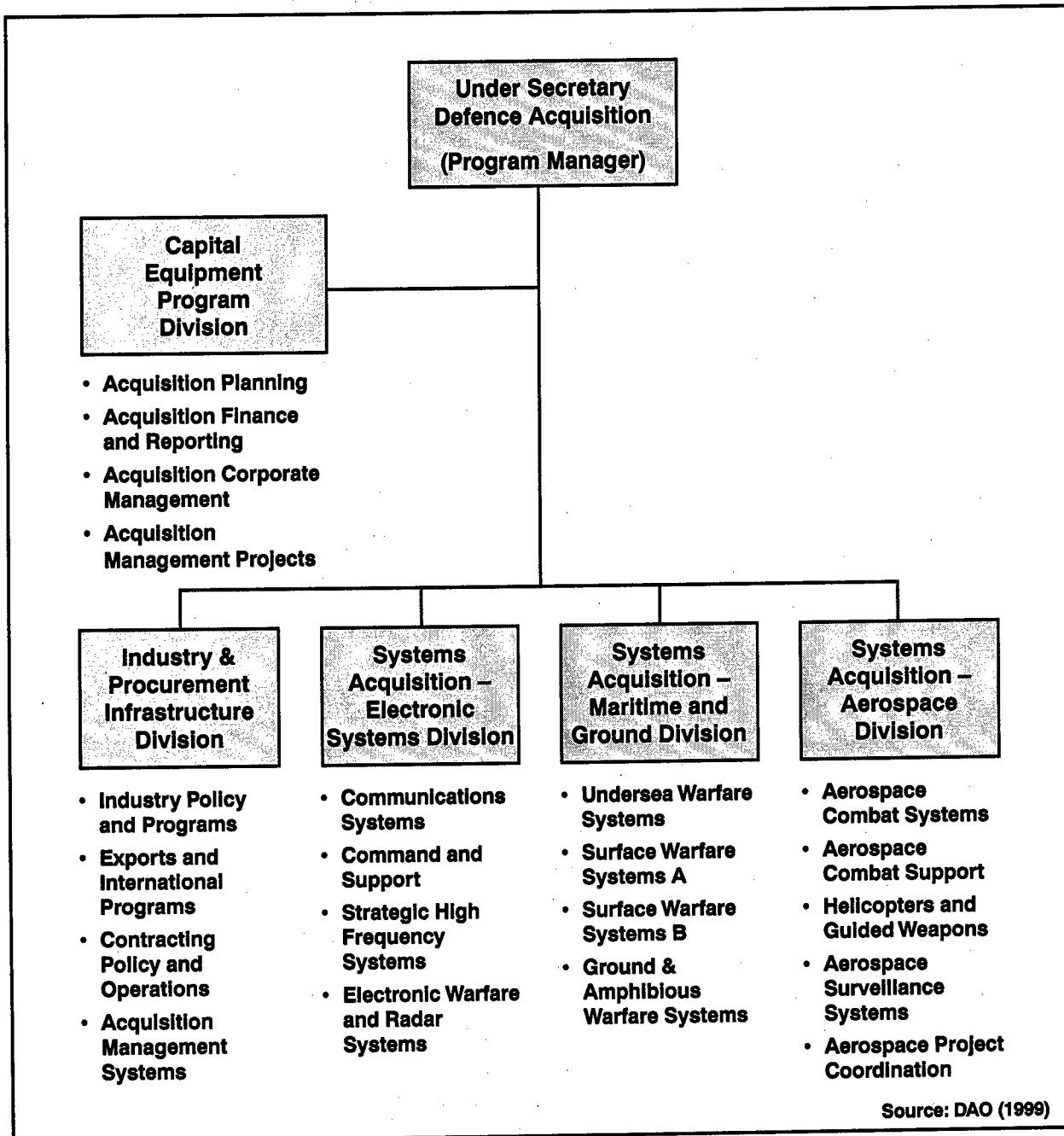


Figure 1-13. DAO Divisional and Branch Structure

two policy and support divisions (Capital Equipment Program, and Industry and Procurement Infrastructure) and three technology acquisition divisions (Electronic Systems, Maritime and Ground, and Aerospace).

Capital Equipment Program Division

The Capital Equipment Program Division (CEP) manages the Major Capital Equipment (MCE) Sub-Program in concert with the Systems Acquisition Divisions (Electronic, Maritime & Ground and Aerospace). CEP supports the Under Secretary Defence Acquisition in coordinating the resources and management of the acquisition Program. The Division's mission is "to equip and support the ADF" by facilitating the acquisition of major capital equipment." The Division is tasked with providing a transparent and stable (predictable) financial and human resource environment, corporate systems, and a sound policy and planning framework.

The CEP branch structure and branch responsibilities⁷⁸ are as follows:

- *Acquisition Planning Branch* focuses on pre-contract stages of major capital equipment (MCE) projects and assists development of MCE projects prior to contract award. It coordinates divisional advice to the Defence Capability Committee and the Defence Capability Forum (see below) and reviews tender and contract documentation and major capital equipment acquisition processes. It also performs the role of Executive Member of the Defence Source Selection Board;
- *Acquisition Finance and Reporting Branch* focuses on post-contractual stages of MCE projects. It plans the financial resources of the MCE Sub-Program (the *White Book*—see Chapter

8) and develops and implements acquisition and business policy for the MCE Sub-Program. It also produces *The Capital Equipment Procurement Manual (CEPMAN 1)*. It is responsible for development and support for new information technology systems for financial and projects reporting, and for supporting the Defence Acquisition Review Board;

- *Acquisition Corporate Management Branch* provides a transparent and stable human resource and financial planning environment for the Acquisition Program. It coordinates the implementation of Defence Reform Program in DAO (see below) and undertakes corporate planning and management activities for DAO (the Acquisition Program) and CEP Division. It is responsible for development and delivery of project management and procurement training and education including the Graduate Acquisition Trainee Program. The Branch also provides administrative support for CEP Division and coordinates and manages administrative activities in DAO and performs the public relations role for the Program; and
- *Acquisition Management Projects Branch* operates the DAO's Information Management Policy and Support Centre (IMPSC) and manages a range of Portfolio IM/IS initiatives. It also manages the post-sale activities of Australian Defence Industries and other former government business enterprises (GBEs) and the sale of the Commonwealth's shareholding in the Australian Submarine Corporation (see Chapter 9). The Branch carries the responsibility for the Goods and Services Tax (GST) within DAO.⁷⁹

Industry and Procurement Infrastructure Division

The Division's mission is to "contribute to the acquisition of equipment and systems and to promote industry support for Australia's Defence capability." Its branch structure and branch responsibilities⁸⁰ are as follows:

- *Industry Policy and Programs Branch* develops and manages Defence policy for industry, provides advice on industry issues to Defence and communicates Defence's needs to industry;
- *Exports and International Programs Branch* develops Defence policy on international materiel cooperation and export facilitation and coordinates Defence involvement in selected major defence export projects. It also promotes defence exports and materiel cooperation with Asia, North America, Europe and emerging markets. The Branch administers defence and strategic export controls;
- *Contracting Policy and Operations Branch* formulates, promulgates and advises on Defence contracting and procurement policy, procedures, documentation and standards. It also provides a professional contracting service to the Defence Organisation; and
- *Acquisition Management Systems (Branch)* is responsible for concepts and policies as well as improvements in processes and systems involved in the acquisition of major capital equipment. Its responsibilities include, *inter alia*: systems engineering, earned value performance management, integrated logistics support, quality assurance, and risk management. The Branch leads a

Business Process Re-engineering Project within DAO in support of the Defence Reform Program.

Electronic Systems Acquisition Division

The Division's mission is to "manage the acquisition of major and minor electronic capital equipment, which will help deliver the knowledge edge to the ADF." The major and minor electronic capital equipment includes systems that are involved in information transmission, command, control, communications, radar and electronic warfare. Many of these systems have joint service applications. The ESAD branch structure and branch responsibilities⁸¹ are as follows:

- *Communications Systems Branch* manages and introduces into service major and minor communications and related systems projects. It is also responsible for the management of DAO corporate information systems;
- *Command and Support Systems Branch* is responsible for the development, acquisition and introduction into service of command and support systems to meet Defence's operational requirements;
- *Strategic High Frequency Systems Branch* is responsible for the Jindalee Operational Radar Network (JORN),⁸² High Frequency Modernisation (HF MOD), and the Global Positioning System (GPS) Navstar Projects; and
- *Electronic Warfare and Radar Systems Branch* is responsible for managing the acquisition of and introducing into service major and minor electronic warfare and radar systems projects.

Maritime & Ground Acquisition Division

The Division's mission is to acquire "ships, submarines, systems and vehicles for the Navy and Army of the future." The MGAD branch structure and branch responsibilities⁸³ are as follows:

- *Undersea Warfare Systems Branch* is responsible for all designated undersea warfare projects, including submarines;
 - *Surface Warfare Systems A Branch* is responsible for the management of the ANZAC (see Chapters 4 and 9) Ship Project, ANZAC Warfighting Improvement Program, Evolved Sea Sparrow project, Principal Representative Maritime and Ground Systems (Victoria), and Navy Minor Capital Equipment projects;
 - *Surface Warfare Systems B Branch* is responsible for the management of approved ship and maritime equipment acquisition, including ship building, modernisation and conversion; and
 - *Ground and Amphibious Warfare Systems Branch* is responsible for the acquisition and introduction into service of new amphibious ships and watercraft, combat and support vehicles, weapons, surveillance systems and a broad range of general equipment systems.
- *Aerospace Combat Support Systems Branch* manages the acquisition and introduction into service of tactical, transport and training systems;
 - *Helicopters and Guided Weapons Branch* manages the acquisition and introduction into service of rotary wing aircraft and assigned weapons systems;
 - *Aerospace Surveillance Systems Branch* manage the acquisition and introduction into service of aerospace surveillance systems; and
 - *Aerospace Project Coordination Branch* is responsible for project coordination and support in the Aerospace Acquisition Division. It is also responsible for the overall management of the Division's quality management system.

The rationale of the current divisional and branch structure is discussed below.

Defence Acquisition Review Board

In addition to restructuring the DAO, the Defence Reform Program brought about changes in the strategic approach to its management. In the past, Division Heads assisted in the management of the DAO through membership of the Acquisition Program Executive (APEX), which operated as a "Board of Management." This board-type function is to continue, with the Head of the Capital Equipment Program Division (FASCEP—First Assistant Secretary Capital Equipment Program) acting as a chief of staff within the DAO. However, post-reform, the five Division Heads are to be less involved in day-to-day management and will assume increased responsibility for the corporate governance of the DAO. Authority, responsibility and accountability for project outcomes should to be delegated as far as possible to Branches and Project Teams.

Aerospace Acquisition Division

The Division's mission is to "define and acquire aerospace systems and support to meet ADF requirements." The AAD branch structure and branch responsibilities⁸⁴ are as follows:

- *Aerospace Combat Systems Branch* manages the acquisition and introduction into service of assigned combat systems;

To focus the DAO executive on the strategic role of the Acquisition Organisation, Defence has established the *Defence Acquisition Review Board* (DARB). The purpose of this new, internal DAO body is to provide high level review and direction on the progress of major projects *post contract*.⁸⁵ The DARB reviews each of the more important MCE projects on an annual basis, monitors the performance of the MCE Sub-Program as a whole, draws lesson from relevant experience, and considers important policy and procedural issues. The DARB is also a forum for monitoring the performance of approved MCE projects, providing guidance and improving processes. The DARB complements the role of the Defence Capability Committee (DCC), the Capability Forum (CF) and the Defence Source Selection Board (DSSB), which focus on the pre-contract phases of new capability formation (see Chapter 8), and the Defence and Industry Advisory Council (DIAC), which provides advice to Government on strategic matters related to the provision of industry support for the ADF (Chapter 9 refers).

The DARB is chaired by the Under Secretary Defence Acquisition. Other members are: First Assistant Secretary Capital Equipment Program, Head Industry and Procurement Infrastructure, Head Systems Acquisition – Maritime and Ground, Head Systems Acquisition – Aerospace, Head Systems Acquisition – Electronic Systems. Executive Member is Director General Acquisition Finance and Reporting Secretary is Director Acquisition Review. Head, Capability Development, and Head, Capability Program and Resources Planning are also invited to represent Defence's capability development interests.

The DARB provides a forum for:

- monitoring the performance and the status of approved MCE projects including:

- schedule, physical, financial and contractual progress,
- achievement of equipment performance requirements and the agreed Industry Involvement Program,
- transition of equipment into service,
- risk management arrangements, and
- project management arrangements;
- strategic guidance to the Directors General of the technology-based acquisition branches in respect of project-specific acquisition issues;
- monitoring the overall performance of the MCE Sub-Program;
- reviewing strategic issues and providing feedback on project management policy and procedures;
- overseeing the development and implementation of the MCE Sub-Program's management information and reporting systems; and
- promoting organisational environment and culture that is committed to openness and transparency.

The review process is primarily focused on the top thirty projects (determined on the basis of expenditure, risk and sensitivity) spread between the three technology areas: electronic, maritime & ground and aerospace systems. However, the selection of projects for consideration by the DARB is entirely at the Board's discretion. In addition to reviewing the targeted projects, the Board also considers various acquisition processes with a view to engendering process improvement and enhancing corporate learning.

The Board meets monthly. In the weeks leading to the consideration of a project by the DARB, the Acquisition Review (AR) Section, which provides secretariat services to the Board, will liaise closely with the relevant project office. The latter will be tasked to produce a brief paper, based on data from the PromIS corporate reporting tool, which outlines project performance and issues affecting it. The AR Section will then draft an executive summary/agendum paper to cover the project brief. These documents will be provided to members via the DARB database and will form the basis of the Board's consideration of the project and the associated processes. The AR Section staff will also liaise with other Defence (matrix) organisations to help identify issues of common interest concerning the project. Should issues arise which have not been addressed in the (project office) brief, a separate paper on the particular matter of interest may be attached to the agenda papers.

Conclusions of the DARB are drafted by DARB staff and emailed to members for comment/agreement. Action items are captured in a log and addressed at subsequent meetings. Finalised conclusions are available to members via the DARB database. Senior executives (one star and above) in DAO have access to agenda papers and conclusions in the database. Other DAO staff have access to selected portions of the papers, including the lessons learned. Significant lessons learned are also captured in the DAO Lessons Learned database.⁸⁶

Defence Acquisition Reform

DAO personnel comprise some three percent of the total Defence Organisation but they are responsible for nearly 25 percent of the Defence budget. Not surprisingly, the Defence Reform Program (DRP) paid particular attention to the restructuring of the DAO. As a major part of the Reform agenda, the DAO was tasked with ensuring that new major capital equipment

(MCE): meets performance requirements; makes optimal use of Australian industry; is acquired efficiently; and introduced into service on schedule and within cost estimates. The Defence Minister has also indicated that he wants to see fundamental *Defence acquisition reform* to ensure that new acquisitions are delivered faster, better and cheaper.⁸⁷ The DRP has also provided the DAO with a more prominent role in the early stages of the force development process for MCE projects, with special responsibility for developing achievable schedules, cost estimates and cash flows.⁸⁸ This role is reinforced by the Under Secretary of Defence Acquisition's membership on the Defence Capability Committee (see Chapter 8). In particular the DAO is seeking to break down arrangements separating acquisition planning from capability development planning as well as being more assertive about not accepting poorly-defined project proposals.⁸⁹

Three principles identified in the Defence Efficiency Review report (DER, 1997) have guided the restructuring of the DAO, namely:

- The effectiveness of the DAO is overwhelmingly more important than its internal efficiency. Given its role as "facilitator" of new capital formation, the DAO's acquisition activity is disproportionately important in Defence. The capital assets whose acquisition the DAO facilitates form the backbone of ADF capability for decades thereafter.⁹⁰
- The most important common factors between defence acquisition projects are the suppliers (individual companies), the supply characteristics, and the technologies involved, not the customers; and
- The core procurement task must be retained in-house and should include "smart buyer" skills, as well as the ability

and capacity to manage the out-sourcing of other activities. However, some of the procurement tasks—in areas such as legal, technical and project management advice, and provision of support services, such as quality assurance and engineering evaluation—can be out-sourced to specialists.

Its new structure allows the DAO to more closely align with suppliers and technologies—rather than its Service customers as in the past. The 22-branch structure has been based on areas of commonality (e.g., warfare mission, equipment development status, customer and industry specification practices, and design, integration, construction and test processes). The technology branches are the key delivery mechanism within the DAO, and are intended to operate as centres of expertise for particular technologies (e.g. electronic warfare, undersea warfare, and so on). The technology branches are to be supported by Policy and Support Centres (PSCs) from CEP and IPI Divisions (see below). The Under Secretary of Defence Acquisition is the employing delegate for all staff in the DAO⁹¹ and, *ex officio*, he/she is responsible for developing and approving cash flows and project cost estimates for all major post-signature (the so-called *White Book*) projects (see also Chapter 8).

For all but the larger projects, *Integrated Product Teams* will in the future be a key feature in the new DAO structure, with specific business, finance, industry, contracting, and other areas of expertise being provided by Policy and Support Centres. The teams will examine: alternative products or service delivery options, including those unique to Australian circumstances; scope for off-the-shelf acquisition and international collaboration; risks associated with different options; and key cost factors specific to each option. The new *Policy and Support Centres* (PSCs) cover functions and disciplines critical to major capital asset acquisition:

contracting, acquisition planning, industry involvement, quality assurance, finance, and earned value management. Their job is to provide expert advice and specialised services to project authorities in the technology branches as well as give policy guidance and assistance to a wide range of clients outside the DAO.

As mentioned earlier, Defence has already announced its intention to merge the DAO and the Support Command into a single acquisition and through-life support organisation. At the time of writing, it is not clear how this will be achieved and feasibility studies are under way to assess the practicalities of the intended merger. Regardless of the final outcome of these studies, Support Command will have membership on integrated capability and acquisition teams responsible for the logistics support aspects of projects, including through-life considerations.

The DAO has also embarked on a program re-engineering its business processes and changing its organisational culture “to do more with less.”⁹² The BPR initiative aims to ensure consistency, improved quality, and the elimination of unnecessary bottlenecks, duplication and layers of consultation, review and reporting. The re-engineering of the acquisition processes is to result in greater devolution of decision-making and delegation of authority instead of centralised committee-based and top level-driven decision making. There should be clearer identification of responsibility and accountability, and a more tailored approach to project requirements. Considerations of through-life risk management should drive the acquisition process. The APEX has acted as the steering group for the implementation of the BPR and other reform initiatives. It reports monthly on progress to the Minister for Defence and has established a small Implementation Team to coordinate and monitor the progress of Acquisition Reform.

Improved efficiency and effectiveness will also be supported by the wider use of a *Quality Management System* across the DAO, and by the introduction of new IT management information systems. The collocation of previously dispersed DAO personnel into an integrated office complex has also provided opportunities for business process efficiencies and team building.⁹³ The DAO is also responsible for providing or commissioning the provision of functional training in acquisition-related disciplines so that staff executing different acquisition delegations can be trained to acquire appropriate competencies and acquisition-specific career streams can be developed.

At the time of writing, the Under Secretary of Defence Acquisition is shifting the emphasis in contracting away from the use of the fixed price approach to new strategies to manage risk. The focus is on greater use of incentives to share potential efficiencies between the vendor and Defence; evolutionary acquisition; and cost-capped tendering which, when combined with alliance contracting, allows suppliers/contractors to offer capability trade-offs within the cost

cap. It is also intended to use risk assessment profiles in the tendering process to identify critical areas of vulnerability among potential suppliers. Company "score cards" and one-on-one company briefs at the pre-tender stage are to assist in the contractor selection process. Successful past performance will be used as an indication of a contractor's capability to perform in future and score cards and briefs will allow Defence to eliminate potentially non-competitive bidders earlier in the source selection process.⁹⁴

The tendering process is to be simplified with less company-specific information requested from bidders and streamlined tendering, short-listing and contract award. Functional rather than product/technical specifications and systems engineering approach are to be applied in the early stages of capability definition and evaluation of supply options. Operational concepts and logistics support requirements should be finalized and reflected in contracts before signature. The Replacement Patrol Boats project is envisaged as test case (pilot) of the new approach to defence acquisition.⁹⁵

Chapter 8

THE ACQUISITION PROCESS

The Materiel Cycle

The concept of “materiel life cycle” provides a convenient model for describing an asset’s life cycle. Figure 1-14 provides an overview of the materiel cycle in the Australian Defence Organisation based on various planning and resource management documents.⁹⁵ Details of the capability planning and capital acquisition are discussed in some detail below. Detailed considerations of in-service deployment and disposal are beyond the scope of this Chapter.

This Chapter begins with the generic description of capital acquisition process for both major and minor projects. This is followed by a description of two documents, the so-called *Pink* and *Yellow Books*, which list the proposed (unapproved) major and planned minor capital projects respectively. The remainder of this Chapter is concerned with the acquisition of major capital equipment items.⁹⁷ The acquisition process is considered in three phases: the pre-project approval phase; the approval phases; and the post-project approval phase. The Chapter concludes

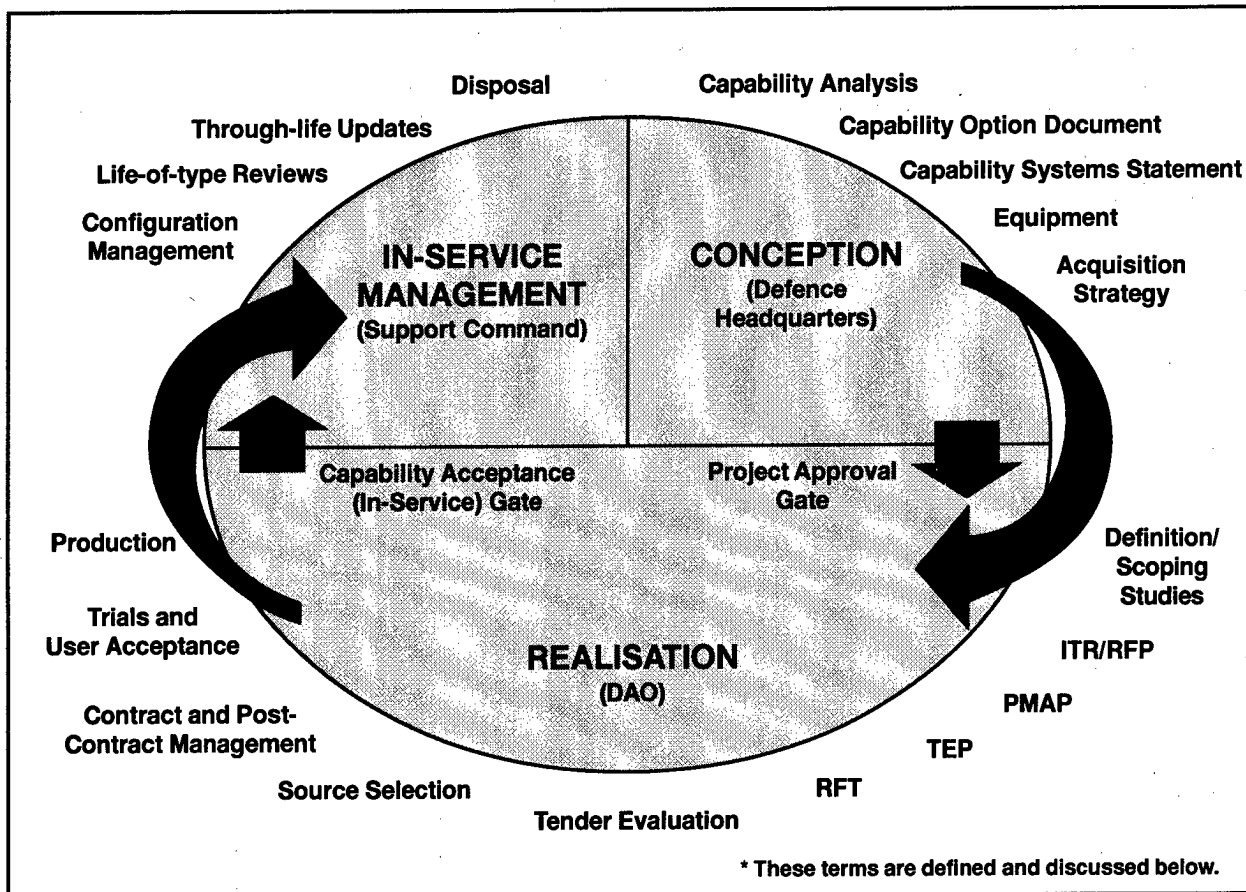


Figure 1-14. The Defence Materiel Cycle*

with a brief description of international collaborative arrangements.

The pre-approval phase is managed primarily by capability development and program and resources planning divisions in Defence Headquarters, with the DAO providing industry, acquisition, cost and schedule inputs and advice. The post-project approval phase is managed by the DAO.

CAPITAL EQUIPMENT ACQUISITION PROCESS

The Concept of Capital Equipment

The (Australian) *Capital Equipment Procurement Manual* describes *capital equipment* in Defence as comprising:

- major assets such as ships, aircraft, armoured vehicles, weapons, communications systems, electronic systems or other armaments which are either additions to the defence inventory, or replacements for assets in the defence inventory;
- the modernisation, conversion or modification of major assets that will result in a capability enhancement;
- significant assets such as plant and machinery, special-to-type test equipment that were either not previously stocked or are required to replace existing items but have a significantly enhanced capability;
- additional quantities of ammunition and significant assets to meet increased levels of entitlements and reserves;

- initial supplies of maintenance, test and support equipment, machinery, spares, ammunition, training aids and other items for the requirements identified above; and
- substantial initial issues of new items of clothing and other personal equipment and/or additional items to meet major increases in the size of the ADF or to improve the capability of the existing force.

Major and Minor Capital Equipment

Capital equipment (and systems) is acquired through:

- a. major capital equipment projects; and
- b. minor capital equipment projects.

Major capital equipment projects are those where:

- all one time project costs incurred in bringing capital equipment (or systems) into operational service, including the cost associated with the stock of initial (three year supply) spares are estimated to exceed A\$20m; or
- the unit cost of an individual equipment in a multi-item acquisition is A\$1m or more; and/or
- there are significant Defence policy or Joint Service implications.

The *Defence Major Capital Equipment (Investment) Program* is divided into three categories:

- Approved Equipment – Major Capital Equipment Sub-Program (*The White Book*);
- Not-Yet-Approved Equipment – New Major Investment Sub-Program (*The Pink Book*); and
- Facilities – Capital Facilities Sub-Program (*The Green Book*).

Major capital equipment acquisition projects are normally managed by the Defence Acquisition Organisation.

Minor capital equipment projects are defined as equipment, which falls within the definition of capital project but does not meet the criteria described above. By and large, these projects, cost less than A\$20 million to acquire. The Support Command Australia normally manages minor projects. Exceptions include the Capability and Technology Demonstrator (CTD) projects and minor projects, which have links to major projects.

Minor projects are listed in *Forward Procurement Plans for the Australian Department of Defence Minor Capital Equipment Program* and the *New Zealand Defence Force Capital Programme – Minor (The Yellow Book)*. New Zealand's program is included in the (combined) Yellow Book because for many defence products, especially minor capital equipment, the Australian and New Zealand contractors are treated equally as domestic suppliers (see Chapter 9).

Pre- and Post-project Approval Phases

The acquisition of capital equipment consists of pre- and post-“project approval” activities. Project approval (by Government in the case of major projects) is the key event, which marks the shift from the predominantly planning

activities of the pre-approval stage to the post-approval stage where the planning is implemented.

The *pre-approval phase* covers capability development and materiel definition⁹⁸ aspects of acquisition and includes:

- identification of the tasks required of the Australian Defence Force (ADF) in meeting strategic guidance;
- considerations of the ADF's ability to undertake the tasks with current and planned capabilities;
- considerations of the options available to address capability shortfalls;
- development of an Equipment Acquisition Strategy (EAS);⁹⁹
- development of specifications and capital and through-life cost estimates;
- assessment of the proposal's priority and proposal programming; and
- seeking approval for the proposed project.

The *post-approval (implementation) phase* includes:

- seeking expressions of interest, proposals and tenders from industry;
- tender evaluation, source (supplier) selection, and contracting;
- acquisition (project) management and contract administration; and
- the project's acceptance into operational service.

Defence New Major Capital Equipment Proposals – The *Pink Book*

Defence New Major Capital Equipment Proposals or the so-called *Pink Book* (unclassified) provides a consolidated breakdown of major capital equipment (MCE) projects, which have developed but have not yet been approved by Government. Normally, larger projects consist of a number of self-contained phases, each phase being proposed, reviewed, and approved separately by Government. The *Pink Book* excludes a number of highly classified proposals and proposals of particular sensitivity.

Given their unapproved status, most proposals listed in the *Pink Book* are subject to further review. As expenditure for most proposals is spread over many years, significant slippage, rescheduling of expenditure and changes in scope may occur. With regard to the timing and approximate cost ranges, the program is deliberately “overbid”, i.e., more proposals are included than could be afforded. This built-in “slack” allows for unexpected changes in proposal schedules and offers investment planners a degree of flexibility to accommodate changes in Defence priorities and/or government strategic and financial planning guidance.

Prime equipment purchases should be viewed more broadly in the context of full-cost-of-ownership to Defence and in through-life terms. Thus, the project cost should reflect the total estimated cost of bringing new equipment into service and include such elements as Government Furnished Materials, Integrated Logistics Support (initial stock of spares, training, publications, facilities, and test and support equipment), and administration. These costs usually represent a very substantial proportion of the total (life cycle) project cost.

The Defence and Industry Strategic Policy Statement of 1998 committed Defence to expanding

the *Pink Book* to make MCE proposals more transparent to industry. Phasing details have been expanded and, in some cases, they include a history of the project. Projects are also described with regard to “Defence needs of Australian industry,” drawn from the publication of the same name, to provide an “industry function” breakdown of anticipated needs. References to “Australian Industry Involvement” (AII) reflect expectations that most projects will include substantial Australian content during both acquisition and through-life phases. Also included in the *Pink Book* is a reference to “potential prime contractors,” included to assist domestic Small and Medium Enterprises (SMEs) in their discussions with Defence and potential prime contractors.

“Project schedule highlights” are included in the *Pink Book* to provide indicative timings for project milestones. A further indication of Defence’s current thinking is reflected in a “future phases” category. The Year of Decision (YOD) for a proposal is the year that first expenditure may occur providing the project is approved by Government. Contacts with industry generally commence before the YOD as proposal sponsors and managers prepare the necessary departmental documentation. A typical structure of a proposal is shown in Figure 1-15.

Forward Procurement Plans for Minor Capital Equipment – The *Yellow Book*

The Forward Procurement Plans for Minor Capital Equipment (the so-called *Yellow Book*) incorporates the Defence procurement plans for minor capital equipment in Australia and the New Zealand Capital Programme – Minor. The *Yellow Book* is a source of information for industry on Australian and New Zealand future spending on defence minor projects (up to \$A20 million in Australia and \$NZ5 million in New Zealand). As in the case of *Pink Book*, much of the information contained in this publication is

Year of Decision 1998/99

AIR 5401 Phase 1 - Medium Tactical Air Lift Capability

This Phase of the project will refurbish the existing 12 C-130H aircraft to maintain the ADF's tactical air transport capability, through to the planned replacement of the C-130H around 2008. The work involves limited structural refurbishment and replacement of some avionics and instrumentation, and is expected to be carried out within the Deeper Maintenance (DM) period, or as part of flight line operations maintenance and support. Support Command Australia will arrange procurement. Purchases already underway for this project include:

- Phase 2 (YOD 97/98) covers the Medium Tactical Air Lift Capability (MTAC) simulator for the C-130H. This is being procured through Project Air 5369, via a contract change proposal with CAE (Australia). Project Air 5369 covers the procurement of simulators for RAAF's Boeing 737 aircraft and C-130J aircraft being procured under Project Air 5216.
- Phase 3 covers Electronic Warfare Self-Protection for the C-130H. Tenders for this Phase closed in October 1998.

Defence Needs of Australian Industry

Identified needs, which may relate to this phase, include aircraft structure and avionics.

Australian Industry Involvement

Areas for Australian Industry Involvement include:

- installation of avionics and cockpit design;
- refurbishment of the landing gear, airframe and structure; and,
- Integrated Logistics Support (ILS) for new avionics and other aircraft components as required.

Through-life Support

The C-130H aircraft will be replaced around 2008. Through-life support activities will concentrate on aircraft DM and ILS out to the planned withdrawal date.

Potential Prime Contractor

Air NZ Engineering Services (at Christchurch or Blenheim) currently undertake DM and flight line operations maintenance and support. It is likely further activities may also be undertaken by this company.

Project Schedule Highlights

Timings are yet to be determined for this phase.

Proposed Expenditure

Air 5401 Phase 1 is a category 7 project.

Future Phases

Air 5414 Phase 1 (YOD 03/04) will procure an aircraft to replace the C-130H.

Air 5414 Phase 2 (YOD 03/04) covers upgrade of the C-130H simulator.

Air 5414 Phase 3 (YOD 03/04) covers Electronic Warfare Self-protection for the C-130H replacement.

Point of Contact

CD Div Contact: xxx yyy zzz

Source: *Pink Book (Defence New Major Capital Equipment Proposals 1999-2004)*

Figure 1-15. Example of a Pink Book Proposal: AIR 5401 Phase 1

only indicative. Individual projects will only proceed subject to satisfactory further development and the normal budgetary processes of programming, funding and approval. The priority afforded each project may be changed to reflect changing preferences and strategic concerns.

While the two Defence Organisations endeavour to provide industry with an early indication of their procurement intentions and plans, information contained in the *Pink* and *Yellow Books* does not constitute informal or formal tender documentation. Thus, any expense or investment decision made by industry on the basis of data contained in these documents is a matter for commercial judgement.

Major Capital Equipment Acquisition Process: The Pre-Project Approval Phase

The pre-approval phase of the major capital equipment acquisition process comprises *capability development* and *materiel definition* activities.

Capability Development

Capability development refers to the process of identifying and planning, within strategic and financial guidance, the acquisition of a capability required for the ADF. Capability development follows from strategic policy development. The major output of strategic policy is the establishment, through Government decisions, of strategic priorities for the whole of Defence. This includes strategic appreciation of ADF capability requirements. This appreciation provides a basis for capability analyses which, in turn, leads to sustainable arguments for the equipment procurement. The Capability Staff is responsible for exploring options to enhance current capabilities and develop new ones. The *Capability Assessment Reports* (CARs) and *Resource Assessment Reports* (RARs) help to identify

and prioritise deficiencies in the current force, as well as identify desirable capability developments for the future force.

The *Capability Managers* are responsible for bringing to the attention of Vice Chief of Defence Force (VCDF), Deputy Secretary Strategy and Intelligence (DEPSEC S&I) and, if appropriate, the Defence Executive any issues of concern or suggested improvements to meet current or future requirements. They should also ensure that all elements of capability for which they are responsible have been addressed during the capability development phase.¹⁰⁰ They provide expert advice on current capability to VCDF and DEPSEC S&I. This includes the identification of needs and opportunities for capability improvement; the attendant cost implications, and, where desirable, the scope for remedial or development action. They also provide inputs to the analysis of new capabilities and strategic priorities and the desirability of new investment in capability relative to the continuing dependence on the existing ones.

Integrated Project Teams (IPT) are formed with representation from all significant stakeholders internal to Defence, preferably from conception to in-service, with differing representation and stakeholder involvement and influence at different stages. These teams may be managed directly by line management or by Project Management Boards comprised of key stakeholders such as ADHQ, DAO. In the capability definition phase, IPTs are designed to improve the quality and scope of proposals by drawing on a diverse range of stakeholders.

Specific major capital investment (capability) proposals are submitted for inclusion in a *Considerations Paper* prepared by capability development and resources planning divisions for consideration by the Defence Capability Committee or the Capability Forum.

The *Defence Capability Committee (DCC)* is chaired by DEPSEC S&I, with VCDF and the Under Secretary for Defence Acquisition as standing members. It makes key decisions on capability development priorities and recommends an annual program of investment that is consistent with strategic and financial guidance. The committee considers and endorses the scope and cost of complex unapproved projects and resolves cost/capability trade-offs to arrive at a recommended investment program.

The DCC is supported by the *Capability Forum (CF)*, whose representation parallels the DCC with membership at the two-star level. This forum makes capability development decisions on issues delegated to them by the DCC. Typically, it provides recommendations to the DCC on the proposed levels of investment for less significant or costly projects. The CF also considers capabilities utilising emerging technologies through a program of Capability and Technology Demonstrators (CTDs).

The following *Capability Development Framework* need not apply rigidly to all Capability Development Proposals, but the general principles of a “whole of capability” perspective, iterative development of proposals, and early engagement of all stakeholders should always apply. The framework and its associated timeline should be flexible enough to accommodate opportunities, which emerge at short notice as well as those very significant proposals which might be reviewed by committee more than twice. Figure 1-16 shows the major milestones and supporting steps in the overall Capability Development Process.

Once the DCC or CF is satisfied that the capability requirement, operational and in-service support arrangements are sufficiently well defined, and that the accompanying cost, schedule and cash flow estimates are realistic, government approval to proceed with the project

will be sought in the context of the annual budget submission.

Materiel Definition

Materiel definition refers to the process of translating the required capability contained in capability development documentation into an accurate, clear description of standards and performance to ensure suitability for purpose. Materiel definition also includes the development of an acquisition strategy, which can be tested against departmental policy and commercial practices. The Defence Source Selection Board (DSSB) must endorse the latter.

An *Equipment Acquisition Strategy (EAS)* is generally developed in parallel with the investment proposal. It explains the method of procurement, provides a schedule of planned events, identifies officers empowered to act as statutory authorities to exercise financial approvals, describes how local industry is to be involved, outlines support aspects and provides overall management strategies required for the project (e.g., risk, security implications, and technology transfer). The EAS shifts the focus to a business perspective, and describes all major steps required for acquisition in sufficient detail to demonstrate that the overall strategy is feasible and appropriate.

The strategy and timings developed in the EAS provide the basis for *Project Management and Acquisition Plan (PMAP)*. The latter is the primary internal planning document required for a project and includes the Integrated Logistic Support (ILS), management and schedule plans needed to achieve the milestones identified in the EAS. A *Risk Management Plan (RMP)* must be prepared for all MCE projects at the pre-approval stage for inclusion in the PMAP. The Acquisition Reform Program (see Chapter 7) has put a great emphasis on risk identification, analysis, treatment and review functions. These

	Milestones	Supporting Steps	Sponsors/Initiators
1	Identification of Desired Capabilities		HCS and HC4ISREW in consultation with stakeholders (Strategy Staff, CM, DAO, SCA, DPE, DSTO, etc.)
2	Presentation of Capability Development Statement to DCC	Development of Capability Development Statement (CDS)	HCS or HC4ISREW take the lead in preparing the CDS Executive Authority: VCDF advised by the DCC
3	First presentation of a Capability Options Document to Committee	Development of Capability Options Document (COD)	HCS or HC4ISREW take the lead in preparing the COD Executive Authority: VCDF/HCAO advised by the DCC/DCSC
		Development of a draft Capability Systems Statement (CSS)	HCS/HC4ISREW Executive Authority: HCS/HC4ISREW, CM
4	Further Presentations of a COD to Committee (if required)	Refine COD	HCS/HC4ISREW lead the further development of the COD
5	Issue Endorsed Cost Capability Schedule Summary (CCSS)		CAO prepares the CCSS in consultation with CS/C4ISREW and CEP (for major equipment)
6	DCC Programming Consideration	Inclusion in DCC Programming Meeting Issues paper	HMR and HCAO in consultations with CS, C4ISREW, CEP and CMs.
7	Delivery of CCSS & CSS to implementors		HCS/HC4ISREW in consultation with the relevant CM, UNDERSEC Acquisition, HCAO
	For Major Acquisitions:		
8	Government Approval for the project	Prepare Cabinet submission (CABSUB)	DCC recommends projects for inclusion in the annual budget submission or other submission. HCAO prepares draft submission for DE to agree
9	Initiate Acquisition	Following Government approval, funds transferred from the Pink to the White Book	
10	Contract Signature		The DAO responsible for approving the contract
Source: A Defence presentation at a management seminar			

Figure 1-16.
Capability Development Process: Major Milestones, Supporting Steps and Actions

functions must be monitored and reviewed throughout the life of the project.

A project manager may start to develop a *Statement of Requirements* (SOR) which describes the functional and performance requirements of the capability being procured. The SOR also specifies other relevant requirements such as delivery, quality, management, testing and installation, and it is attached to the draft Conditions of Contract in the *Request for Tender* (RFT).

Major Capital Equipment Acquisition Process: The Project Approval Phase

As explained in Chapter 5, the Cabinet considers and determines resource guidance for Defence on an annual basis. This guidance is reflected in the annual Budget and the three-year Forward Estimates and is expressed in terms of a percentage change from the allocation for the previous year, after adjustment for inflation. The Defence Executive takes the current government guidance into account in determining funding allocations to Defence Outputs, including new capability acquisitions, in the development of the Five-Year Defence Program (FYDP).

Project approval refers to Government agreement to proceed with a project that has been developed by Defence and submitted for Government approval and allows the project manager to proceed with the procurement stage. The approval establishes the scope of a project, sets financial limits on the various elements within it and facilitates a transfer of guidance from the Pink Book to the *Approved Major Capital Equipment Sub-Program*—the so-called *White Book*—or to the *New and Ongoing Facilities Sub-Program*—the so called *Green Book*.

Project approval can occasionally occur outside the Budget for very large projects, which warrant closer Cabinet scrutiny or where there is some

urgency in progressing the acquisition. Subsequent changes to the approved scope of a project can require reference back to the original approving authority. On the other hand, authority to vary approved costs is devolved within prescribed guidelines to subordinate authorities. Accordingly, project costs are updated at least annually and approvals to fund changes are sought in the Omnibus Submission.

Major Capital Equipment Acquisition Process: The Post-Project Approval Phase

The post-project approval phase of the major capital equipment acquisition process consists of a well defined series of steps to ensure that the equipment to be procured meets the operational requirement and performance specifications and is acquired within the approved cost and schedule. The following steps are considered below:

- market scoping;
- tendering and source selection process;
- contracting;
- contract management; and
- testing, evaluation and acceptance into service.

Market Scoping

A project manager can obtain information from industry and/or alert potential suppliers to the Commonwealth's purchasing intentions before formal tendering action. The two documents used to achieve this are:

- *Invitation to Register Interest (ITR)*, which is a brief, formal invitation to industry to express interest in a project proposal. The content is determined by

the project manager in consultation with the relevant Policy and Support Centre (PSC); and

- *Request for Proposal (RFP)*, which is a more substantial document seeking information from industry to further define the requirement, assess alternative equipment options and estimates of costs. The RFP is issued in similar format to an RFT (i.e., using Defence contracting form DEFPUR 101), but does not include draft contractual clauses, and the responses do not form the basis for proceeding to contract.¹⁰¹

The project manager evaluates responses from an ITR or RFP, with assistance from specialist PSCs, and the outcome endorsed by the authority nominated in the EAS.

Tendering and Source Selection Process

Formal offers from industry to supply goods and services are sought by the release of a *Request for Tender (RFT)*. The release of an RFT indicates to industry the advanced stage of the project and the continued intention of the Commonwealth to proceed with the acquisition. Project approval is required before the release of the RFT. The DEFPUR 101 and other Defence contracting forms, which include draft conditions of contract, provide a standard format for drafting a contract.

A *Tender Evaluation Plan (TEP)* is next developed by the project manager to determine how tenderers' responses are to be evaluated. Normally, the TEP and evaluation criteria are agreed at the same time that the RFT is approved by The Under Secretary for Defence Acquisition (or delegate) for issue to industry. It is also desirable that an industry briefing be held two or three weeks after release of the RFT to provide prospective tenderers with the opportunity to be

appraised on aspects of the Department's tendering requirements and to answer general questions regarding the SOR.

The aim of the evaluation process is to select the tender, which satisfies the requirements of the RFT and offers *best value for money*. This is normally done by a Tender Evaluation Board (TEB), chaired by Project Manager and consisting of members drawn from specialist functional areas such as DAO branches for contracting, business, industry and financial advice, the project sponsor for operational and capability aspects, Support Command for logistics support, and so on. Tender evaluation procedures and methods are tailored to individual projects, to evaluate each tenderer's response against the tender evaluation criteria in the RFT and to determine the bidder offering "best value for money" to the Commonwealth. The tendering and evaluation procedures for *sole source* or *restricted tenders* must be just as rigorous as they are for *open tenders*.

The TEB's recommendation is presented in a *Source Evaluation Report (SER)*, which is considered by the DSSB. The SER details the results of the TEB's evaluation of proposals, provides a ranking of offers, recommends a preferred tenderer and explains the implications of accepting the recommended offer. The DSSB performs an independent function to attest the probity, propriety and thoroughness of the source selection process. Where the DSSB supports the SER, it makes a recommendation to the authority nominated in the Equipment Acquisition Strategy who then approves the source selection.

Contracting

Following selection of the recommended contractor, the project manager develops a *Contract Negotiating Directive* with assistance from the contract adviser and appropriate authorities within Defence, and finalises the

draft contract in accordance with DSSB directions. The Contract Negotiating Directive is a sensitive document, which sets out the Commonwealth's negotiating strategy and bargaining position. The Under Secretary for Defence Acquisition (or delegate) is the clearance authority for the Contract Negotiating Directive and Draft Contract.

Contract negotiations are conducted on behalf of the Commonwealth by the Defence negotiating team headed by the Defence Negotiator, who may be the Project Manager. He/she will be assisted by specialist advisers, including the contract adviser (and the Project Manager if the latter is not the Defence Negotiator). The outcome of contract negotiations is an agreed position by the Commonwealth and the tenderer(s) resulting in the signing of a contract.

Contract Management

The project manager is responsible for contract management, which may extend over a number of years. The project manager and the contract adviser, along with the relevant PSC staff, work in close consultation and provide each other with timely advice on matters pertinent to contract progression. The more important tasks of the project manager in administering the contract are to:

- ensure that the contractor meets its obligations under the contract;
- investigate and initiate contract amendment proposals;
- progress contractors' claims and certify the claims for payment against the contract;
- monitor and report (through PROMIS) financial and production progress under the contract and identify difficulties

which could affect the contracted requirements;

- ensure that the Commonwealth meets its obligations under the contract; and
- accept the deliverables from the contractor on behalf of the Commonwealth.

Testing, Evaluation and Acceptance Into Service

The project manager is responsible for tasking appropriate Single Service, DSTO or other agencies to conduct any testing or evaluation of deliverables. This is achieved through the *Test and Evaluation Master Plan* (TEMP) which is developed at an early stage of the project and approved by the relevant HSA.

On completion of tests and evaluations, the delivered equipment is assessed against the operational requirement to ensure that appropriate logistic and operational arrangements have been put in place. The equipment is then accepted into operational service by the respective Service Chief (see below) who then takes on the responsibility for its management and support.

Three documents—a Transition Plan (may be a sub-plan of the PMAP); a Transfer Document; and a Project Completion Report—are required to formally conclude a major capital equipment project, complete the programming and funding responsibilities in the Acquisition Program and transfer responsibility for operational and maintenance costs to a single Service.

International Collaborative Arrangements in Major Capital Equipment Acquisition

In Australia, as in other countries, international collaboration in the development, production and procurement of defence equipment is an

established way of achieving efficiencies in the sourcing of equipment, access to technology and interoperability with allies.¹⁰² Examples of collaborative project include: the ANZAC Ship—joint requirement with New Zealand (see Chapter 9); Project Nulka—a collaborative program with the United States for the full scale engineering development of a system for defence against anti-ship missiles; and Barra Sonobuoy—involving Australian development of the passive directional sonobuoy used in anti-submarine warfare and UK development of the onboard processors.

The objectives of international collaboration are to:

- achieve scale economies at various stages of the materiel cycle;
- promote the standardisation of military equipment;
- enhance the Australian Industry Involvement in major defence development and production programs;
- increase interoperability of equipment both within Defence and with allied forces; and
- facilitate the exchange of information and technology not available in recipient country.

Given inherent difficulties in matching operational requirements, timing and financial programming of Australian procurements with those of other countries, the Australian Government has in place a program of government-to-government arrangements with selected countries which promote the exchange of information about acquisition plans and intentions and provide the basis for joint collaborative ventures. These arrangements enable the comparison of

Australia's procurement plans with those of potential collaborative partners. They also allow other forms of collaboration such as combining orders for the same equipment or reciprocal procurement. The establishment of such arrangements may take the form of "umbrella" or "project-specific" *Memoranda of Understanding* (MOUs). In some cases, it may be necessary for industry to be involved in the collaborative process and to have arrangements that parallel those negotiated between governments.

For example, MOUs covering *Cooperative Defence Procurement* are in place with the United States (on a case by case basis), Canada, and Sweden. MOUs facilitate *Data Exchange Agreements* (DEAs), *Defence Standardisation*, and support the Australia/Britain/Canada/America (ABCA) Agreement.

Criteria for identifying potential collaborative projects include:

- military – scope for operational and logistical benefits from collaboratively acquired equipment;
- industrial – scope for the development/sustainment of the Australian defence-related industry;
- economic – scope for achieving the economies of scale in production and maintenance/support of equipment;
- technological – access to technology (intellectual property) and opportunities for further technological development; and
- timescales – opportunities for coordinating procurements over time.

Typical criteria for potentially successful collaborative programs include:

- equitable investments by participants;
- international specialisation with no duplication of activities;
- high technological compatibility;
- high level political support in each participating country; and
- compatible timescales.

The prospects of collaborative development and production need to be considered early in the capability planning. After a decision is taken to pursue collaborative arrangements for a project (often influenced by an existing MOU covering Cooperative Defence Procurement), bi- or multi-lateral arrangements are developed to undertake project planning/scheduling, costing, industry involvement, and so on. If an MOU already exists, these negotiated arrangements for the collaborative project may be determined in an Annex to the existing MOU.

Chapter 9

DEFENCE INDUSTRY AND DEFENCE INDUSTRY POLICY

Australian Defence-related Industry

In recent years, at least 60 percent of the total Defence budget has been spent on goods and services. About 60 percent of goods and services has been sourced from Australian suppliers. Almost all of capital facilities budget was spent in Australia. The large majority of the logistics and administrative budget was also spent in country and just over a half of capital equipment budget went to domestic suppliers.

The constituents of defence industry in Australia, as elsewhere, can be identified only by additional reference to how "defence industry" is defined. A broad definition encompassing *all* industry activity involved in supplying Defence probably casts the net too wide: it includes firms which only occasionally provide supplies and firms for whom Defence demand comprises only a small and lowly valued fraction of all sales. It also includes Australian firms supplying Defence with goods and services, which could just as easily be sourced elsewhere. More specifically, defence-related industry might be defined as that part of Australian industry which provides, or is capable of providing, goods and services *strategically important* to Defence.¹⁰³

On that definition, the more strategically important goods and services are largely supplied from five industry sectors: information technology, electronics and communications; shipbuilding and repair; aerospace; ordnance; and vehicles. Over recent years Defence has been a dominant customer only in the shipbuilding and repair and ordnance sectors. It has sourced large orders in

IT but has accounted for only a small fraction of total industry sales.

The notion of sustainability for domestic defence firms in the Australian environment has always been problematic. Demand from the domestic Defence buyer is spread widely across specialist areas of supply capability and concentrated in large and discrete lumps over time. On the other hand, penetration into exports has always been limited and the Defence Efficiency Review concluded in 1997 that Australia "should regard export orders as windfalls rather than reliable income sources in most areas."¹⁰⁴ The difficulties engendered by these market characteristics are likely only to become more acute as the implications of the "Revolution in Military Affairs" become increasingly obvious. On the one hand, network centric warfare will call for even more integration among platforms within battlefield systems. On the other, there will be less emphasis on possession of newer platforms in themselves and more on stretching their lives. This implies purchases of fewer units of any specific platform than in the past and greater emphasis on larger but better integrated networks. Change, therefore is inevitable.

In Australia, as elsewhere, there have been major organisational and structural changes to defence industry in recent years. Firstly, throughout the industry there has been substantial consolidation. In a period of a few years, one group of 18 major suppliers in electronics, shipbuilding, aerospace and ordnance has been reduced to five: Tenix Defence Systems, British Aerospace Australia (BaeA), Thomson Marconi Systems

(new owners of Australian Defence Industries Ltd), Boeing Australia Ltd, and RLM Holdings (Joint Venture.)¹⁰⁵ All these companies can be described as major capital equipment suppliers. Interestingly, though, the next three largest suppliers to Defence, Thiess, Lend Lease and Serco, are service providers rather than equipment manufacturers.

Secondly, government has proceeded with a continuing program of corporatisation and privatisation in the sector. Tenix operates what were once government shipyards in Melbourne; Boeing has absorbed part of once government-owned aircraft manufacturing facilities; Australian Defence Industries Ltd. has been sold into private ownership (Thomson Marconi Systems).

Under the bilateral Closer Economic Relationship (CER), Australian and New Zealand industries are regarded as a single industrial base when this is consistent with the objectives of self-reliance. Australian and New Zealand firms are therefore treated equally under Defence industry policy, except in regard to a small number of high security or third country collaborative projects, or in specific circumstances associated with the use of strategic industry development policies.¹⁰⁶

Defence Industry Policy

The trend towards corporatisation and privatisation of former publicly owned industrial facilities reflects a general preoccupation with attempts to invoke the market as a means of enhancing efficiency. Commitment to this approach is outlined explicitly in the Government's 1998 *Defence and Industry Strategic Policy Statement* (DoD, 1998). The statement reflects on the government's strategic shift to a more proactive posture and a declared willingness to deploy the Australian Defence Force abroad in support of regional interests—a policy stance, which formed the basis for Australia's involvement in Timor.

“For its part,” the Statement says, “industry must be ready to support ADF elements whenever and wherever they are sent.... In some circumstances, this will involve industry supporting deployed elements directly and will require a cultural shift by Defence—away from *owning and controlling* its own resources to *utilising* assets owned by the private sector.”¹⁰⁷ This shift is viewed in the Statement as a move towards partnership—a partnership between Defence and defence industry firms which it wishes to see as “sustainable,” i.e., not dependent on winning every defence contract for which it bids.

Recognising the implications of industry changes outlined earlier, and the importance of retaining access to overseas equipment innovations, the Government has said it welcomes foreign firm involvement in domestic defence industry but has emphasised that a quid pro quo must be demonstrated, i.e., a long-term commitment to the Australian economy. Such commitment, it was indicated in the 1998 Statement, might be shown in the following ways:

- establishing significant local facilities and plant;
- employing a significant number of Australian citizens;
- pointing to a track record of performance in the defence arena, perhaps through previous involvement with Defence as a subcontractor;
- performance of significant research and development in Australia and developing indigenous intellectual property;
- demonstrating independence of action from overseas parents, including through exports from Australia; and

- nurturing Australian small and medium enterprises (SMEs).

Irrespective of firms' ownership characteristics, Defence announced that its ultimate goal from its relationship with industry was the achievement of "the best ADF capabilities for Australia's defence."¹⁰⁸ To pursue that goal, a National Support Division was formed within Defence Headquarters (to develop a strategic framework for engaging the national support base. The NSD is now working with industry to implement six key strategies:

- integrate industry into capability development;
- enhance industry's contribution to the nation's capability edge;
- reform procurement;
- establish new ways to involve Australian industry in Defence business;
- increase Australian exports and material cooperation; and
- commit to cultural change and improved communication.

Three of these deserve particular attention. First, industry integration in capability development is being enhanced through improved Defence-industry information flows, demand management to smooth peaks and troughs, and taking a whole-of-life approach to capability management and cost estimates. That is,

"To successfully deal with new strategic and commercial imperatives, Defence needs to investigate new business practices along with more innovative and effective industry policies, and acquisition processes. Importantly, this includes

*the need to develop a closer Defence and industry relationship which is crucial to maintaining Australia's security."*¹⁰⁹

Second, involving Australian industry in Defence business draws on the *Australian Industry Involvement (AII) Program*—which determines the extent and type of local industry involvement in defence acquisition. In 1997, Defence published a document *Defence Needs of Australian Industry* providing extensive information on its perceptions of the strategically important capabilities that it wishes to see in Australian industry. In almost all areas, maintenance, repair and modification capabilities were viewed as important. Research, design and development capabilities were thought important in information security, command support systems, intelligence, electronic warfare, integrated combat and platform systems in ship-building and submarines, and propulsion systems in submarines. Manufacturing capability was thought strategically important only in command support systems, communications, electronic warfare, and ship and submarine structures. With guidance such as this local industry now has means of knowing better where it might invest if it wishes to see Defence as a market for its products.

The third strategy discussed here relates to enhancing industry's contribution to the capability edge. In recent years, government itself—through the Defence Science and Technology Organisation (DSTO) within Defence—has performed the lion's share of defence R&D, about 60 percent in both 1992-3 and 1994-5.¹¹⁰ DSTO has as its overarching goal, the provision of advice on the application of science and technology best suited to Australia's defence and security needs. To do this, it is tasked to position Australia to benefit from future developments in defence-related technology, to enable Australia to be a "smart buyer" in equipment markets, to develop new capabilities, and to enhance the operational performance of existing capabilities.

In addition, DSTO is expected to transfer the results of its research to industry and to provide access for industry to its research facilities. A long-running debate has surrounded DSTO's relationship with industry but in the 1998 Defence Industry Statement a system of alliances between the two sides is said to be "essential" and a more substantial role by industry is called for. Whether this would shift the balance of defence R&D into industry's hands depends on future funding levels for DSTO.

Industry Involvement in Capability Development

The thrust of defence industry policy described in the 1998 Defence and Industry Strategic Policy Statement was to pave the way for a closer and more interactive relationship between Defence and industry. The Statement also established guidelines to facilitate a collaborative (as opposed to strictly contractual and adversarial) relationship with industry. In particular, industry is to be involved in all stages of the capability formation and maintenance, including the early stages of capability development (see Chapter 2 and 8 above).

A network of consultative fora has been established to provide an institutional framework for (defence) industry policy making, to keep industry informed about Defence's capital requirements and investment plans, and to allow industry more overt influence over the future directions of defence industry policies and processes. The key forum is the Defence and Industry Advisory Council, and another major development is the formation of Defence-industry Integrated Teams.

Defence and Industry Advisory Council

The Defence and Industry Advisory Council (DIAC), established in June 1999, to provide advice to Government on strategic matters

related to achieving sustainable industrial support for the ADF. It:

- advises the Minister for Defence, from a strategic and commercial perspective, on the role of industry and wider national support for Defence;
- facilitates communication between Defence and industry;
- advises the Minister on issues which might impact on the sustainability of key industrial support for the ADF;
- oversees the activities of a network of fora considering capability development, industry policy, export, contracting and outsourcing (Commercial Support Program issues); and
- advises the Minister on key issues in the defence industry environment.

The Council is chaired by the Minister for Defence and comprises representatives from industry, appointed for two years, wider Government and the Australian Defence Organisation. Industry members are drawn from both the defence and civil sectors. The DIAC Secretariat is located within the Industry and Procurement Infrastructure Division. The DIAC meets three times a year and, at the end of each year, the Council approves a program of work for the following year.

At the time of writing, the key defence industry policy and acquisition issues to be addressed by the DIAC have been identified as:

- private financing;
- continuing acquisition reform, including:

- shorter tendering and project lead in-times
- better risk-management, especially when acquiring fast moving technology
- considerations of the size and complexity of Defence projects while competing with off-the-shelf products
- flexible processes to accommodate the pace of technology development
- enhanced flexibility of acquisition processes to meet specific project requirements
- capability development processes, including the identification of critical capabilities
- the high rate of personnel rotation
- enhanced personnel competencies in procurement and project management
- procurement processes that encourage competition between primes and between SMEs rather than between primes and SMEs
- less onerous bank guarantees, in particular for SMEs
- simplified contracting processes to focus on key clauses while considering different, innovative contracting models
- in-service support arrangements to be developed concurrently with major capital equipment acquisition
- uncertainty in industry investment decisions arising from Defence's budgetary forecasting difficulties and poor guidance to industry of its future requirements;
- the adequacy of R&D support, and in particular:
 - declining levels of in-country R&D and the implications for future industry capability
 - extent to which Defence should invest in in-country R&D to develop local products
 - the role of science and the scientific community in future ADF planning;
- industry structure and competition, including:
 - future industry interaction in a global industrial context
 - the effect of globalisation on (largely foreign-owned) Australian industry and opportunities and threats associated with globalisation
 - the risk of diminishing relevance (political, technical and military) of Australia within the world market and as a customer for the emerging global industry giants
 - need for in-country industry capability independent of overseas suppliers
 - the risk of industry disinvestment and exit from defence-related production
 - competition policy

- partnering charters, strategic alliances and alliance contracting; and
- the sustainability of key defence industry capabilities including;
 - ability to adapt and modify assets and systems through life of type
 - potential benefits of using industry to support ADF operations
 - broader Defence-industry interaction, incorporating all arms of Defence acquisition, including users
 - the role of SMEs in supporting the ADF during the time of industry rationalisation, including lead time needed to grow innovative, defence-related SMEs
 - National Support Agenda and national support issues (i.e., encouraging wider industry and civilian organisations to support the national defence effort)
 - audit of Defence requirements vs. an audit of in-country capabilities to address industry capability gaps.

DIAC Working Groups

Two *DIAC Working Groups* were established to consider some of the main policy issues. The first group, on (Defence) *acquisition reform*, is to identify current constraints on the acquisition process and develop practical measures to improve it. The second group, on *private financing*, is to liaise with industry and Defence (in particular Resources and Financial Planning Division) to investigate opportunities and develop practical proposals for the application of private financing in current and future Defence projects.

Integrated Defence-Industry Teams

Integrated Defence-industry Teams are to become a major means of achieving close collaboration between defence and industry at most stages of the materiel cycle. Integrated Project (or Acquisition) Teams (IPTs), to operate during the post-approval, project implementation phase were described in Chapter 8. Similar concepts may apply at the capability development phase (Integrated Development Teams) and in relation to the provision of through-life support (Integrated Through-life Support Teams).

Industry is to become a key stakeholder and a full member of such teams. The philosophy underlying industry participation is that of partnering and collaboration. In particular, industry is to provide expertise on costing and scheduling, technology, transition from functional to technical specifications, and production capacity. However, at the time of writing, the teaming arrangements are still in their infancy. The Defence-Industry Charter with regard to participation in various teams is still under development. The real test of these relationships will be a function of experience. As projects mature and the teaming arrangements are tested, a more realistic framework for partnering and teaming is likely to emerge. The current enthusiasm for “teaming” and “partnering”—increasingly apparent in so many countries—may have indeed have some merits for both Defence and industry but it may be rather naive in the way it glosses over conflicts of interest and the need to share liabilities as well as assets.

Lessons from the Submarine Project

Australian Defence industry has not been immune from the sorts of embarrassment which have afflicted defence industry elsewhere and, indeed, sensitivity to some of the more recent problems has been one of the stimuli prompting ongoing policy change. In particular, there have

been major problems in bringing into service six new diesel-electric submarines comprising the Collins class. In a report commissioned to examine the difficulties,¹¹¹ the authors Malcolm McIntosh and John Prescott say the submarines constitute probably Australia's most important strategic asset for the decades starting 2000 and "the country's most ambitious and technically advanced defence industrial project ever."¹¹² The submarines are being built in Adelaide by the Australian Submarine Corporation (ASC), of which the principal shareholder is the submarine's designer, Kockums. Kockums was formerly owned by the Swedish Celsius Pacific and recently acquired by the German Howaldts-werke-Deutsche Werft (HDW). A minority shareholder (48 percent) is the Australian Government through its Australian Industry Development Corporation. Contracts were signed in 1987 for delivery at a price of A\$4.4 billion. By March 1999, Defence had spent 93 percent of the expected total project costs and 98 percent of the expected total contract price, "for which there are five boats in the water, but none performing anywhere near adequately."¹¹³

The report identifies the essential problem with the submarines as a failure to perform at levels required for military operations. "The underlying cause is a myriad of design deficiencies.... The most obvious and debilitating consequence is a very low level of reliability."¹¹⁴ It finds the causes of the problem to lie in the following areas:

- between Navy with an urgent need for adequate boats, and ASC with no motivation to provide anything beyond its interpretation of its contractual obligations, disputes about overarching mission objectives not only arose but sometimes remained unresolved;
- technical competencies and relevant expertise were imperfectly coordinated

or mobilised, perhaps because of the contract structure, interests of the parties, or fragmentation of responsibility;

- the fixed-price form of the contract created problems for a project that was large, complex and new; for which generous up-front payments were made; and for which a detailed design did not exist.

In a long list of lessons to be learned, the report includes advice or recommendations that:

- the Government should avoid putting itself on both the buying and selling side of a contract. (In this case, it says, AIDC acting for the government on the seller's side lacked effectiveness through lack of knowledge about submarines.);
- Defence should ensure the prime contractor has all the expertise required to carry out the project and that, for itself, it has all the expertise to be a smart buyer;
- contracts should be framed for performance rather than detailing how to achieve it;
- plenty of provision be made for reviews; and
- more freedom be created to engage alternative sub-contractors in the event of problems.

Two other, more general, lessons may also be learned from the Collins experience. First, it is naïve to assume that a small country such as Australia can embark on technologically innovative and complex projects of the size of Collins—and deliver the final product on time, within budget and operating at somewhere near its best. Even the most experienced producers

of such complex systems fall short of this ideal some of the time. Realistically, and considering its complete lack of prior experience in building submarines, the Australian Submarine Corporation has performed creditably. If, however, future governments insist on the in-country production of large, technologically complex and innovative weapons systems, they should accept that the costs of pioneering and learning-by-doing are likely to be high. And for systems that have an expected life of decades, the initial outlay is likely to be dwarfed by the through-life cost of maintaining and adapting the submarines in the face of rapidly evolving technology.

Second, the Australian defence industry policy is at the crossroads. Since the early 1990s, Defence has praised the virtues of "competition" as a means of getting value for money in the procurement of major capital projects. In a competitive environment suppliers should be selected on the "value for money basis" and the purchasing agency should avoid "picking winners," that is it should stay away from "cozy," long-term relationships with particular contractors. But in a true competitive environment, most of the required equipment would have been sourced from large, international prime and first-tier contractors. While insisting on an effective and open competition, Defence, under the policy of Australian Industry Involvement,¹¹⁵ has nevertheless been able to direct a large proportion of platform building and component manufacture to domestic suppliers. But as ANZAC ships, the Collins class and minehunters near completion, the era of intensive platform building is coming to an end. The existing shipyards can only be

kept in business if they secure further capital orders and/or enough through-life support work. That means picking winners as "them who have it get it."

Further, at least for large and long-lasting projects like this one, the Collins experience suggests that invoking competitive forces to bring about high-level performance may be becoming increasingly difficult. Even on a global basis, there were few suppliers able to undertake work of the complexity and magnitude of Collins, and this will be true of other projects in future. Once work was well advanced, moreover, it was difficult realistically to threaten substitution on the project by another contractor, again a feature of projects of this kind that will persist in future. In the effort to build trust and lasting relationships, Defence is now considering various "partnering" and "strategic alliance" arrangements with contractors. Competition may have a role in deciding who joins the list of pre-qualified suppliers but once selection of preferred contractors is complete, the idea is that "partnership" and "alliance" arrangements will prevail. Competition depends on there being a number of technologically credible and commercially viable competitors. At the purely domestic level it is no longer a realistic option for many projects, and maintaining domestic industry capability as an essential element of "self-reliance" seems to dictate that Defence enter into close relationships with international companies with a view to ensuring that they make the sorts of investment in Australia envisaged in the Bishop Rules outlined earlier.

ENDNOTES

1. A/Professor Stefan Markowski (Chapters 1–8) and Professor Peter Hall (Chapter 9) of the Australian Defence Force Academy in Canberra have written this part. The authors can be reached at the University College, the University of New South Wales, Australian Defence Force Academy, Canberra, ACT. 2600, Australia (Tel: +616 268 8094/8098; Fax: +616 268 8450; E-mail: s.markowski@adfa.edu.au and p.hall@adfa.edu.au).
2. This is a significantly larger amount than in previous years as it is calculated within the new accrual-based budgeting framework. By subtracting Capital Use Charge (an asset depreciation charge) from the total Budget expenditure, the outlay before and after the introduction of the new resource management framework can be compared (see Chapter 5).
3. The technology-based force multiplier is defined here as the contribution of defence technology to the effectiveness of the defence force after numbers of personnel and equipment (labour and capital) are taken into account, e.g., an increase in combat effectiveness achieved with a given personnel and equipment numbers when technology is upgraded.
4. These figures were estimated under the “old” (pre-1999-2000) cash-based accounting framework (see Chapter 5).
5. Under the Australian Federal Constitution (see Chapter 2), the lobbying and bargaining powers of the State Governments *vis-à-vis* the Federal Government are very considerable. The “spreading around” of defence orders in response to pressures from the States, has often resulted in unnecessary (from national point of view) duplication of production facilities and, thus, made them even more costly to sustain in the long run.
6. “Demand management” normally refers to the spreading of demands over time to keep defence-related producers busy as well as directing orders to businesses and facilities that are regarded as critical elements of national industry support.
7. Defense Efficiency Review (DER), 1997.
8. In 1922, the State of Queensland amended its constitution to abolish the upper house and create the unicameral State Parliament.
9. O’Connor, 1998, p. 63.
10. Op. cit.
11. O’Connor, 1998, p. 64.
12. Under the provisions of the *Australia Act*:
 - no acts of the British Parliament were to apply to the States of Australia;
 - the *Colonial Laws Validity Act* would no longer apply, no State law would be invalid because it was repugnant to the English common law or to an Act of the British Parliament; and the powers of the Monarch in respect of a State were to be exercised only by the State Governor.
13. The three arms of the Federal Government are created by separate chapters of the Australian Constitution: *Chapter 1 – The Parliament; Chapter 2 – The Executive Government; and Chapter 3 – The Judicature*. This was borrowed from the

- Constitution of the United States, where the functions of the three arms of the U.S. Federal Government are divided into separate Articles of that nation's Constitution.
14. O'Connor, 1998.
 15. Op. cit.
 16. At the time of writing, the Government comprises a coalition of Liberals and Nationals.
 17. O'Connor, 1998.
 18. Op. cit.
 19. Op. cit.
 20. Op. cit.
 21. Chapter 3, Section 71.
 22. However, until the 1970s, the British Privy Council could overturn decisions of the High Court.
 23. Op. cit.
 24. O'Connor, 1998; p. 58. In the U.S.A., executive power is vested in the President, who appoints his own Cabinet, whilst the legislative power is vested in a *Congress*, which consists of a House of Representatives and a Senate. These systems of checks and balances between the President and the Congress are critical to the operation of the doctrine of separation of powers within the U.S. Federal Government.
 25. These include: *the Federal Court*, which rules on matters involving civil disputes, which are affected by the laws of the Federal Parliament and/or the ministerial Regulations, and criminal cases concerning Federal laws; *the Family Court*, which rules on matters regarding dissolution of marriages, and disputes over the custody of children and ownership of family property; and *the Industrial Relations Court*, which rules on matters concerning terms and conditions of employment and disputes between employers and employees.
 26. This section draws on material contained in Parliament of Australia (1998), *Committees*, House of Representatives Fact-sheet No. 4, December.
 27. For a current list of committees see <http://www.aph.gov.au>.
 28. Before 1989, the Committee was known as Foreign Affairs and Defence.
 29. Beazley, 1992, p. 3.
 30. As one commentator puts it, "the Defence portfolio is a financial holding pattern, with spending kept steady ahead of the shake-up that will come after this year's policy White Paper" (Robert Garran, *The Australian*, 10 May 2000). At the time of writing, the Government is determined to fulfil its election promise of maintaining defence spending in real terms with a small, on-off increase in real defence spending budgeted for 2000-01.
 31. Paul Kelly, *The Australian*, 23 February 2000.
 32. *The Australian*, 7 March 2000.
 33. The message from the East Timor operation was that Defence could not sustain two battalions in the field for longer periods of time within its current budget.

34. This supplementary funding was initially to be raised through an ad hoc "special" tax levy but, at the time of writing, it is to be funded from the windfall revenue from the sale of the airwaves (spectrum) for telecommunication services provided telephone companies.
35. Originally a tripartite alliance, signed in 1952, between the US, Australia and New Zealand. Unlike its northern counterpart, NATO, ANZUS operates a fairly unintegrated structure in which sovereign nations retain policy independence and discretionary power over military expenditures. Any action of the Council of Ministers, the executive body of ANZUS, must be unanimously approved. The Council of Ministers meets very infrequently and is assisted by a small Secretariat. There is no common funding of defence expenditures and each ally determines, without consultation, and bears its own expenditures.
36. *The Financial Management and Accountability Act* provides the legal basis for the appropriation and management of money and the Public Service ACT governs the administration of the Department of Defence.
37. Allan Hawke, *What's the Matter – A Due Diligence Report*, edited version of an address to the Defence Watch Seminar at the National Press Club, 17 February 2000.
38. Editorial, *Defender*, Spring 1999.
39. Allan Hawke, op. cit.
40. Allan Hawke, op. cit.
41. DAO, 1998, p. 2-3.
42. DPBS, 1999-00, p. 2.
43. Op. cit.
44. DPBS, 1998-99.
45. DPBS, 1999-00.
46. DAO, 1998, p. 2.
47. For details see DoD (1999) *Defence Annual Report 1998-1999*, Appendix A.
48. In previous years, cash-based accounting was used, that is, "transactions" were only recognised when cash was paid or received. This resulted in a mismatch between revenues and expenditures. Accrual accounting was introduced to address this problem. Transactions are now recognised when the service is rendered or the goods are delivered (DPBS, 1999-00).
49. DPBS, 1999-00, p. vii.
50. DPBS, 1999-00.
51. The Australian Government's financial year runs from 1 July to 30 June.
52. DPBS, 1999-00.
53. DPBS, 1999-00, Table 1.10, p. 20.
54. DPBS, 1999-2000.
55. DPBS, 1999-2000.
56. Shephard, 1999, Table 60, p. 173.
57. Woolner, 2000, p. 13.
58. Woolner, 2000, p. 14.
59. Woolner, 2000, p. 4.
60. Op. cit.

61. Woolner, 2000, pp. 4-5.
62. Woolner, 2000, p. 4.
63. Op. cit., p. 24.
64. Woolner, 2000, p. 12.
65. DAO, 1998, p. 6.
66. DPBS, 1999-2000, p. 9.
67. The DER foreshadowed civilian staff reductions of around 3,100 positions as well as some 3,800 military positions removed from administration and support areas. The final figure depended on the extent to which in-house options (internal bids for market tested activities) could succeed under Defence's market testing program (the Commercial Support Program). About half the military positions were to be re-established in combat and combat-support areas. A further 7,000 military and 5,900 civilian positions were to be market tested through the expanded and accelerated CSP.
68. DPBS, 1999-00, p. 10.
69. Woolner, 2000.
70. Op. cit.
71. *Australian Defence Reporter*, August 1995, p. 14.
72. Woolner, 2000, p. 13.
73. The "value-for-money" approach means evaluating both benefits and costs and choosing the offer that maximises the difference between benefit and cost (net benefit). Thus, the best value-for-money offer need not be, and usually is not, the cheapest offer (or the least cost bid).
74. DPBS, 1999-00.
75. DPBS, 1999-00.
76. Source: Garry Jones, Deputy Secretary Acquisition, Keynote address at Defence 1999 Procurement Conference.
77. Source: *Beyond the Leading Edge, Australian Defence Business Review*, 1 June 1999.
78. For more details see website: <http://www.defence.gov.au/dao/cep/>
79. GST is a value-added tax introduced in July 2000. At the time of writing, it is not clear how the GST may affect Defence acquisitions. At present, government departments and agencies do not pay sales tax and, similarly, most of Defence acquisitions, especially capital equipment, will be GST-exempt. However, since the GST is a value-added tax levied each time a product is enhanced/transformed as it moves along the value-adding chain (i.e., each time some value is added to it through further elaboration). The tax will be paid by subcontractors and prime contractors and, thus, it will be included in the purchase price of equipment. Since Defence is a government department, and hence GST-exempt, it should be refunded for the full amount of the GST included in goods and services it buys from suppliers.
80. For more details see website: <http://www.defence.gov.au/dao/ipi/>
81. For more details see website: <http://www.defence.gov.au/dao/esad/>
82. An over-the-horizon radar system.

83. For more details see website: <http://www.defence.gov.au/dao/mags/>
84. For more details see website: <http://www.defence.gov.au/dao/aero/>
85. This Section draws on DAO (1998) Defence Reform Program, Implementation in the Defence Acquisition Organisation, <http://www.dao.defence.gov.au/drp/drp.htm>
86. For further details see: <http://www.dao.defence.gov.au/publications/main.htm>
87. Moore, 1999.
88. This Section also draws on DAO (1998) *Defence Reform Program, Implementation in the Defence Acquisition Organisation*, <http://www.dao.defence.gov.au/drp/drp.htm>
89. As described by one of DAO Executive Officers, the DAO was seeking to “play a stronger role in new investment proposals before they are approved,” including providing advice to Defence Headquarters planning staff on systems engineering, technology, acquisition strategies and costing. “Recent studies in the electronic systems acquisitions division have revealed that some 60 per cent of project delays are caused by poorly defined requirements” (Peter La Franchi, Shake-up likely for Defence purchasing, *The Australian Financial Review*, 7 April 2000.
90. However, in this particular context, the distinction between “effectiveness” and “efficiency” is not very clear. In logic, the distinction appears to be spurious. While it is important that services delivered by the DAO are effective, in that they generate benefits for its customers, it is also important that the cost of service delivery, which depends on the DAO’s efficiency, does not exceed the benefit.
91. That means that a single reporting chain now exists throughout the DAO.
92. While, over several years, the DAO is to lose over 20 per cent of its positions from the 1997 baseline of 2,300, it is expected to deliver both greater volume of and higher quality support to the ADF.
93. As a part of the Reform former Defence Acquisition Regional Offices (DAROs) have been abolished and replaced by small industry shopfronts in each (State) capital city. This was to be a source of significant personnel-related savings within the DAO.
94. The content of this paragraph is largely drawn from an unpublished presentation produced by the Defence Acquisition Review Team to brief industry. At the time of writing, the Minister for Defence has yet not endorsed the specifics of the Acquisition Reform Program.
95. *The Pink Book*, a list of projects, which have not been approved by Government (see Chapter 8), estimates the cost of Phase One of the project to be between A\$500 and A\$1 billion. By Australian standards, it is a large but not a mega project, such as the Collins class submarine project (see Chapter 9).
96. Normally, the (Australian) Capital Equipment Procurement Manual (CEPMAN) provides the best source of information on capital equipment acquisition in the Australian defence Organisation. However, with the Defence Procurement Reform gathering momentum, many sections of the Manual are out-of-date. In this Chapter we refer to a number of sources, including, where possible, CEPMAN. It is therefore

- possible that some information referred to in this Chapter is inaccurate in that some aspects of the acquisition process may have been changed. In particular, the organisational framework has been evolving rather rapidly and, at the time of writing, more changes are anticipated. The interested reader is directed to the website of the Australian Defence Procurement Organisation to search for the latest references: <http://www.dao.defence.gov.au>
97. A large part of this Section draws on Chapter 3 in CEPMAN.
98. Materiel definition means progressive transformation of the initial broad functional requirements into technical (including performance) specifications.
99. The EAS explains the method of procurement, provides a schedule of planned events, identifies officers empowered to act as statutory authorities to exercise financial approvals, describes local industry involvement, outlines support aspects and provides overall management strategies with respect to risk, security, and technology transfer.
100. In Service vocabulary, *force structure* (equipment and formations) and *preparedness* comprise *force capability*. Preparedness refers to a force element's *readiness* (i.e., its ability to perform a designated task) and *sustainability* (i.e., its ability to continue to perform the task until its completion).
101. An ITR or an RFP may be released ahead of Project Approval, but only with the agreement of DEPSEC S&I and the approval of The Under Secretary of Defence Acquisition (or delegate). The Minister is not normally informed of the intention to issue an ITR or RFP, unless the project is judged as being particularly sensitive.
102. This Section is based on CEPMAN, Part 2, Chapter 5.
103. DoD, 1992.
104. DER, 1997, p. 37.
105. Lock, 1999.
106. DAO, 1998.
107. DoD, 1998, p. 1.
108. DoD, 1998, p. 7.
109. A statement by the Hon. John Moore, Minister for Defence at the first meeting of Defence Industry Council, DAO Media Release, 9 December 1999.
110. Markowski, Hall and Dessi, 1997, p. 232.
111. DoD, 1999.
112. DoD, 1999, p. 1.
113. DoD, 1999, p. 16.
114. DoD, 1999, pp. 3, 14.
115. Which is just another term to describe "self-reliance" or "local content requirements."



PART 2
JAPAN

Chapter 1

JAPAN

Two fishing trawlers plied the waters west of the island of Honshu in the Sea of Japan near the Noto Peninsula and Sado Island. Their furtive movements drew the attention of the Japanese Coast Guard, the Maritime Safety Agency. On closer inspection, Safety Agency personnel noticed not only a lack of visible fishing gear, but uncommon antenna not fitting the needs of a fishing trawler. Important military bases, possible surveillance targets, are located in nearby Komatsu—the Japanese Air Self Defense Force Early Warning Radar stations and the 6th Air Wing.

As the Safety Agency vessel approached, the ships fled northwards. Despite repeated warnings both ships failed to stop. Maritime Self Defense Force destroyers and a P-3C aircraft joined in the chase estimated at 30 knots for the fleeing ships. Then, for the first time since 1953, a Japanese naval vessel fired “in anger” at the two intruding foreign ships.

The incursion by two-reputed North Korean “spy ships” is one of a series of events that have sparked debate in Japan about the future security role of the nation. The August 1998 North Korean launch of a Tae Po Dong ballistic missile over Japan, and continual reports of North Korean long-range missile development activities on a Tao Po Dong II with a range of 4,000 nautical miles, have added fuel to the discussion. For the last 50 years Japan has had a strong pacifist movement. These events have shaped a debate by the national leadership on the need for a “modern military” to respond to these threats. Theater missile defense, modernization of the military, new security guidelines for its

defense forces are some of the elements of the debate. The larger political debate focuses on revising the 1948 Constitution, in particular, the “peace” article—Article 9. Article 9 announced the national principle that Japan renounces war as a means of carrying out state policy and, perhaps more significantly, prohibited the establishment of military forces. The Cold War changed that. At the insis-



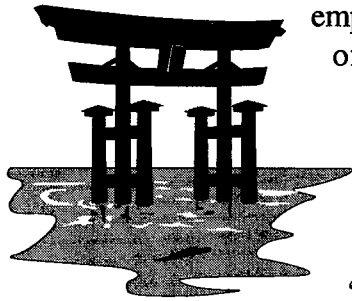
tence of the United States, Japan established the Ground, Maritime and Air **Self Defense Forces** for defense of the homeland. In the early 1980s, with U.S. agreement, they further expanded their security role to include stability for the East Asia region. Some political changes, symbolic of changing attitudes toward the military, have already occurred. The Diet approved using the Rising Sun National Flag and the national anthem—“Kimigayo.”

Operating within this background is the Japanese Defense Agency, which for the last 45 years has produced a wide variety of vessels, tanks, and aircraft for the self-defense forces. This Chapter will provide a look at the Japanese approach to the development or acquisition of military equipment and weapon systems to support their self-defense forces.

History and Traditions

The modern era of Japanese government began in 1868 with the “Meiji Restoration.” After 250

years of feudal rule by the Tokugawa Shogunate, a small group of nobles and samurai, mostly from the south, staged a brief civil war to overthrow the government. It restored the authority of the Emperor Meiji, although true power was with a small group of nobles—the genro—who



ruled in the name of the emperor. This was part of a long-standing Japanese tradition in which the emperor ruled in name, while other men, often referred to as “Shoguns,” ruled in actuality. This tradi-

tion goes back to the 12th century when Minamoto Yoritomo was selected by the emperor as the first “Shogun.” He built his first capital in Kamakura, an hours train ride south of present day Tokyo.

Under the guidance of the genro and with agreement by the Emperor, the country was transformed from a feudal state into an industrialized and modern military power. The reforms instituted by the Emperor Meiji were broad based and included creation of a centralized bureaucracy and a conscript modern army. All areas of society were influenced—economic, legal, education, social and political.

As a gift, the emperor also gave the country its first constitution—the Meiji

Constitution of 1890—

used to govern the country until after World War II. While several European Constitutions served as benchmarks, the Japanese modeled theirs primarily after the Prussian Constitution. It created a parliament with two houses



—Peers and Repre-

sentatives. The members of the Peers were from the Imperial Family, the nobles, and people who paid high taxes. While membership to the House of Representatives was not as restricted, only a limited number of people could vote. It was not until the 1925 Electoral Law that universal male suffrage was adopted. However, the emperor retained sovereignty to include control of the military services and the executive and legislative branches of government. The Meiji rule lasted 44 years and ended with the death of the Emperor Meiji in 1912.

Chapter 2

THE GOVERNMENT OF JAPAN

The current government of Japan is a constitutional monarchy with the Emperor, Akihito, as the constitutional monarch. The Constitution makes the emperor a part of the Executive branch of government, along with the Prime Minister, as of May 2000, Yoshiro Mori, and the cabinet. The legislature is bicameral with a Lower House—the House of Representatives—and an Upper House—the House of Councillors. The judicial branch of government consists of the Supreme Court, the highest court of the land, other lower courts to include district courts and family courts. With the exception of the Chief Justice of the Supreme Court, who is appointed by the Emperor, the cabinet appoints all other judges.

The Japanese Constitution (*kenpō*) was enacted on May 3, 1947, and is noted for Article 9 in which Japan would “forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes.” While the Constitution prohibits Japan from using war for settling international disputes or maintaining military forces, it was argued, during the occupation, that a “self defense force” would not contradict the constitution. Finally in 1954, with U.S. encouragement, the Japanese Government created a Self-Defense Force.

This Constitution was a significant departure from the first one—the Meiji Constitution. The 1947 Constitution placed the State’s sovereignty in the people. The Emperor became a symbol of the unity of the state. The Diet became the highest organ of the state with the cabinet responsible to it. Human rights and equal rights for men and women were also guaranteed.

The Japanese Constitution is referred to by some as the oldest unchanged constitution in the world. It has not been amended since its promulgation in 1947. But, for the first time since its creation the Constitution is under serious review. The Diet voted last year to establish a panel to “widely and comprehensively” review its post-war constitution. In typical Japanese tradition the panel is not expected to issue its report for five years thus allowing time to gain consensus with all parties and the public.

The Emperor

The 125th Japanese Emperor and symbol of the State is Akihito. In the Japanese tradition, the Emperor traces his descendants back to the first emperor, Jimmu Tenno, crowned in 660 B.C. and is considered a descendant of the Sun goddess—Amaterasu Omikami. While the sovereign power of the state rests with the people of the nation, the emperor has a symbolic state function and performs the role of “Head of State.” This consists primarily of state ceremonial tasks such as meeting visiting heads of states, receiving foreign ambassadors and ministers. The Constitution gives him various other functions, such as appointing the Prime Minister, Minister of State, and Chief Judge of the Supreme Court (as designated by the Diet). Article 7 provides a list of other duties, such as promulgating laws, convoking and dissolving the Diet.

The Emperor has no effective power in government and performs all of these actions with the advice and approval of the Cabinet and on behalf of the people.

Prime Minister

The Prime Minister is the head of government in Japan. He is a member of the Diet and is selected by both legislative houses. However, if both houses cannot agree, then the Lower House, the House of Representatives, will select the Prime Minister. The Prime Minister heads the cabinet and has the responsibility for appointing and dismissing cabinet members. He represents the Cabinet with the Diet. He submits bills and reports on national and international affairs to the Diet. As head of government, he exercises control and supervision over the executive branch. For most of the post-war period, the PM was a member of the Liberal Democratic Party (LDP). While the LDP is still the largest party in the Diet, it lost some power in the 1990s and currently leads a coalition government with two other parties—the Komeito and the Jiyuto. The Prime Minister is the Commander in Chief of the Japanese Self Defense Force.

Cabinet (Naikaku)

Actual executive power of the state is vested in the Cabinet. The Cabinet consists of the Prime

Minister, who is its head, and other Ministers of State, such as Foreign Affairs and Defence. All ministers are appointed and may be removed by the PM and must be civilians. A majority of them must be members of the Diet and it is traditional that most are from the House of Representatives. A key element of the current Constitution is that the cabinet, in the performance of their duties, is responsible to the Diet. The Director General of the Defense Agency, in keeping with Article 9 of the Constitution, lacks ministerial status and reports through the Office of the Prime Minister. However, he is the equivalent to a minister of defense in other countries.

Similar to the British model, the Japanese parliamentary cabinet system of government requires the government to retain the confidence of the House of Representatives. If the House passes a non-confidence resolution, or rejects a confidence resolution, the Cabinet must resign.

The Cabinet has several constitutional responsibilities, specifically conducting affairs of state, managing foreign affairs, and concluding treaties (with Diet approval), administering the civil service, and preparing and submitting the annual

Prime Minister	
Minister of Justice	Minister of Posts and Telecommunications
Minister of Foreign Affairs	Minister of Labor
Minister of Finance	Minister of Home Affairs
Minister of Education (Dir. Gen. Science and Technology Agency)	Minister of Construction (Dir. Gen. National Land Agency)
Minister of Health and Welfare	Dir. Gen. Management and Coordination Agency
Minister of Agriculture, Forestry and Fisheries	Dir. Gen. Defense Agency (Tsutomu Kawara – as of May 2000)
Minister of International Trade and Industry	Dir. Gen. Environment Agency
Minister of Transport (Dir. Gen. Hokkaido Development Agency)	Chairman, Financial Reconstruction Commission
Chief Cabinet Secretary (Okinawa Development Agency)	

Figure 2-1. The Japanese Cabinet

budget. The budget is submitted every year by the government to the Diet in January. This allows the time to deliberate and to pass a bill by April 1, the beginning of the Japanese Fiscal Year. Each minister also performs the normal duty of managing the departments or ministries, which are included in their portfolio. While each minister of state has the authority to sign laws and cabinet orders; the Prime Minister is required to endorse each one. The Japanese cabinet is currently composed of 19 Ministers as shown in Figure 2-1.

Two of the most powerful ministries in the government, the Ministry of Finance (MOF) and the Ministry of International Trade and Industry (MITI), have a significant impact on the Japanese Defense Agency's (JDA) investment planning. MOF's role is to determine both the budgetary amounts available to acquisition and to ensure the health of the economy. They prepare the national budget with inputs from the various agencies and ministries. Each agency or ministry participates in hearings conducted by MOF to justify their budgets. MOF's impact on the defense industry is through its fiscal policies, such as tax incentives, control of interest rates, and determination of where public investment (through the budget process) is most effectively spent. Their decisions will determine where industry invests its capital and resources. MITI also plays a significant role by regulating the production, the export and import of goods, and promoting industrial investment in facilities and equipment. The significance of the impact of both MITI and MOF will be discussed in later sections.

Security Council

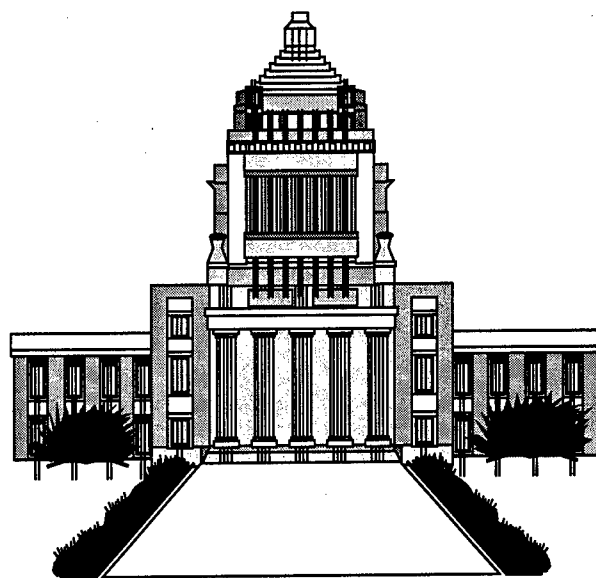
The primary advisory group to the Prime Minister is the Security Council, which was established in 1986. The PM chairs the council, which includes the foreign and finance minister, the Director General of the Defense Agency, the

chief cabinet secretary, the chairman of the National Public Safety Commission, and the Director General of the Economic Planning Agency. The Chairman of the Joint Staff Council and others may attend. The Security Council agenda includes a wide range of both military and non-military security issues, such as defense policy, the National Defense Program Outline, industrial production coordination, diplomatic initiatives and defense operations.

THE LEGISLATURE

The Diet (Kokkai)

The Diet consists of two Houses—The House of Representatives and the House of Councillors. The 1947 constitution made the Diet the "highest organ of the state power" and the "sole law-making organ of the State." Unlike many other bicameral legislatures throughout the world, both Diet Houses consist of elected members and represent all of the people.



The Diet meets in *ordinary session* from January to May every year. The Cabinet (actually the Emperor with the advice and approval of the

cabinet) may also convoke *extraordinary sessions* of the Diet as necessary. It is usual for one or two extraordinary sessions to be convoked from summer to autumn every year. Besides the ordinary and extraordinary session of the Diet, a *special session* must be convoked after a general election. In this session the Prime Minister will be chosen. The Prime Minister must be designated by Diet resolution, establishing the principle of legislative supremacy over executive government agencies (Article 67). The term of an extraordinary session or of a special session is determined by a concurrent vote of both houses. If there is no agreement between both houses, then the decision is up to the House of Representatives.

In addition to passing laws, the Diet has a responsibility for oversight of the government. There are two mechanisms for accomplishing this role. First, Diet members will question governmental actions. To do this, they submit questions to the cabinet in writing (or orally for urgent matters) through the Speaker of the House of Representative or the President of the House of Counsellors. These questions will then be forwarded to the cabinet for a response. Secondly, the Diet will examine the actions of government agencies, usually through *standing or special committees*, which conduct investigations, calling witnesses and requiring the furnishing of records.

House of Representatives (Shugi-in)

The 512 members of the House of Representatives are elected for a term of four years or until the House is dissolved. "Under the revised Election Law, the old multi-seat, medium-size constituency system changed to a combination of single-seat constituencies and proportional representation, with 300 members elected from single-seat constituencies and 200 by proportional representation² in 11 blocs, with each bloc returning seven to 33 members. Voters cast two

ballots: one for an individual candidate in the constituency election and the other for a political party under the proportional representation system."

House of Councillors (Sangi-in)

The 252 members of the House of Councillors are elected for a term of six years, with one half of the members being up for election every three years. One hundred of the Councillors are elected by proportional representation while the balance (152) are elected from individual prefectures (two to eight members depending on size). As with the House of Representatives, voters cast two ballots—one for a political party (proportional representation) and one for an individual candidate. When the House of Representatives is dissolved, the House of Councillors is closed at the same time. Nevertheless, the Prime Minister cannot dissolve House of Councillors with its fixed term. However, the Cabinet may, in times of national emergency, convoke the House of Councillors in emergency session (Article 54). When this happens, actions taken by the Councillors are provisional. They become null and void unless the House of Representatives agrees to the Councillors actions within 10 days after it goes into session.

The House of Representatives has the greater power of the two contemporary houses, in contrast to the prewar system in which the two houses had equal status. According to Article 59, a bill that is approved by the House of Representatives but turned down by the House of Councillors returns to the House of Representatives. If the latter passes the bill with a two-thirds or higher majority on this second ballot, the bill becomes law. However, there are three important exceptions—budget approval, adoption of treaties, and the selection of the Prime Minister. In all three cases, if the upper and lower houses have a disagreement, that is not resolved by a joint committee, then after thirty days "the

decision of the House of Representatives shall be the decision of the Diet" (Articles 60, 61, and 67). The impotence of the upper house has been shown on several occasions when in attempts to modify the budget it was overridden by the Lower House.

The Legislative Process

Every year, the Prime Minister, on behalf of the cabinet, submits the defense budget to the House of Representatives in January for the next fiscal year—1 April. The Speaker will refer the defense budget to the Budget Committee. The Budget Committee will bring in the Prime Minister and other Ministers of State and question them regarding the budget. Often these proceedings will be used as opportunities to criticize the administration.

In addition to the budget bill, other pieces of legislation are debated and become law. In the general legislative process, the cabinet, individual members of both Houses, and standing or special committees may introduce bills in the Diet. The government submits most bills. If the bill is a member initiated bill, it must have the support of 20 or more members of the House of Representatives and 10 or more members of the House of Councillors. If the bill regards the budget, the member must secure the support of 50 or more members of the House of Representatives and 20 or more members of the House of Councillors. For a motion to change/amend the budget by a member, he must obtain the support of at least 50 members of the House of Representatives or 20 in the House of Councillors. The annual defense budget submitted by the cabinet is rarely changed. When a bill examined by a committee comes up for consideration, the chairman of the committee will report on both the deliberations of the committee and the committee's recommendation. The actual bill will then be questioned and debated in a Diet session before it comes up for final vote in the House.

A bill becomes a law on passage by both Houses. If a bill is passed by the House of Representatives but the House of Councillors does not agree or does not take timely action, it can still become law if it is passed a second time by two-thirds of the members present in the House of Representatives. In most cases both houses will meet with a joint committee to try to resolve differences. In the case of the budget, if the House of Councillors does not agree, or does not act timely, and a joint committee cannot reach agreement, the decision of the House of Representatives becomes the decision of the Diet.

Role of Committees

When a bill, budget or treaty is introduced in the House of Representatives, the speaker refers it to the committee under whose jurisdiction it falls.³ There are two types of committees—Standing and Special. Each of the twenty standing committees has 20-25 members. Those concerned with defense issues are the Budget and the National Security Committees. To underscore the political sensitivity to defence and security issues the House did not establish a security committee until 1991. Special committees are created in both houses to examine issues that are of major concern, particularly if they do not fall under the purview of an existing standing committee. An example in the House of Representative is the Special Committee on Guidelines for Japan-U.S. Defense Cooperation.

In the House of Councillors, there are 17 standing committees with each having 10-45 members. Those concerned with defense issues are the Budget, Foreign Affairs and Defense Committees. Typical of the issues covered by the committee includes international cooperation projects, security and national defense issues. Other committees also play a role in the defense business such as the Committee on Economy and Industry, which covers economic planning,

patents and strengthening small and medium businesses. The Audit Committee also played a major role in the investigations of the procurement scandal in 1998, which saw the Minister of Defense resign over the scandal. An example of a House of Counsellor's special committee is the Special Committee on Financial Issues and Revitalization of the Economy.

The committee membership reflects the House's makeup of parties. It is in these committees that the detail work of preparing legislation takes place. Each standing committee has its own professional staff, which assists the members in drafting and understanding the details of bills. It is also in these committees that the fate of a bill is usually determined. The committee may amend, shelve or reject a bill. While a committee's decision does not guarantee the final look of a bill, the committee does reflect the political makeup of the Diet and its decisions are usually the same as the Diets.

The Budget Committee, which has the largest membership in each House, examines national revenue and expenditures. To clarify issues and understanding of the government's intentions, they will call the Prime Minister and all other ministers of state to testify at hearings. For important bills, such as the budget and revenue bills, public hearings are required. Sometimes these hearings can make headlines. A recent example was when Defense Agency Director General Hosei Norota responded to questions from the House of Representative Budget Committee members which revealed that military officers of the Defense Agency had moved documents showing complicity of agency personnel in the NEC overcharging scandal.

Board of Audit

The Board of Audit reviews government expenditures and submits an annual report to the Diet. This report details unlawful or inappropriate

expenditures and unsuitable management practices, to include review of acquisition decisions and actions. Its reviews however, are mostly related to monetary efficiency post award reviews rather than appropriateness of an acquisition program. The 1947 Board of Audit Law gives this body substantial independence from both cabinet and Diet control. While the cabinet appoints the Director, he is chosen by a vote of the audit commissioners and his selection must be agreed to by the Diet.

The Role of the Civil Service

The Defense Agency employs 25,000 civilian workers in a variety of positions from administrative to technical and engineering positions. Civil Servants are selected to their posts as a result of passing the Level I entrance Examination for the National Public Service or the Class I, II or III Examinations for Defense Agency Civilian Officials. These civilian officials provide the direction, administration and oversight for defense policy, accounting and procurement.

The civil service is divided into two categories—*special* and *regular*. The *special* category appointments are non-competitive political appointees or members of the Self Defense Forces. The *regular* civil service members, who are recruited through competitive examinations, make up the bulk of civil servants. The civil service is further divided into two categories—junior and upper professional levels—the later becoming the key policy makers within the ministries and agencies.

The path to becoming a member of the upper professional levels is difficult. After graduation from college, preferably from a prestigious university, such as the University of Tokyo, and increasingly with graduate-level study, applicants take a series of extremely difficult higher civil service examinations every year in the January/February time frame. Only a small portions

of applicants—about 6-7 percent—pass the test. Of those that pass the test only about ten to twelve percent are hired. The most popular agency for the applicants is the Ministry of Finance because of its powerful political position. The examination path is very much based on the Confucian tradition of the “scholar-official” who must survive a grueling education and testing process to become one of the leaders of the country.

Traditionally, it has been worth traveling the grinding path since, economically and socially. Civil servants enjoy significant respect and salaries comparable to what is paid in industry. They also enjoy challenging and responsible positions. In the Japanese government there are very few political appointees. Appointees frequently have tenures less than one year. This makes it difficult for them to develop the expertise to run the agency and to develop a power base to make changes. The role of “running” the agency then falls to the senior civil servants within the ministry. Generally, in government ministries, the senior civil servant is the administrative vice minister. The appointment criteria includes managerial and technical qualifications, but seniority also plays a significant role in the selection. In the Japanese Defense Agency (JDA), other senior civil service positions often go to personnel from other agencies. “Many senior officials are seconded to the JDA from the Ministry of Foreign Affairs (MoFA), Finance (MoF), and International Trade and Industry (MITI) in key decision areas such as policy planning and arms procurement.”⁴

The institution of early retirement also contributes value to a civil servant job. The popular phrase “descended from heaven” is often used to describe the change in job for senior civil servants as they move from government jobs to senior industry positions. In this practice, known in Japanese as “amakuri,” government bureaucrats retire in their fifties and have “Golden

Parachute” jobs lined up for them to move into top positions in public corporations and industry. Recent procurement scandals have led to some changes to the “amakuri” practice. A “cooling off” period was introduced for high ranking personnel. A senior civil servant must now wait three to five years before going to work with a company that he did business with during his career. The need to work after retirement is a key element of the civil service retirement system. Civil servants (including Self Defense Forces) retire at 55 years of age and do not receive a retirement check, but rather a lump sum buyout. Retirement salaries are not paid until years later through the social security system, which only pays an amount equal to 25 percent of one’s final salary. Also, many former civil servants move into the political realm and become politicians. Some have even moved to the top position in government—Prime Minister.



It is perhaps appropriate to discuss decision making in Japan at this point. Japanese tend to take a gradual approach to change. They emphasize the need for both organizational and public agreement or consensus, which in turn steers the character and speed of implementation. An example of this is the planning process for defense requirements and the budget. The JDA works with the Ministry of Finance, Ministry of Foreign Affairs and Ministry of International Trade and Industry work to achieve

consensus on requirements and the budget. "The method of achieving coordination is characterized not so much by formality and institutions as by compromise and consensus building in which *nemawashi* ("laying the groundwork") and *ringisei* (consultation or "piling-up system") are essential concepts. The former involves talking with the parties concerned so as to

prepare them to "accept" a plan; the latter means that plans drawn up by lower-level officials circulate among officials at higher levels to win their approval. These are traditional Japanese concepts emphasizing harmony, genuine agreement and solidarity rather than open debate and confrontation between institutions."⁵

Chapter 3

THE JAPANESE SELF DEFENSE FORCE

In the late 1940s and early 50s as the Cold War heated up throughout the world, the United States view of the world changed. The Berlin crises in Germany and, in Asia, the fall of China, followed quickly by the war on the Korean peninsula jolted policy makers to rethink political relationships. U.S. foreign policy then evolved to see Japan as an ally, supplier of military services and materials, and bulwark against the dangers of a communist threat. There was, however, a legal problem. Article 9 of the constitution, some thought, created a roadblock for Japanese participation with allied efforts. It states,

“Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes. 2) In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized.”

An aggressive military force was not possible, but every nation has a right to defend itself. With pressure from the United States, Japan, in 1954 created the Self-Defense Forces (SDF). Its mission was designed to be defensive in nature; that is, to preserve peace, public order and guarantee Japan's independence and safety.

The SDF was formed after the passage of the “Self-Defense Forces Law of 1954.” The

particulars of its mission was limited to actions such as, disaster relief, to include fire fighting, earthquake assistance, search and rescue, and flood aid. It was restricted from performing any internal security work. Throughout the post World War II era there has been a strong, vocal pacifist movement in Japan. This movement has acted as a check on the government's actions in changing the roles of the Self Defense forces. It was not until 1992 that the National Diet was willing to consider and agreed to legislation to permit the SDF to participate in UN operations. Even then participation was limited to non-combat roles, such as medical relief, refugee aid, transportation, infrastructure repair, election monitoring, and limited policing operations.

The Japanese government has set an “historical” limit on the size of the Self Defense Force's budget—1 percent of the Gross Domestic Product. Figure 2-2,⁶ shows the defense budget over the last seven years. Maintaining the budget at 1 percent of GDP in 1999 has still allowed Japan to maintain the second largest defense budget in the world.⁷ The fiscal year 2000 budget includes a new emphasis on unconventional warfare capabilities, ballistic missile defense research and procurement reform. The 2000 budget did include 810 billion yen for procurement, which is down almost three percent from last year. With the budget tied to economic growth, which in the 1990s Japan saw mostly in a no-growth economy. Procurement reform efforts, among other things, have focused on cutting weapon system costs with a goal of a 10-percent cut. They have also set a goal of using more commercial items to cut costs. Its investment budget,

Classification	1994	1995	1996	1997	1998	1999	2000
Defense Budget \$	42.2b	42.5b	43.7b	44.5b	44.4b	44.4b	44.3b
Defense Budget Y*	4.68t	4.72t	4.85t	4.94t	4.93t	4.93t	4.92t
Investment %	21.3	18.4	18.9	18.9	19.1	19.5	19.0
% of GNP	0.96	0.96	0.98	0.96	0.95	0.99	na
R&D %	2.7	3.0	3.1	3.2	2.6	2.6	na

*\$1 = 111Y

Figure 2-2. Japan Defense Budget

which has averaged around 20 percent for the last seven years, is one of the lowest of the countries in this study.

The Japanese Defense Agency

The Defense Agency is part of the Office of the Prime Minister. It is lead by a Director General, who has the rank of a Minister of State, although the agency is not a cabinet level department. As shown in Figure 2-3, he is assisted by two vice ministers—one parliamentary and one administrative. The Administrative Vice-Minister is the senior civil servant in the Defense Agency. The Internal Bureaus are similar to the OSD staff in the United States and provides support to the Director General and his senior personnel. The Internal Bureaus includes his administrative support secretariat and the Bureaus for Policy, Operations, Personnel and Education, Finance and Equipment. The Equipment Bureau is the primary staff organization responsible for oversight and management of the acquisition system.

Direct reporting units are: the Joint Staff Council, the Self Defense Forces (Ground, Maritime, and Air), the Defense Facilities Administration Agency, the National Institute for Defense Studies (NIDS), National Defense Academy and the two primary field level acquisition organizations, the Central Procurement Office (CPO) and the Technical Research and Development Institute (TRDI). The figure indicates two planned changes as a result of acquisition reform. Current plans are for the Bureau of Finance and the Bureau of Equipment to merge and the creation of an independent audit body to provide oversight of the acquisition process.

The highest figure in the operational command structure is the Prime Minister, who is responsible directly to the Diet. In a national emergency, the Prime Minister is authorized to order the various components of the SDF into action, subject to the consent of the Diet. In times of extreme emergency, after-the-fact approval may be obtained.

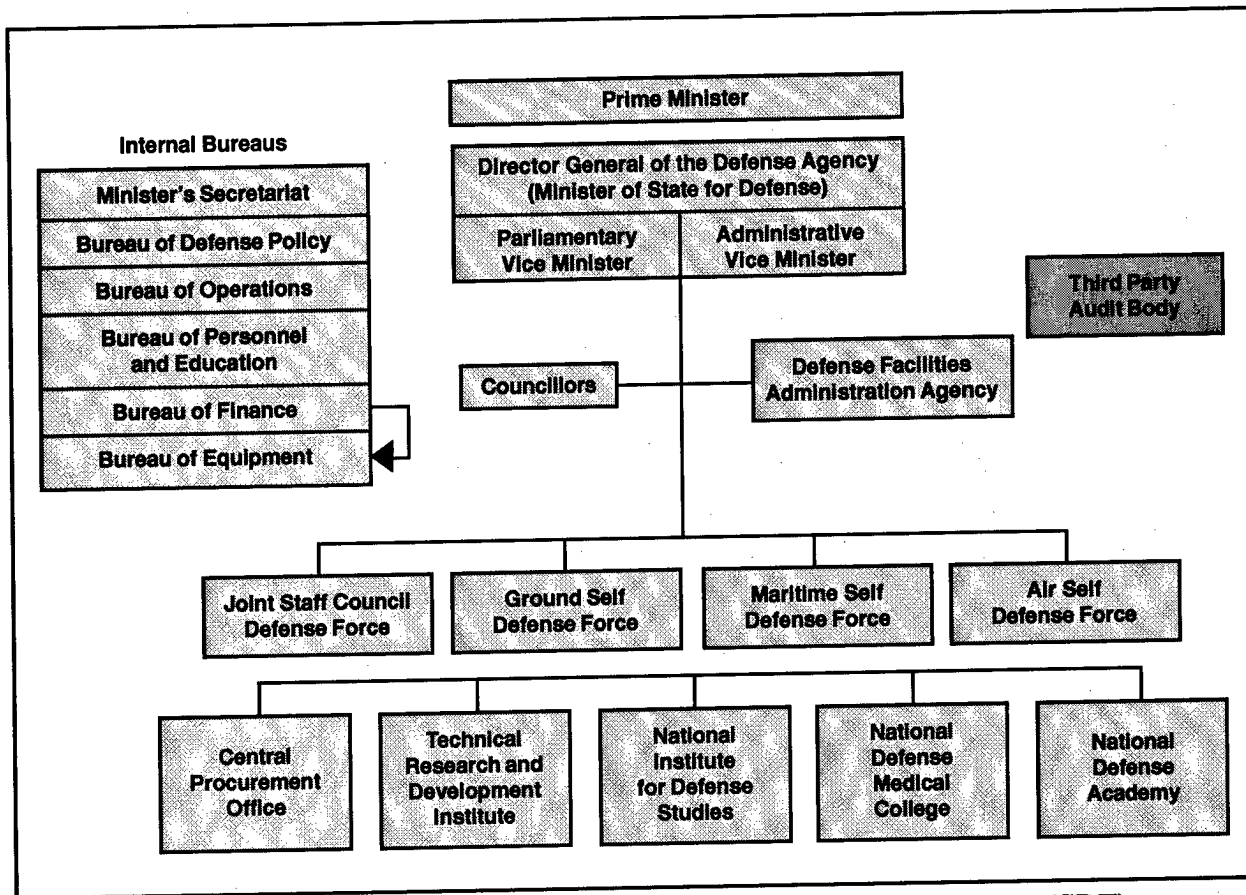


Figure 2-3. Japan Defense Agency (JDA) and Self Defense Forces (SDF)

be obtained.

The internal bureaus—especially the Bureau of Defense Policy, Bureau of Finance, and the Bureau of Equipment—are often headed by officials from other ministries such as MITI and MOF. These bureaus are the main centers of power and they are instruments of civilian control in the Defense Agency.

Self Defense Forces

The Self Defense Force consists of three armed organizations, the Ground Self Defense Force (GSDF), the Maritime Self Defense Force (MSDF) and the Air Self Defense Force (ASDF), with the Joint Staff Council performing an administrative role of coordination for the Director General.

(Appendix B shows the structure of the individual SDFs.) Each Service Chief of Staff supports the Minister as a professional military adviser. The three Self Defense Forces consist of combat units, which perform operational activities, and support units, which provide the material support, maintenance and test and acquisition support. The SDF is a voluntary force and currently has authorizations for about 267,000 active members with approximately 48,000 reserves. The Ground Self Defense Force has 180,000 personnel authorized, although current plans call for a reduction of 20,000. The Air Self Defense Force has about 47,000 authorized personnel, while the Maritime Self Defense Force has approximately 45,000.

The Chairman of the Joint Staff Council is the senior military person. This body includes the

plans and executes joint service operations. All three services are directly responsible to the Director General and are co-equal with the JCS. While this structure is designed to prevent the concentration of power into any one organization it makes interservice coordination an issue.

The SDF has a unique military system. The governing law for the SDF is the Self-Defense Forces Law of 1954, which organized the

defense establishment under the principle of civilian control (Article 66). All SDF personnel are civilians including those in uniform. While they are categorized as special civil servants, they are subordinate to the ordinary civil servants, who run the Defense Agency. As such, offenses committed by military personnel (special civil servants) are not covered by "military law," but rather are adjudicated through the civil courts using civil procedures.

Chapter 4

JDA ACQUISITION ORGANIZATIONS

Internal Bureaus

The Equipment Bureau is the primary staff organization responsible for oversight and management of the acquisition system. The Director General of the Bureau of Equipment, currently Mr. Kozo Oikawa, is the National Armament Director (NAD) for Japan. The three bureaus most involved with acquisition are the Bureau of Defense Policy, the Bureau of Finance and the Bureau of Equipment. The Bureau of Defense Policy has responsibility for drafting defense policy and programs, gathering information and data analysis, plus determining day-to-day operational activities of the SDF. The Bureau of Finance, usually headed by a person on loan from the Ministry of Finance, is instrumental in developing the Defense Agency budget and in establishing spending priorities for the Defense Agency and the SDF. The Bureau of Equipment, organized into sub-units for each of the Self Defense Forces, focuses on equipment procurement. Before the Defense Agency recommends any major purchase to the Diet, it has to be reviewed by each of these bureaus. They play a very influential role through their review of plans and budgets, plus their review and concurrence on the Defense Technology Intelligence Analysis and Technical Research and Engineering Development Requests.

Technical Research and Development Institute

The Technical Research and Development Institute (TRDI) is the sole organization responsible for research, development, test and evaluation

of military systems and equipment. Headquarters TRDI is located in the new JDA compound in Ichigaya, Tokyo, and employs approximately 1200 military and civilian personnel engaged in research and development (R&D) activities. Of the 1200 personnel, approximately 800 of these are engineers, of which 250 of these are from the SDF. The SDF engineers generally work in development projects. Its 1999 budget was 1,200 million yen (U.S. \$991 million). TRDI's primary expenditures are for contracts with industry for studies, manufacturing of prototypes and research (70 percent). Approximately 18 percent of their budget is for in-house research, test and evaluation.

TRDI was originally established in 1952 as the Technical Research and Development Center as part of the National Safety Agency. Renamed the Technical Research and Development Center with the creation of the JDA in 1954, and finally received its current name in 1958.

TRDI also has responsibility for tracking technology and identifying civilian technology for application in the SDFs. (See Figure 2-4 for organizational structure.) The institute consists of three administrative departments, four program departments, five research centers and five test centers. The four departments in charge of development programs—ground, naval, air, and guided weapons systems—are headed by Lieutenant General, Vice Admiral or civilian of equivalent rank. These Departments are home to the program manager for each developmental system. Each department has responsibility for planning, designing and developing prototypes.

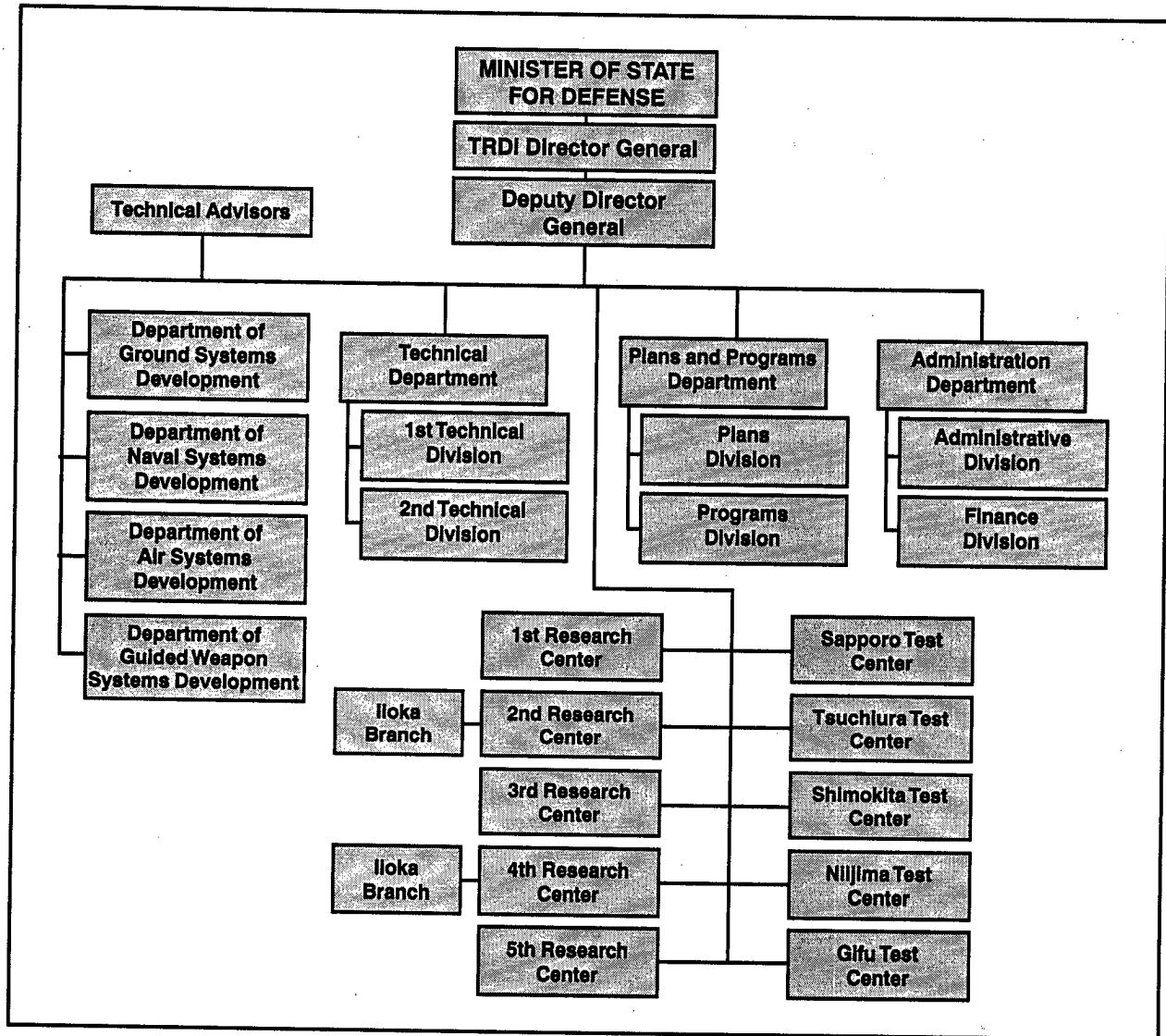


Figure 2-4. Technical Research and Development Institute (TRDI)

There are five test centers and five research centers located mostly in the Tokyo area. They perform basic and applied research, and test and evaluation of prototype products to ensure that equipment will meet the needs of the Self Defense Forces. The Test Centers and Research Centers and their responsibilities are:

Defense Test Centers

Sapporo Test Center located in Sapporo City on the northern island of Hokkaido for prototype products in cold or muddy areas. In the Higashi

Chitose area a jet propulsion facility for aircraft and missiles engines is under construction.

Shimokita Test Center located in Higashi-gori Village, Shimokit County Aomori Prefecture performs artillery and ammunition testing.

Tsuchiura Test Center, located in Ami Town, Inashiki County, Ibaragi Prefecture, conducts environmental test and combustion tests on rocket engines and performance tests on artillery and ammunition.

Nijima Test Center located at Nijima Village in Tokyo tests rockets and missiles by live firing.

Gifu Test Center, located at Kakimigahara City, Gifu Prefecture, collects data on flight conditions of aircraft and test performance characteristics of aircraft and missiles, e.g., the new medium-range air-to-air missiles and small observation helicopters.

Defense Research Centers

The research centers perform the technical studies and research for basic and applied research.

1st Research Center is located in Nakameguro, Meguro-ku, Tokyo, and has responsibility for research on firearms, ammunition, armor materials, anti-ballistic structures, human factors engineering, protection from chemical agents, as well as naval vessels.

2nd Research Center is located in Ikejiri, Setagaya-ku, Tokyo, and has responsibility for research on military electronics technologies related to radar systems, information processing, communications, and electro-optics, and test and evaluation of newly developed military electronics systems and equipment. They have a branch located in Iioka with responsibility for researching and testing fundamental characteristics of atmospheric transmission, reflection, and radiation of radio and optical waves.

3rd Research Center is located in Sakae-cho, Tachikawa-shi, Tokyo, and is responsible for research on aircraft, aircraft engines, missiles, and rocket engines. Research on the Joint Japanese-U.S. Ducted Rocket Engine Project was conducted here.

4th Research Center is located near Tokyo at Fuchinbe, Sagami-hara-shi, Kanagawa-ken, and has responsibility for research on vehicles and vehicular subsystems, engineers equipment,

such as tracked vehicles and simulator for tracked vehicles. Research on the Joint Japanese-U.S. Fighting Vehicle Propulsion using Ceramic Materials Project was conducted here.

5th Research Center is located near Tokyo at Nagase, Yokosuka-shi, Kanagawa-ken, and has responsibility for research, test and evaluations on underwater acoustic systems, underwater weapons, magnetic equipments and mine sweeping equipment. The Kawasaki Branch performs research and testing on degaussing for various ships and on magnetic detection of submarines.

Central Procurement Office (CPO)

The Central Procurement Office (CPO) located in Ichigaya, Tokyo, purchases on a centralized basis various equipment and materials required for the military such as firearms, ammunition, fuels, guided weapons ship aircraft and vehicles. It is the largest state procurement institution in Japan and executes a budget equal to approximately 30 percent of Japan's total defense budget. One of the characteristics of the office is that work authority is dispersed in order to ensure fair implementation of its activities with its division horizontally organized so they can check on each other. (See Chapter 8 on Procurement for more information on CPO.) Each service is authorized to procure the defense material and services for smaller contracts not to exceed 1.5 million-yen (U.S. \$12,500) and for emergency; or special procurements authorized by the Director General.

Defense Facilities Administration Agency (DFAA)

The DFAA is a national government executive agency that performs administrative work related to defense facilities including acquisition, property management and construction. It is also the labor management organization for Japanese employees that support the U.S. Forces in Japan.

Self Defense Forces

The SDFs are involved throughout the acquisition process (see Figure 2-8). They are involved in determining requirements, testing and evaluating the equipment, and management of the production program. In the ASDF, the Air Staff Office (ASO), Technical Department and Plans and Operations Department have responsibility for requirements generation and programming for new equipment. The Logistics Department is responsible for production program management. The Air Development and Test Command provides support for equipment and system testing and is responsible for R&D in areas such as flight medicine. The Flight Support Command, the Air Materiel Command, the Air Combat Command, the Air Support

Command, and the Air Material Command support the initial operation, test and evaluation of systems. In the GSDF the Headquarters, Ground Staff office (GSO), Plans and Operations Department and the Logistics Department are responsible for requirement generation, programming, and management of production programs. The Test and Evaluation Command, aviation and other schools, and supply depots are involved in testing and supporting new equipment. The MSDF Headquarters, Maritime Staff office (MSO), Technical Department and Plans and Operations Department are involved in requirements generation and programming. The Fleet Training and Development Command has responsibility for testing of new vessels, while the Air Development Squadron 51 tests new aircraft.

Chapter 5

PLANNING, PROGRAMMING, AND BUDGETING

There are three documents that provide the policy and implementation for national security in Japan. They are the National Defense Basic Policy, the National Defense Program Outline and the Mid-Term Defense Program (see Figure 2-5). The overarching guidance for the security of Japan is the National Defense Basic Policy, a one page document published in 1957. This top-level policy document provides the principles and objectives for the Self Defense Forces to prevent direct and indirect aggression and the need to develop an effective defense capability to be able to repel invasions and preserve the independence of Japan. Further, the Basic Defense Policy includes support for UN activities, promotion of international cooperation, the public welfare and efforts to “enhance the people’s love for the country, thereby establishing the sound basis essential to Japan’s security.” The basic policy operates under the umbrella of the Japan—U.S. security arrangements. This 1957 policy statement has remained the bedrock of Japanese defense policy for 43 years.

To implement the Basic Policy, Japan instituted a series of “Defense Buildup Plans,” but decided in 1976, because of non-proliferation issues and the annual cap on the defense budget of 1 percent, to define the capabilities they need in a document called the National Defense Program Outline (NDPO). The Outline served as the basis for charting the Defense Agencies course for the next 19 years, through the Cold War and its demise.

In November 1995, recognizing the changing international environment, the Security Council and the Cabinet approved a revised NDPO. The new Outline retains the umbrella of the U.S. and Japanese security agreements and lays out the force structure to include units and major equipment, and the need for a moderate defense capability to respond to incursions into Japan. The NDPO defines the need for a “basic and standard defense capability.” This capability is not built upon military threats, but rather the need for a moderate defense capability that does not create instability in the region. Within this “basic and standard defense capability” are forces and equipment necessary to respond to peacetime needs, such as disasters, and wartime events, such as small-scale invasions. The new Outline now provides a more active role for the Self Defense Forces in military peacekeeping missions.

In the research and development area the Outline calls for continued investment to ensure a state of the art technological defense capability. And, finally, the 1995 NDPO referred to the defense industry for the first time by asserting that “considerations will be taken for maintaining defense production and its technology base.” While this has been the practice, it did note the need to maintain a strong defense production and technology base by promoting domestic production to fulfill the needs of Self Defense Forces.

How does the JDA carry out those goals? The next step in the process is the Mid-Term Defense Program. The Mid-Term Defense Program

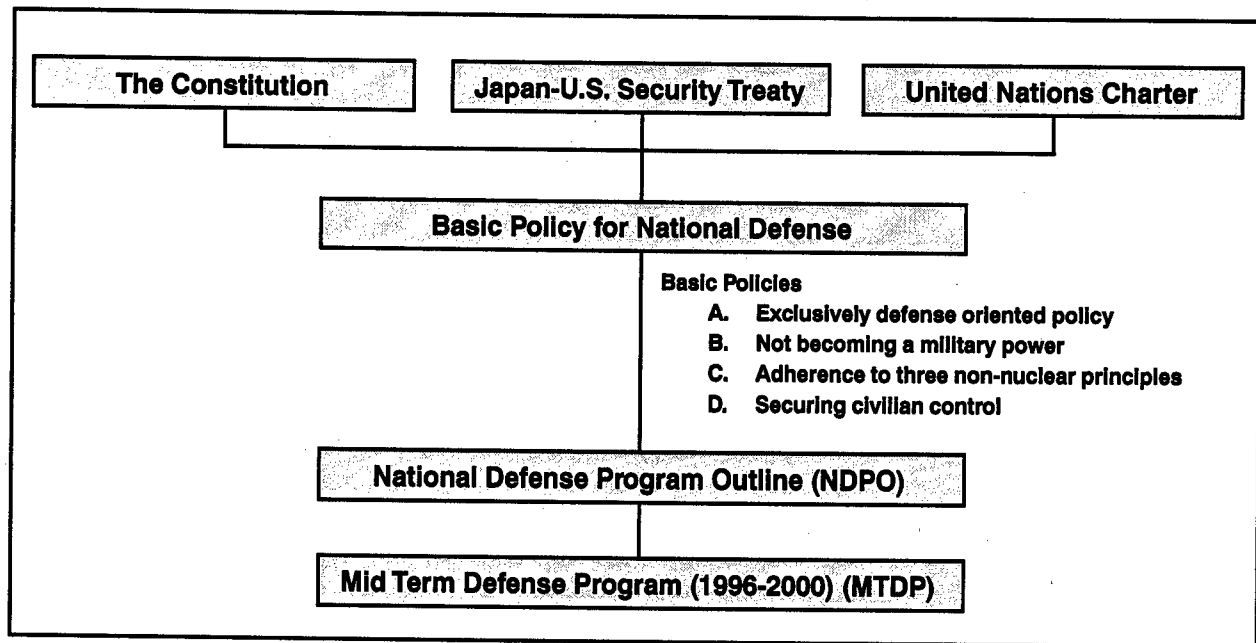


Figure 2-5. Framework of Defense Policy

(MTDP) is decided upon every five years and covers a five-year period. The MTDP lays out the military capability to acquire and provides the implementation and pace of development for the JDA. If a capability is not included in the MTDP, it normally must wait until the next five-year plan. It also has the schedules and funds necessary to implement NDPO. As shown in Figure 2-6, the MTDP for FY 1996 to FY 2000 listed eight major programs for the Ground SDF, three for the Maritime SDF and four for the Air SDF.⁹ However in 1997 due to the critical financial situation, the Security Council and the Cabinet revised the Plan with a more modest plan—the Mid-Term Defense Program (FY 1996-2000) Revision. The next Mid-Term Plan is scheduled for release in August 2000 and will cover the SDF's needs for the years 2001-2005. Early indications show the plan will include requirements for four large air-capable surface combatant ships to replace its aging antisubmarine destroyers, a light anti-tank missile, increased spending for R&D, and an increase for theater missile defense to respond to regional concerns of ballistic missile launches.

What needs to be bought and when it needs to be bought are included in the Mid-Term plans. But, what will actually be bought? The annual budget process in which the JDA competes with other ministries and agencies determines the share of the pie the JDA will receive. The Budget Bureau in the Ministry of Finance is at the heart of the decision process for determining what will be bought by the JDA. They prepare the budgetary guidelines for the JDA and the national budget. The JDA then draws up its budgetary request based upon MOF guidelines at the end of August. It submits its budget request to the MOF in the September-November time frame. It is during this time frame that the examiners from the Budget Bureau then conduct detail budgetary hearings.

A draft government budget is prepared by the MOF and submitted to the Diet in January. The Diet holds hearings at the committee level and then passes the budget in an ordinary session in time for the new fiscal year—April 1 (see Figure 2-7 for budget process). Occasionally, political issues will prevent a budget from being passed

		FY96	FY97	FY98	FY99	2000	Equipment Quantity
Ground Self Defense Force	Tank	18	18	17			90
	Artillery	13		10	6		40
	Multiple Launch Rocket System	9	9	9			45
	Armored Vehicle	23	36	30			157
	Surface-to-ship Missile	4	4	8			157 launchers
	AH-1S	1		1	1		3
	CH-47JA	2	2	1			9
	Improved Hawk Missile	0.5		0.5	0.25		
Maritime Self Defense Force	Destroyers	1	2	2			7
	Submarines	1	1	1			5
	SH-60J	6	7	7			37
	F-15DJ				4		4
Air Self Defense Force	F-2	11	8	9			45
	CH-47J						6
	T-4	9	13	9			54

Figure 2-6. Mid-Term Defense Program (MTDP)

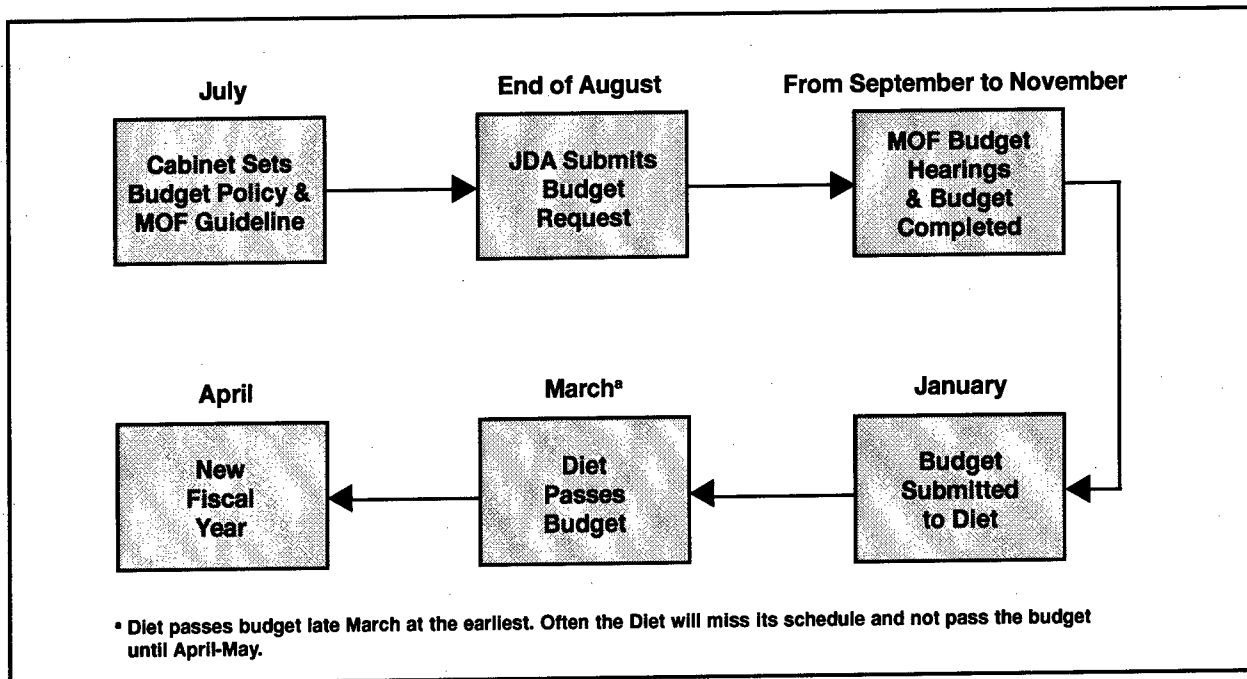


Figure 2-7. Budget Cycle

on time. When this happens, an interim budget is compiled to finance the most necessary items.

It is worthwhile to note the role of a nongovernmental body, the Liberal Democratic Party (LDP), Policy Research Council, plays in the budget process. The LDP has been the primary political party in Japan for most of the last fifty

years. The Policy Research Council has taken a role in reviewing the annual defense budget for policy implications. Normally, the Council's Chairman does not recommend changes, although when major political issues are involved, such as for Theater Missile Defense, he may make recommendations to the government on possible changes.

Chapter 6

THE DEFENSE ACQUISITION SYSTEM

The Acquisition Management System consists of the organizations, discussed above and policies and procedures governing the operations of the system. JDA Directive 50-48, Technological Research and Development for Defense Systems, provides the policies and procedures for development of weapon systems and equipment. This is implemented by TRDI Instruction 1, Technological Research and Development for Defense Systems.¹⁰

The Basic Policy for Development and Production of Defense Equipment, which was first issued in 1970, provides guiding principles for acquiring weapon systems. These five basic principles are:

- A. The national defense capacity is the nation's industrial and technological capacity.
- B. Arms procurement from domestic production should be promoted.
- C. Maximum use should be made of the developmental and technological capacity of civilian industry.
- D. A long-term perspective provides a basis for good arms procurement planning.
- E. The principle of competition should be actively introduced.¹¹

Its historical policy on acquisition has been to favor domestic production, or licensed production of equipment and importation of technology

from abroad, mostly from the United States. "Equipment acquisition programs will be effectively implemented with overall consideration of such factors as speedy emergency resupply, easier education and training requirement and cost effectiveness, including future obligatory expenditures accompanying the introduction of equipment, and with special attention on developing a procurement and supply mechanism which helps reduce procurement costs. Attention will also be given to maintaining defense production and technology foundations through appropriate promotion of domestic productions."¹² The latest NDPO puts additional efforts "...to enhance technical research and development that contributes to maintaining and improving the qualitative level of Japan's defense capability to keep up with technological advances."¹³

Requirements Process

Organizationally, the necessity for a new weapon system or military equipment comes from each Self Defense Force or the Joint Chief of Staff. The normal process is for each Self Defense Force to propose a new weapon system or new equipment, or changes to an existing system, which is contained in a document, called the Operational Requirement Document (ORD). Using the Ground Self Defense Force (GSDF) as an example, the initial work of requirements development begins at the staff colleges and research departments of the thirteen branch schools, such as the engineering or signal schools, who have conducted operational and materiel studies for the Ground Staff Office

(GSO). Equipment is modernized based upon trends of future security environment or technology changes to provide a capability that is adequate for self-defense. The Headquarters, Plans and Operations Department will prepare the ORD, which establishes the military requirement (see Figure 2-8¹⁴), during the Research Phase.

In the Concept Phase, a long-term plan (10 years) and a "system of materiel and equipment," or architecture of mission areas with appropriate analysis, will be sent to the GSO Logistics Department for incorporation into an Estimate of Technical Research and Development Requirements. This will be provided to TRDI and the Acquisition Review Council. TRDI's then assesses the availability of technology, cost expectations and technical risks. This feeds into the GSDF's ORD. In the future a combined organization, initially to be called, the Research

Headquarters, located in Camp Asaka, near Tokyo, will provide a single central organization to develop and perform the preliminary studies to develop GSDF requirements. While this discussion describes the GSDF process, a similar practice is conducted within the other two SDFs (see Appendix B).

Research and Development Process

The research and development process follows a rational sequence of events with four phases to take a weapon system from the early conceptual stage to the end of its useful life. The four phases, as shown in Figure 2-8, are: Phase I-Concept, Phase II-Research, Phase III-Development, Phase IV-Operation.¹⁵ The process in Japan tends to be sequential with little overlapping between phases. Japanese schedules also tend to be rigid and rarely change as is typical in the United States.

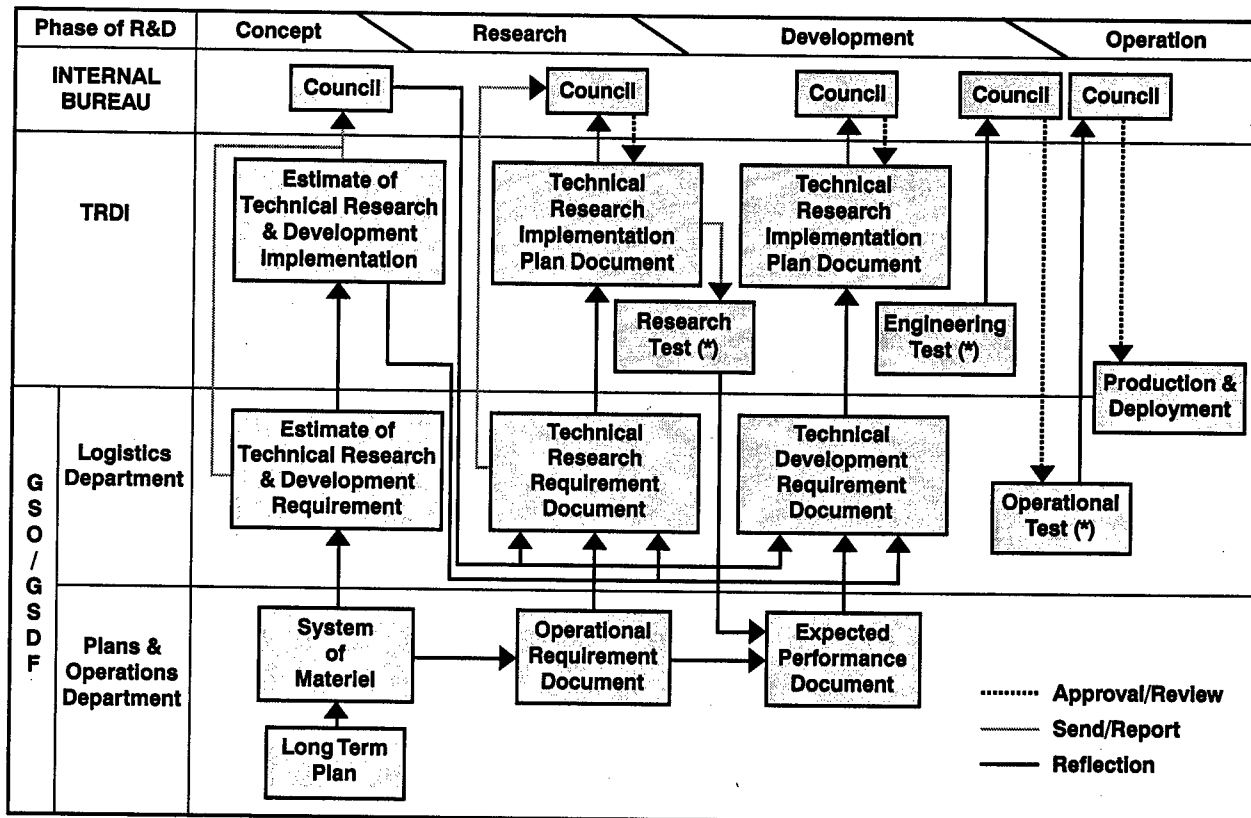


Figure 2-8. Research and Development Process Phases

Concept Phase

In the Concept phase, the Self Defense Forces have identified future operational requirements, some of which will require technological advances. Again, using the GSDF, they will develop a long-term plan (10 years) and a system of materiel and equipment (an architect of equipment by missions). This will feed into an Estimate of Technical Research and Development Requirement by the GSDF Logistics Department. Based on service needs, the GSO estimate will be provided to the Equipment Review Council (see later explanation of Council) for guidance.

TRDI will develop an "Estimate of Technical Research and Development Implementation," which defines the projects, which key technologies and components to be researched and the cost and schedule. The TRDI plan prepared yearly in January will provide an estimate for projects over the next five years. It is during this phase that TRDI will perform technology and feasibility studies, estimates of the technology availability, and basic research into solving technical challenges. The basic question being asked is—Is there technology available to solve this military problem?

The SDF will participate with TRDI as they jointly work these issues. TRDI will be in contact with industry to gather estimates of cost and ability to produce. If possible, TRDI will try to bring competitive forces into play by asking at least two companies to submit concept proposals and to participate in the early stages of research. One difference in Japan and the United States in this area is the relationship with the national universities and laboratories. In the U.S., much research is performed at these national institutions, while in Japan the pacifist attitudes of these institutions have prevented the SDF from establishing relationships. Thus, they must rely upon the major contractors for research during this phase.

Research Phase

Once the concept phase tasks are completed, the results are fed back to the defense forces. In the case of the GSDF, the Plans and Operations Department will prepare an Operational Requirements Document. If newly emerging technology or high technical risks areas have been identified, the GSO staff offices (Logistics Department) will prepare a "Technical Research Requirement Document." This document identifies risk reduction projects necessary to be completed prior to entering the Development Phase.

The document is sent to the Equipment Review Council and to TRDI for information, pending approval by the Council. Once funds have been authorized, TRDI's approach to researching and testing technology, contained in the "Technical Research Implementation Plan Document," is sent through the Internal Bureau to the Council for approval. After council approval, TRDI will perform subsystem research and testing of engineering model prototypes on key technologies. The results will be provided to the appropriate service headquarters.

In the case of the GSO, the Plans and Operations Department will evaluate the test results and then prepare the "Expected Performance Document" and forward to the Logistics Department. The Logistics Department, in turn, will prepare a "Technical Development Requirements Document" for Council approval, and to start the Development Phase. TRDI will be tasked to develop the equipment. In cases where the technology is well in hand this phase may be omitted.

The JDA is also considering making use of more technology demonstrations to reduce cycle time and cost. The advantage of technology demos is early verification of the applicability of advanced technology to a military use and, if successful, the need for a shorter Development Phase prior to entering the Production.

Development Phase

It is during this phase that the contractor designs the system, builds actual prototypes, and then tests the item to ensure it performs to the contract specification. TRDI will manage the Development effort through one of its System Development Departments. That Department will have prepared a "Technical Development Implementation Plan Document" on its plans to conduct development for Council approval. It is also during this phase that the SDF will perform operational test and evaluation on the equipment to ensure it performs, as it should in combat environment. If the equipment is successful it is ready for the next phase—the Production Phase. The results of the engineering tests will be provided to the Internal Bureau, and in turn to the Council for approval. The next step is for the Council to order the respective SDF to perform operational testing.

Once money has been budgeted and a program is committed to, the project moves ahead from one phase to the next since "...the acquisition environment in Japan (is one) in which no failures are ever allowed for even research and development programs."¹⁶ Thus, concurrency becomes a real possibility in the JDA acquisition process. Once the government has committed to the MTDP, the plan is carried out based on schedule imperatives, even if testing issues and problems occur. The F-2 is an example. Production began in 1996 with delivery of the first unit in the summer of 2000. TRDI was still performing engineering and initial operational testing with the equipment through 2000. Lessons learned, design fixes and modifications will have to be budgeted and incorporated into the weapon system at a later date.

Operation Phase

The Operation Phase is led off by the operational tests conducted by the SDF on the development

equipment. After these are successful, the results will be sent to the Internal Bureau and, in turn, the council will approve awarding the contracts for production of the equipment and subsequent deployment of the equipment. Management responsibility for production now moves to the respective SDF headquarters. As the equipment is delivered the SDF will introduce the equipment into the operational forces. Along with the equipment will come the logistical support necessary to operate the equipment such as test equipment, technical, spare parts, and other equipment as necessary.

In summary, the development of a weapon system is a methodical, event-driven process, which can well take over 10-15 years.

Acquisition Reform

The increasing costs of weapon systems and the tight budget situation in Japan, as a result of the economic crises, created a need for acquisition reform efforts. According to the *Japan Defense Research Center Annual Report*, September 1999 "...the unit costs of Japanese vehicles are three to ten times as expensive as those of the U.S. vehicles...similar price gaps exist between Japan and England, France, Germany and other European nations."¹⁷ The Acquisition Reform Committee, under the leadership of the Director General of the Bureau of Equipment, issued a reform plan in 1998, which included a wide range of recommendations for revising the acquisition system, focusing primarily on reducing the acquisition and operations costs of equipment. Specific changes were targeted, such as life-cycle costs reduction, commercial specifications use, and creation of a computerized network to share data. The use of the International Organization for Standardization (ISO)-9000 standards for improved quality was also stressed.

Reform was given further impetus with a series of procurement scandals starting in 1997.

Scandals included collusion between soon to retire government personnel in awarding sweetheart contracts; collusion on pricing of contracts by industry, withholding or destruction of documents, and inappropriate cost charging on contracts by companies. These scandals resulted in the arrest of the Director and Deputy Director of the Central Procurement Office, the Parliamentary Vice-Minister and the Chairman and former Managing Director of Fuji Heavy Industries.

Responding to the loss of public support, the Director General of the JDA issued in April 1999 a report—"Concrete Measures for Procurement Reform"—diagramming changes to the system. These papers address issues in both the acquisition process and the organization of the CPO. The general thrust of the reform efforts is to make the system more transparent and to address re-employment of SDF personnel. The way transparency will be achieved is to take advantage of market forces, by increasing competition

and making the method of selecting contractors more opaque. Specific emphasis will be placed on the use of commercial products and specifications to take advantage of the commercial market competition. Sole source selection of contractors will receive significantly more oversight, at every step of the process by the Contractor Selection Committee. When a sole source contract is awarded there will be improvements in costing contracts by obtaining additional cost data from contractors and finally improved oversight of contractors during performance. Also positive cost incentives will be provided for contractors who can reduce the cost of weapon systems.

Organizational changes are also planned. Moving the cost evaluation departments from the CPO to the Internal Bureau will facilitate the independence of this function. A new, Central Contract Office (CCO), will be established under the control and supervision of the Minister of State for Defense. A third party audit

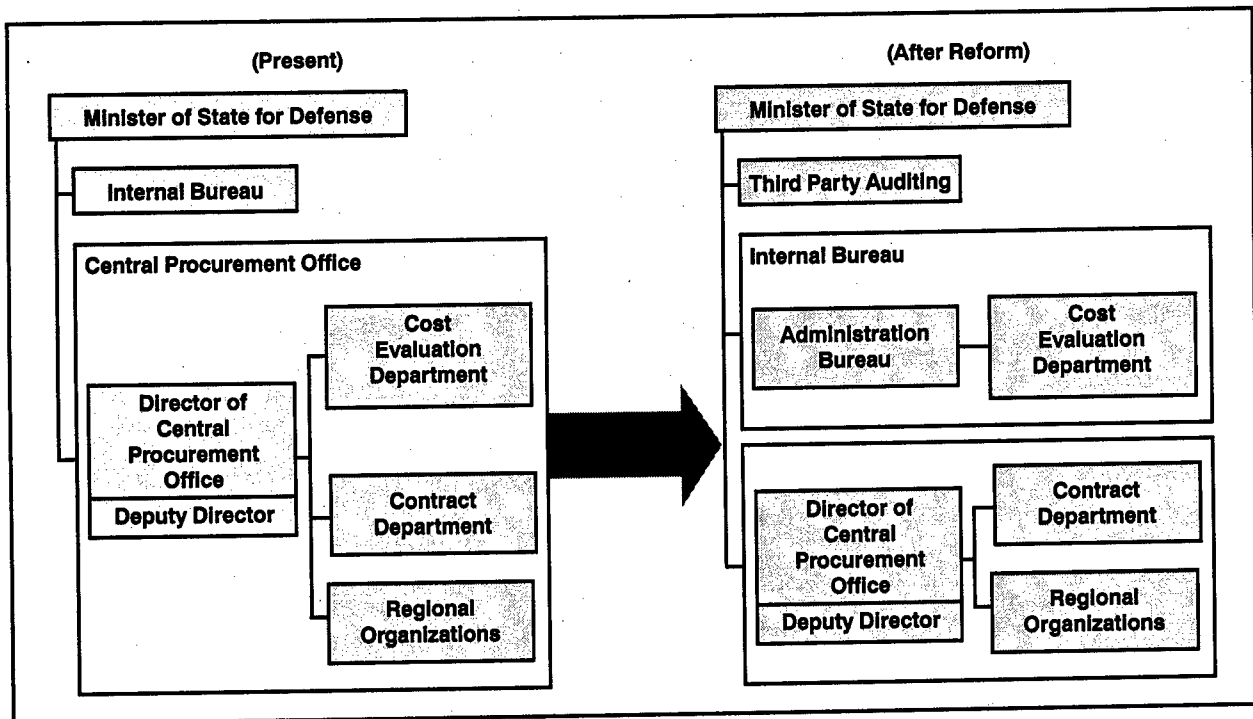


Figure 2-9. Mid-Term Defense Program (MTDP)

organization will be established to provide an independent review of CCO. Figure 2-9 shows the revisions to the Procurement Institutions.

Additional training is planned emphasizing professional development of acquisition personnel, with an emphasis on ethical guidance. Finally, the policy statement—"Concrete Measures for Procurement Reform"—recommended increased restrictions on re-employment of SDF personnel by industry. While previous policy and law did provide restriction on the re-employment of SDF personnel, the government sees the need for additional restrictions to protect the public interest.

They have proposed three specific changes to restore public trust. Develop standards for the type of work covered—versus the case-by-case approach currently used. Provide reports to the Diet on approvals or exceptions by the Minister of State. And implement an across-the-board restriction on taking a job with a company an individual has worked with over the previous five years. As mentioned earlier in this part the practice of "amakura" has been ingrained within the system. These changes go against many of the traditions and practices that have a deep hold on the participants in the system. The road for change will be difficult before changes can really be implemented.

Chapter 7

MANAGEMENT OF DEFENSE PROGRAMS

Major Weapon Systems Approval

Major weapon system procurements, as well as politically sensitive procurements, are approved at senior levels of government. If it is a major R&D project, such as an aircraft or ship, then approval is obtained from the Ministry of Finance (MOF), the Security Council, the Cabinet and then the Diet. Decisions on major acquisitions are reviewed as part of the annual defense budget process, which will be submitted to the Security Council for approval. The Minister of State for Defense (Director General of the Defense Agency) approves lower cost weapon system acquisitions and delegates approval authority to the Self-Defense Forces for some lower cost procurements.

Equipment Review Council (ERC)

The senior forum for approving acquisition plans and strategies is the Equipment Review Council chaired by the Administrative Vice-Minister. The ERC membership includes the directors of the Finance, Equipment, and Policy Bureaus, the Councillor for Technology, TRDI, CPO, the Joint Staff and the Chiefs of Staff of the SDFs. There is also a working level council of personnel from the Inner Bureau, which generally will work smaller projects, under 10 billion Yen (U.S. \$100 million).

Program Management

Depending upon the nature of the project, the acquisition Program Manager (PM) will come from either the TRDI for research and

development or the Headquarters of the Self Defense Force involved in managing the production program. At TRDI, management of a program will be executed in one of the four Systems Development Departments. Most of the program managers at TRDI come from the SDFs. In the Ground and Air SDF Systems Department 90 percent of the PMs are military. In the Maritime and Missile Systems Departments the percentage of military PMs are 50 and 30 percent respectively. The PM has responsibility for monitoring the health of the program to include project cost, schedule and technical performance. Generally, the PM positions are graded out at the 04/05 military level or civilian equivalent. His support staff is provided on a matrix basis from other functional departments such as engineering or logistics on an as-needed basis.

In cases of a major program, a separate office may be formed. In the case of the XF-2 fighter program, a major development program for the ASDF managed by TRDI, the XF-2 Development Office was established under the Air Systems Development Department. This program is led by a senior colonel (Japanese equivalent to a one star) Program Manager, with a small team of five to seven personnel supporting him.

Once the ERC makes a decision for a program to go into production, Program Management responsibility moves from the TRDI to the Self Defense Forces. In the case of the XF-2 it moves to an Air Staff office—the Logistics Planning Department. Generally, the PM assigned to manage the program will be again be at the

major/lieutenant colonel (04/05) level, supported by a small staff of six personnel.

Acquisition Education

Training in acquisition is primarily conducted on-the-job (OJT) with a superior teaching a subordinate the techniques and methods to do the work. Military members who will take acquisition jobs will receive a three months training course in logistics management during their career. Members who attend the military Staff College will also receive lectures on acquisition. The National Institute of Defense Studies, equivalent of the National Defense University in the United States does offer acquisition and procurement subjects for senior level O-5/6 and civilian equivalent students. Those in the civil service follow a rotation process of moving

every two years to different positions. For example an individual will work for the Bureau of Equipment, then may work at the TRDI and then at one of the SDFs. This provides a broad based education experience, but often does not provide an in-depth knowledge of specific areas.

As a result of the recent procurement scandals, concerns about the adequacy of training, have resulted in plans to restructure the training and education of acquisition personnel. While OJT will still be the prime means of training, increased ethics training, using case studies methodology will be provided to acquisition personnel. Additionally, other education efforts will be pursued, such as internships with private industry, proficiency training and encouragement to apply for Certification as a Professional Accountant (CPA).

Chapter 8

PROCUREMENT PROCESS

The Central Procurement Office (CPO) (see Figure 2-10) is the central contracting organization for the Japanese Defense Agency. Currently, CPO employs 1,021 military and civilian personnel.¹⁸ In 1998 they spent 1.24 trillion Yen (U.S. \$11.3 billion) and managed 9,616 contracts. Their acquisitions cover major equipment buys for tanks, ships, spares and commercial items. While CPO is the central organization for buying, the SDFs, as indicated earlier, are

authorized to make local procurements. The CPO's major activities include cost evaluation, awarding contracts, and administration of contracts. They also prepare and evaluate specifications, perform inspection, disburse funds, review status of businesses, and reconcile contractor grievances.

How does the process work? The Ground, Air and Maritime Self Defense Forces and the TRDI

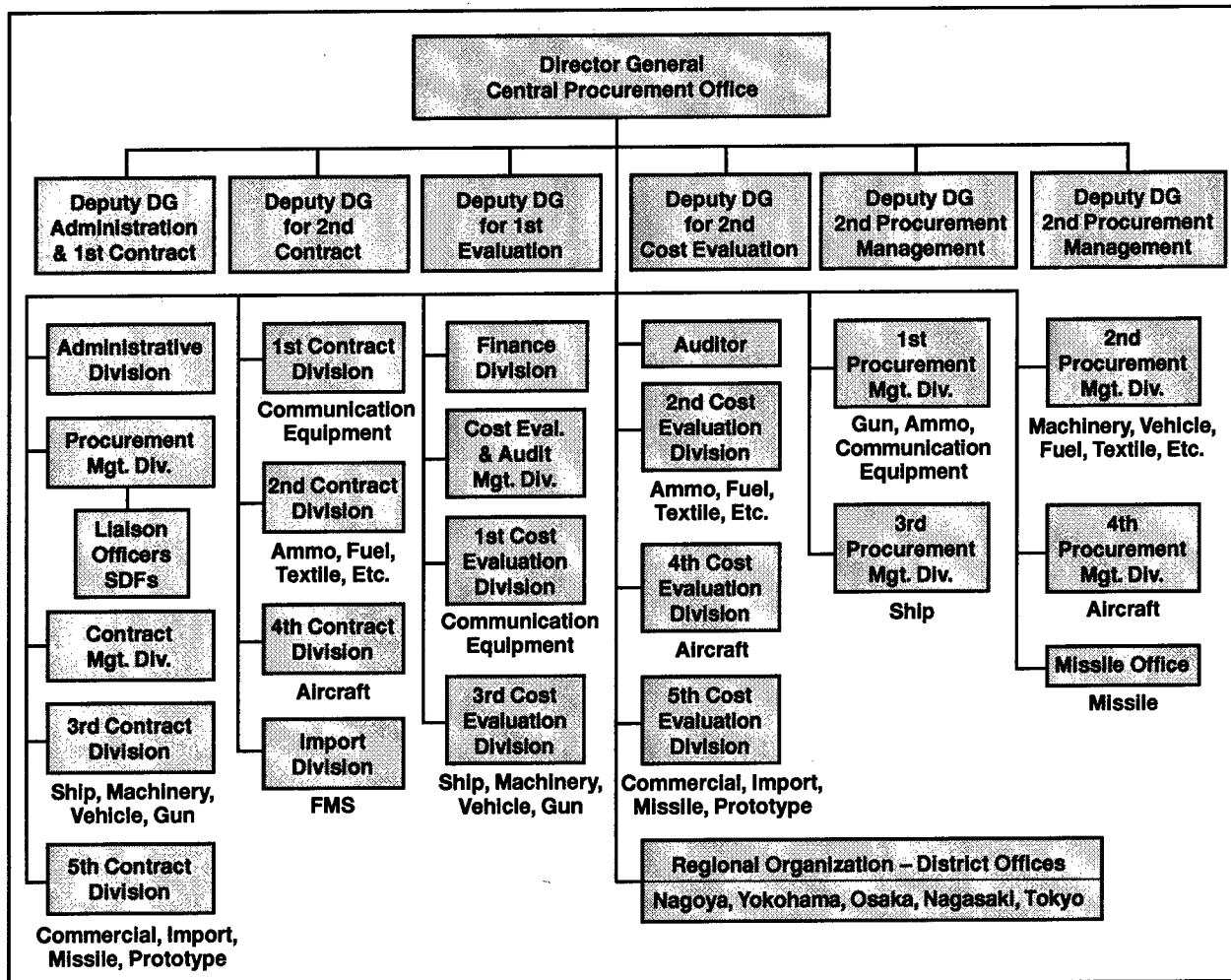


Figure 2-10. The Central Procurement Office (CPO)

provide their procurement requirements to the CPO. Their procurement request will include quantity and delivery requirements, plus the weapon system specification.¹⁹ The CPO, based upon procurement requirements generated by the Internal Bureau, then prepares a Procurement Plan. A monetary expenditure schedule is agreed to and approved by the Bureau of Finance.

There are three approaches to soliciting industry²⁰—open bid, limited bid, and sole source. Open bid is available to any qualified bidder, while a limited bid restricts the number of sources that may submit a proposal. Sole source is the customary method for major acquisitions. The Contract Selection Committee, made up of senior personnel from CPO, verifies a company's qualifications, and provides a recommendation on type of contract, whether or not it should be sole source, commercially advertised, negotiated or a source selection for the approval by the Direct General CPO.

Until recently competition played a very small role in the selection of a contractor. In FY 1997, 85.5 percent of the contract value was sole source, while 10.8 percent was limited competition and the balance was open competition. In his book *Rich Nation, Strong Army* Samuels captures the Japanese perspective on competition when he states, "This need to manage competition and nurture technological development simultaneously is ubiquitous across decades of Japanese industrial Policy. It is also widely embraced by firms...in a free economy, each firm undertakes its own research and development, giving birth to duplicated investments and unstarted projects. In order to avoid the evils associated with R&D by individual firms...government action is of utmost importance."²¹

Bids are then solicited. If it is to be competitive, the selection will be based upon the cost of the item and other factors, such as technical or

manufacturing skill, or life cycle costs of the equipment. If it is to be sole source, then cost studies will be performed to ensure an understanding of an acceptable price to pay for the item. They will use two methods to determine value—market price and cost accounting. The market price method refers to determining a fair price based upon what a buyer might be expected to pay for equipment in an open market. The cost accounting method refers to analyzing contractors actual cost estimates, the technical and manufacturing difficulty of the project, the quantity, and schedules. Since most large procurements are sole source, the cost accounting method is most commonly used.

Once the contractor has been selected and a fair price determined, then a contract is executed. While they use two types of contracts—fixed price and cost²²—the cost contract is most often used for major acquisitions. The Director General CPO is the "Contracting Officer" and signs for all major contracts. Lower value contracts with a price of 200 million yen or less, or an estimated unit cost of 1,000 million yen or less, is delegated to one of three Deputy Director Generals. To ensure fairness in its contracts, the Deputy Director General for Administration reviews contracts in the role of "authentication officer."

After the contract is let, the CPO administers the contract through its various district offices set up, throughout the country, to inspect contractor performance and to accept delivery of contracted items. The CPO Disbursing Officer makes payment according to the terms and conditions of the contract.

Several laws, the Finance and Accounting Act and the Government Property Management Act, govern the submission of purchase requests and the management of contracts for the CPO. These acts also give the government equal standing with industry in the making of contracts. The

Japanese Civil Code, based upon the European civil code, with both English and American influence, provides the underlying law that governs the contractual relationship between the government and their defense contractors.

The Japanese government is also a signatory to the World Trade Organization (WTO) Agreement on Government Procurements. To comply with the WTO agreement, the CPO has initiated changes to make its system a more "open and transparent tender system." It is designed to provide information on future acquisitions and insight into their decision process. The CPO, to improve relation with its industry, now is open to complaints from them.

The CPO must also be concerned about socio-economic implications of their actions. The Japanese Diet passed a law—the Law Concerning the Ensuring of Small and Medium Entrepreneurs Receiving Orders from Government and Other Public Agencies (enacted in 1966). CPO's approach, because of the nature of their acquisitions, is to provide the SMEs information on sole source contracts for possible subcontracting opportunities.

Pre-qualification is required for contractors who are interested in bidding on JDA acquisitions. An interested contractor must submit an application to the CPO to participate on a bid. They will be evaluated and, if considered qualified, they will be selected to bid. The contractor's plant must also be qualified. The plant will be appraised based upon the contractor's approach to achieving reliability, his technical ability, and his production capability. A qualification test will be conducted to prove that his products are able to meet contract requirements.

Recent headlines in Japanese papers on procurement scandals—hiding of documents, sweetheart deals, and overcharging by contractors—

have contributed to major initiatives within the JDA to restructure the procurement organization and process. The scandals have resulted in arrests and resignation of top government officials, such as the former Director General of the JDA, Fukushima Nukaga. He resigned to take responsibility for the agency's role in the scandal. Similarly, the Chairman of NEC, Tadahiro Sekimoto also stepped down.

As a result of these scandals, JDA is moving to implement reforms in the procurement system. It will introduce more open bidding, provide vendors with more cost cutting incentives and restructure its contracting bureaucracy—the Central Procurement Office. A White Paper prepared by the Defense Procurement System Research and Review Council, made up of outside experts and JDA personnel, recommended that CPO separate its cost estimation and evaluation functions. This is scheduled to take place in 2001. Those responsible for evaluation of bids will be integrated into the Internal Bureau, while the new Central Contract Office will be responsible for awarding contracts. Further reforms include eliminating obsolete military specifications, moving to commercial specifications, as appropriate, and using cost incentives to motivate contractors for cost saving ideas. They are also introducing a review of the contractor accounting systems. Contractors must keep documents for one year after a contract expires and allow the JDA the right to audit their records. They can also be sanctioned for improper business practices and be penalized for overpayment up to the amount of the overpayment.

The increased use of competition, or market forces, is a major theme of the reform effort. A recent example of the change, is the open bidding for a primary trainer, which was originally planned as a sole source buy for Fuji's T-7 trainer. It was decided by the JDA to open for competitive bidding. Competition opportunities

should be increased in the future. The JDA now posts both a five-year program list and a list of programs and products it will acquire in the following fiscal year to better inform industry of its intentions. Additionally, the Minister used to have authority to designate contractors without competition, if the minister felt it was necessary to maintain and strengthen the industrial and technology base. Now there will only be three exceptions for sole or restricted sources. They are:

1. Contractors are required to get manufacturing licenses under Aircraft Manufacturing Law or the Armaments Manufacturing Law.
2. Contractors are required to obtain a license for production from overseas companies.

3. Development and production of Aircraft under the Aircraft Law.

The revised philosophy and relationship with industry was perhaps highlighted in a recent article in the Tokyo Daily Yomiuri. The JDA sent a bill to Mitsubishi Heavy Industries, 11th largest defense firm in the world, for penalties—1.1 billion yen (\$9million)—for defective machining of rotor hubs. The defective rotor hubs are alleged to have caused the loss of a Sikorsky SH-60J. While not the first time the JDA has taken this type of action, it is indicative of a shifting relationship.

Chapter 9

TEST AND EVALUATION

Testing and evaluation (T&E) responsibility for new equipment or weapon systems rests with several organizations within the JDA—TRDI and the SDFs. Testing of new equipment, components, and weapon systems is performed by a variety of organizations and occurs in various acquisition phases for a variety of purposes. During the Research Phase TRDI will perform subsystem testing primarily to reduce risks prior to going into the Development Phase. In the Development Phase, TRDI then has performance requirements responsibility for Engineering Test and Evaluation, to determine

whether or not the prototypes have met the contractual requirements. After Trade's verification, the Self Defense Forces have responsibility to ensure the equipment meets operational needs and perform the Initial Operational Test and Evaluation of new systems. Using the F-2 fighter as an example, Figure 2-11 shows the type of tests, and the responsibility for performing tests between TRDI and the Services.

Testing can be broken down into two broad categories—contractor testing and government

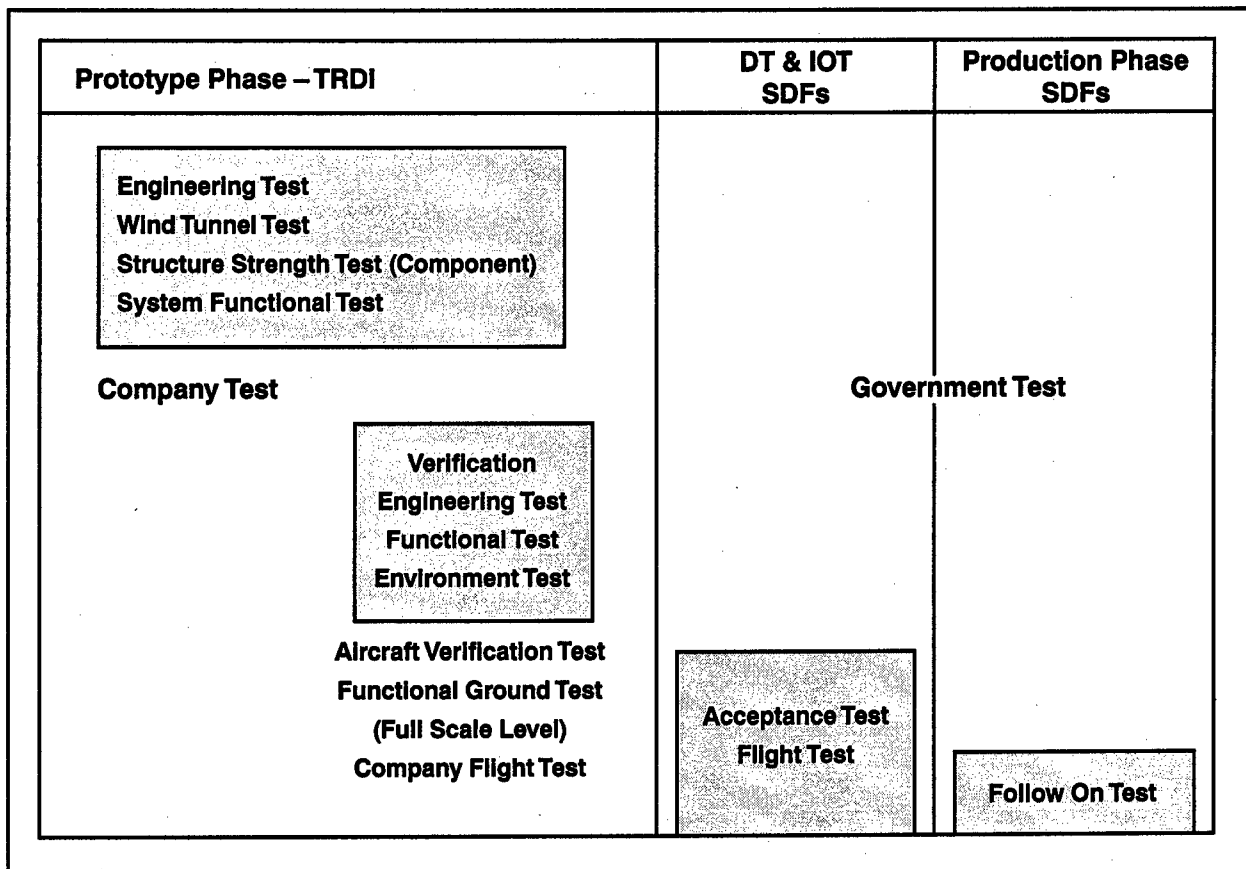


Figure 2-11. Contractor and Government Test (Aircraft)

testing. During the Prototype Phase, the contractor is responsible for testing. These tests are primarily designed to indicate the equipment meets the functional and environment requirements of the specification. Examples of testing include Wind Tunnel, reliability, aircraft verification, functional ground and company flight tests. These tests are designed to indicate the system will perform as expected. Testing responsibility then is turned over to the government. The Chief of Staff of the ASDF will approve a Test and Evaluation Master Plan for the new equipment. The responsible test organization, as shown in Figure 2-12, the GIFU flight test center would then prepare a more detailed plan for testing the F-2 fighter. The local commander approves the plan. Once Design Testing & Initial Operational Testing is completed they will perform a variety of test such as static and durability tests, strength tests and finally flight tests. During the Production Phase, acceptance test of the equipment will be completed. Follow-on testing (FOT&E) will be continued by the Air Combat Command.

Testing often raises the problem of the need for design changes. Because of the rigid budgeting process any changes that are necessary as a result of testing will be budgeted for and acquired in later years.

Each of the Self Defense Forces has its own test and evaluation facilities. The Air Self Defense Force has the Air Development and Test Command located in Sayama City, Saitama Prefecture, that conducts demonstration tests on a broad range of equipment to be used by the ASDF. Actual testing is accomplished at the Air Development Test Wing located in Kakamihara City, Gifu Prefecture, where demonstration on fighters such as the F-15 will be carried out. They also have an Electronic Development and Test Group in Sayama City, and the Aero-medical Laboratory for human factors testing in Tachikawa City, Tokyo.

Responsibility for test and evaluation within the GSDF rests with the Test and Evaluation Command, located in Oyama Town, Shizuoka

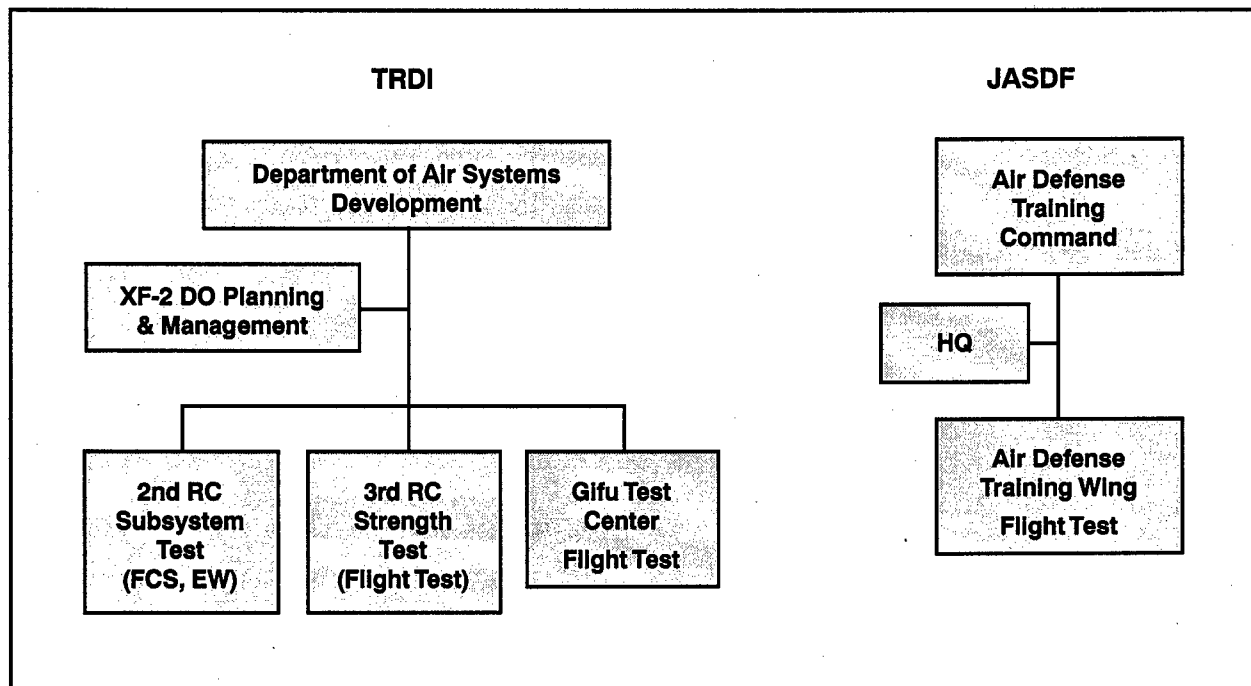


Figure 2-12. XF-2 DT&E Organization

Prefecture, which conducts demonstration tests on weapon systems and equipment. There are other organizations involved in test and evaluation. For certain specialized equipment, such as aircraft and facilities the branch schools, such as aviation and engineering schools will perform testing and evaluate the equipment. The supply depots will assess equipment for their supply and maintenance characteristics.

The Maritime Self Defense Force has the Fleet Training and Development Command located

in Yokusuka City, Kanagawa Prefecture, which conducts demonstration tests for vessels. The Air Development Squadron 51 located in Ayase City, Kanagawa Prefecture, manages and conducts tests on aircraft on Maritime aircraft, such as the P-3. In cases where testing cannot be accomplished in Japan, testing will sometime be done overseas, say in Australia, and the United States —Eglin Air Force Base, Florida, and Point Mugu, California.

Chapter 10

INTERNATIONAL COOPERATION AND ARMAMENT SALES

“Budget constraints are not new, but trends toward more sophisticated defense systems have made equipping our forces more costly.... Cooperative R&D programs can contribute by providing more defense capability for the same collective investment.”²³

A key feature of the Japanese acquisition process has been involvement in international cooperative programs, primarily with the United States. Of all U.S. allies, Japan spends most on defense and operates the most equipment common with U.S. forces. They see the benefits as promoting U.S.-Japanese cooperation, sharing risk in R&D and avoiding duplication of financial investment, thus making effective use of the resources of each country. Figure 2-13 is a list of cooperative projects conducted with the U.S. Recently, Japan signed a cooperative agreement on research and development for a theater ballistic missile

defense program with the United States. It is a five-year program, centered on the analysis and design of an advanced missile sensor, advanced kinetic warhead, second stage propulsion and a lightweight nose cone.²⁴

The forum for guiding discussion and coordination of cooperative projects between the United States and Japan is the U.S.-Japanese Systems and Technology Forum. The first forum meeting was in Washington D.C. in 1980, and has continued for 20 years, alternating meetings between Tokyo and Washington. The Forum

Ducted Rocket Engine (DRE)	MOU 1992
Advanced Steel Technology	MOU 1995
Fighting Vehicle Propulsion Technology Using Ceramic Materials	MOU 1995
Eyesafe Laser Radar	MOU 1996
Advanced Hybrid Propulsion Technolgoy	MOU 1998
ACES II Cooperative Modification	MOU 1998
Shallow Water Acoustic Technology	MOU 1999
Ballistic Missile Defense	MOU 1999
Low Vulnerability Ammunition	MOU 2000

Figure 2-13. Cooperative Research Projects

provides an opportunity to discuss and facilitate mutually beneficial areas of cooperation. The co-chairs of the forum are the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD (AT&L)) for the DoD and by the Director General for the Bureau of Equipment for the JDA. Topics discussed include defense research, development, production, procurement, logistics support and to coordinate collaborative programs. The Systems and Technology forum includes representatives of the DoD Military Departments and Japan's Self Defense Forces. Working level committees focus on collaboration in selected mission and platform areas, including air defense, communications, and aircraft systems.

Armament Sales

The "Three Principles of Arms Exports" provide the policy guidance for Japan. In April 1967, Prime Minister Sato in a statement before the Diet initiated the policy. Arms export shall not be permitted for (1) communist block countries, (2) countries to which the UN prohibits arms exports, (3) and countries, which are involved or likely to be involved in international conflicts. Prime Minister Miki further restrained arms shipment by including military technologies. The legal basis for the three principles include the (1) Foreign Exchange and Foreign Trade Control Law, (2) Foreign Exchange Control Order, and (3) the Export Trade Control Order.

The Export Trade Control Order makes it mandatory that anyone planning to export goods or services, designated as obstructive to the maintenance of international peace and security get prior consent from MITI. Among the designated goods and services are arms and arms technologies. The term *arms* is defined as goods listed in the Export Trade Control Order and used by military forces and directly employed in combat. Military Technology concerns the design, production and use of arms. Examples of listed

arms include firearms, ammunition, explosives, military vehicle, naval vessels, aircraft, and others.

Notwithstanding the Three Principles—the Japanese government generally has not given consent to export arms and technology. Over the years some exceptions were permitted. In 1983, the U.S. and Japan exchanged notes agreeing for the transfer of military technology between the two countries. However, military technology can be transferred from Japan to the U.S. on a case-by-case basis and must be requested by the U.S.

As the role of Peacekeeping Activities under UN auspices increased, it was recognized that the arms export policy needed to be reevaluated. In 1996, arms export policy changes necessary for acquisition activities and cross-servicing agreements with U.S. was approved. Further easing of export restrictions occurred in 1997 and 1998—for humanitarian mine clearance and arms export necessary to evacuate Japanese citizens overseas from hostile situations.

One final note on export policy. When military equipment is sold or transferred to the U.S., Japan requires the U.S. obtain third-party approval of a sale from the Japanese government.

Based upon the Foreign Exchange and Foreign Trade Control Law of 1948 and Export Trade Control Law of 1949, the Minister of International Trade and Industry (MITI) controls the export of arms.

Japanese corporations might be expected to market mainly dual-use electronics sub-components, vehicles, and transport and communications equipment offshore or through front companies and to provide components for missiles and aircraft produced overseas, especially in the United States. While Japan prohibits the export of war materials its electronics industry—computer chips and super conductor market-

products are part of many Western designed and built programs. A recent examples of Japanese concern with armament sales was the export controls place on Sony's PlayStation 2 game

console which because of the high quality of computer graphics and the systems memory card could be used for missile-guidance.²⁵

Chapter 11

THE DEFENSE INDUSTRIAL BASE

Japan possesses "...the region's most powerful indigenous defense industry in terms of capabilities and sophistication."²⁶ With over 1,300 companies comprising the defense industrial and technology base, they manufacture a wide range of products which includes test facilities, propulsion systems, ammunition, propellants, fasteners, couplings, trainers, helicopters, aeronautic equipment, surface-to-surface missiles, avionics, telecommunication, satellite equipment and garments. The top four companies, with names recognized worldwide—as indicated in Figure 2-14—are Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Mitsubishi Electric and NEC. They account for nearly 60 percent of the yearly

defense business.²⁷ While defense business is important, "no sector of the Japanese economy, besides ammunition and aircraft manufacturing, depends on the military for more than 5 percent of its total sales on the JDA."²⁸

The history of the reconstruction of the defense industry is one of government collaboration and oversight, industrial commitment, and investment—all fueled by the expansion of their commercial industry and the growth of the economy. Dismantled by occupation authorities after World War II, armaments production resumed during the Korean War when the nation's manufacturers began repairing and maintaining

	Total Sales Revenues (Billion Y)	Contracts Awarded
1. Mitsubishi Heavy Industries	2,653	272
2. Kawasaki Heavy Industries	1,100	147
3. Mitsubishi Electric	2,812	129
4. NEC	4,076	75
5. Ishikawajima Harima Heavy Industries	874	66
6. Toshiba	3,700	49
7. Marine United	21	38
8. Komatsu	533	34
9. Nissan Motors	3,546	25
10. Japan Electronic Computer	299	25

Figure 2-14. Top 10 Defense Contractors (1998)

equipment for American armed forces operating in Asia. The creation of the Defense Agency in 1954 provided an internal customer for industry, which expanded by producing U.S.-designed, Japanese manufactured equipment for the self-defense forces.

To understand the defense industry in Japan it is important to recognize the strong tradition of governmental involvement in the overall economy. Perhaps this relationship was best captured by the 1980s term, "Japan. Inc." to indicate the close relationship between business and government. While Japan's economy has flourished as a result of the private ownership of industry, the government has played a direct role in that success. This tradition of governmental involvement is based upon the Confucianism philosophy of hierarchy and leadership or authority by the government. It would be expected of the government to provide guidance to industry. This ties closely with the Confucian notion that government and business should work for the well being of the nation. While profit is important, the industrial and national consensus is that it is the duty of all Japanese is to sacrifice to create an economically potent nation. This philosophy and approach has led to a spirit of collaboration, which differs from the arms length and sometimes more adversarial nature of relations between the United States government and its domestic industry.

As indicated earlier, the Japanese industry was dismantled after the war. The Korean War and the Cold War changed that. The Japanese government, with U.S. encouragement, spent considerable effort in redeveloping its overall economy. Initially they targeted industries such as iron and steel industry, shipbuilding, and chemicals. The pursuit of economic redevelopment started on the military side and then switched to commercial side. In the 1960s and 1970s automobiles and nuclear power were seen as industries to strengthen the economy. Then,

electronic, computers and semiconductors provided the engine that made Japan one of the most powerful economies in the world. Throughout this period of commercial economic growth, both industry and government increased their efforts in defense research and development.

It has been Japanese policy not only to maintain a robust defense industrial base, but also to embed it within the commercial industry. To enhance their domestic research, development and production base equipment is manufactured under licensed agreements with companies, mostly in the U.S, to obtain the technical knowledge and manufacturing techniques. In Japanese, "kokusanka," or autonomy in defense production, has led to licensed production as the primary means of carrying out its policy. Three unwritten principles of kokusanka—in order of priority—are:

1. Domestic supply;
2. If domestic supply is not possible, licenses using domestic manufacture and equipment; and
3. Equipment with application beyond the project for which purchased.²⁹

They have been very successful with this policy. "In the 1970s and 1980s, the United States transferred more weapons to Japan than to any other ally except Germany. But these transfers were not sales of finished products. On the contrary, Japanese defense contractors licensed and coproduced twenty-nine major U.S. weapons systems, more than any nation in the world. In 1990, 89 percent of military aircraft procured by the Japan Defense Agency (JDA) was manufactured in Japan."³⁰

Today they produce a full range of modern military equipment from tanks to spare parts. Very rarely, as shown in Figure 2-15, will they

Year	Domestic	Foreign Imports	Total	Domestic %
1990	18,103	2,211	20,313	89.1
1991	17,010	1,893	18,903	90.0
1992	17,676	1,486	19,162	92.2
1993	16,408	2,930	19,338	84.8
1994	17,349	2,251	19,600	88.5
1995	18,131	1,512	19,642	92.3

Figure 2-15. Domestic versus Foreign Procurement

buy equipment overseas. In cases where it is cost prohibitive or the equipment is extremely complicated, such as the E-2C airborne early warning aircraft, they will purchase foreign equipment.

As indicated earlier, two ministries—MOF and MITI—play a strong role in targeting areas for new industries, helping during economic tough times and creating an environment for developing, producing and selling overseas. The typical approach used by the Japanese government includes both tangible and non-tangible methods—advice, persuasion, loans, tax incentives and of course, government defense contracts. MITI and JDA gain leverage in dealing with industry through two laws that govern the operation of the defense industry. These laws—the Armament Manufacturing Act (1952) and the Aircraft Manufacturing Act (1953)—require the licensing of companies in these markets.

Under the Armament Manufacturing Act, anyone wanting to manufacture or repair armaments must obtain a license from MITI. Covered by this are items such as guns, rifles, bullets, bombs, explosives and the major components of these items. The Aircraft Manufacturing Law also requires a MITI license and covers the manufacture or repair of aircraft and its major components. This includes fixed and rotary wing aircraft, major components like engines, propellants,

wings, and avionics. The methods of manufacture or repair must also be licensed. The stated purpose of these laws is to prevent excess capacity by regulating entry into business.

It is important to mention the role of the Keidanren, the powerful Federation of Economic Organizations. Keidanren is an association of over one thousand of the leading companies in Japan. Keidanren, in particular its Defense Production Committee (DPC), has been an influential voice in the debates on security and industrial issues. The DPC's leadership includes some of the most influential people in Japan such as Masuda Nobuyuki, Chairman of Mitsubishi Heavy Industries, Ltd. Their efforts have helped preserve an indigenous military R&D and production capability and influenced arms export policy and competition among the industry.

In summary, the Japanese defense industrial base has grown and matured as a part of its commercial industry. It provides most of the equipment needed for the Japanese Self Defense Forces. Unlike the U.S., which maintains a small arsenal system, the JDA relies upon its industry for production, R&D, maintenance, supply and upgrades. While some changes are in the wind—increased competition, for example—the government will continue to play its role in “managing” its industrial base.

FURTHER READINGS

CULTURAL

De Mente, Boye Lafayette, *The Japanese Have a Word for It, The Complete Guide to Japanese Thought and Culture*, Passport Books, 1997.

Kim, Paul S., *Japan's Civil Service System: Its Structure, Personnel and Politics*, Greenwood Press, 1988

CURRENT

HISTORICAL

Sansom, George, *A History of Japan to 1334, A History of Japan, 1334-1615, and A History of Japan, 1614-1867*, Three Volumes, Stanford University Press, 1958.

Yomiuri Shimbun on line:

<http://www.yomiuri.co.jp/index-e.htm>

Japan Times on line:

<http://www.japantimes.co.jp/>

Samuels, Richard J., *Rich Nation, Strong Army: National Security and the Technological Transformation of Japan*, Cornell University Press, 1994.

ENDNOTES

1. Prime Minister Yoshiro Mori's Cabinet, April 5, 2000.
2. The ruling coalition of the Liberal Democratic Party, Jiyuto and New Komeito parties have sought to reduce the number from 200 to 180.
3. In some cases the initiator of a bill may want to dispense with the committee's examination and if the speaker agrees then the bill will be placed before the House for a vote.
4. Ikegami-Anderson, p. 132.
5. Ikegami-Anderson, p. 148.
6. This does not include pensions, some salaries, technology developments and support of the Maritime Safety Agency. The budget also includes approximately U.S. \$3.3 B for burden sharing cost of U. S. forces in Japan (about 105 of the defense budget. The source for budget figures is *Defense of Japan 1999* and the *Aviation Week and Space Technology*, Feb 21, 2000, p. 108, for the 2000 budget.
7. Defense Intelligence Organization, *Defense Economic Trends in the Asia Pacific – 1999* at <http://www.dod.gov.au/>
8. TRDI briefing, September 1999.
9. In addition to the ordinary expenditure given above, Yen 110 billion is set aside as adjustment funds to be used when deemed necessary, such as in dealing with an unpredictable situation and contributing to the creation of a more stable security environment.
10. The individual self defense forces have issued instructions, such as JASDF Instruction 20, Management of Research and Development.
11. From Gansler, Jacques, *Affording Defense*, p. 100.
12. *Defense of Japan*, 1998, p. 134.
13. From the NDPO policy internet See http://www.jda.go.jp/e/policy/f_work/taikou/5_e.htm—NDPO
14. GSO refers to the Ground Staff Office, Council refers to the Equipment Review Council.
15. The phases described here are those used by the Ground Self Defense Force. The Maritime and the Air Self Defense Forces both have slightly different phases. The Maritime Force describes its phases as Concept, Definition, Production and Deployment and Improvement (for future modifications). The Air Defense Force describes their phases as Concept, Definition, Deployment and Operation. The general process for approval and the activities that take place are essentially similar for all three SDFs.
16. Kobayashi, Kasumas, "The United States Government Acquisition," in *DRC Annual Report*, September 1999, p. 60.
17. Yoshida, Akiji, "Four Factors for Considering the Future Japanese Land Forces," in *DRC Annual Report*, September 1999, p. 216.

18. 479 work in Tokyo while 542 work in regions. In Tokyo – Civilian, 410; military, 69. Regions – 542, while 406 of them are military and primarily function as inspectors.
19. CPO prepares industry and commercial specifications and standards. The SDFs staff offices prepare specifications for aircraft, guided missiles and other major equipment. TRDI prepares specifications for ships or newly developed items.
20. In the CPO the solicitation method is referred to as the “type of contract.”
21. Samuels, p. 53.
22. Their fixed price contracts are of two types—one where the price is fixed at contract award and one where the price will be fixed initially, but a formula will be included in the contract with the supplemental clause to predetermine the final price.
23. Report of the Technology Steering Group Concerning the Purposes, Principles and Organization of the Systems and Technology Forum, signed by Bruce Bade, DOD Co-Chairman and Hideo Matsui, JDA Co-Chairman Technology Steering Group, January 11, 1999.
24. AW&ST, Jan 11, p. 425.
25. *The Japan Times*, Sunday, April 16, 2000, p. 1.
26. *Asian Affairs*, “The Emerging Asian Balance of Power,” 1999, p. 46.
27. Japanese domestic procurement in 1996 was Y1.8131 trillion. Defense equipment was Y151.2 billion.
28. Samuels, p. 183.
29. Samuels, p. 45.
30. Samuels, p. 46.



PART 3
REPUBLIC OF KOREA

Chapter 1

INTRODUCTION

We watched as a group of North Korean visitors entered the small pale green building—the site of face-to-face talks between two cold war enemies at Pan Mun Jom in the demilitarized zone (DMZ), Korea. In typical tourist fashion, we took pictures of them visiting this threatening part of the world, and they took pictures of us. Yet surrounding these visitors are two armies prepared, within minutes, to resume what had been a devastating, bloody war.

In this small village of Pan Mun Jom, the UN Command ceased hostilities on the Korean peninsula with the signing of an armistice, not a peace treaty, over 40 years ago at 10 A.M. on July 27, 1953. The U.S. suffered more than 157,000 casualties while the rest of the UN forces sustained casualties of 14,505. The South Koreans lost 225,714 soldiers, with more than 700 thousand wounded and another 43 thousand missing. The North suffered over 600 thousand killed, wounded or missing. The country had been decimated as armies ravaged up and down the land, laying waste to the capitals of Seoul and Pyongyang.

Today, two armies still face each other across 150 miles of zigzagging ground that runs the entire width of the country. The DMZ is one of the last remaining parts of the world that harbors the vestiges of the Cold War—pitting Communist North Korea against UN forces.

History and Traditions

Korea has had a tough 20th century filled with war, the Japanese occupation and the threat of war. Yet, the “Land of the Morning Calm” is

one of the oldest countries in the world, tracing its mystical beginnings back to the god-king Tangun, founder of bronze age

“Old Chosun” in 2333

B.C. According to

legend, Tangun was

the son of a bear. The

bear turned into a

woman and united

with a divine being.

From this union Tan-

gun was born. In the

history of Western

civilization, the rescue of Helen of Troy in An-

cient Greece would not occur until a thousand

years later, and it would be two thousand years

before the Roman Empire came to prominence.

“Old Chosun” had its beginning in the northwest part of Korea on the Taedong River. Over time it gradually extended its border to include much of what is now the Chinese province of Liaoning. Its growth was checked by the rising power of the Yen states in China and eventually Old Chosun was destroyed by the Han dynasty about 100 B.C. The Three Kingdoms Period followed with the states of Koguryo, Paekje and Shilla ruling the Korean Peninsula from around 100 B.C. until the late seventh century. Finally, the Kingdom of Shilla, under the rule of King T’ajjong, unified all three kingdoms into one. Successive dynasties—Koryo (918-1329) and Chosun (also referred to as the Yi dynasty) (1392-1910) kept the people unified despite repeated incursions by the Japanese and Chinese.



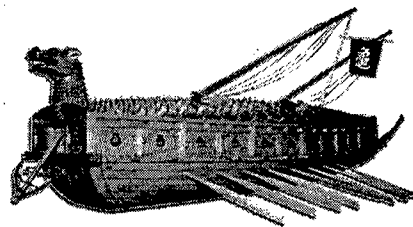
In this early period Korea flourished in the arts and sciences. During the Koryo dynasty, in 1234, movable-type printing was developed. The renowned Korean "Tripitaka," a collection of Buddhist texts, was completed. In the military area, the famous Korean Admiral Yi Sun Sin and his iron clad "Turtle Ships"¹ helped defeat the Japanese invasions of Toyotomo Hideyoshi in the late 16th century. The only Korean ruler to earn the honorific title of "great", Sejong the Great introduced a new official Korean alphabet, Hangul.

Korea's major political and cultural influence was China. While the Choson (Yi) dynasty was able to maintain its independence from China for much of the Dynasty's reign it was a tributary of China. This long period of rule by the Yi dynasty finally ended after a series of wars—the Sino-Japanese War (1894) and the Russo-Japanese War (1905). The Yi dynasty was a helpless onlooker as Korea was first made a protectorate of Japan, then a colony in 1910. For the next 30 years, Korea suffered under Japanese rule as the language was changed to Japanese, and Koreans were forced to change their names to Japanese names.

Korea was relatively untouched by the war in the Pacific. However, fate was not to be on this nation's side after the war. In 1945, as the Pacific War entered its fifth year, the Allies—in particular the United States—envisioned a lengthy continuation of the war, ending with a bloody invasion of Japan. Help was needed. At the Yalta Conference in February of 1945, the U.S. pushed for an agreement that was to chart the course for Korea into the 21st Century. President Franklin Roosevelt negotiated an agreement with Stalin for the Soviet Union to enter the war against Japan.

It was not until the eleventh hour—in August of 1945—that the Soviets finally entered the Pacific War by invading northeast Korea. Recognizing

that the end of the war was imminent and fearing Soviet expansion into all of Korea, the American government proposed a military demarcation line at the 38th parallel. Stalin accepted. On September 22, 1945, Japan signed the surrender agreement aboard the USS *Missouri*.



TURTLE SHIP

With the defeat of Japan, the Soviets occupied the northern half of the Korea peninsula. In the South, a short-lived Korean People's Republic was established September 6, 1945, with Syngman Rhee as President and Yo Un-hyong as Vice President. On the same day, United States troops landed at Inchon and quickly proceeded to Seoul to accept the Japanese surrender. Within a month, senior U.S. military officer Lieutenant General John Hodge established an interim government called the United States Army Military Government in Korea (USAMGIK). The USAMGIK was envisioned as a short-term response until elections could be held and the country united. By 1948 it was obvious to both the U.S. and the UN that free elections and the uniting of the country would not happen.

In 1948, the south held UN-sanctioned elections with Syngman Rhee, an opponent of communist rule, being elected President of the Republic of Korea. Under the Soviet occupation, communist leader Kim Il-Sung consolidated his power as the leader of the north by ruthlessly eliminating non-communist elements.

On June 25, 1950, in a surprise blitzkrieg attack, the North invaded the South, quickly occupying

most of the peninsula. Thanks to the Soviet boycott of the United Nations, the U.S. was able to induce a UN commitment to repel the North's invasion. In one of the great military feats of history, the U.S. and UN forces landed at Inchon west of Seoul in September 1950, cutting off the communist military units and wresting back control of the South. As UN troops pushed north toward the Yalu River, the Chinese entered the war. Waves of Chinese troops pushed the UN forces back to the 38th parallel. In 1953 a cease-fire between the antagonists resulted in the creation of a Demilitarized Zone (DMZ) at the 38th parallel—the dividing line between North and South Korea. A formal peace treaty has never been signed.

Syngman Rhee remained President throughout the 1950s. Disenchantment with his rule ultimately led to countrywide demonstrations by university students protesting corrupt political practices. Rhee was forced to resign. Elections were held in August 1960, and Chang Myon was elected Prime Minister under a new constitution that adopted a parliamentary system of government. By May 1961 dissatisfaction within the military over the economy and the chaotic leadership of Chang led to a coup by Major General Park Chung Hee. Two years later elections were again held and General Park, now retired from the military, was elected president. Park is remembered for his contribution to industrial modernization and economic growth. He remained in office until his assassination in October 1979.

Two months later, in December, another military coup was carried out. This time Major General Chun Doo Hwan led the coup, and it replaced the interim government of Prime Minister Choi Kyu Ha. University students reacted to this coup with more demonstrations, which in turn led to martial law—and one of the “black marks” of Korean political history—when government troops killed more than 200 civilians in Kwangju.

Major General Chun “officially” became President in September 1980.

Chun remained in office until 1988 when more student demonstrations and allegations of unethical conduct forced a revision of the constitution enabling direct election of the next President. At that time Roh Tae-woo, Chun's handpicked successor, was elected president. In 1992 Kim Young Sam succeeded Roh in what some have identified as the “fairest and cleanest” election in Korean history.² The Seventh Republic was ushered in with the election of the current president Kim Dae Jung in 1997.

For the last fifty years, the focus of the Republic of South Korean foreign and military strategy has been its relationship with the North. That focus has shifted in the last decade to becoming a regional and worldwide player. As its economy has expanded, so has its peacekeeping role in the world. They have participated in East Timor, Georgia, Western Sahara, and India-Pakistan Border.

The Republic of Korea, established in July 1948 with Seoul as the capital, is slightly larger than the state of Indiana. The population of Korea is approximately 44 million, with a homogeneous people and few ethnic minority groups. Over the last forty years, South Korea has seen a significant improvement in its economy and currently has a Gross Domestic Product (GDP) putting it in the top five countries of the European Union.

Until the economic crisis of late 1997, Korea was ranked as the 11th-largest economy in the world. As Korea enters the new millennium it appears to have turned its economy around. Significant economic improvement was shown from a negative growth in 1998 to a positive growth of 10.2 percent in 1999. Its GDP for 1999 was \$406.9 billion.³ While there are storm clouds on the horizon—unemployment and inflation—current projections of a 6–8 percent increase

bodes well for the year 2000.⁴ According to the International Institute for Management Develop-

ment, Korea has regained its competitive posture and now ranks at the world's 12th largest economy.

Chapter 2

THE GOVERNMENT OF KOREA

The 1948 constitution created three branches of government: executive—a President, vice-president and cabinet; a unicameral legislature branch—the Constituent Assembly; and a judicial branch—with a Supreme Court and local courts. The constitution has been amended nine times with wide-ranging modifications. Along the way, the Korean government has experimented with a short-lived parliamentary cabinet system (1960-62) and unicameral and bicameral legislatures. Elections to the legislature have varied from single-member districts, plural-member systems to proportional representation. In 1988 Korea adopted its current constitution—keeping the presidential system, but making it more liberal and more democratic.

Under the current constitution, Korea is a democratic republic with a President, Prime Minister, and a unicameral parliament—the National Assembly. The Judicial power is vested in courts with the Supreme Court as the highest court. The nine provinces, called “do,” (Cheju, North and South Chungchong, North and South Cholla, Kangwon, Kyunggi, North and South Kyung-sang), and six special administrative cities (Seoul, the capital; Inchon; Kwangju; Pusan; Taegu; and Taejon) provide the framework for administering the Republic. The nation has gone through six republics. The election of Kim Dae Jung in 1998 established the Seventh Republic.

President

Under the current constitution, President Kim Dae Jung is both the Head of State and the Chief

Executive. In his role as Head of State, he represents the government in its relations with foreign states, receives foreign ambassadors and performs many of the ceremonial duties typical of heads of state. As the Chief Executive, he leads the executive branch of government.

The president is elected to a single term of five years by a popular plurality of the citizens.

Article 72 of the constitution makes the President also Commander-in-Chief of the Armed Forces—with the power to declare war and conclude peace. The Chairman of the Joint Chiefs of Staff exercises actual operational control of the armed forces. The Prime Minister is responsible for the administration of the military. The President is advised on defense policy by the Agency for National Security Planning attached to his office. The Presidential house or office is commonly referred to as Chong Wa Dae,⁵ or the “Blue House.”

The President has the power to go directly to the people on issues he has not been able to resolve with the National Assembly. Article 72 of the Constitution provides that he “may submit important policies relating to diplomacy, national defense, unification, and other matters relating to the national destiny to a national referendum if he deems it necessary.” Further powers of the president include the power to conclude and ratify treaties as well as declare war and conclude peace.⁶ The Constitution also gives the President emergency powers in times of internal and external crises. He can “take...necessary financial

and economic actions or issue orders having the effect of law...for the maintenance of national security or public peace and order, and there is no time to await the convocation of the National Assembly.”

With the consent of the National Assembly, the President appoints the Chief Justice of the Supreme Court for a single six-year term.

Prime Minister

The President, with the consent of the National Assembly, appoints and can remove the Prime Minister (PM). The PM's job is to assist the President and direct the Executive Ministries. The PM must be a civilian, although retired military are also eligible. The National Assembly, by majority vote, can recommend to the President the removal of a PM from office.

National Security Council

The highest forum for military matters in Korea is the National Security Council (NSC). The NSC was established to advise the President on the formulation of foreign, military, and domestic policies as they relate to national security issues. The NSC recommendations would then influence the deliberations of the State Council. The President presides over the NSC.

The State Council

The State Council, the Korean cabinet, has the responsibility for running the government. Cabinet members, currently 17, are recommended by the PM and appointed by the President. However, the President traditionally plays a strong role in their selection. The selection process varies depending upon the particular President in office. Under Presidents Syngman Rhee and Park, cabinet members were often selected based

primarily on their loyalty to the President. Kim Young Sam, the first civilian freely elected President, drew heavily, for some of his cabinet selections from leading Universities. “Most of the Kim appointees were “progressive outsiders” and “reform-oriented men and women.”⁷ The next president, Kim Dae Jung, formed a coalition government with the leader of the United Liberal Democrats (ULD), Kim Jong Pil. In this coalition government, Kim Jong Pil became PM, and cabinet posts were divided between the coalition partners. In the April 2000 elections, President Kim's Millennium Democratic Party did not win a majority and (as this is being written) is searching, for a coalition partner.

Members of the State Council administer the individual portfolios in such areas of responsibilities as defense, foreign affairs, education and culture. Further, ministers may issue ordinances for matters within their areas of responsibility. Active duty military cannot be appointed to the State Council.

The President chairs the State Council and the Prime Minister serves as its Vice-Chairman. The Council is involved in decisions regarding declaration of war, foreign policy matters, significant military issues, changes to the constitution, budgets, review of contracts, and financial matters. Economic decisions are often at the top of the agenda for the Council. The Deputy PM, who doubles as the Minister of Finance and Economy, has a major seat at the table. The results of deliberation by the Council are conveyed to the Presidential Secretariat and the Office of the Prime Minister. These two offices have responsibility for the coordination and oversight of governmental policy agreed to by the Council and implemented by government organizations.

The State Council currently consists of the portfolios listed in Figure 3-1.

The President	
Prime Minister	
Minister of Finance and Economy	Minister of Justice
Minister of Foreign Affairs and Trade	Minister of Education
Minister of Information and Communication	Minister of Culture and Tourism
Minister of Labor	Minister of Agriculture and Forestry
Minister of Unification	Minister of Commerce, Industry and Energy
Minister of Science and Technology	Minister of Environment
Minister of National Defense – Cho Seong-Tae⁸	Minister of Construction and Transportation

Figure 3-1. State Council

THE LEGISLATURE

National Assembly

The Korean parliament, the National Assembly (Kuk Hoe), is a unicameral assembly elected every four years by popular vote. Legislative power of the state is vested in the National Assembly, which currently has 273⁹ members. Two hundred and fifty-three members are elected in single-member districts while forty-six members are elected by proportional representation of the parties. Currently, the two major parties in Korea are the opposition party—the Grand National Party (GNP) and President Kim Dae Jung’s new Millennium Democratic Party (MDP), formerly the National Congress for New Politics (NGDP). “Political parties in Korea are not issue-oriented parties; rather they form around “party bosses.”¹⁰ President Kim’s MDP is the fifth party he has founded. He has been a member of six others. Members of the National Assembly may not be members of the State Council, nor hold any other governmental office.

The National Assembly performs the typical functions expected of a legislative assembly—introducing and passing laws, revising laws,

deliberating budgets, debating national policies and conducting inspections and investigations of government affairs. During the first 40 years of the republic, the National Assembly was not much more than a rubber stamp for the strong executive branch. The last decade has seen movement toward a more democratic government with the National Assembly increasingly taking a more aggressive role toward the executive branch of government. The National Assembly may recommend to the President the removal from office of the PM or a Cabinet Member. The National Assembly also has the right to approve Presidential appointments of the Chief Justice, the Prime Minister, the Chief Adjudicate of the Constitution Court, Justices of the Supreme Court and the Chairman of the Audit and Inspection Board. Elected by majority vote, the Speaker and the two Vice Speakers preside over the chamber.

A regular session of the National Assembly is convened once every year, although the President, or one-fourth of the members, can convene extraordinary sessions of the National Assembly. Regular sessions can last up to one hundred days while extraordinary sessions are limited to thirty days.

Legislation may be introduced by either a member of the National Assembly or by the Executive. For a member to introduce a bill, he must have 20 cosignatories. Once a bill is submitted to the National Assembly, the Speaker has it distributed to the Members and reports it to the Plenary Session. The Speaker then refers it to the pertinent Standing Committee. For passage, a bill requires a simple majority of the Members. Once the National Assembly passes a bill it is sent to the Executive. The President has 15 days to sign it or, if he objects to it, to return it to the National Assembly with a request for reconsideration. The National Assembly, by two-thirds vote, can pass a bill, overriding the President's objections, and thus make it law.

The National Assembly has three general roles in national defense. It approves the annual defense budget; keeps a watchful eye on the ministry as it executes its budget (through the National Defense Committee); and examines the ministry's financial performance (Committee on Accounts) after completion of the budget year.

The defense budget is included in the national budget bill, which is prepared by the Executive and presented to the National Assembly around the first of October, 90 days prior to the beginning of the next fiscal year (January 1). The Executive will present a statement to the National Assembly, which details the policies and budget necessary for running the government during the next fiscal year. The speaker will refer the budget to the appropriate Standing Committee—the National Defense Committee—for a preliminary examination. After committee review, the budget bill is then referred to the Special Committee on Budget and Accounts for an overall examination. This Committee then transfers the bill to the Plenary Session for final adoption. After the National Assembly accomplishes its work—review and deliberation—it then normally passes the budget 30 days before the beginning of the fiscal year.

In examining the budget bill, the National Assembly may “neither increase the amount of any item of expenditure nor add any new items in the budget submitted by the Executive without its consent.”¹¹ This provision of the constitution somewhat limits the ability of the National Assembly to make significant changes to the executive's budget. While the budget bill is normally passed on time, the Executive has the authority to use the previous year's budget to continue operation of the government for maintenance and operation of government agencies, to execute mandatory expenditures, and to continue projects previously approved. Figure 3-2 depicts the overall flow of the defense budget.

The National Assembly has the specific responsibility of determining the organization and formation of the Armed Forces. The National Assembly also has the right to consent to the declaration of war, the dispatch of armed forces to foreign states (of particular relevance with the role of the Korean military in East Timor), and the stationing of alien forces in the territory of the Republic of Korea.

The Assembly's oversight of the executive branch is accomplished by several means. Whether in a plenary session or in committee meetings, the assembly will call upon the PM, other ministers and senior government executives to provide testimony on bills before the assembly or actions taken by the individual departments. With the advent of its second freely elected president, Kim Dae Jung, the national assembly committees have taken to the practice of actually visiting the ministries for hearings on budgets and other matters to assert their power over the departments. In October 1999, the Assembly conducted a 20-day parliamentary interpellation of the government tackling issues ranging from illegal wire-tapping to political reforms.

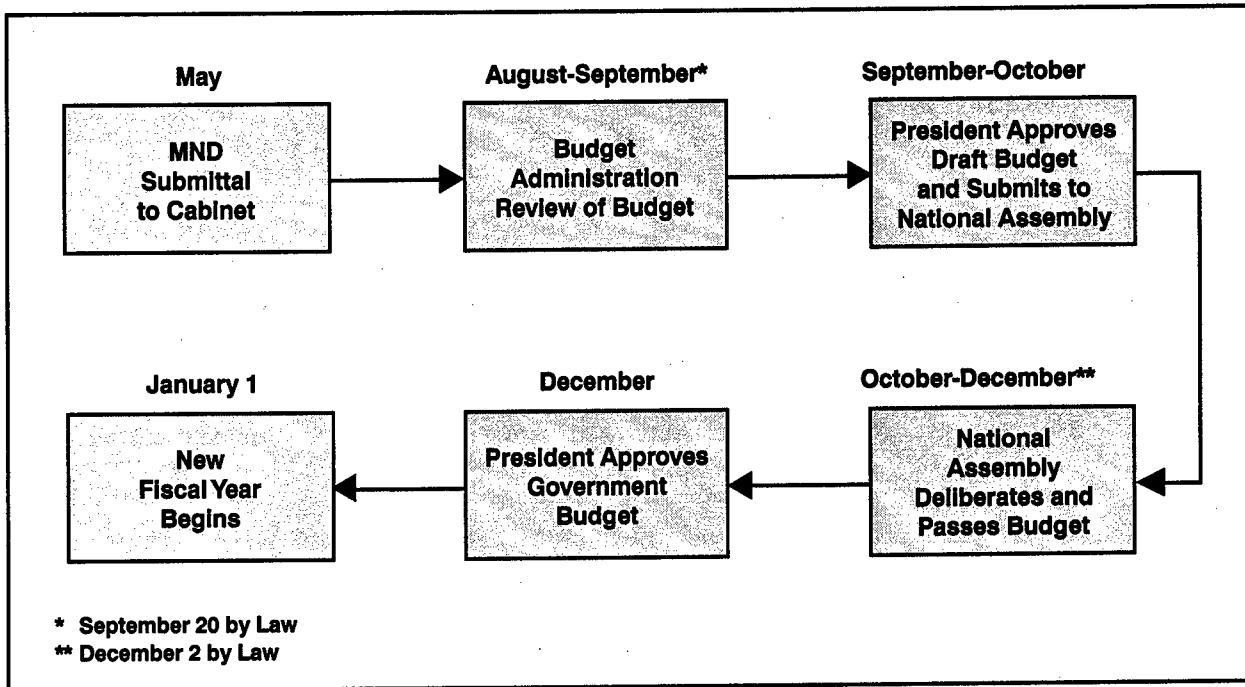


Figure 3-2. Typical Flow of Budget

Role of Committees

The work of the Assembly, examining and deliberating bills, takes place in committees. The National Assembly has established two types of committees. First are permanent Standing Committees, such as the Finance and Economy Committee and the National Defense Committee. Then, there are Special Committees initiated for special purposes such as examining particular pieces of legislation, or legislation where more than one committee has jurisdiction. The Special Committee on Budget and Accounts is established every year to examine the executive branch's budget bill before it is submitted to the plenary session of the National Assembly.

Standing Committees are established corresponding to the jurisdiction of the government ministries to deliberate bills and other matters relevant to them. These committees are proportionally structured according to the strength of each party or group within the assembly.

A "group" is unique to Korea. It consists of any political party with twenty or more members. In the case of a political party with less than twenty members, it may form a "group" with other small political parties. The Speaker of the Assembly will recognize the "group" allowing its views to be heard. The Committee may adopt a bill in its original form, make amendments to it, propose alternatives or decide not to refer a bill to the Plenary Session. The Standing Committee may request the presence of the PM, ministers and other representatives of the Executive at their meetings. They can also ask ministries and agencies to submit documents, prepare reports and summon witnesses. When it is necessary to examine major bills or bills that may require special expertise, Standing Committees may hold public hearings to obtain the opinions of interested parties.

The sixteen Standing Committees are shown in Figure 3-3.

- The House Steering Committee
- Legislation and Judiciary Committee
- Administration Committee
- Finance and Economy Committee
- National Unification and Foreign Affairs Committee
- Home Affairs Committee
- **National Defense Committee**
- Education Committee
- Culture, Sports, and Information Committee
- Agriculture, Forestry, and Fisheries Committee
- Trade, Industry, and Energy Committee
- Telecommunication, Science, and Technology
- Environment and Labor Committee
- Health and Welfare Committee
- Construction and Transportation Committee
- Intelligence Committee

Figure 3-3. Standing Committees

Bureau of Audit and Inspection (BAI)

BAI, a constitutional government agency, is the supreme Audit and Inspection organization for the Republic of Korea. BAI works directly for the President. To help ensure its independence, however, while the President appoints the Chairman of the BAI, the National Assembly must consent to his four-year appointment. Somewhat similar in its mission to the U.S. General Accounting Office (GAO), the BAI's job is to report on the way public monies are spent and to look into government operations for effective performance.

The Civil Service

The Ministry of Government Administration has management authority over the civil service. The civil service is divided into two categories—ordinary and higher. The top administrators come from the higher civil service, which is further divided into nine career levels. The top five of these nine career levels requires a presidential appointment. Recruitment primarily comes through annual competitive examinations (a Confucian tradition). Passing the test for the higher level civil service offers the opportunity

for better jobs and the long-term opportunity for the top jobs within the government. Three Seoul universities—Seoul National University, Yonsei University, and Koryo (Korea) University—provide the bulk of graduates that go into the higher civil service.

How are decisions made in South Korea? The foundation of government—decision-making, in general, and the acquisition process, in particular—owe much to their historical contexts. To understand the historical threads that run through the bureaucracy, one needs to look at the philosophies underpinning Korean society. The primary philosophical influences on Korea originated in China—Confucianism and Buddhism.

Historically, Confucianism's influence starts prior to the Three-Kingdom Period in the 4th century B.C. Over the next 1500 years its influence continued to grow. Confucianism reached its greatest influence during the Yi Dynasty, when it was the main philosophy in support of the government. "The effect of Confucianism on the popular psychology of the Korean people can be characterized as follows: (1) hierarchical view of life; (2) authoritarianism on the part of the ruling class; (3) a corresponding "submis-

siveness” on the part of the ruled; and (4) a “face/ or status-oriented consciousness....”¹²

Buddhism’s influence, part of the overall sinification of Korea, starts in the 4th century B.C. Its greatest societal impact, or “Golden Age,” comes seven hundred years later, when the Kingdom of Shilla unified the country in the seventh century AD. One tenet of Buddhism’s that impacts both society and the bureaucracy is the concept of mutual codependence. This places the individual not in the center of the world, but existing as part of and in harmony with the world. This leads to the individual submissiveness of the individual to the will of the state as a virtue. This contrasts with the Western Renaissance notion that “man is the measure of all things.”

These philosophies/religions provided the ideological superstructure for an hierarchical, authoritarian and centralized bureaucracy. Confucianism in particular lays out a hierarchical level of society with the “Yangban”—the scholar

official—as the highest achievement, the highest profession. It is interesting to note that the traditional Confucian perspective ranks the military profession as the lowest “rung of the ladder.” Of course, this traditional structure conflicts with the recent practice whereby military and retired military have held many key government positions including even the presidency. As this discussion implies, decision making is made at the highest levels of government—often at the presidential level. The role of senior officials within the military and the Ministry is to carry out the directions of the most senior government officials.

Time, western influence, economic affluence and other factors have modified the Confucian impact on society. The civil service is still prestigious and draws many of the top students from universities in Korea. However, recent trends indicate highly paid jobs in industry lure many of the “best and brightest” away from government jobs.

Chapter 3

MINISTRY OF NATIONAL DEFENSE (MND)¹³

In November 1945 under the auspices of the United States Army Military Government in South Korea (USAMGIK), the Defense Headquarters of Korea was established. This organization consisted of 25,000 constabulary and a small Coast Guard of 2,500 men, and constituted the beginning of the South Korean Army and Navy. With the establishment of the Republic of Korea in August 1948 it became the Ministry of National Defense. Later that year, the Army and Navy headquarters were established, and in 1949 the Korean Marine Corps and the Air Force were added. The MND has gone through a variety of reforms and internal reorganizations

over the last 50 years to include adding a Science and Technology Research Agency and the creation of the Joint Chiefs of Staff in 1990.

The current organizational structure of the MND is based upon Presidential Decree No. 16339 issued in May 1999. The current Defense Minister is Cho Seong-Tae. A vice-minister reports directly to him along with 12 bureaus and offices. The Army, Navy, Air Force and the Joint Chiefs of Staff (JCS) report to the Minister for administrative purposes. The Chairman of the JCS is the highest-ranking active duty military officer in the country. The JCS Chairman

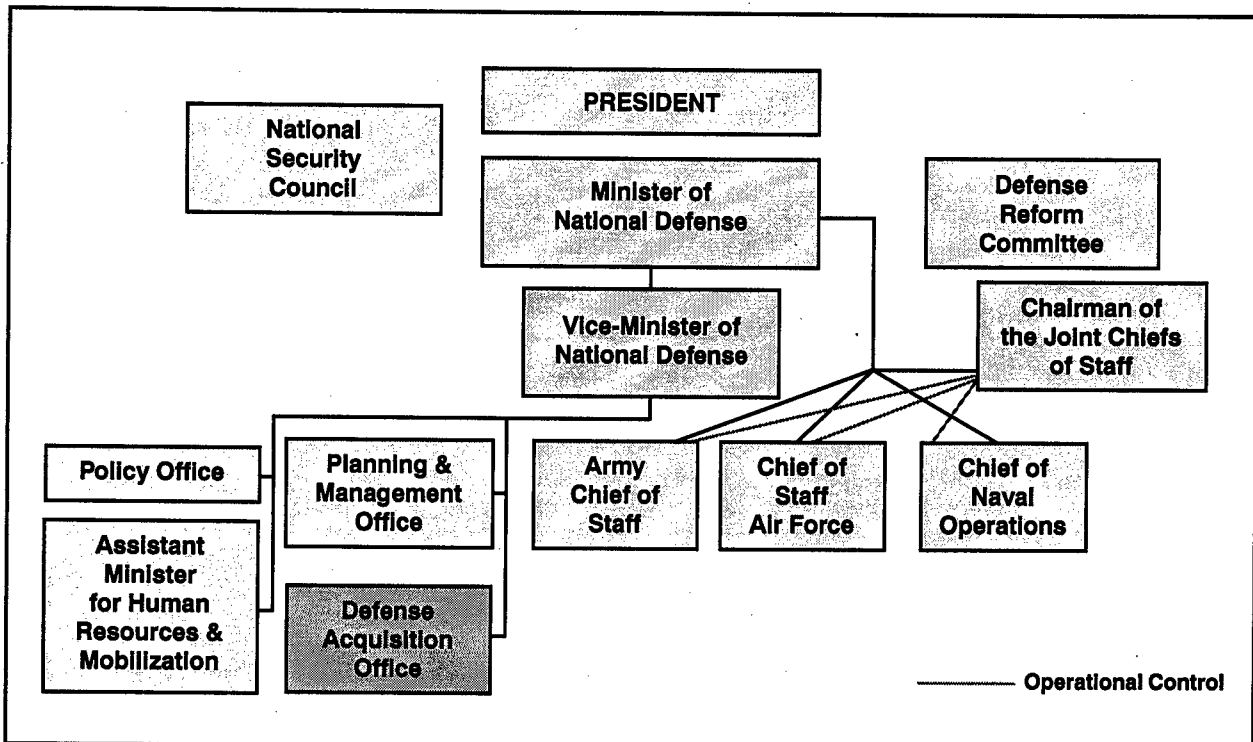


Figure 3-4. Ministry of Defense

exercises operational control of the military and in that capacity reports directly to the President and the National Security Council. See Figures 3-4 and 3-5 for organization of MND and the JCS. The office within MND responsible for acquisition is the Defense Acquisition Office headed by a deputy minister.

With the threat of war always at its doorstep, the Republic of Korea has traditionally spent a higher than average percentage of its Gross Domestic Product (GDP)/Gross National Product (GNP) on defense. The Republic of Korea averaged in the 1960s—4.5 percent, in the 1970s—4.8 percent, and in the 1980s—6.6 percent.¹⁴ Figure 3-6¹⁵ depicts the defence budget over the last decade and its percentage of GDP, which has decreased from 6 in the 1980s to slightly more than 3.0 percent of the GDP in the 1990s. The Korean defense budget in Fiscal Year 1998

was 14.6 trillion won (3.1 percent of GDP). Because of economic conditions the budget decreased to 13.7 trillion won in 1999 (3.4 percent of GDP). With a changing and improving economic environment the defense budget was increased to 14.44 trillion won (U.S. \$12.56 billion) in Fiscal Year 2000.

The investment part of the budget—the Force Improvement Program (FIP)¹⁶ and the research and development portion of the budget—has traditionally averaged about 30 percent of the overall budget. The Fiscal Year 2000 budget saw the investment portion heavily “plussed up” to 37 percent of the total budget. The Economic crises seriously impacted the FIP. As a result fairly significant programs were postponed—Airborne Warning and Control System (AWACS), Surface to Air Missile-X (SAM-X), Attack Helicopter-X (AH-X) and Korean Destroyer-X

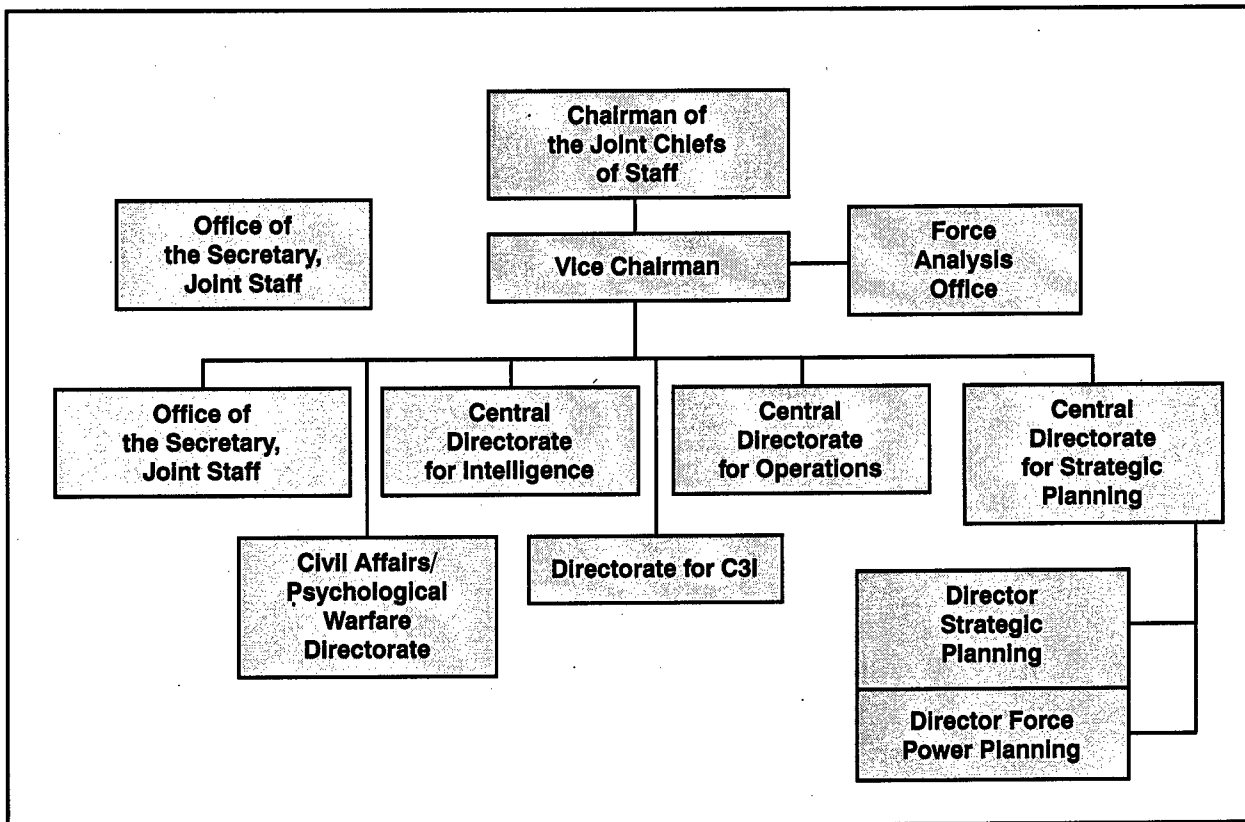


Figure 3-5. Republic of Korea Joint Chiefs of Staff

Classification	1994	1995	1996	1997	1998	1999	2000
Defense Budget (\$ Billions)	\$8.76	\$9.63	\$10.65	\$11.99	\$12	\$11.96	\$12.56
Defense Budget (Won Trillions)	10.1	11.07	12.2	13.8	14.6	13.7	14.44
FIP	3.04	3.2	3.43	3.99	4.08	4.1	5.34
% of GNP	3.4	3.3	3.1	3.2	3.1	3.4	na
R&D %	\$0.26	na	\$0.33	\$0.37	\$0.42	\$0.64	na

Figure 3-6. Korean Defense Budget

(KDX). The SAM-X and AH-X programs have since been turned on again thanks to the economic turn around.

To provide the manpower necessary for its military needs Korea has compulsory military service.

The current authorized strength of the armed forces is 660,000 personnel with 548,000 in the Army, 60,000 in the Navy and 52,000 in the Air Force, with 4.5 million personnel in the reserves.

Chapter 4

DEFENSE ACQUISITION STRUCTURE

Defense Acquisition Office (DAO)¹⁷

The DAO originated within the old MND Logistics Bureau as the Defense Industry Division. This Division was established in 1972 as the focal point within Headquarters MND to enable President Park's initial modernization efforts and the creation of a defense industry. Within a year, as MND expanded efforts in production of military equipment, the importance of acquisition increased and the Defense Industry Division was elevated to a bureau in its own right—the Defense Industry Bureau. Further changes occurred in 1991 when they were renamed the Acquisition and Development Bureau. As part of the 7th Republic's most recent acquisition reform efforts, it became the Defense Acquisition Office in April 1999.¹⁸

Within the last year and a half there have been two reorganizations of the DAO. Initially the Korean government chartered a group of senior officials—the Defense Reform Committee—to look at the MND and to make recommendations for streamlining and improving the organization and its processes. One of this committee's suggestions was to create a new, more streamlined organization within MND to focus on Research and Development (R&D) and foreign acquisitions. In January 2000 the Acquisition Council further refined the organizational structure to provide "a more effective and fair implementation of defense acquisition tasks" and changed the direction to focus on "cradle to

grave" management of weapon systems. Program Management responsibility was placed within one organization—the Program Management Bureau. Deputy Minister Moon, Il-Sup, currently heads the DAO.

The DAO currently has overall responsibility for managing acquisition development and foreign procurement, examining military equipment investment plans and budgets, and executing the R&D and investment budget. The Deputy Minister has five bureaus reporting to him as shown in Figure 3-7. These Bureaus are the Program Management Bureau (PMB), the Analysis and Evaluation Bureau (AEB), the Acquisition Policy Bureau (APB), the Logistics Management Bureau (LMB), and the Military Installation Bureau (MIB). DAO also provides direction and supervision of the acquisition work carried out by the Agency for Defense Development (ADD), Defense Procurement Agency (DPA), and the Defense Quality Assurance Agency (DQAA). DAO also has oversight of the Services' program management groups. Additionally, shown in Figure 3-7 are three other organizations within MND. These three organizations work closely with the DAO in its acquisition efforts. They are the Policy Planning Office (PPO), the Korean Institute for Defense Analyses (KIDA), and the Planning and Management Office (P&MO). The P&MO has responsibility for preparing the final Mid-Term Defense Plan and defense budget.

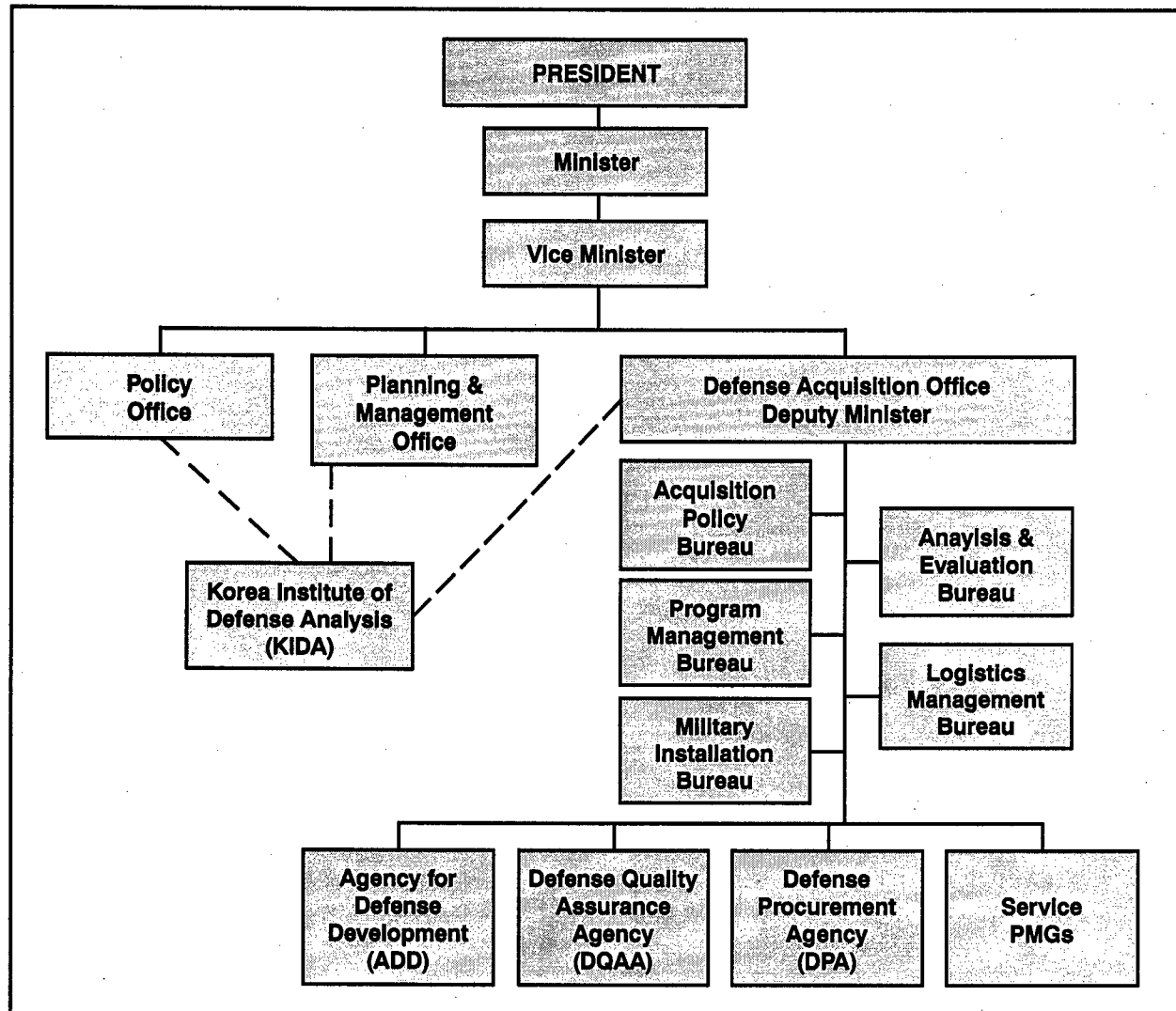


Figure 3-7. Acquisition Development Structure – February 2000

DAO Bureaus

The DAO Bureaus serve as the policy and oversight organizations within the DAO. They have significant authority and responsibility in setting acquisition policy, and implementing and overseeing acquisition programs. Their tasks cross the traditional division between line and staff organizations¹⁹ as indicated by the various tasks they perform, from issuing the latest Ministry regulation on acquisition to issuing the Request for Proposal for new systems or equipment. The following sections provide a more detailed explanation of each organization’s role in the acquisition process.

Acquisition Policy Bureau (APB)

APB is accountable for the development of policy, acquisition planning and international cooperation. The APB develops, maintains, and updates the main acquisition regulation—MND Directive 651, Defense Acquisition Management Regulation (DAMR). As a key player in the planning process portion of the PPBEES system, APB members develop acquisition plans, to include the Mid Term Defense Plan. They also have responsibility for developing and controlling the acquisition investment budget. The Defense Industry Promotion Branch has responsibility for MND’s oversight of the defense

industry. Finally, the International Cooperation Branch is the point of contact for such efforts as arranging for meetings on armament cooperation with other nations and managing and negotiating international agreements for the exchange of basic scientific and technical information.

Analysis and Evaluation Bureau (AEB)

AEB has the dual responsibility to analyze the performance and costs of contractor proposals and to oversee the testing and evaluation of equipment. AEB is the starting point for the selection of a contractor and the equipment that best meets the cost and performance requirements of the MND (See procurement section for more information). In its cost analysis function, AEB has oversight of Korean Institute of Defense Analyses' (KIDA) Cost Analysis Research Division.

Program Management Bureau (PMB)

As a result of acquisition reform, PMB is exclusively in charge of project management for the Ministry. It oversees both domestic and foreign-introduced acquisition projects. It is responsible for defense R&D policies and plans, foreign acquisitions, and type selection including offset policies and negotiations. In its R&D role, PMB establishes defense science and technology policies and plans and has management responsibility for the Agency for Defense Development (ADD). PMB also designates and oversees Program Management Groups (PMG) and Program Managers (PM) in the Services.

Logistics Management Bureau (LMB)

LMB has life cycle responsibility for the system once that system has been fielded. In this role, LMB establishes logistics related policies, logistics support plans and combat-use material/

equipment storage plans, acquisition, distribution, operation and maintenance of non-weapon systems, and Host Nation support. LMB also oversees and supervises the Defense Procurement Agency and the Defense Quality Assurance Agency.

Military Installation Bureau (MIB)

MIB is responsible for establishing policies and plans for military installation, environmental and systems research and development as well as new construction.

In January 2000 the Digitization Planning Office (DPO) was moved from the Acquisition Organization to the Vice-Minister, who was designated the Chief Information Officer (CIO). Each Service has appointed its Vice-Chief as its CIO. This, coupled with the merging of Defence Computer Management and Information Management Center (DCIMC) with the DPO, emphasizes the importance of information technology to leveraging the Korean "Revolution in Military Affairs (RMA)."

ACQUISITION AGENCIES

Defense Procurement Agency (DPA)

The Defense Procurement Agency (DPA) is the primary line organization responsible for contracting within the MND. It buys the weapon systems, military equipment, and construction needed by the services and by the MND. It also has responsibility for the standardization and the cataloguing of supplies and the management of specifications for common military items. Figure 3- 8 shows the organization of the DPA, which is located in Seoul. (See also Chapter 9, Procurement Process, for more information on DPA.)

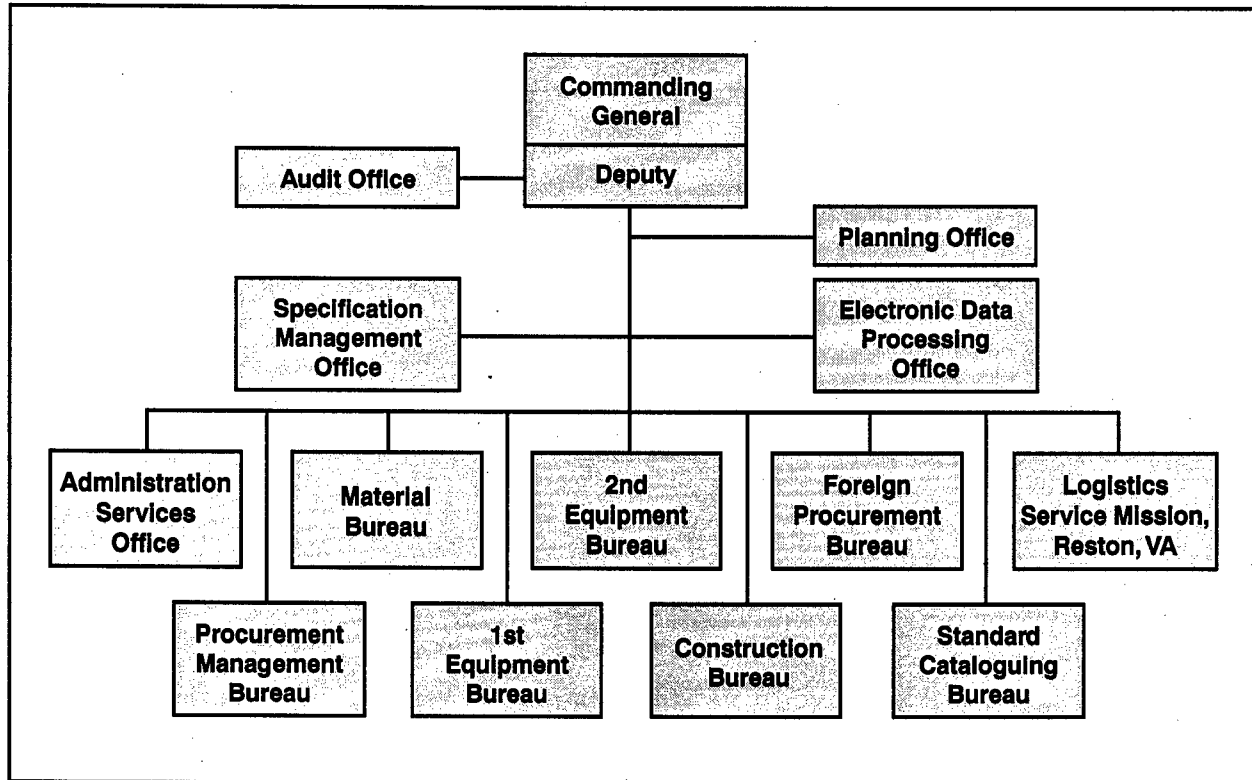


Figure 3-8. Defense Procurement Agency

Agency for Defense Development (ADD)

ADD is the primary advanced research organization within the MND. ADD was originally founded as part of President Park's first Force Modernization Plan in 1970. ADD creation provided MND with a field level, defense research organization responsible for the management of technical data and assistance to the private sector's efforts in defense R&D. A key element of the initial efforts was securing foreign technology to develop military equipment. ADD has grown over the last thirty years to include research and development centers for missiles, aircraft, communication and electronics (1974), and naval weapons (1976). Test and evaluation centers were added for missiles and weapon systems in 1978 and for automotive and naval weapons in 1995.

ADD is lead by a President and is in located in Teajon about two hours driving time south of

Seoul. (See Figure 3-9.) ADD works directly for the Deputy Minister, although the PMB provides general direction and operational guidance. A Board of Directors (BOD) chaired by the Minister of Defense, with membership including the Deputy Minister of the DAO and the Service chiefs, also provides policy direction, and reviews and approves all projects and the budget

With the need to meet a new mission, ADD reorganized in 1999. It reduced the number of R&D centers from five to four and renamed them "system development centers." The systems development centers concentrate on developing technologies for ground, electronics, information, communications, naval, missiles and aircraft systems. Its test centers were reduced from three to one—the Defense Systems Test Center located at Anheung on the central western coast of South Korea.²⁰ ADD still maintains the Changwon Proving Ground the Ground Systems Development Center, The Naval Test Range under the

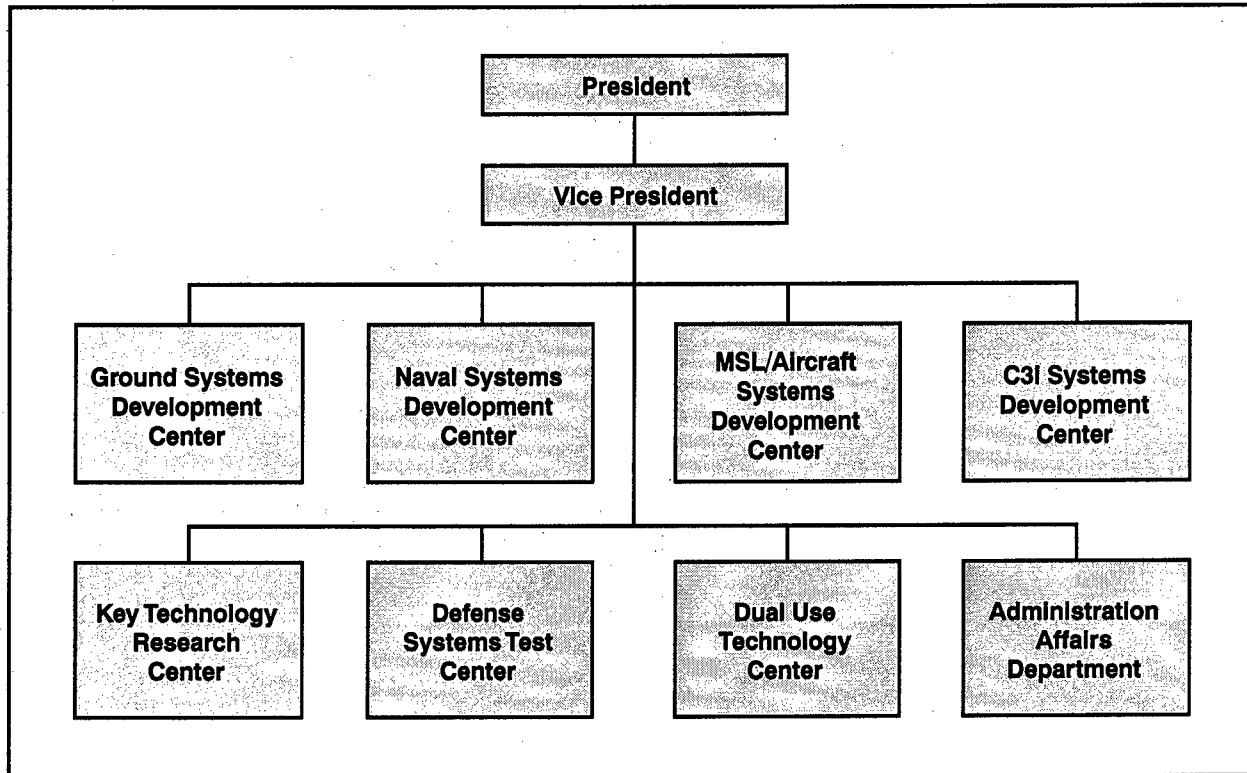


Figure 3-9. Agency for Defense Development

Naval Systems Development Center as well as the Daradae Test Range under the Defense Systems Test Center. Anheung Proving Ground is also under the Defense Systems Test Center. The two other centers are the Key Technology Center which focuses on key applied technologies, and the Dual Use Technology Center, which focuses on the military application of commercial technology.

The current mission of ADD is to further the development of new core technologies needed by the MND. In that respect, ADD is similar to US service Laboratories, i.e., Army, Navy and Air Force Research labs except they are consolidated into a single agency. The concentration on developing core technologies is a new mission coming out of the defense reform efforts. According to the Defense Reform White Paper —“imitative R&D has finally faced its limits....”²¹ The ADD’s recognition of the role advanced technology now plays in warfare and the need

to develop know-how internal to the nation has led them to focus on developing the latest scientific technologies.

For most purposes ADD’s prior mission, “incremental research,” that is, applied technology and development for general weapons, has been transferred for management by the military services. The actual effort in applied technology research and development will be contracted with the defense commercial industry. ADD with its technical staff will continue to provide short-term technology and test and evaluation support to the services, other MND organizations, the defense industry and other public organizations.

The ADD conducts basic research (theoretical and experimental activities) through universities and institutes. There are also five specialized research centers that perform basic research under the auspices of ADD. These five centers are: the Seoul National University, Pohang

University of Science and Technology, the Korea Advanced Institute of Science and Technology, and the Advanced Institute of Military Science and Technology.

Defense Quality Assurance Agency (DQAA)

Serious quality control deficiencies turned up early in the history of the Korean defense industry production efforts. The government's response in the late 1970s was to create the Defense Product Assurance Agency, which was the predecessor of the Defense Quality Assurance Agency (DQAA). DPAA's job was to work with industry to improve the quality of manufactured items being delivered to the military. That mission has expanded over the last 20 years to include research efforts on the life cycle of military equipment, quality system certification, and specification documentation. Lately, DQAA has focused

its efforts on introducing the latest advanced Quality Assurance (QA) methods and production technologies to the Korean defense industry.

DQAA is headquartered in Seoul with eight regional offices located in major cities throughout the nation. It employs 488 personnel at Headquarters DQAA and oversees 745 suppliers and 108 in-plant personnel at 22 contractor sites (see Figure 3-10.)

Program Management Offices in the Military Services

In 1997 Program Management responsibility was moved from the MND to the individual services. Figure 3-11 depicts the Army Headquarters office—the Weapon Systems Program Management Group. In the Air Force it rests with the Aerospace Project Group in the Service Headquarters.

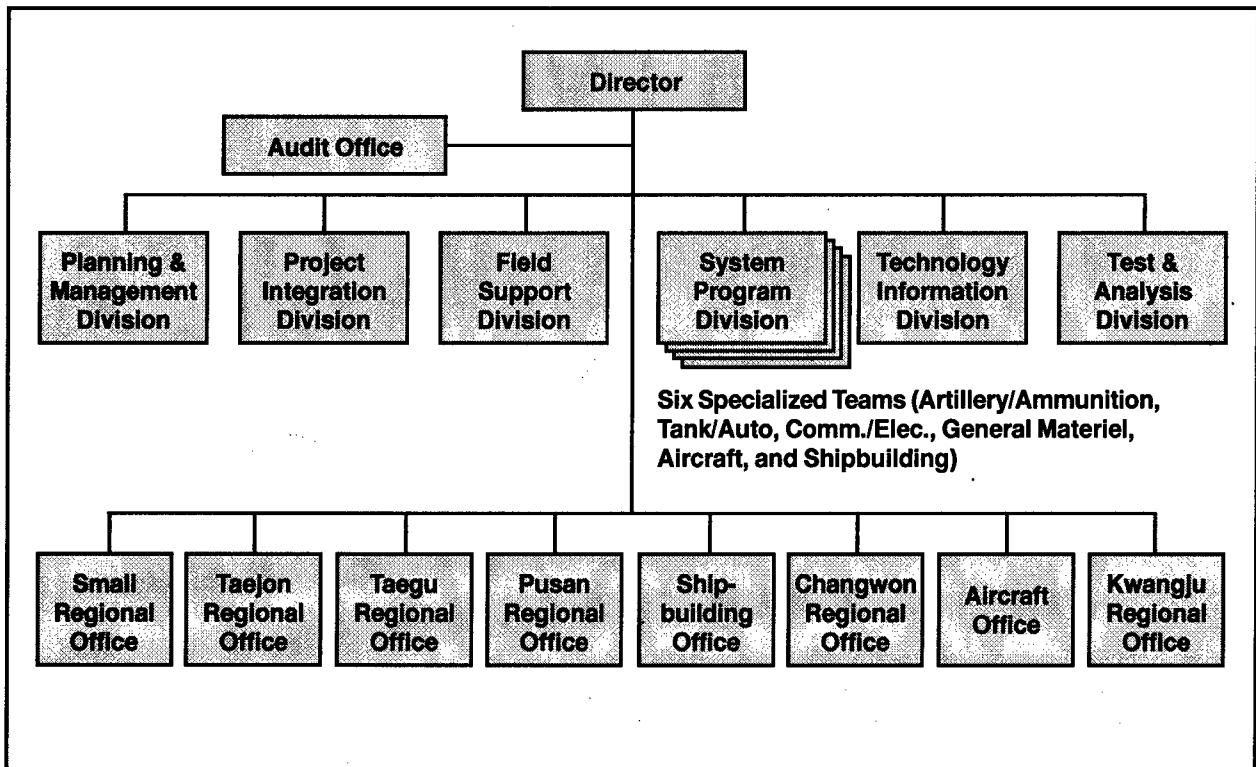


Figure 3-10. Defense Quality Assurance Agency (DQAA)

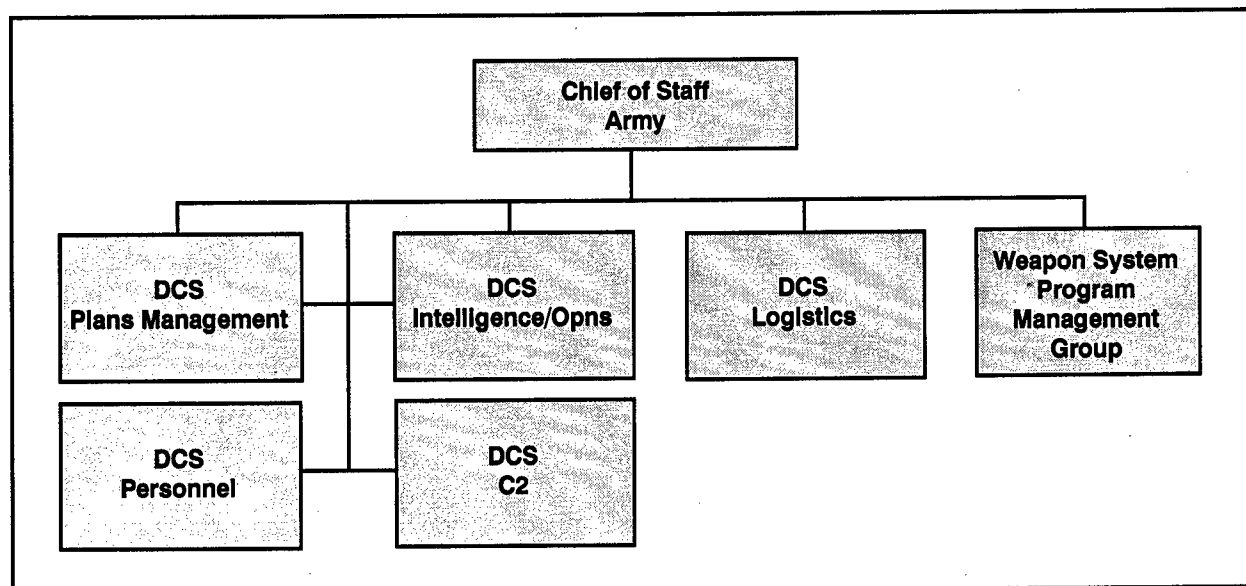


Figure 3-11. Army Headquarters

In the Navy program management responsibility is with the Naval Sea Systems Command for ships and with the Deputy Chief of Naval Operations for Command and Communications equipment (See Appendix B for Service Structures).

Korean Institute of Defense Analyses (KIDA)

KIDA works administratively through the MND Deputy Minister of Policy (see Figure 3-7). It is a research arm of the MND that reviews defense-related subjects and develops policy alternatives for senior MND officials. KIDA's research projects cover the full spectrum of defense issues—security environment, military strategy, force development, manpower, resource management—and such acquisition topics as weapons system acquisition, Command, Control, Communication, Computers and Intelligence (C4I) and defense simulation.

KIDA was founded on January 10, 1979 as the "Defense Management Institute," an affiliate of the Agency for Defense Development (ADD). KIDA's mission was primarily resource

management. Under the administration of President Chun Doo Hwan, the DMI was changed to the Korean Institute of Defense Analyses (KIDA) somewhat based upon the U.S.'s Institute of Defense Analyses (IDA). This change was part of an effort to strengthen defense planning and technology. To enhance the defense policy research effort by attracting higher paid professionals, in 1987 KIDA became an autonomous, not-for-profit research organization.

KIDA currently consists of four research directorates and two centers. (See Figure 3-12.) The four research directorates are responsible for Security & Strategy, Force Development, Manpower Management, and Resource Management. The Centers for Weapon Systems Studies and Modeling & Simulation are located in Seoul. (See Appendix B for detailed information about the functions of each directorate.)

Of particular interest for those involved in acquisition is the Center for Weapon Systems Studies. The center's main research areas are acquisition and acquisition related topics. Typical of the research projects they cover for acquisition are

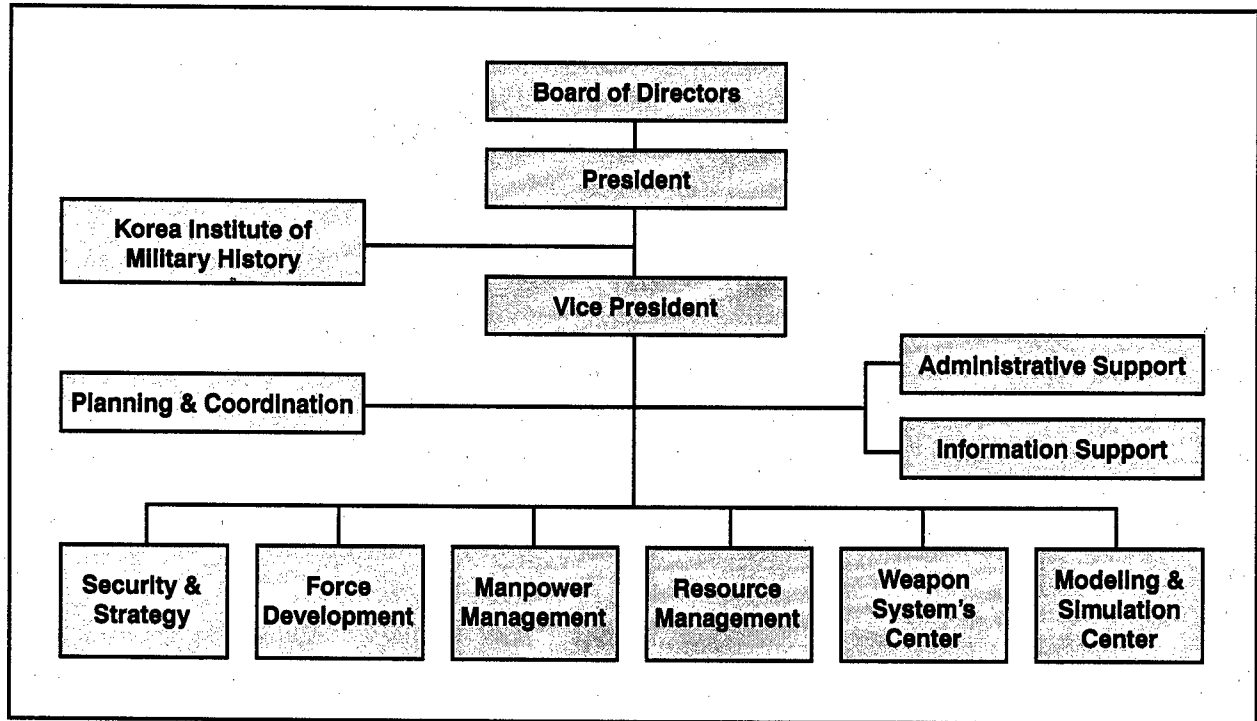


Figure 3-12. Korean Institute of Defense Analysis (KIDA)

“Acquisition of Early Airborne Warning and Control System (AWACS) Airplanes,” “Policy Directions to Save Costs in Acquisition Projects,” and “Technology and Service Evaluation in Offset Trades.” In 1999, KIDA cooperated

with the United States’ Defense Systems Management College to host the 2nd International Acquisition/ Procurement Seminar—Pacific. This seminar was designed to improve cooperation among Pacific Rim allies.

Chapter 5

DEFENSE REFORM

With tight defense budgets in 1997 and 1998 caused by the impact of the Asian financial crisis and a new administration coming into office in 1997, the Korean MND embarked on a period of reform, which included acquisition reform. In April 1998, the newly elected government of President Kim Dae Jung formed the National Defense Reform Committee, under the leadership of retired four-star general Lee Joon, to reshape both the ministry and the defense business.

According to the *Blueprint for Military Reform*, "By the year 2015, the ROK military must be: a small-sized standing army fully equipped with advanced defense capability; an information-and-science-reliant army equipped with high-tech weapons; and finally, an economical army managed rationally and efficiently."²² The overall reform effort called for improving the military structure, improving personnel management and education, modernizing the C4I system and reform of the MND's investment program, which is commonly referred to as the Force Improvement Plan (FIP). An effort under the reform blueprint, closely related to acquisition, is the "Revolution in Military Affairs (RMA)." "The RMA refers to the whole process of developing new military systems through the use of advanced military technology, thereby drastically enhancing combat effectiveness."²³

A small ad hoc sub-panel of ten to fifteen military and civilian "PhDs", the RMA Planning Group, which will be operational through 2001, was formed to look out twenty-five years and identify thrust areas for the RMA efforts.

Acquisition reform had three basic objectives: reduction of procedures and time, economical acquisition and the establishment of clear lines of responsibility. These objectives will be accomplished by making the acquisition system more transparent to the public and to potential contractors, increasing the professionalism of the workforce, enhancing responsibility, and strengthening the domestic defense industry. To ensure the success of the acquisition reform efforts, the Defense Acquisition Office, was set up in 1999.

Korean acquisition reform is a broad-based effort. It includes changes to the Planning, Programming, Budgeting, Execution and Evaluation System (PPBEES). Reform involved streamlining the decision-making process by eliminating duplicate functions and steps. In the procurement area there will be increased competition, the system will be made more transparent to ensure fairness, and the connection between quality assurance and contracting will be strengthened. To strengthen the Test and Evaluation process responsibility was moved from the JCS to the MND.

In the Program Management arena, increased energy is targeted at ensuring performance, i.e., getting what the warfighter needs, at lower costs (including life cycle costs) with timely delivery. Competition among vendors and Cost and Operational Effectiveness Analysis (COEA) are two tools designed to provide insight into acquiring the "best value" equipment. Management of weapons and information systems is integrated. Next, an acquisition reform initiative

introduces into the project management and contract process the "real name system" to put more individual responsibility into the system. Under the "real name system," individuals will be required to sign off on any document they have responsibility for approving. Finally, top-notch employees will be provided incentives for promotion under these reform efforts.

The reform efforts in the MND also tie into national efforts to further the development of small and medium size businesses and the defense industry as a whole. As mentioned earlier, the defense industry will take on a greater R&D role in developing general weapons technologies (formerly done by ADD). By increasing domestic R&D and production, the defense industrial base should become more vigorous

Why is there a need for acquisition reform? Part of the rationale goes to the culture prevalent within the MND. In the past, decision-making was too often based upon "too" much negotiation, which meant a slow decision process. Pinpointing who actually was making the decision was difficult. An old Korean saying perhaps captures the popular image of the Korean bureaucracy and the problem in the decision making process, "bokji-budong." Translated into English this phrase means—"bureaucrats lie on the ground and do not move."²⁴ The capacity to make decisions without accountability is considered endemic to decision-making and hinders effective

improvement in the acquisition process. Defense and acquisition reform plans attempt to move responsibility and authority to lower levels and to hold responsible those who make the decisions.

Reform of any system is difficult. Thus the committee's work is planned to last at least five years. The committee will work to assist the Minister by developing implementation plans for overhauling the ministry. In addition to the MND level committee, working reform committees were established within each Service.

Under the committee's reform efforts, the first step in 2000 was with the establishment of the Korean National Defense University (KNDU). This was accomplished by merging the National Defense University with the Armed Force Staff College and closing the National Leadership Institute. Other organizational changes are planned over the next couple of years. A Combined Service Support Group will be established to improve efficiency among the services. Other possible organizational changes include integrating KIDA, the Institute for Defense Information Systems, ADD and DQAA into two institutes focusing on weapon systems development and policy research. Defense and acquisition reforms are part of a long-term plan to change the MND. Changes that have been started or identified will be indicated for the reader throughout this part.

Chapter 6

PLANNING, PROGRAMMING, BUDGETING, EXECUTION AND EVALUATION SYSTEM

In this Chapter we will look at the MND Planning, Programming, Budgeting, Execution and Evaluation System (PPBEES) and the requirements generation process. PPBEES is a defense resource management system and was first enacted as MDN Directive No. 253 in 1979. Its objective is to effectively and efficiently determine requirements and priorities and evaluate the performance of projects. It has been revised numerous times, with the last revision in 1997, to improve efficiency and strengthen responsibility in implementing force improvement programs (currently MND Directive No. 553).

The PPBEES is implemented through a series of documents: the **Joint Strategic Objective Plan** (Planning), the **Defense Acquisition and Development Plan** and the **Mid-Term Defense Plan** (Programming), the **Defense Budget Document** (Budgeting) and the **Defense Budget Allocation Plan** (Execution). These documents provide the framework to operate the MND acquisition process. Figure 3-13 depicts the entire process—the documents, the office of primary responsibility and its purpose. However, a key ingredient in the process is the generation of a military equipment requirement. Before a weapon system is developed and produced, a military need or requirement must exist, be proposed and approved by senior MND officials.

The Requirements Process

Organizationally, the requirements for new weapon systems or equipment can come from a

variety of sources, to include the Services, agencies, JCS or headquarters MND.²⁵ New military threats, obsolete equipment, or technological advances, which offer improved reliability or increased capability, are usually the origin for generating a new acquisition requirement.

Ordinarily, each military service proposes a new weapon system, new equipment, or changes to an existing system. This proposal is contained in a document, called the Required Operational Capability (ROC). The ROC defines the expected weapon system performance, or capability to achieve an operational capability, such as a missile with the ability to penetrate underground targets. Approval for lower value, less complex new requirements rests with the particular Service Chief of Staff, specifically, for parts and material acquisitions, non-major weapon systems and older systems replacement. Within the agencies, the agency head approves the need for new equipment.

In the case of a military service requirement for a new weapon system, replacement for an older weapon system, or enhancement to an existing system, then JCS approval is required. The final group of requirements—which apply to automated information systems, non-weapon systems R&D, foreign leasing and major foreign purchases—are approved at MND headquarters. Within the Army the functional office for requirements is the Army Education Command's Schools; in the Navy it is the Headquarters staff, Force Planning Division; and in the Air Force

Phase	Document	OPR	Purpose
Planning	Force Requirement Proposal LRFPR MRFPR MLRFPR Joint Strategic Objective Plan (JSOP)	Services	Defense Goals Threat Assessment Defense Policies Consolidates/Coordinates Service Proposals
Programming	Defense Acquisition & Development Plan MTDP	DAO/APB PMO (O&S) DAO/APB (Investment)	Define Systems & Equipment to Implement Defense Goals
Budgeting	Defense Budget Document	DAO/APB (Investment) PMO (O&S)	Define Money Needed to Implement
Executing	Defense Budget Allocation Plan	DAO/APB	Money Authorized by National Assembly for Fiscal Year
Evaluation			Analyze Completed Project & Improve System

Figure 3-13. The MND Acquisition Process

the functional office for requirements is the headquarters staff in the Combat Development Bureau. The Defense Acquisition Office also plays a role in the requirements determination process since it has the responsibility for verifying the appropriateness of a requirement when it prepares the Mid-Term Defense Plan and compiles budgets.

Planning

The planning phase really begins with an assessment of the threat, in this case, primarily North Korea. Out of this assessment and the national political objectives grows the national defense goals and strategy. With the national defense goals and strategy serving as guidelines, each military service submits a series of planning documents outlining its military needs to implement the defense policy and strategy. The

primary document in the services during the planning phase, the **Medium-Long Range Force Requirements Proposal** contains the military need for the equipment. To provide decision makers an understanding of the significance of the system or equipment, the proposal also contains a description of how the equipment will be operationally used, the ROC, and the logistics support (support equipment, training equipment, ammunition, facilities) necessary to deploy the system. Long before the proposal is written, however, the military services have prepared several documents proposing the force requirements. To assess military shortcomings, this planning looks out many years into the future. The proposals are contained in one document, the **Force Requirements Proposal**. The Force Requirements Proposal is divided into three sections—the Long Range Force Requirement Proposal, Medium Range Force Require-

ment Proposal, and Medium-Long Range Force Requirement Proposal. Following are the detailed features of each proposal type:

Long Range Force Requirement Proposal (LRFRP) looks out 8-17 years for equipment needs. This becomes the basis for conceptual research or exploratory development.

Medium Range Force Requirements Proposal (MRFRP) looks out 3 to 7 years. This proposal becomes the basis for the preparation of Medium-Long Range Force Requirements and the systems the MND is willing to invest in for systems development.

Medium-Long Range Force Requirement Proposal (MLRFRP)²⁶ consolidates the Long and Medium proposal into one proposal that is submitted annually in August to the JCS Force Analysis Office and the APB. This document contains the Required Operation Capability (ROC) for each system.

After the proposals leave the Services, they are sent to the Central Director for Strategic Planning and the Director for Force Power Planning at the JCS. These organizations in turn evaluate the service needs against the National Defense Basic Policy, the Joint Military Strategy Plan and a document prepared by ADD—the Defense Science and Technology Survey Report. The Defense Science and Technology Survey Report provides an outline of the state of the art of technology both domestically and abroad. The JCS offices can use this document to realistically assess the likelihood that the technology is on hand to be usable in a weapon system.

The next step in the process is the preparation by the JCS of the **Joint Strategic Objective Plan (JSOP)**. This plan is based the information provided by the MLRFRP. It is prepared annually in March, serves as both a confirmation of the military need, and a prioritized list of the

programs. The process for approving the JSOP starts within the Force Power Planning office, which reviews the service submittals and provides its analysis by the end of September. The Central Director for Strategic Planning then prepares a draft **Joint Strategic Objective Plan (JSOP)** in early November. The plan is reviewed, in turn, by the Joint Strategy Working Council, Joint Strategy Council and Joint Chief Meeting (see section on Councils) to evaluate both the needs and priorities of the proposals. Final approval of the plan is by the Minister of National Defense.

The **JSOP** now provides the basis for the **Mid-Term Defense Plan** (also referred to as the Force Improvement Program (FIP) and the **Defense Acquisition and Development Plan** and moves us to the programming phase. It should be noted that a corollary plan, the Joint Weapon System List, prepared every 3 years by the Central Director for Strategic Planning provides a list of the types of equipment and systems to be acquired from foreign sources along with their schedule of deployment.

Programming

The programming phase of the system is captured in two plans—the **Defense Acquisition and Development Plan (DADP)** and the **Mid-Term Defense Plan (MTDP)**. The Acquisition Policy Bureau (APB) prepares the DADP and the investment portion of the MTDP. They serve the purpose of defining the equipment requirement, the buying approach and what will be bought within the next fiscal year, plus the following year. The DADP includes the acquisition polices and individual system plans to include the acquisition method. It is based on the **JSOP** and the requirements of Defense Acquisition Office, the Services and agencies. APB draws up a draft plan based upon service and agency inputs, coordinates it through the other bureaus within the DAO. It then coordinates the plan

through the Policy Council and Acquisition Council and then obtains approval of the Minister. It is published annually in August. The MTDP shows concrete requirements—what projects, numbers, expenses, schedules, and methods of acquisition. Based on the DADP it is classified into three sections—research and development (R&D), technology introduction and production, and overseas purchase plans. The Blue House will provide final approval for the DADP and the MTDP.

Current investment goals reflect a focus on advance military technology—RMA—which translates into intensive R&D investments. Specific requirements are laid out for improving combat readiness with a national defense reconnaissance capability (satellites), large scale attack helicopters and Airborne Warning and Control Systems (AWACS), tankers aircraft and an shipbuilding program for an Aegis class destroyer (KDX-III).

Budgeting

The **Defense Budgeting Document (DBD)** captures the budgeting portion of the PPBEES, that is, the money available for buying new equipment. This document based upon the **Mid-Term Defense Plan** projects the necessary budget for the next fiscal year, plus one-year, but also includes prior year unfunded projects. Project budgets are divided into domestic and foreign capital. Of importance for acquisition personnel is the attempt to provide stability to projects by requesting multiple years budget approval for the entire project.

How does the budget process work? For the investment budget, it starts with the Acquisition Policy Bureau preparing draft budget guidelines and submitting them to the MND's P&MO Programming and Budget Bureau in December. The Programming and Budget Bureau then incorporates the investment guidelines in the

overall guidelines on budget preparation to all agencies and services.

The Services and agencies prepare their requests for investment projects and submit them to the five DAO bureaus and the JCS in March. However, for *new* projects a draft budget request must be submitted earlier to the APB and the appropriate project management bureau—PMB or LMB and AEB by the end of January.

APB will then prepare a draft Investment Project Budget Request and submit to the Budget Planning Office by the first part of May. Projects will be divided into Project categories A, B or C depending upon the level of approval. (See later section for in-depth explanation of categories.)

The Budget Planning Office then obtains approval of the draft defense budget from the Minister of National Defense via a series of political meetings. Based upon direction from the Minister, the Investment Project Budget is adjusted by the Chief of the Acquisition Policy Bureau.

The next step in the process is submittal of the defense budget to the Budget Administration Office of the President by the end of May. This is then reviewed by the cabinet and sent to the National Assembly for its review and approval. The National Assembly usually passes the budget in December in time for the next fiscal year beginning on 1 January.

Execution and Evaluation

The **Defense Budget Allocation Plan** provides the amount allocated to each element of the budget and planned for expenditure during the fiscal year. It will be adjusted as events and priorities change throughout the year. It is during the execution phase that contracts for R&D and procurement are awarded and the operation and maintenance of the forces takes place. What worked? What did not? The evaluation phase

provides an opportunity to analyze completed projects and to use the feedback to improve the system.

Chapter 7

THE DEFENSE ACQUISITION SYSTEM

“The cold and bitter winds of the Cold War that blows between our two countries must be stopped and replaced by warm rays of sunshine. Let us stop regarding each other as enemies and start embracing one another as brothers.”²⁷

— Kim Dae Jung

While the Cold War is gone in Europe, North Korea still remains a threat and, according to recent reports,²⁸ continues with strengthening its war machine and attempting to intimidate its neighbors. The Republic of Korea's response, in concert with its allies, has been to maintain both a strong economy and a military prepared to respond to any threat from the North. While the military budget was severely impacted in the 1997 and 1998 time frame, the strengthening economy has allowed the government to revive their military modernization programs. In October 1999 they announced the relaunching of a 26.4 trillion won (\$21.4B), four-year military modernization program.²⁹ Part of this program includes efforts to develop an anti-ship missile system, a portable shoulder-fired anti-aircraft missile system, and acquisition of blue water class destroyers (KDX-2) with an estimated program cost of over \$2.5 billion.

Historically, military modernization efforts began with the announcement of the 1969 Nixon Doctrine. This doctrine, which called for America's allies to shoulder much more responsibility for their own defenses, became a driving force for Korean modernization, particularly in 1971 as the U.S. began withdrawal of military forces from the Korean peninsula. Under President Park Chung Hee, the Ministry of Defense began

a series of efforts to make the nation more self-reliant in defense matters. President Park approved the first of three Force Improvement Programs (FIP) (Yul-Guk)—the Eight-Year National Defense Plan (1974-81) in 1974. The Second FIP under President Chun covered the years 1982 to 1986. Because modernization was a low governmental priority less was bought and the domestic defense R&D and production market began to shrivel. The third program covered the period from 1987 to 1995. The concept behind all these plans was that imitative development and production of military items would create and promote a larger defense industry. These three efforts targeted over 30 billion won, or more than 32 percent of the total defense budget towards modernization efforts.

The FIP is carried out through the acquisition system. The acquisition system consists of the organizations, DAO, ADD, and others, the personnel, procedures and policies to develop and buy new military equipment. The governing directive, Defense Acquisition Management Regulation, MND Directive 651, issued January 1, 2000, provides the policies and procedures necessary for effective operation of the system. The guiding principles for acquisition are developed along five lines. They are to:

1. Mature a defense development science and technology capability;
2. Seek cost effective solutions;
3. Secure the performance of the integrated weapon systems (systems of systems);
4. Promote defense acquisition programs in connection with the development of national industry; and
5. Enhance the efficiency, transparency and professional expertise of the acquisition system.

The five principles are aimed at the timely deployment of cost effective equipment and to secure technological evolution for a self-reliant development capability.

Methods of Acquisition

Once the military services have identified the need for new equipment or a weapon system, the acquisition organization has several options

to meet the military need. They can either initiate a research and development (R&D) effort to develop the equipment or buy existing equipment from a foreign source. The methods of acquisition fall into three major categories. They are Technology Introduced Production and Foreign Purchase and are shown in preferred order in Figure 3-14. In the first category, R&D, Domestic Development is the preferred strategy because it provides the most support to the nation's desire to boost its research and development capabilities. The approach under this strategy is to select a local firm to design, develop, manufacture and test either a weapon system, core technology, or component part. This strategy has the dual purpose of strengthening the defense R&D capability and providing a stimulus for the national industrial technology base. Normally, ADD is the lead organization when a technology has to be developed, particularly if it is a Government-lead R&D project. In some cases, however, the task will be an industry-lead R&D effort under government contract. Finally the Korean government encourages their defense industry or suppliers to invest funds in corporate R&D for defense needs.³⁰

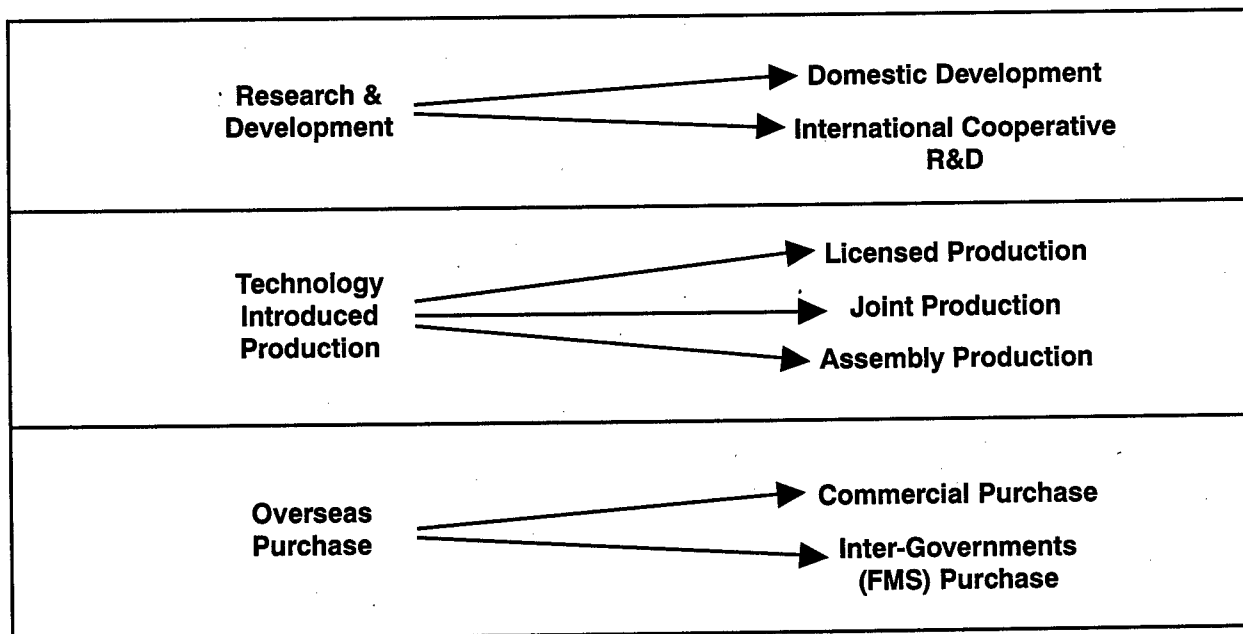


Figure 3-14. Acquisition Methods

When domestic development is not feasible, then consideration is given to an International Cooperative R&D project with one or more allies. This can provide the same military capability plus technology transfer from another nation to Korea. Besides the technology benefit, cooperative R&D can reduce costs, because all participants will share the costs of R&D and of the follow-on production of the system or equipment.

Over the years, the Korean acquisition policy has favored the introduction of technology and manufacturing capability into their defense industry. The next acquisition category is Technology Introduced Production. This approach started in the 1970s, with Licensed Production as the preferred strategy. They were relatively successful, with weapons production of the M-16 rifle, F-16 fighter aircraft, the UH-60 Helicopter. This technique allowed significant transfer of skills and technical capability to Korean firms, not only for their military needs, but it opened the possibility of creating an export market for defense material.

Joint Production, followed by Assembly Production, are the next two methods. In Joint Production both countries produce components and assemblies, while one company constructs the final product. In Assembly Production, parts and components are assembled and produced locally which provides technology introduction at the part or component level.

The third category, Foreign Purchase, includes two methods—Foreign Military Sales (FMS) and Direct Commercial Sales. FMS purchases are government-to-government agreements, in which case one government (U.S.) agrees to contract on behalf of another country (Korea) for defense equipment. In the case of Direct Commercial Sales, the MND goes directly to a commercial company, such as a Lockheed or Boeing, to buy the equipment needed for the

military. Current policy is heavily weighted in favor of Direct Commercial Sales. These last two methods can provide the least amount of technology transferred to Korea. Although, the contract “deal” can include offsets³¹ where significant technology transfer can occur. There is one other strategy not shown in Figure 3-14 and that is leasing of equipment. This strategy offers an ability to provide for short term needs, such as the ROK Air Force’s lease of 30 Northrop Grumman T-38A Talon Advanced Jet Trainers to provide an interim training aircraft awaiting the delivery of the new T-50³² Korean advanced trainer.

Weapon System Research and Development

The weapon system development process is designed around a series of life-cycle phases. They are conceptual research, exploratory development, system development, and production and operation phases. See Figure 3-15 for depiction of process for research and development and for technology introduced production.

Conceptual research is a design stage where systematic technical analysis is performed to meet long term military needs and to evaluate development and production of a Korean style weapon. These efforts are primarily study efforts looking at the feasibility and evaluation of technology, current technology trends—domestic and overseas—realistic technical objectives for the project, and rough estimates of development and production costs.

The next phase is **Exploratory Development**. In this phase, more definitive studies will look to determine the technical risks. Technical and engineering analysis will be performed on subsystems or major components and prototypes produced to help in risk reduction for the new system. These efforts are designed to determine the appropriateness of follow-on development

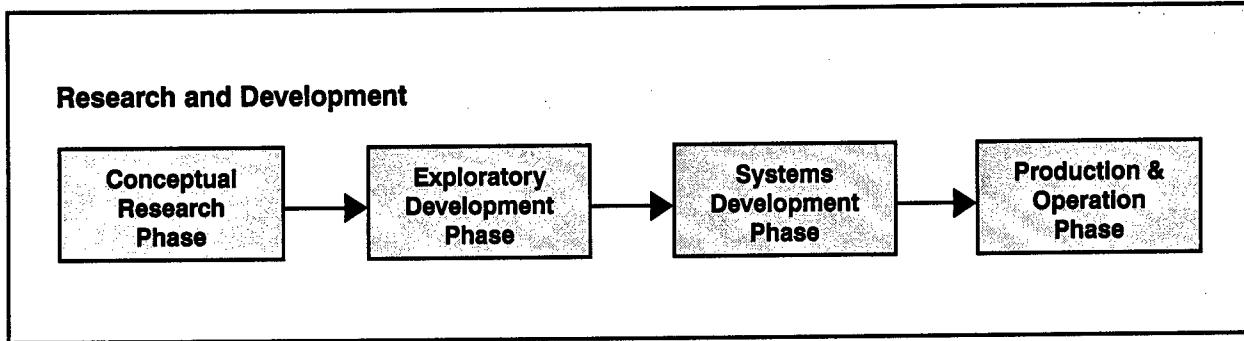


Figure 3-15. ROK Acquisition Process

and prepare the specifications that define the characteristics of the product and contract quality, inspection and testing requirements.

The third step in this process is **System Development**. In this phase, prior efforts come to fruition. Actual equipment and prototypes are designed and produced in sufficient quantities to test the technical performance of the equipment or system. Much effort is spent on ensuring that the quality requirements of both the system and the manufacturing process are met. A variety of other actions occur during this phase—a technical data package (including a production specification) will be developed, spare parts, technical manuals, and inspection and test equipment will be bought.

After the system meets its test requirements the system will enter its next phase—**Production and Operations**. The technical results of development and the quality assurance data from the development phase will be sent to the Defense Quality Assurance Agency for use during the production phase. In this final phase, military hardware, such as tanks, howitzers, naval vessels are manufactured by defense contractors and delivered to the military forces for their use.

While the process is laid out as a sequential process, systems and equipment may enter the process at any phase. The lead organization for the conceptual and exploratory development phase,

if it is a government-led R&D project, is ADD. This changes when the R&D is supplier-led, then the Services take the lead, although, in a number of cases, supplier led R&D may be managed by ADD.

Both the ADD and the services are required to prepare a **Systems Development Plan**. This plan lays out their overall technical and management approach. The plan is submitted to PMB and the Analysis Evaluation Bureau. If a contractor is performing the work, then a System Development Agreement with both parties signing is submitted along with a **System Development Management Plan**. Final reports on the accomplishment of each phase are submitted to the Program Management Bureau.

Acquisition Execution Plans

A series of plans—the Defense Procurement Plan, the Expenditure plan and the Treasury Obligation Plan—lay out the yearly planning for acquisition projects. These plans are prepared by services or agencies and submitted to the Acquisition Policy Bureau in October of the prior fiscal year. For projects in categories A and B (see later for explanation), which require separate execution approval, service components and agencies submit an individual procurement plan for each project. The Defense Acquisition Office Chief approves these plans. These plans form the scope of the work for the Defense

Procurement Agency for the following year. In addition to the execution plans, acquisition projects are implemented and managed through a series of meetings and council reviews, to include the Acquisition and Policy Councils. National projects require discussions with

government offices related to the projects via negotiations with the Defense Digitization Subcommittee and the Defense Investment Program Advancement Committee³³ (see section on councils).

Chapter 8

MANAGEMENT OF DEFENSE PROGRAMS

Defense programs to develop weapon systems involve a significant commitment of government and industrial resources over a long period of time. To ensure proper oversight and government commitment to a program, approval of the most significant individual projects is often at the highest levels of government. The project approval level, based upon monetary value and complexity, for acquisition programs are:

Projects subject to Presidential approval:

1. Projects costing 100 billion won (U.S. \$85 million) or more;
2. Projects seriously affecting national policies and diplomacy;
3. Projects requiring cooperation between two or more government offices;
4. Projects for precision weapons, information systems development, strategic weapons with national interests, research efforts with national interests; and
5. Projects that establish a new unit, or significantly expand or reorganize an existing unit at a division, wing or flotilla level.

Projects subject to the Minister of National Defense:

1. Projects costing 50 billion or more but less than 100 billion won;

2. Projects for conventional weapons and C3I systems currently in operation;
3. Follow-on projects;
4. Logistics support contracts;
5. Option Exercises;
6. Ammunition and stockpiles;
7. Land purchases required to operate and maintain facilities, facility repairs, and similar base construction projects; and
8. Establishing, expanding or reorganizing units equivalent to, or higher than, brigades, combat battalions or intermediary echelons.

All other projects are subject to approval by the Chief of Defense Acquisition Office or the Services.

Program Management Responsibility

The management of a program/project is divided between the Services and the MND. The decision to breakout a program for service management, versus at the MND level, depends upon the political nature, the cost, the complexity and issues involved. Management of a project is broken out into three categories. Figure 3-16 shows the breakout of responsibility for projects. Those controlled by the MND are designated Project A, those controlled by the Services and Agencies—Project B and those that are general

Designation	Description	Management Approval
Project A	10 billion won or greater, intergovernmental, major common military systems, core technology projects, dual use projects with foreign countries and facility projects	MND
Project B	3-10 billion won and not requiring MND Approval	Services/ Agencies
Project C	General projects include replenishment spares and small ADD development projects	

Figure 3-16. Project Management Designation

projects—Project C which do not require separate approval. The Defense Investment Program Advancement Committee prior to being granted approval reviews projects involving other ministries.

The Project Management Team (PMT)

One thrust of the acquisition reform effort is the establishment of a Project Management System both within the MND and the Services. The concept behind the establishment of teams is to increase support within the departments and to provide stability to the team. The Program Management Bureau is tasked with providing overall team leadership. Within the services, teams or project groups will be formed to perform the planning and provide management of each project. Each team will include a Project Team Leader with functional experts from the services and agencies. It is planned that the team will be populated with experienced personnel or, when not available, by individuals who have received special training. A Project Team will be created, depending upon the size of the project, when the project includes two or more services, close cooperation with domestic and overseas governments is required, and when complicated negotiation are expected or special security is required.

The Program Management Bureau (PMB) has responsibility for setting up the project teams. When it is necessary to have a team, they will determine the size of members, range of work, location of team, and the time of installing and dismissing the Project Team. The Services or agencies will submit a plan to PMB for review. PMB will obtain approval from the Deputy Minister and the Minister of National Defence. Service and agency project teams shall be supervised directly by the Chiefs of Staff of Army and Air Force and the Chief of Naval Operations and chiefs of agencies. Teams have been formed for the SAM-X, AHX and KTX-2 projects.

Acquisition Reform in Program Management

As mentioned earlier, “the real name” system is being implemented within the MND. More individual responsibility is being demanded. Key players /decision-makers are now required to indicate their role and recommendations in each project. The office responsible for supervising the project will keep an approval register (see Figure 3-17) containing the date of approval, opinions from other offices, instructions and adjustments made after approval at the back of the document. Each project will keep a history of all interim information, project managers, and

Item	Manager	Section Manager (Project Manager)	Bureau Chief (General Manager)	Department Manager
Requirements Proposal				
Determination of Requirements				
Selection of R&D Applicable Projects				
Test and Evaluation				
Negotiation				
Selection of Equipment Type				
Contract				
Deployment Evaluation				

Figure 3-17. Project Management History Cards

actions taken from the time requirements are proposed to the termination of projects.

They are only consulted if a major change is required or anticipated.

Councils with an Impact on Acquisition

There are six councils and committees that play a role in acquisition (see Figure 3-18). The primary council concerned with acquisition is the Acquisition Council which has responsibility for the draft Mid-Term Defense Plan (investment programs), the Annual Budget Plans, and the Defense Acquisition and Development Plan. It also has the task of approving changes to MND acquisition regulations. The Deputy Minister for Acquisition chairs the council with senior leaders of each of the acquisition bureaus, plus DPA and ADD as well as JCS and Service representation. An informal working level council chaired by the PMB will work the preliminary work prior to AC. These Councils have traditionally had tremendous influence during the planning, programming, and budgeting phases, and that will continue even under the acquisition reform changes. Their roles, however, have been diminished in the execution phase of a program.

Funding

Acquisition professionals are often faced with budgetary problems—not enough money or money for production when research and development money is needed. Once the budget categories—Operations and Maintenance, Research and Development, or Procurement—are planned for execution, it must be executed that year. This includes both obligation and outlay or, in principle, the money goes back to the treasury. However, exceptions can be made for unavoidable problems, but it requires approval both within the Ministry of Defense and from the Budget Administration Office. This has become easier in recent years. Another funding note is that while the defense budget has a separate portion for R&D and procurement, much of the investment budget is funded as part of the Service's budget. As an example, the new AEGIS class destroyer money is in the Navy budget.

Acquisition Workforce

The acquisition workforce consists of the personnel that work for the Defense Acquisition Office, the program managers within the Services, the procurement personnel at DPA, and the acquisition personnel at ADD, KIDA and DQAA. Acquisition personnel, military and civilian, on the technical side will have college and advance degrees. Those that are classified as administrative positions will have at least high school degrees and, perhaps, some college. Most training is done on-the-job, with special short-term courses available for acquisition personnel. An example is training for contracting personnel, which is mostly OJT, with a two-week introduction course and a four-week acquisition course.

Acquisition reform initiatives target the need for more experienced and skilled personnel working in the acquisition. To increase personnel expertise, detailed standards are being established for selection of personnel to acquisition positions. For both military and civilian acquisition workforce members, efforts are underway to increase promotion opportunities and to increase the number of technological posts. Over the long term, a modern, civilian personnel management system will be created to foster professionalism. Modern management methods will be a focus of increased training for both military and civilian members. This includes the establishment of a Defense Management College for military personnel.

Military Affairs Council is the top decision making body in MND. Responsible for basic defense policy and approving the Mid-Term Defense Plan. Chaired by the Minister of Defense and includes among its membership the JCSC, Service Chiefs and DAO head.

Joint Chief's Meeting responsible for Joint Military Strategy Plan, JSOP, and approving the Service Required Operational Capability (ROC) document. Chaired by the CJCS with its membership to include the Service chiefs.

Joint Strategy Council reviews the Joint Military Strategy Plan, JSOP, and validating the Services ROCs. Chaired by JCS, Director, Strategic Planning. Members include Directors DIA, Deputy Chief of Staff of each service and VP of ADD.

Policy Council responsible for Mid-Term Defense Plan, annual budget plan, national projects related to weapon systems acquisition, and changes to Defense Acquisition Regulations. Vice-Minister chairs with membership to include the DAO chief, Planning & Management, Defense Policy, DIA, and others.

Defense Investment Program Advancement Committee is an interagency committee which deliberates projects with large costs, technological challenges or politically sensitive. Not a decision making body, but can impact acquisition programs. Vice-Minister chairs with membership from the Budget Administration; Ministries of Commerce, Industry & Energy and Science & Technology; R&D Adjustment Agency; and MND (Senior Representatives from DAO, P&MO, Defense Policy; JCS, Services, DPA and ADD).

Figure 3-18. Councils Concerned with Acquisition

Chapter 9

THE PROCUREMENT PROCESS

The Defense Procurement Agency (DPA) is the central buying organization for the Ministry of National Defense. In 1998 it spent over 4 trillion won (U.S. \$3.3 billion) to buy weapon systems and military equipment for the MND. DPA operates within the procurement policy and management of the Director General of the Acquisition Policy Bureau. While it is the primary MND buying organization, other agencies, such as ADD, also have their own contracting offices.

DPA is tasked with awarding contracts, making payments, negotiating offsets, and handling customs, shipping, and follow-on management of contracts.

The DPA has existed since 1971 under several names and with different missions, to include material management, which was returned to the services in 1997. The need for DPA grew out of the government's goal of modernizing the war-fighting forces and developing a domestic weapon production capability which was part of the overall policy of industrial development instituted in the mid-1960s by President Park Chung He.

The hallmark of their current procurement policy is—transparency, openness and competition. This is a change from past procurement practices. Previously, many barriers existed for foreign contractors wishing to bid on Korean acquisitions. Restrictive registration, investigation procedures and safety checks are just a few examples. Information regarding procurement activity was difficult to obtain and the process for selection was obscure. In 1997 the MND

regulation on foreign acquisitions was revised. Now transparency—open and competitive proposals, and open procedures—is the modus operandi for the Korean procurement system. An example of the change is the availability to gather information. Previously, contractors were shunted off to the DPA General Counsel's office for procurement information. Now interested companies can access this type of information on the Internet.³⁴ The ministry is also making available to foreign contractors the planning for the next five years of acquisition equipment.

Acquisitions, particularly large acquisitions, were mostly restricted to sole source buys from a pre-selected contractor. While statistically 90 percent of contracts were competed, the 10 percent that were not, were the largest dollar value contracts. Competition is now the policy. An example was the open bidding last year to select a contractor to build three new destroyers for the Navy. Originally Hyundai Industries was the planned sole source supplier, but MND reversed their prior decision and the \$1 billion program was open to all. The purpose behind this policy change is to strengthen the ROK defense industry. Prior government policies had encouraged business to build excess defense industrial capacity. This, of course, drives up overhead costs and makes the industry less competitive. Competition should reduce excess capacity. There may be exceptions to this policy. It was announced recently by the MND that all contracts for future aerospace needs would be let to the newly established Korean Aerospace Industries (KAI) (see Industry Section).

The Korean Civil Code governs all contracts between the MND and industry. Although it has been modified and influenced by American legal practices, the original code was introduced by the Japanese and was based upon the European civil code. The civil law is codified, unlike the more common practice in the United States and the United Kingdom of judicially created law. Thus the regulations governing acquisition are relatively few in numbers and not subject to a great deal of interpretation.

Historically the DPA has used a variety of contracts depending upon the type of acquisition. For *general supply* competitive buys, such as typing paper, firm-fixed-priced type contracts were used. For negotiated contracts, either fixed-price or cost-reimbursement contracts may be used. In the past when buying *defense supplies* domestically, the contracts were based upon estimated prices at the start of the contract, with the final price being the actual contract cost. Domestically, future buys will be firm-fixed-price contracts. For foreign procurements, firm-fixed-price contracts are the norm. Future buys may allow for cost reimbursement contracts as a possible tool to encourage competition.

The goal of acquisition reform efforts is to have a fair and equitable process for selecting winners and to have "even the unsuccessful bidders... accept the result."³⁵ These efforts go beyond just the realm of convincing contractors of the systems fairness, but are aimed at building the

general public's support and confidence in the procurement system. As indicated earlier announcements on acquisition and information on the source selection process has been put on the web.

How does the process work? There are different procedures depending upon whether or not the acquisition is conducted domestically or with a foreign source. Generally, there are three methods of contracting domestically—full and open competition, nominated, or limited negotiated contracting. If the method is full and open competition, then a public notice will be issued in major newspapers announcing the planned issuance of an invitation for bid (IFB). Once the IFB is issued, bids will be received, evaluated and the successful contractor, based upon lowest price, will be awarded the contract (see Figure 3-19).

If the bid is limited to several sources, the same basic procedures will be followed. When the contract is to be awarded to a sole source contractor, then an RFP will be issued, with negotiations followed by contract award.

If this is to be a foreign acquisition then a different procedure is used. First, foreign companies wishing to participate in an acquisition program must register with the DPA to get a Certificate of Foreign Procurement Registration.³⁶ A public announcement will be released notifying interested sources of a proposed acquisition.

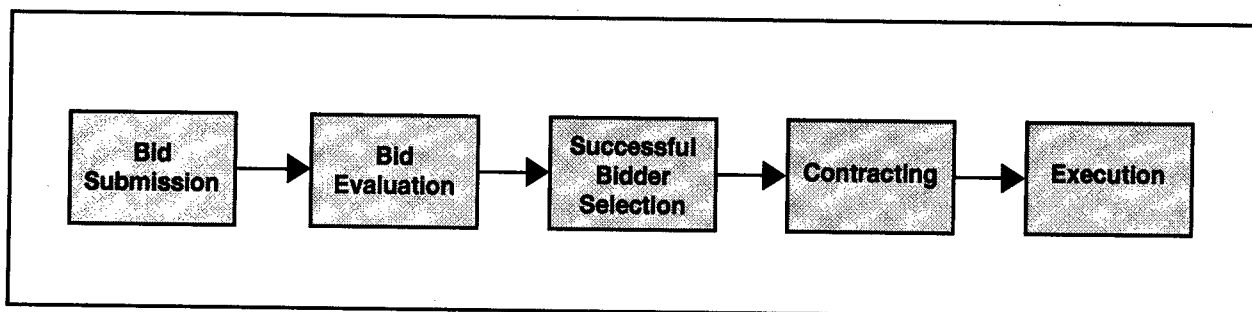


Figure 3-19. Contracting Process

For those companies interested in participating, a Request for Pre-Proposal will be issued. Interested companies, which submit a pre-proposal, if they are considered qualified, will be invited to a conference. If this is for a major acquisition then bidding contractors will be determined by MND.

The procurement process involves many MND organizations, and responsibility is divided among them for selection of the “best value” equipment. The AEB will issue a Request for Proposal³⁷ to qualified and interested sources. Offerors have 150 days to prepare a tender offer on the proposed equipment with performance, test and logistics support data, contract costs, and offset/technology transfer offers. Upon receipt of the proposal, AEB analyzes the data for the technical performance of the equipment (T&E) and life cycle cost (cost analyses). In some cases AEB, with the services, will perform actual trials of the equipment. As AEB is evaluating the equipment, the Defense Procurement Agency conducts negotiation with the contractors to include price, possible offsets and technology transfer.

Once AEB and DPA have concluded their effort, a COEA will be performed by KIDA. The next steps are selection of the weapon system and approval. The AEB and DPA efforts become inputs to the Program Management Bureau and for the Acquisition Council to approve final selection of the contractor. After approval, the firm (or firms) selected will then face final negotiations with PMB. The factors that go into selection of a contractor are price (a major factor), offsets and O&M impact. It is anticipated that to strengthen the domestic defense industrial base, technology transfer and industrial offsets will play a bigger role in future selections of contractors.

Once the contract is awarded by DPA,³⁸ they provide contract administration, payment and

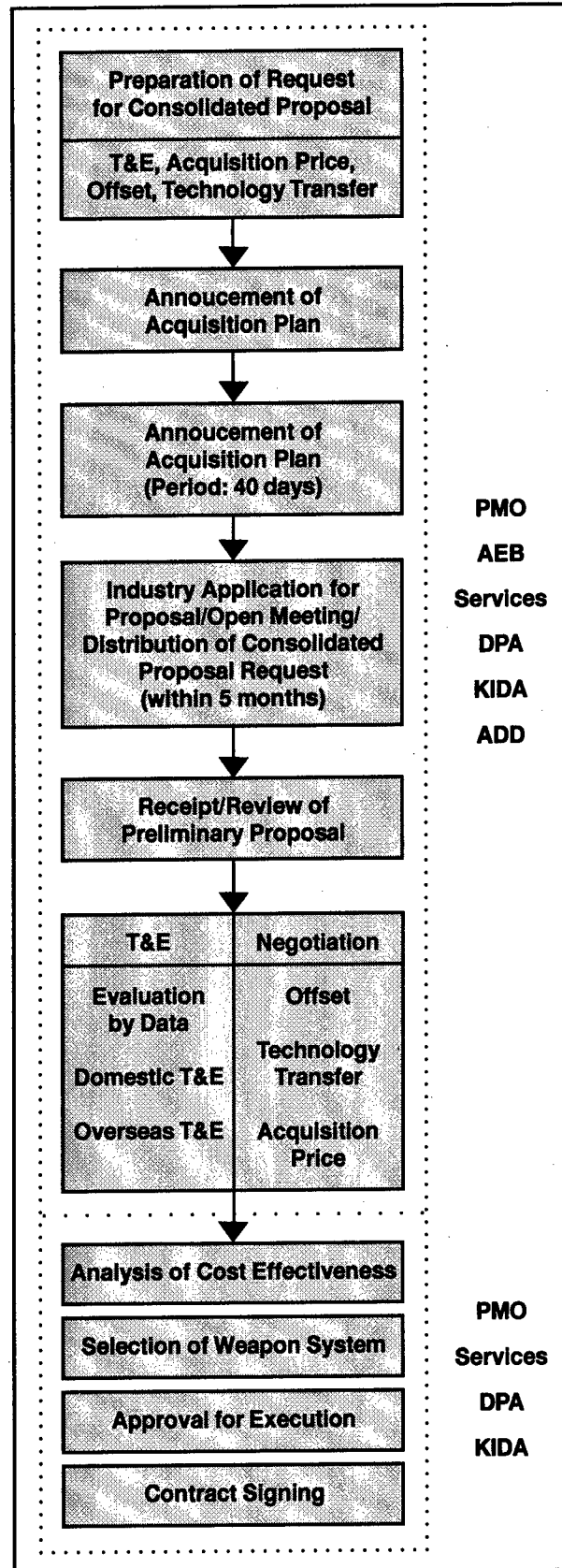


Figure 3-20. Acquisition Procedure of Foreign-Introduced Weapon Systems

oversight. The Defense Quality Assurance Agency (DQAA) and the end user's inspection office will perform an inspection prior to acceptance of the equipment. PMB and the Service Program Management Group or Program Management Team will provide management and technical oversight of the contractor during performance.

As part of the openness and acquisition reform efforts they have an informal, non-judicial forum for dissatisfied contractors to voice their concerns.

Two other items of interest in the procurement system are the socio-economic efforts and data rights policies. Current policy is to increase the emphasis on contracting with Small-and-Medium Industry (SMI). The MND has set an objec-

tive of awarding 20-30 percent of the procurements to SMIs. Increased participation in parts supply and technology development offer an opportunity for awards to SMIs.

The ownership of data rights is always a contentious issue. The basic MND data policy is that ownership or using rights of part or all of the technology (including related software) acquired through the government R&D contracts, belongs to the government. The government will also have ownership or using rights to technology introduced from foreign countries or acquired through offsets. In some cases suppliers may keep licensing rights for technology for a specific period for participating in the R&D.

Chapter 10

TEST AND EVALUATION (T&E)

Test and evaluation of new systems and equipment is the responsibility of the MND and the Services. This is a recent reform in acquisition policy since it had been the responsibility of the JCS.

The Test and Evaluation approach will depend upon the acquisition method used—R&D or Foreign Procurement. In programs where the decision is to go the domestic R&D route the first series of tests are called Development Test and Evaluation (DT&E). The DT&E determines whether or not the prototype equipment meets the specification standards and also the technical levels of the equipment. Once the equipment has satisfied DT&E requirements, Operational Test and Evaluation (OT&E) will be conducted on the system. OT&E will provide verification that the system meets the Required Operational Capabilities and operational suitabilities of the Services. In some cases, to save time and money, these tests can be performed simultaneously.

DT&E is conducted under the direction of the PMB if it is an ADD effort. If it is supplier R&D, the supplier conducts the test under the management of the Services (or, in some cases ADD). In some cases PMB may have an observer team composed of members of MND, the Services, ADD and DQAA. OT&E will be performed by the Services under the direction of the AEB (or, in some cases by AEB). Normally ad hoc teams will be formed to conduct the tests.

When the strategy is to acquire the equipment from foreign sources then a different process for

test and evaluation will be used. The PMB will issue a Request for Proposal (RFP). The RFP will require interested contractors to prepare a proposal that provides adequate information on the technical and operational characteristics of the system as well as the information for negotiations. The MND will have prepared a Test and Evaluation Plan or in some cases, the Services if the program is entrusted to them. AEB will review and approve the Service test plan. After receipt of proposals, a working group composed of the MND, the Services and related agencies will review and evaluate them. The MND will then execute a test and evaluation of the system and conduct negotiations in parallel.

The process for conducting test and evaluation of a foreign procurement is based upon three possible scenarios. Is there enough data extant—development background, test reports, records of military use—to allow an evaluation of both the warfighting performance (ROC) and the logistics support of the equipment? If this is the case, a database test and evaluation will be performed. If enough information is not available, then a domestic test and evaluation of the equipment will follow. An *ad hoc* team led either by the MND or the Services will test and evaluate the equipment for its operational capability and adequacy of logistics support. “However, domestic test and evaluation may be considered to be completed by participating in foreign military strength demonstrations, such as the international air shows and international ship shows held in Korea by friendly nations.”³⁹ Finally, an overseas test and evaluation will be performed

with a team sent abroad, if no other method is available.

The responsible office within the MND for test and evaluation is the AEB. The AEB is primarily a policy office with the services performing the actual T&E. Execution of T&E may be retained at the MND level, or delegated to the Services and agencies. In some cases, where the MND involvement is still appropriate, i.e., controlled projects, then AEB will provide direction to the Services on testing the equipment. This includes AEB approving the T&E plan. They will also supervise the tests. MND will also make the final determination whether or not the equipment meets standards and is suitable for combat purposes. In cases where MND has delegated T&E responsibility—entrusted projects—the T&E plan and report must be submitted to both AEB and the PMB. The criteria used by MND to determine test responsibility depends upon the

importance of the weapon system, the complexity of the system and its role in a joint battlefield. Also, to be considered is the Services “effectiveness of organizing and operating a T&E team.”

After completion of the operational test, the judgement as to whether it is “acceptable” or “unacceptable” for combat purposes will be made by the MND for MND controlled projects. In acquisitions where test and evaluation has been omitted, then the AEB has made a judgement that it is acceptable for combat purposes and will notify both the Program Management Bureau and the appropriate Service. In the programs which the Services have test responsibility, the decision as to whether the weapons are “acceptable” or “unacceptable” for combat purposes (military use) will be made by the Services. A final test report is provided to both the PMB and the AEB.

Chapter 11

COOPERATIVE ACQUISITION AND ARMS SALES

“Countries need to cooperate in these areas of activities as it allows each country to cut down R&D cost, prevent unnecessary overlapping of technological development among countries and augment and complement existing technology owned by respective countries.”⁴⁰

— Mr. Kang, Haeng Jung,
Director General International Cooperation Bureau

Increased international cooperation is a major theme of defense reform efforts in Korea. From their policy viewpoint, international cooperation reduces their R&D costs, provides access to new technology and advances production methods. It also reduces manufacturing costs of purchasing new equipment through the introduction of new technology and manufacturing methods, and helps provide an independent defense capability. There is recognition within the government that defense industry mandates “cutting edge technology,” and joint production helps provide access to that type of technology. Finally, it contributes to expanded cooperation on defense matters with their allies.

To expand their international cooperation efforts, they have increased the number of countries they are doing business with by signing new Memorandums of Understanding (MOU) (currently 16). In the past, most of their efforts were with the United States. To increase future opportunities for cooperation, they now make available the “Five Year Defense Plan” which provides information on planned weapon system needs, budget, and deployment timeframe. As will be discussed in the Industrial Base section, they

have also changed the business environment in Korea to attract foreign investment.

While the current emphasis on R&D cooperation is new, international cooperation is not new to Korea. The Korean government has used licensed production as a means to develop their industry. “Production by adopting foreign technology that one country lacks is the shortest and most efficient way to lessen the cost and risk of independent development.”⁴¹ Several successful production programs with United States companies were performed, going all the way back to the 1970s to include the M-16 rifle, and 500MD Helicopter; in the 1980s the F-5E/F and FA-16 fighter aircraft; and in the 1990s the UH-60 Helicopters, and F-16 fighter aircraft.

There are two benefits to the change in policy for acquiring new technology—it opens the way to mesh their skills and the new technology to develop their industry and it also provides an opportunity for entry into the market of their partner. How is this accomplished? Internally within the acquisition system, when a foreign procurement is planned, a key element, of the negotiation will be the offset provisions of the

contract. The current offset policy applies to all acquisitions of \$10 million or more. What is an offset? In general terms, it is a condition of a buy that requests foreign contractors to offer compensation in exchange for the contract. In the Korean context, offset policy aims at acquiring state-of-the-art technology through technology transfer. But, it can also include buy-back provisions or other forms of reimbursement. A typical example could include the acquisition of aircraft with the agreement that Korean firms receive subcontracts for 30 percent of the parts or components of the aircraft. Figure 3-21 indicates the amount of offset trade. In the past, the offset policy goal was that 30 percent of the contract value was to be performed in Korea. The East Asian financial crises hit Korea hard in the 1997-98 time frame. During this period, the need was to enhance the export of goods; thus the offset negotiation priority was changed from favoring transfer of technology to favoring the export of defense industry parts and goods.

Korea is primarily an importer of defense equipment, mostly from the U.S. as indicated in Figure

3-22. In the early 1990s the U.S. provided almost 90 percent of the military equipment Korea bought from overseas. However the U.S. share has continued to decrease over the decade. Other countries offers of offsets, U.S. restrictions on technology transfer and third-party sales have played a role in the number of buys going to other countries. One of the issues concerning senior Korean officials has been the imbalance of armaments trade between the two countries. If a comparison is made over the last six years between Figures 3-22 and 3-23, they show a difference in sales between Korean and the U.S., with the U.S. having a 264 to 1 advantage in sales—\$5.4 billion to Korea's \$21 million.⁴²

Korea ranks 30th in the world for export of arms with sales of \$30 million in 1998.⁴³ In 1999, arms export sales increased climbing to \$200 million.⁴⁴ They export primarily to Turkey, Malaysia, Indonesia, Thailand, Bangladesh, and the U.S. The two primary areas of export are ammunition and mobile equipment (armored vehicles and military vehicles) as well as, rifles and guns, and telecommunications equipment. Appendix A shows exports by sector and by region. A

Countries	No. of Projects	Basic Contract Amount	Agreed Amount for Off-set Trade	Ratio of Off-set Trade (%)
U.S.	185	10,530	3,229	31
UK	31	1,133	495	44
Germany	50	928	328	35
France	15	693	304	44
Italy	23	314	146	46
Holland	18	238	89	37
Others	30	503	231	45
Total	352	14,339	4,892	34

Figure 3-21. Korean MND Offset Trade

Year	US			3rd Country	Total	% U.S.
	FMS	Commercial	Total			
'90	639	763	1,402	90	1,492	94.0
'91	2,709	84	2,793	250	3,043	91.8
'92	263	194	457	285	742	61.6
'93	645	84	729	90	819	89.0
'94	600	194	794	218	1012	78.5
'96	859	393	1,252	362	1,614	77.6
'97	794	226	1,020	1,018	2,038	50.0
'98	373	71	444	81	525	84.6
Total	7,309	2,359	9,698	2,698	12,366	78.2

Figure 3-22. Korea's Purchase of Weapon System (1990-1998) (Unit: Million Dollars)

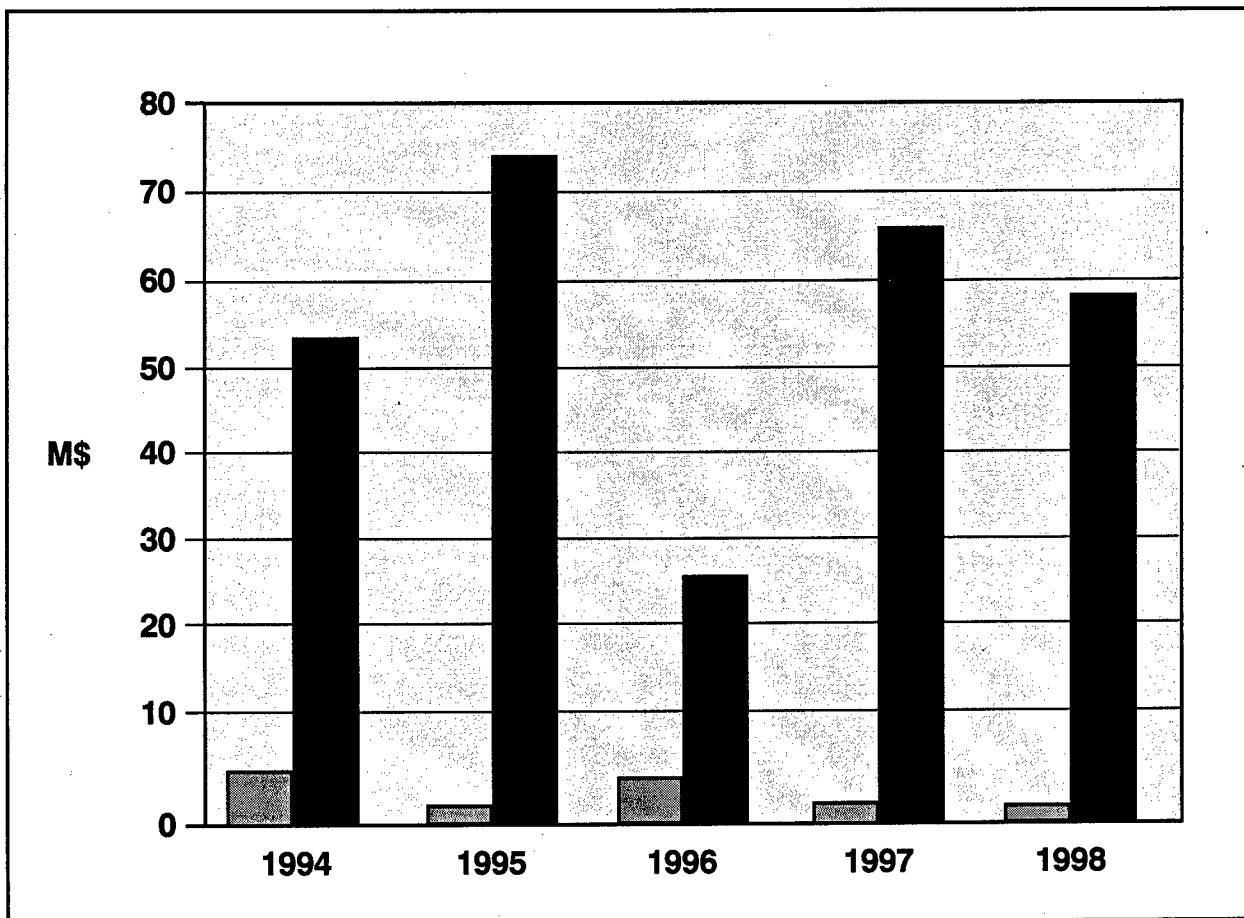


Figure 3-23. Korean Exports Sold Worldwide (6.6% to US)

contentious issue between the U.S. and Korea has been the difficulty in obtaining permission from the United States government to export defence material to other countries. According to the Korean Herald, South Korea paid 78 percent of the royalties to the United States from the period of 1994 to September 1998.

Also, according to South Korean defense companies they have not received a single U.S. government approval to sell weapons to third countries. Prior approval is required by agreements with the United States.⁴⁵

The regulatory and legal requirements for arms exports involve several ministries and laws. The Ministry of Commerce, Industry and Energy has responsibility under the "Foreign Trade Act" for exports. The Ministry of Foreign Affairs and Commerce (MOFAC) is in charge of establishing policies and proposing direction for disarmament and reviews the possibility of any diplomatic issues upon exporting certain items or to certain countries. However, a Korean firm gets its export license from the MND for major defense materials in accordance with the "Special Act Governing Defense Industry." The Director General of the APB is in charge of control and approval of arms export. They have the responsibility for international cooperation in their International Cooperation Branch including setting up cooperation meetings and agreements (for example, Data Exchange Agreements (DEA), Memorandums of Understanding).

Technology Cooperation

The MND has participated in a variety of International Cooperation projects with the United States over the years. These projects range from Data Exchanges Agreements (44), Engineer and Scientist Exchanges (274 Korean and 12 U.S.), co-research (nine projects since 1996), to commercial contracts.

The United States and Korea have also created a framework through the Annual Security Consultative Meeting at the Ministerial level for technology and industry cooperation. The Defense Technology and Industrial Cooperation Committee (DTICC), which works under the auspices of the Consultative Meeting, has two sub-committees working technology and industry. The Technology Cooperation Sub-Committee is co-chaired by the Chief of the Technology Cooperation Department in ADD, and Office of the Secretary of Defense (OSD), International Program Manager for Korea. This committee yearly evaluates technology cooperation alternatives, and progress on current programs. For industrial issues, there is the Defense Industry Cooperation Sub-committee co-chaired by the National Defense Industrial Association (NDIA), a U.S. defense industry non-profit organization and the Korean Defense Industrial Association.

Internationally, the MND has looked at increasing cooperation with other countries. ADD has a Technology Cooperation Agreement with France, which started in 1993. The Joint Research Committee chaired by the President of ADD and the French Director of Defense Support Program at the Delegation General For Armaments (DGA) look for opportunities for increased cooperation and research. They have six working groups focused on the areas of satellites, communication, shipbuilding, aircraft, missiles, simulation, and chemical and biology. In 1999, Korea signed a technology agreement with Turkey for defense industry cooperation to boost competitiveness of their defense industry and cooperative on the export of items. Other countries have signed agreements with Korea including: European countries such as United Kingdom, Germany, Spain, Russia, and Rumania; Asian countries such as Malaysia, Thailand, Philippines, Indonesia; and the Pacific nations of New Zealand and Australia.

Chapter 12

THE INDUSTRIAL BASE

One of the “Tigers” of Asia, the Korea economy was touted throughout most of the 1980 and 90s for its remarkable successes. Companies such as Samsung, Hyundai, and Deowoo—names now very familiar to American consumers—led the expansion of the economy. They created the 12th largest economy in the world. The Asian financial crises dealt a severe blow to the economy requiring the government to seek an International Monetary Fund (IMF) bailout. The defense industry was not immune to the crises. As indicated earlier, defense modernization efforts were scaled back in the 1997 and 1998 timeframes with several major programs being delayed. Recent economic news has painted a rosier picture for industry as a whole with the economy showing an 8 percent growth in 1999. Corollary to the economic growth is the MND announcement of a new, aggressive four-year modernization program, which will provide an impetus to continued growth in the defense industrial base.

From a historical perspective, the Korean War left the country in shambles. Most of the heavy industry and electrical power was located in the North, while the South was primarily light industry and farming. Real growth of the economy did not start until the 1960s, under the leadership of President Park, Chung He. In 1960 the per capita income for a Korean worker was \$85 per year one of the lowest in the world. Through a series of government five-year plans, which set goals and provided incentives to industry, economic growth and development started. These incentives also encouraged monopolistic growth of the industry (See Chaebol discussion on next page). During this early

period the Korean *defense* industry remained relatively small with the Ministry of National Defense depending heavily upon grants from the United States to acquire U. S. made equipment.

This started to change in 1969 when Korea was jolted by a series of events all part of the fallout of the Vietnam War. First, U. S. policy changes announced by President Nixon, the “Nixon Doctrine,” altered the American role in the Pacific from an active role to one which placed increased responsibility on our allies for their own defense. Nixon’s visit to China heightened concerns in the Park government. Coupled with the Nixon Doctrine was the decrease of grant assistance, which Korea had relied upon to buy military equipment. Finally, in the late 1970s, President Carter’s announced pull out of troops from the Korean Peninsula raised concerns about reliance on the U.S. for both protection of the country and as a supplier of defense equipment.

In response to American actions, President Park set in motion specific efforts, which were designed to create an infrastructure for developing a strong defense industrial base. Heavy, defense and chemical industries were targeted for growth. The 1973 Special Act on the Defense Industry was enacted to regulate the defense industry. This law (plus decrees and regulations) still regulates the defense industry today.

Within this changing U.S. /Korean relationship, began several decades of cooperative programs. Korea was singled out by the U.S., as one of only two nations outside of NATO and Europe to be awarded co-production contracts for the M-16 rifle in 1971 and 7.62 ammunition contract

in 1972. Throughout the 1980s, the U. S. and Korea collaborated on other successful programs in which they produced conventional weapons, such as the F-5E/F aircraft, the 155MM gun and in the 1990s, the UH-60 Helicopter and F-16 fighter.

Korea's efforts to develop a national defense industry have borne fruit. "By 1992 the ROK was officially producing 63 per cent of its total defence procurement locally; by 1995, this figure had risen to 79 per cent."⁴⁶ Future plans emphasize continued growth of the defense industrial base. Specifically, they plan to continue transfer of technology for production and recognizing the value of a strong research capability plan to strengthen their R&D efforts. Future defense budgets will show increases for R&D. A specific target has been set for 2015, which will increase the R&D share from approximately 5 to 10 percent. Technologies for aerospace, information, shipbuilding and communication are the prime target fields.

The Korean defense industry,⁴⁷ some 120 companies, produces a variety of items ranging from microelectronic devices, radars, and ammunition to naval vessels, vehicles and aerospace equipment (including the development of T-50 advanced aircraft trainer). While the defense industry has grown in importance, the real economic and industrial growth has been occurring in the commercial industry—electronics and high technology.

The major companies involved in the defense business are Samsung-Thompson, Korean Aerospace Industries (KAI), Hyundai, Hanhwa, Korean Air Lines Co. Ltd., and Daewoo. These companies are often referred to by the popular term "Chaebol." The "chaebol" is a big business, conglomerate, which is based upon family ownership. The "chaebol" was the engine that powered the economic success of Korea. The four biggest are Hyundai, Samsung, Daewoo,

and LG,⁴⁸ which account for nearly 60 percent of the country's yearly exports. As the chaebols grew, the small and medium size businesses suffered. To redress this problem, one of the acquisition reform initiatives has been to strengthen the SMI role in the defense business by awarding up to 30 percent of MND contracts to them. Closely tied to the SMI initiatives is the MND "Localization Program." Localization includes substituting items procured or developed from foreign sources to be produced or developed locally to bolster the local economy.

The major Korean firms are world class manufacturers. Their market niche has been the ability to produce consumer goods at lower costs. To do this, they bought patents and technology from foreign sources, which allows them to quickly bring products to market. A consumer example is Hyundai's use of the engine developed by Japan's Mitsubishi Company for their cars. As might be implied, a weakness of this approach has been to neglect investment in research and development.

The defense portion of their industry has followed a similar approach, in this case licensed production—which has the benefit of developing a robust defense manufacturing capability. Unfortunately, this also led to less money being invested in research. With defense work being only a small percentage of their business defense research has been a low priority.

What is the relationship between the government and industry? The constitution prohibits the nationalization of private business, except for national defense or economic emergencies.⁴⁹ However, the constitution also provides significant authority for the national government to regulate and coordinate the economy.⁵⁰ Throughout the history of South Korea, the government's hand has pressured and pushed industry thus playing a major role in the economic growth of the country. While the constitution prohibits the

nationalization of industry, the government has still played a major management role in some industries. It has owned business firms, primarily for economic reasons. These businesses include Korea Telecom Corporation, Korean Tobacco and Ginseng Corporation, and Pohang Iron and Steel. Current deregulation efforts by the Ministry of Trade, Industry and Energy; includes transferring to private ownership the three companies just mentioned, plus eight other companies by 2004.

There has been another significant change in the relationship between the government and industry. Recently, the Korean government aggressively sought to attract foreign capital by allowing foreigner companies to engage in mergers and the acquisition of Korean businesses. The legal basis to increase foreign direct investment in Korean businesses was set in 1998 by the passing of the "Foreign Investment Promotion Act." This law encourages an inflow of capital investment, technology and management know-how. Foreign companies will now be able to acquire up to 100 percent of a company. The intent of this law is to increase the competitiveness of Korean industries, to include the defense industry. An example of this has been the highly publicized competition for the Korean Aerospace Industry (KAI). Originally a combinations

of teams—Lockheed Martin/Aerospatiale Matra SA and BAE Systems/Boeing were to bid against each other to buy 30 percent of KAI. As of the writing of this book (June 2000) only BAE/Boeing remained in the bidding and negotiations were to be conducted over the summer to finalize the investment and working plans. KAI was created, by government direction, by consolidating Daewoo Heavy Industries Co., Hyundai Space and Aircraft Co., and Samsung Techwin Industries Co. This combined company will employ about 35,000 people with estimated sales of \$700 million. To sweeten the pot foreign firms are eligible for various preferential treatments under both the "Foreign Investment Promotion Act" and the "Special Act on Defense Industry."

In sum, the Korean defense industry is a small portion of the overall commercial industry. It has developed a strong manufacturing capability, with armament sales increasing tenfold from the early 1990s to \$200 million dollars in 1999. The defense industry will feel the effects of globalization with mergers and alliances with other national companies that manufacture armaments. Future trends indicate increased sales to the armed forces and efforts by the government to foster the R&D efforts of industry.

FURTHER READINGS

CULTURAL

De Mente, Boye Lafayette, *NTC's Dictionary of Korea's Business and Cultural Code Words: The Complete Guide to Key Words That Express How Koreans Think, Communicate and Behave*, Published by NTC Publishing Group 1998.

Kim, Bun Woon, and Pan Suk Kim, *Korean Public Administration*, Hollym International Corp, Elizabeth New Jersey/Seoul, 1997.

Oh, John Kie-Chiang, *Korean Politics*, Cornell University Press, Ithica and London, 1999.

CURRENT

HISTORY

Nahm, Andrew C., *A History of the Korean People: Korea Tradition and Transformation*, Hollym International Corp, Elizabeth New Jersey/Seoul, 1996.

Korean Herald on the web:

<http://www.korea Herald.co.kr/>

Korean Times Homepage:

<http://www.koreatimes.co.kr/times.htm>

ENDNOTES

1. Believed to be the world's first ironclad.
2. Oh, p. 124.
3. *Korean Herald*, April 19, 2000, p. 1.
4. Government's estimate is 6 percent, Finance Minister estimates 7 percent, Korea Development Institute estimates 7.8 percent.
5. Literal translation "blue roof house."
6. Constitution, Article 73, (Treaties, Foreign Affairs).
7. Oh, p. 131.
8. The Korean approach to name sequence is used throughout this Chapter—last then first name.
9. In February 2000 the National Assembly decreased the number of seats from 299 to 273 as part of the national election reform efforts. These efforts also included a change to confirming the Prime Minister and Chief Justice by introducing confirmation hearings. More Korean women should also become part of the political life since parties are now required that 30 of their candidates must be women.
10. Oh, p. 183.
11. Constitution, Article 57 (Change of Budget Bill).
12. Kim, p. 53.
13. MND is used to describe the overall agency and also to refer to the headquarters organization is a *vis-à-vis* the services and agencies.
14. Nahm, p. 172.
15. \$1=1150 Won: Taken from several sources—White paper on Defense, Defense Attaches Briefing in February and the *Korean Herald* (April 19, 2000 for 2000 budget).
16. Force Improvement Program and Mid-Term Defense Plan are often used interchangeably. Sometime also referred to in newspaper reports as the Five Year Defense Plan (FYDP).
17. As part of acquisition reform initially was designated as Defense Acquisition "Agency." Many documents still refer to it as an agency, but its current official designation is "Office."
18. There been six other Republics: Syngman Rhee—1st; Chang Myon-2nd; Park Chung Hee-3rd; Chun Doo Hwan-4th; Roh Tae Woo-5th; Kim Young Sam-6th.
19. Line and staff organizations are terms used in military organizations to differentiate roles. A line organization is one which carries out an operational mission (a squadron of ships), while a staff organization generally sets policy (Headquarters Navy).
20. Testing is carried out at other centers such as the Naval Systems Development Centers, Naval Systems Test Range, located at Chin Hae Naval Base.

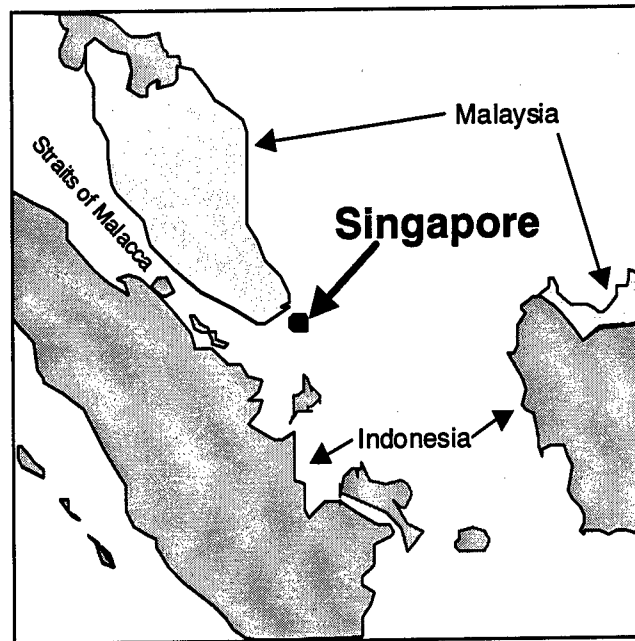
21. Korean National Defense Reform Plan, Part 4.
22. Korean National Defense Reform Plan, Part 4.
23. *Korean Herald*, January 10, 2000 in article "Defense Ministry Committed to Reforming Military.
24. Kim, p. 110.
25. See MND Directive # 651 for list of approved agencies for requirements generation.
26. Current plans are to change the timeframes for the mid- and long-term plans to accord with the presidential term in order to better reflect the president's security guidelines.
27. Delivered as a keynote speech at the Forum for Democratic Leaders in the Asia-Pacific (FDL-AP) recently.
28. 1999 US Congressional report by a House advisory group, the North Korea Advisory Group.
29. *Defense News*, May 3, 1999, p. 7.
30. Non-weapon systems follow a similar logic trail.
31. Offsets refers to the practice of buying equipment from one company/country while requiring a *quid pro quo*, in terms of a reciprocal buy or other method of offsetting the contract cost such as transferring technology.
32. Formerly the KTX-2.
33. Also translated as the Defense Investment Project Promotion Committee.
34. <http://www.dpa.go.kr/english/engmain.html> is the website for DPA which contains an outline of their procurement procedures.
35. The defense reform White paper.
36. If a company is using an agent he must also register.
37. For those familiar with the old system, two RFPs used to be issued. This was change in 2000 to improve the efficiency of the system.
38. Most foreign procurement contracts are signed at the Director General level of the DPA.
39. MND directive 651.
40. This view was present by Mr. Kang, Haeng Jung at the 2nd Annual International Acquisition and Procurement Seminar in Seoul Korea in September 1999, hosted by the Korean Institute of Defense Analyses.
41. From presentation by Col. Kim Jong-Soo, R&D Attache at the NDIA Attaches Luncheon Feb. 2000.
42. From presentation by Col. Kim Jong-Soo, R&D Attache at the NDIA Attaches Luncheon Feb. 2000.
43. SIPRI Arms transfer project—constant 1990 dollars.
44. *Korea Herald*, February 14, 2000.
45. *Korean Herald*, 3 November 1998 at www.koreaherald.co.
46. Janes Information Group, 1998.

47. Must receive a designation from the Minister of Commerce, Industry and Energy.

49. Constitution, Article 126 (No Socialization).

48. Lucky Goldstar (LG)

50. Constitution, Article 119 (Regulation and Coordination).



PART 4
REPUBLIC OF SINGAPORE

Chapter 1

HISTORY AND TRADITIONS

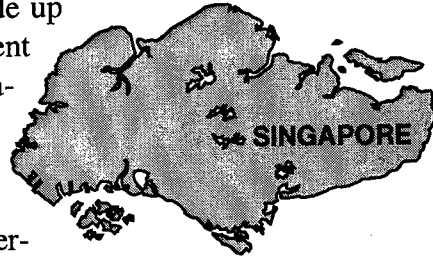
“Singapore is no longer the rough-and-ready port of rickshaws, opium dens, pearl luggers and pirates, but you can still recapture the colonial era with a gin sling under the languorous ceiling fans at Raffles Hotel—Victorian relics—east and west and modernity.”

The Straits of Malacca have been the highway between East and West for over a millennium. Through these Straits, traders moved commercial goods such as gold, silk, tea, opium, tobacco, spices, cotton and weapons. The great religions of Buddhism, Islam and Christianity also moved with traders through the Straits into Southeast Asia, Japan and China. In the 15th Century, the great Chinese Admiral Zheng He moved his giant ships westward through the Straits expanding the influence of the Qing emperor into Southeast Asia, advancing as far as the coast of Africa.

About 181 years ago, on 28 January 1819, at the tip of the Malay Peninsula, at the exit from the Straits, a small trading post was established by Sir Thomas Stamford Raffles of the British East India Company. By 1825 the post, named Singapore,¹ had grown to a population of 10,000. In 1826 Singapore joined with two other towns on the Malay Peninsula—Penang and Malacca—to form the Straits Settlements. As increased trade passed through Singapore, it grew more prosperous and powerful and became the capital city of the Straits Settlements.²

The British East India Company ruled the Settlements until 1858 when responsibility passed to the British Government. In 1867 the Settlements came under direct rule of the British Home Office as a crown colony. The population

of Singapore continued to grow with a large influx of Chinese, Indians and Malays searching for economic opportunities. By 1860, the Chinese made up over 60 percent of the population, while Malays and Indians constituted 13 percent and 16 percent respectively, with Europeans making up the balance.



The British continued to rule the Straits Settlements and Singapore until the 1960s, except for a short period of Japanese rule during World War II. In 1957 Chief Minister Lim Yew Hock asked Britain for self-government, which was granted with the first elections in 1959. The People's Action Party (PAP), led by Lee Kuan Yew, won the election. Lee became the first Prime Minister and Yusof Ishak became the first Head of State.

However, Singapore remained a colony of Britain. As the PAP leadership entered the 1960s they continued to push for independence and a merger with the Federation of Malaya. The Malaya Federation included peninsular Malaysia and Sarawak and Sarah on the island of Borneo. From Singapore's perspective, the merger would open up trade with Malaya by

establishing a common market and would lead to independence from Britain. The Malays,³ particularly the leader, Tunku Abdul Rahman, feared a communist takeover of Singapore and believed a merger would diminish this possibility. The merger occurred on 16 September 1963.

Tunku Abdul Rahman and his Alliance Party headed the new government, now called the Federation of Malaysia, which was headquartered in Kuala Lumpur. Each state, including Singapore, had its own government; held its own elections; and managed education, finance and labor. The central government was responsible for external matters such as defence and foreign policy.

Unfortunately, the planned common market did not materialize, Singaporean industry was not promoted, and the Tunku's political party, the Alliance Party, strongly supported their party members against the PAP in the Singaporean elections. Rumors of ill treatment of Malays contributed to violent communal riots breaking out between Chinese and Malays. Additionally, the Tunku wanted to provide special rights for Malays in ownership and business, which the PAP could not support. Lee's decision to have the PAP, 80 percent Chinese, compete at the national level meant his party posed a threat to the rule of the Tunku's communal Malay party. These factors led the Tunku to decide that Singapore must leave the federation. While Singaporean leaders—in particular Lee Kuan Yew—were reluctant to sever ties, they agreed, and on 9 August 1965, Singapore was separated from Malaysia and became an independent nation.

The same leadership team, Yusof Ishak as the President, with Lee Kuan Yew as the first Prime Minister and head of Cabinet, led the new government of the Republic of Singapore. The legislative assembly was renamed the Parliament, and two months later Singapore joined the British Commonwealth. The foremost politician for the remainder of the 20th Century was Lee Kuan Yew, even now, serving as a senior minister and advisor to the current Prime Minister, Mr. Goh Chok Tong.

SINGAPORE



Singapore is considered one of the cleanest and most progressive countries in Asia. It has gone from an entrepot to a bustling commercial center. As one of the "Asian Tigers," it has become an Asian economic power in the last 50 years. Its economy has shown annual growth rates as high as 6–7 percent over the last ten years. Its per capita income is one of the best in Asia at \$24,600.⁴ From the beginning, the government has played a key and positive role in all aspects of society and the economy. Its efforts have produced a strong manufacturing and technology base. An indication of the strength of the economy was its success in weathering the recent East Asian financial crises with only modest drops in economic indicators.

Chapter 2

THE GOVERNMENT OF SINGAPORE

The Republic of Singapore is both a national and a city government. It collects trash and plans for the national defence. Its territory is slightly larger than three and one half times the city of Washington, D. C. Its current population is estimated at over three and a half million. Three quarters of the population is Chinese, with Malays and Indians being the two other major ethnic groups in the country. Religious issues are also a major concern for the government with three primary religions—Buddhism (Chinese), Muslim (Malays) and Hindu (Indians). Christians, Sikh, Taoist and Confucist make up the balance of religious groups. There are four official languages—Chinese, Malay, Tamil and English. To further complicate the political life and raise security issues, Singapore is surrounded by more than 180 million Muslims in Malaysia and Indonesia.

Singapore is a republic within the British Commonwealth with its constitution dating from 3 June 1959 but amended in 1965 to reflect its independence from Malaysia. Its governing structure is modeled on the British parliamentary system, often referred to as the Westminster Model. To provide insight into the acquisition system, we will discuss the executive and legislative branches of government and their role in defence and acquisition issues. To complete the governmental structure picture, the judicial branch consists of the Supreme Court, separate from the other branches, with subordinate courts. The Supreme Court has the constitutional responsibility to determine whether or not laws comply with the constitution. Its legal system is based on the English common law tradition.

EXECUTIVE BRANCH

President

The President, currently S. R. Nathan, is the Head of State and Commander-in-Chief of the Singaporean Armed Forces (SAF). This position has traditionally been ceremonial, primarily involving the greeting of visiting Heads of State and the appointing of the Prime Minister and other ministers (with the advice of the PM). In 1993 the method of selecting the President was changed and he was given additional constitutional powers. Now the President is elected by direct popular vote for a term of six years. Additionally, he has the “custodial powers”⁵ to veto legislation, such as the budget, and deny appointments to public office. A part of this new authority provides the opportunity for the President to examine the government’s actions in the areas of internal security, corruption and religious harmony. However, the President must obtain the advice and recommendations from a small group of appointed senior advisors, the Council of Presidential Advisors, prior to performing these activities. To make his veto final he must obtain agreement by a majority of the six member of the Council. “Otherwise, the Government can overturn the President’s veto with a two-thirds vote in Parliament.”⁶

Not everyone in Singapore can run for President. A Presidential Election Committee must screen candidates for the requisite experience, reputation, good character and integrity. In 1999 the government found only one suitable candidate and appointed (elected) Mr. S. R. Nathan as the

new President for a six-year term. Even with the new constitutional powers, the position of President has remained primarily ceremonial.

Prime Minister

The Head of Government and Chief Executive of the country is the Prime Minister, currently, Mr. Goh Chok Tong. As is typical of British-style governments, the Prime Minister leads the cabinet and is normally the leader of the majority party in the Parliament. The Prime Minister nominates cabinet member and determines their portfolios, which are then approved by the President. The PM has the authority to remove any cabinet member. He also chairs the Defence Council (DEFCON), the chief military body in the country. This body advises the Prime Minister on security matters and decides the need for armament programs with significant political and economic concerns.

The Cabinet

The Cabinet is the executive and administrative arm of government. Cabinet ministers are

elected members of the majority party in Parliament. In Singapore, since the founding of the Republic, the majority party has been the People's Action Party (PAP). The Prime Minister heads the cabinet and chairs cabinet meetings. The Cabinet sets government policy, and the individual ministers direct the department and ministries within their portfolios. The cabinet is responsible to Parliament. The Office of the Prime Minister coordinates and monitors the activities of all ministries and government bodies and also directly supervises the Corrupt Practices Investigation Bureau and the Elections Department.

The Ministry of Finance (MOF) could be described as the first among equals. This ministry plays an influential role in the development of budgets within every agency. Yearly, each ministry must present a detailed proposal of its spending needs for the next fiscal year. The MOF will then provide approval for submittal to the Cabinet and then the Parliament. Figure 4-1 shows the current cabinet of Singapore.

Prime Minister, Mr. Goh Chok Tong	Minister for Communications and Information Technology
Senior Minister, Mr. Lee Kuan Yew	Minister for Trade and Industry
Deputy Prime Minister, PM's Office	Minister for Manpower
Deputy Prime Minister and Minister for Defence, Tony Tan	Minister for National Development
Minister for Law and Minister for Foreign Affairs	Minister without Portfolio
Minister for Finance	Minister for Health and Second Minister for Finance
Minister for Information and the Arts and Environment	Minister for Community Development and Muslim Affairs
Minister for Home Affairs	Minister for Education and Second Minister for Defence

Figure 4-1. Cabinet of Singapore

LEGISLATIVE BRANCH

Parliament

The legislature of Singapore consists of both the President and Parliament. Members of Parliament are elected by general election every five years or less, if the legislature is dissolved. In the last general election of 1997—the People's Action Party (PAP) won 81 of 83 seats. While there are over 20 registered political parties in Singapore, the PAP was the majority party in the Legislative Assembly (pre-nationhood) and the Parliament since its inception in 1965. Thus the PAP has been the only party to form a government since the beginning of the nation.

Most Members of Parliament (MPs) are elected by universal adult suffrage. However, Parliament has two other categories of members. They are Non-Constituency MPs (NCMPs) and Nominated MPs (NMPs). Up to six NCMPs may be appointed from opposition political parties, while NMPs, who serve a two-year term, are appointed by the President to provide a wider representation of views in Parliament.⁷

Singapore's approach to the election of members of Parliament is somewhat different from the traditional British model. Only nine Members of Parliament are elected by direct election. The remaining 74 members are elected in teams of four to six, called Group Representation Constituencies (GRCs): In these teams, at least one member must be from a minority group—Malay, Indian, or a member of one of Singapore's other minorities. The group representation constituencies were introduced in the 1988 general election to ensure the parliament represented Singapore's multiracial society. Further, all debates and discussions in Parliament are conducted in Malay, English, Mandarin, or Tamil.

The Budget

The defence budget is part of the overall government budget. In February of each year, the executive branch of government introduces the budget to the Parliament for passage prior to the beginning of the fiscal year—April 1.⁸ The annual debate on the Budget Statement begins sometime in late February or early March and lasts from two to seven days. Debate tends to be “big picture” primarily focusing on the government's fiscal policy. This is followed by debate on the Estimate of Expenditures for each ministry, including defence. Following debate is the passing of the Supply Bill (budget). Since adoption of the Supply Bill only requires a majority vote, the ruling party, in this case the PAP, is assured it will always pass. Like all other bills, it goes through the normal legislative process. The government introduces it; it is deliberated in three readings; then passed by majority vote. Once passed, the bill is sent to the President for approval.

Because of the multi-racial and multi-religious nature of the Singaporean society, prior to presidential approval, laws are sent to the Presidential Council for Minority Rights to determine their impact on the religious or ethnic communities within the country or its impact on the fundamental rights of citizens. The Council's advisory opinions carry significant weight, since bills must be revised, or passed by two-thirds approval of the Parliament to overcome any problems. The Council, however, has no power over money bills (the budget), defence and security issues, or urgent legislation.

Role of Committees

After the second reading of a Bill, the Bill is sent to a committee for review and changes, if necessary, and then the final bill is reported out of committee for its third reading. The Parliament of Singapore has two types of committees—

Sessional Committees and Select Committees. Currently, there are seven Sessional Committees covering a variety of parliamentary functions. They are the Committee of Privileges, Committee of Selection, House Committee, Public Petitions Committee, Standing Orders Committee, the Estimates Committee and the Public Accounts Committee. The only two that play a role in defence issues are the Estimates Committee, which examines the government's budgets, and the Public Accounts Committee, which examines government expenditures. There are several *ad hoc* committees called Select Committees, which are created to seek out views of the general public on legislation. There is a third type of committee, called the Government Parliamentary Committee (GPC). These committees, one typically for each ministerial portfolio, such as defence, are designed for two purposes. First, the committees provide fora for public discussions on government activities and, secondly, they provide opportunities for legislative "back-benchers"⁹ to gain experience on issues and obtain visibility with the citizenry.

The Role of the Civil Service

The Singaporean civil service's contribution to the nation has been enhanced by its "squeaky clean" image. Since the founding of the country, the national leadership has emphasized honesty and dedication to meeting national needs. Bolstered by a Confucian and British tradition of service to the country and aided by high salaries to help avoid temptation, the civil servant has played an active role in shaping both the economy and society.

A position in the civil service is a desired job leading to a successful career and providing an opportunity to be considered among the elite of the nation. The general structure of each ministry is to have a politically appointed Minister with two assistant secretaries—one political for parliamentary affairs, and the other, a senior civil servant for administrative affairs. Organizationally, the senior civil servant in each ministry is the Permanent Secretary. The Permanent Secretary, not the Minister, is the "accounting officer" for the ministry and thus has significant power. "The accounting officer is responsible for the ministry's budget and its expenditure, as well as the proper accounting and management of public money and assets."¹⁰

More than 60,000 government employees work in the ministries or quasi-public statutory board or public enterprises. The civil service, as is typical of all civil services, provides the institutional continuity and the management of the ministry. Recruiting from the best local universities is intense with the rewards being special scholarships for study at home and abroad, and future jobs that allow those selected to make a significant impact on the nation. Only those scoring the highest on very competitive written exams are selected for the civil service. They enter one of four hierarchical divisions of the civil service. In some cases, they may enter Division I,¹¹ the professional level, which includes the permanent secretaries. The next two categories, levels II and III, contain the largest group of civil servants who perform the routine work of government. Division IV contains those involved in manual and semi-skilled labor.

Chapter 3

THE MINISTRY OF DEFENCE (MINDEF)

The Minister of Defence and Deputy Prime Minister is Dr. Tony Tan. As shown in Figure 4-2 he is currently assisted by two politically appointed personnel, the Second Minister for Defence and a Minister of State for Defence.¹² There are two *Permanent Secretaries* (senior civil servants), one for Defence (coordinates defence and security policies) and one for Defence Development (development, technology and administration). The Chief of the Defence Force reports to the Minister and manages the military component of the Ministry, the Singaporean Armed Force (SAF).

According to the Asian Military Review, Singapore has been the top Association of Southeast Asian Nations (ASEAN) in acquiring defence capability.¹³ Overall, the MINDEF receives approximately 25 percent of the total government spending, which in 1998 was S\$7.3 billion,¹⁴ equating to 5.1 percent of the Gross Domestic Product (GDP). By law the military budget can be as high as 6 percent of the GDP. In 1998 20 percent of the budget, or \$775 (U.S.) million was earmarked for development and acquisition.¹⁵ The FY 99 budget remained stable at S\$7.3 billion.¹⁶ In Fiscal Year 2000, the MINDEF budget was increased slightly to S\$7.4 billion (4.5 percent of GDP). The total "Security and

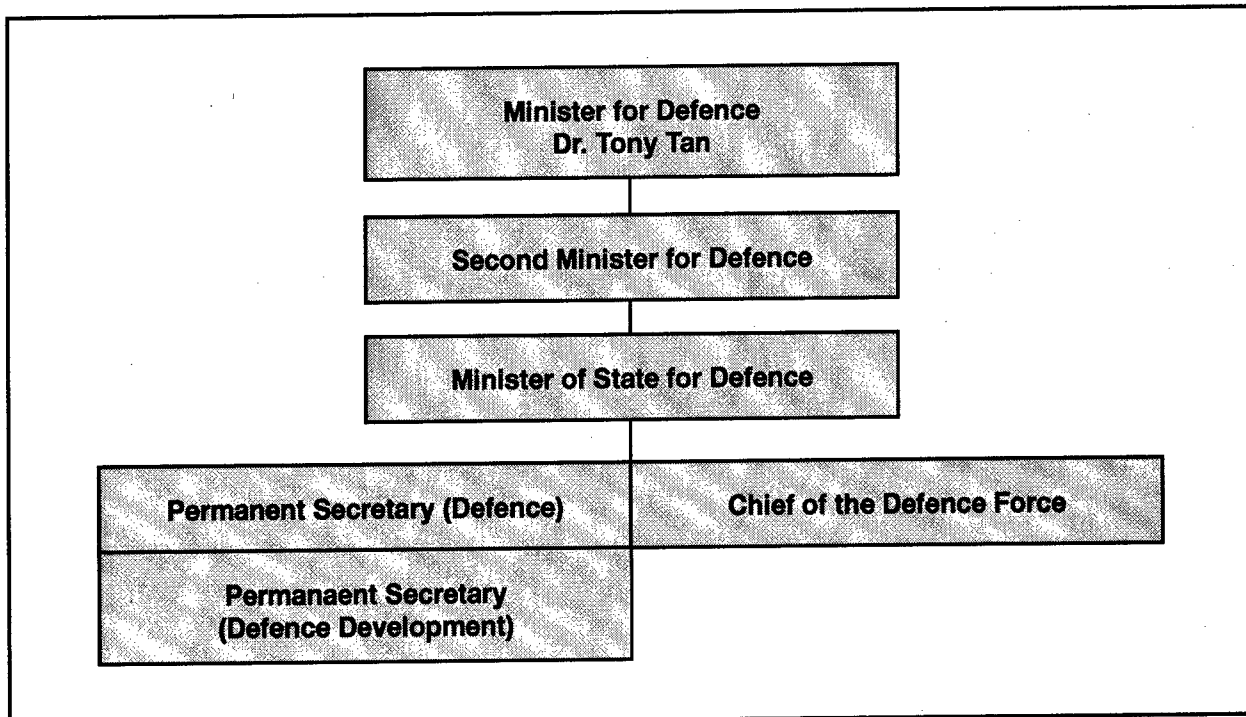


Figure 4-2. MINDEF Organisation Structure

Defence" budget for Fiscal Year 2000 is S\$9.6 —S\$7.4 to MINDEF and the rest—S\$2.2 billion—for security related housing and civil defence type activities.¹⁷

Singapore Armed Forces (SAF)

The military component of the MINDEF is the Singapore Armed Forces (SAF). The SAF comprises the Army, the Republic of Singapore Navy (RSN) and the Republic of Singapore Air Force (RSAF). The SAF is commanded by the Chief of Defence Force (CDF) assisted by the Joint Staff. The CDF exercises command over the three Services Chiefs. The SAF's 50,000 military members include both regulars and full-time reserves, called National Servicemen (NSmen). Over 250,000 reserves are members of the National Service.

The Joint Staff

The Joint Staff plays a significant role in setting priorities, and planning the training and

operations for the three services. Its principal components are the Joint Operations and Planning Directorate (JOPD), the Joint Intelligence Directorate (JID), Headquarters Medical Corps (HQ MC) and the Singapore Armed Forces Training Institute (SAFTI) Military Institute. The SAFTI is an indication of the integrated efforts of the SAF. The SAFTI is the single military academy for all three services providing a joint perspective to future young officers. The Joint Staff also includes personnel in the Manpower Division and the Defence Technology & Resource Office under the control of the Permanent Secretary (Defence Development). (See Figure 4-3.)

CIVILIAN COMPONENT

The executive arm of the MINDEF is headed by a Permanent Secretary (Defence PS (D)), who is assisted by the Permanent Secretary (Defence Development). The Permanent Secretary Defence Development, Mr. Peter Ho, manages the

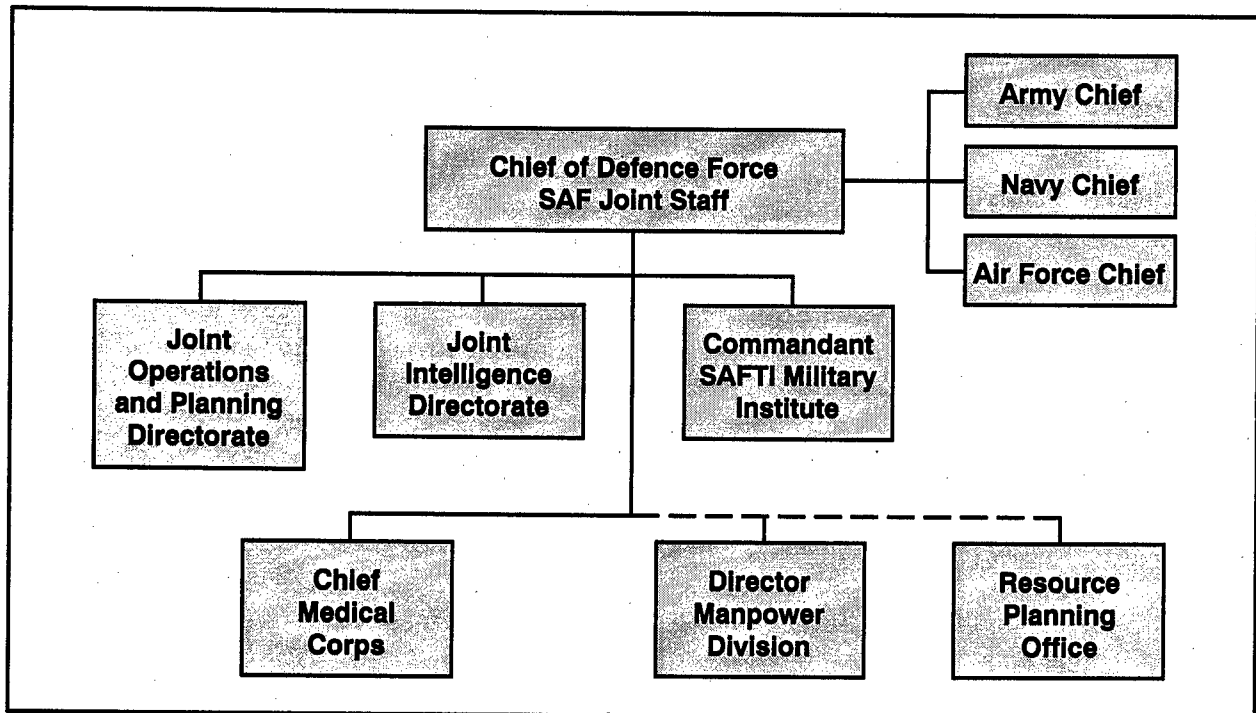


Figure 4-3. Singapore Armed Forces (SAF)

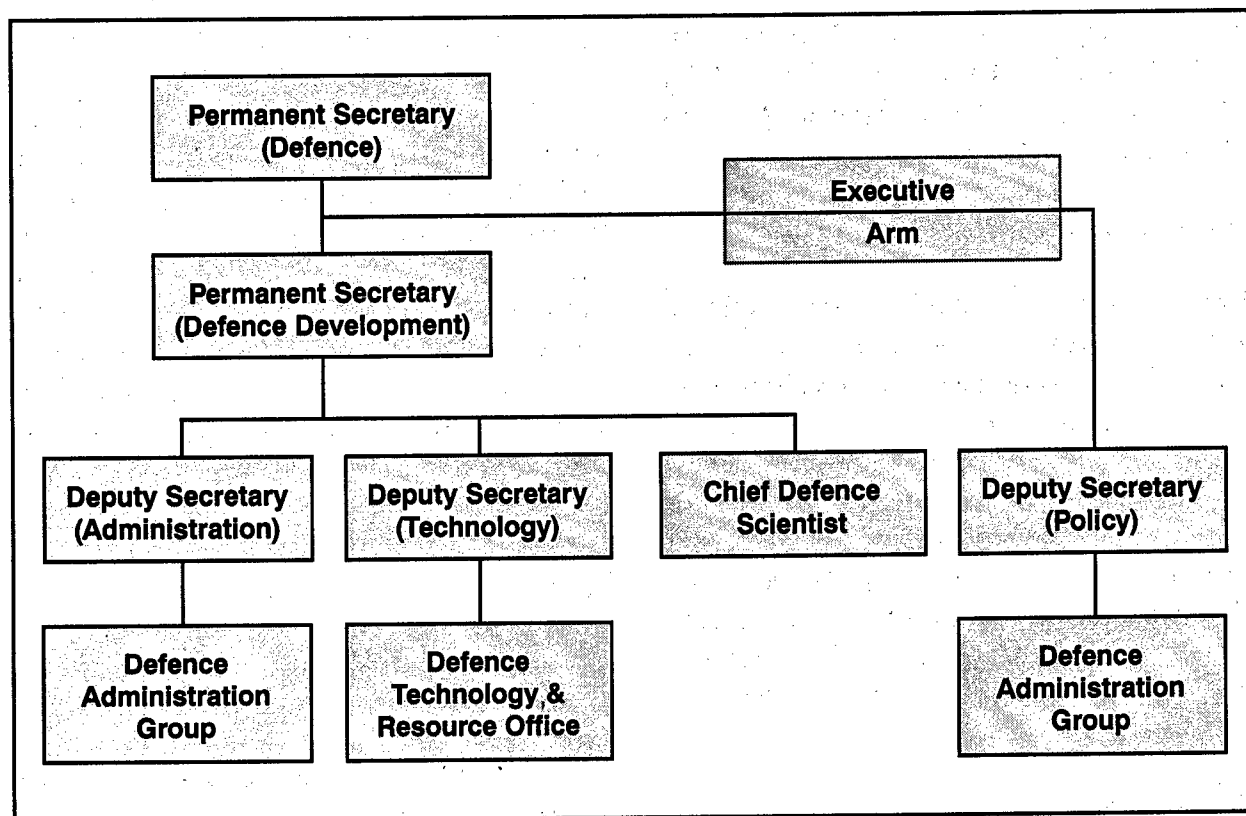


Figure 4-4. MINDEF Organizational Structure

acquisition system and would be considered the National Armament Director (NAD) for Singapore.¹⁸ Reporting to the Permanent Secretary (Defence Development) are two Deputy Secretaries for the Defence Administration Group (DAG) and the Defence Technology and Resource Office (DTRO). Deputy Secretary Policy manages the Defence Policy Group (DPG) and reports to the PS (D). The Chief Defence Scientist also reports to the Permanent Secretary (Defence Development) and provides scientific and technical advice on defence technology for both the MINDEF and the SAF. (See Figure 4-4 for organizational structure.)

Defence Administrative Group (DAG)

DAG is headed by a Deputy Secretary (Administration) who oversees five divisions with responsibility for manpower, personnel, financial matters such as payment of salaries, suppliers

and contractors, and for planning and administration of the defence budget. They are also responsible for management development, training, and legal services.

Defence Policy Group (DPG)

The DPG is headed by the Deputy Secretary (Policy) who is responsible for matters concerning security, defence relations and information policy. DPG provides top-level policy guidance. It is also the focal point for export policy and staff requests for military exports to the approval authorities, generally at the Ministers level.

Defence Technology & Resource Office

DTRO is headed by the Deputy Secretary (Technology). DTRO (see Figure 4-5) is the strategic planner, technology manager and promoter

for the MINDEF. They provide top-level activities with the Defence Science and Technology Agency. policies, plans and budgets and coordinate

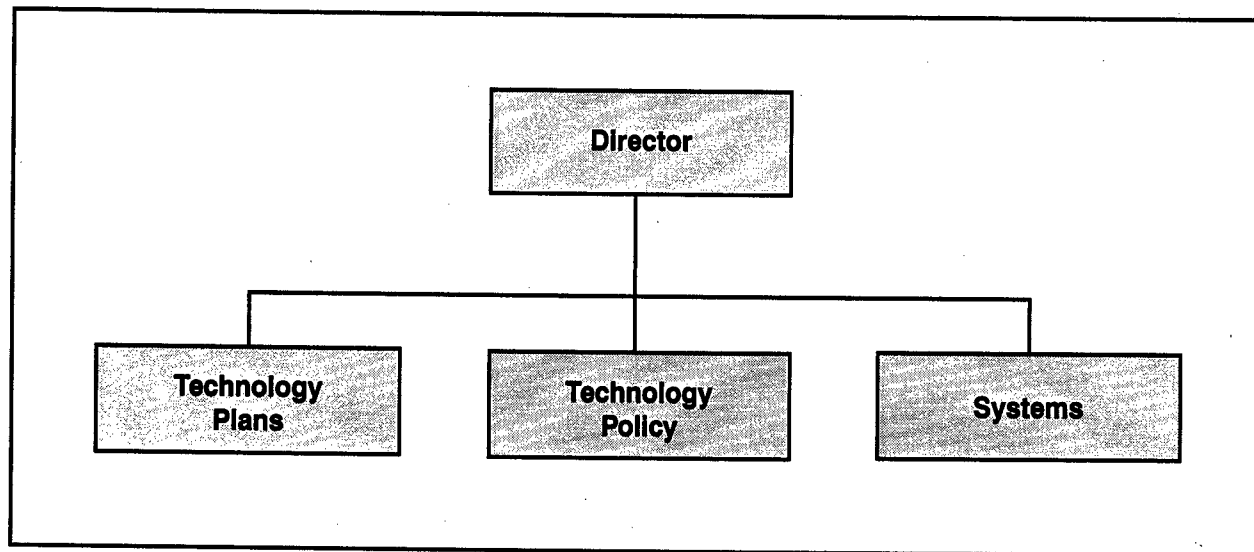


Figure 4-5. Defence Technology & Resource Office (DTRO)

Chapter 4

THE ACQUISITION ORGANIZATION

DEFENCE SCIENCE AND TECHNOLOGY AGENCY

In 1999 the Parliament of Singapore passed the Defence Science and Technology Agency Act. The act created the Defence Science and Technology Agency (DSTA), as a statutory board, to more efficiently and effectively manage the acquisition of materials. This is part of the “corporatizing” efforts that the MINDEF began

in 1997 with the creation of the DSO National Laboratories. This change provides more management flexibility in hiring and retaining personnel and forming strategic alliances with industry and research institutions. Allied to this change is a re-engineering of the organization to improve processes and systems to cultivate an environment conducive to fostering greater initiative and creativity. The Ministry retains control over planning and funding.

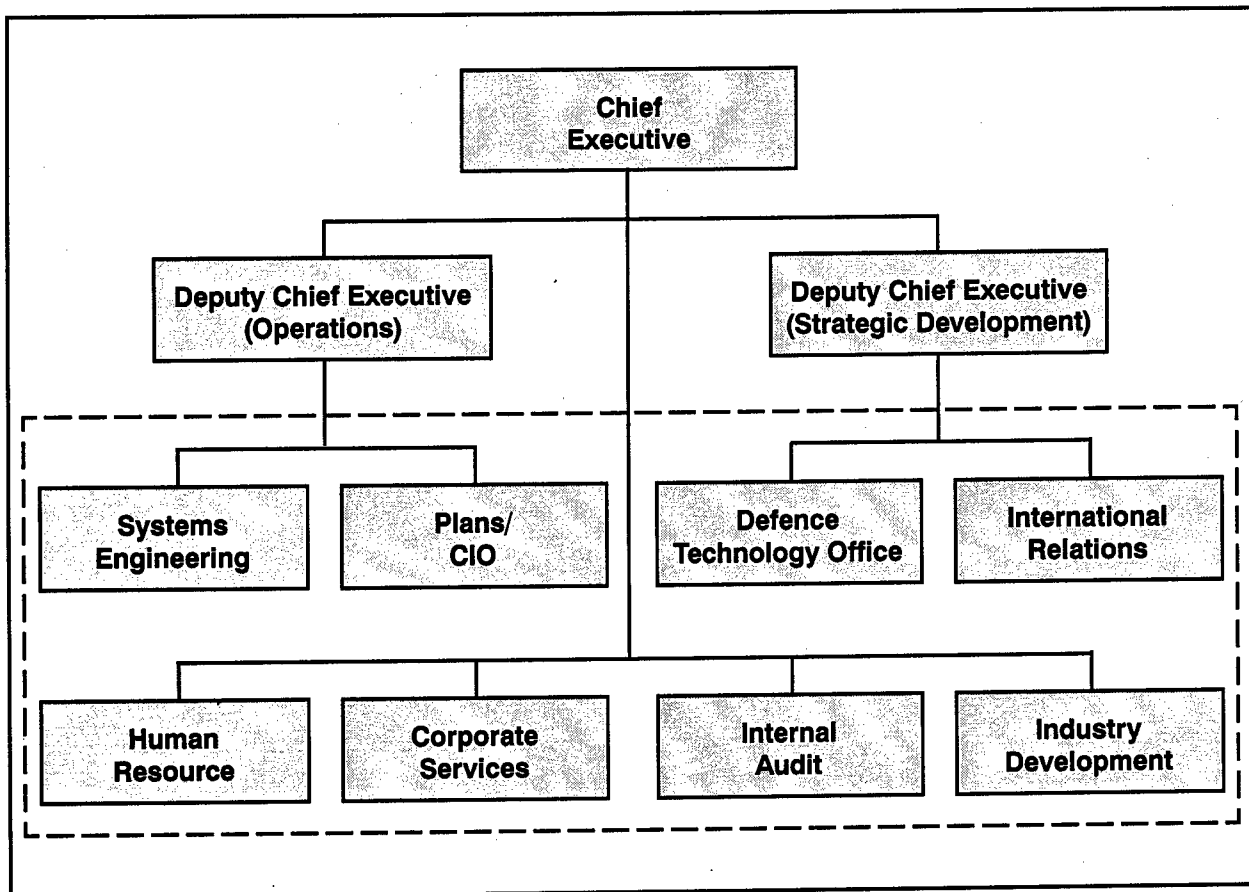


Figure 4-6. DSTA Corporate Entities

DSTA is an agent of the MINDEF and, as such it acts for the MINDEF in acquisition matters. It employs almost 2,400 personnel in the acquisition of materials, technology and infrastructure necessary to support the needs of the SAF. It will also manage the implementation of the science and technology plans of the MINDEF. DSTA is the successor organization to the former Defence Technology Group (DTG) and was formed on April 1, 2000. A Chief Executive, who is supported by two Deputy Chief Executives, one for Operations and one for Strategic Development, leads DSTA.

Corporate Structure

The DSTA Corporate Headquarters consists of eight directorates or offices responsible for system engineering, planning, information management, international relations, industry

development audit and administration and personnel (see Figure 4-6). DSTA also has two Defence Technology Offices: in Washington, D.C. in the United States and Paris, France. They will also provide a technology road map for DSTA's research efforts. The two Defence Technology Offices also serve the direct interests of MINDEF besides DSTA. The Defence Industry Department has responsibility for the indigenous defence industry development and sustenance, to include transfer of technology and know-how to local industry.

Line Organizations

DSTA consists of seven line Program Management directorates and four Line Development, or productions units (see Figure 4-7). The philosophy behind the new structure is a "Program Centric Structure" focusing around a

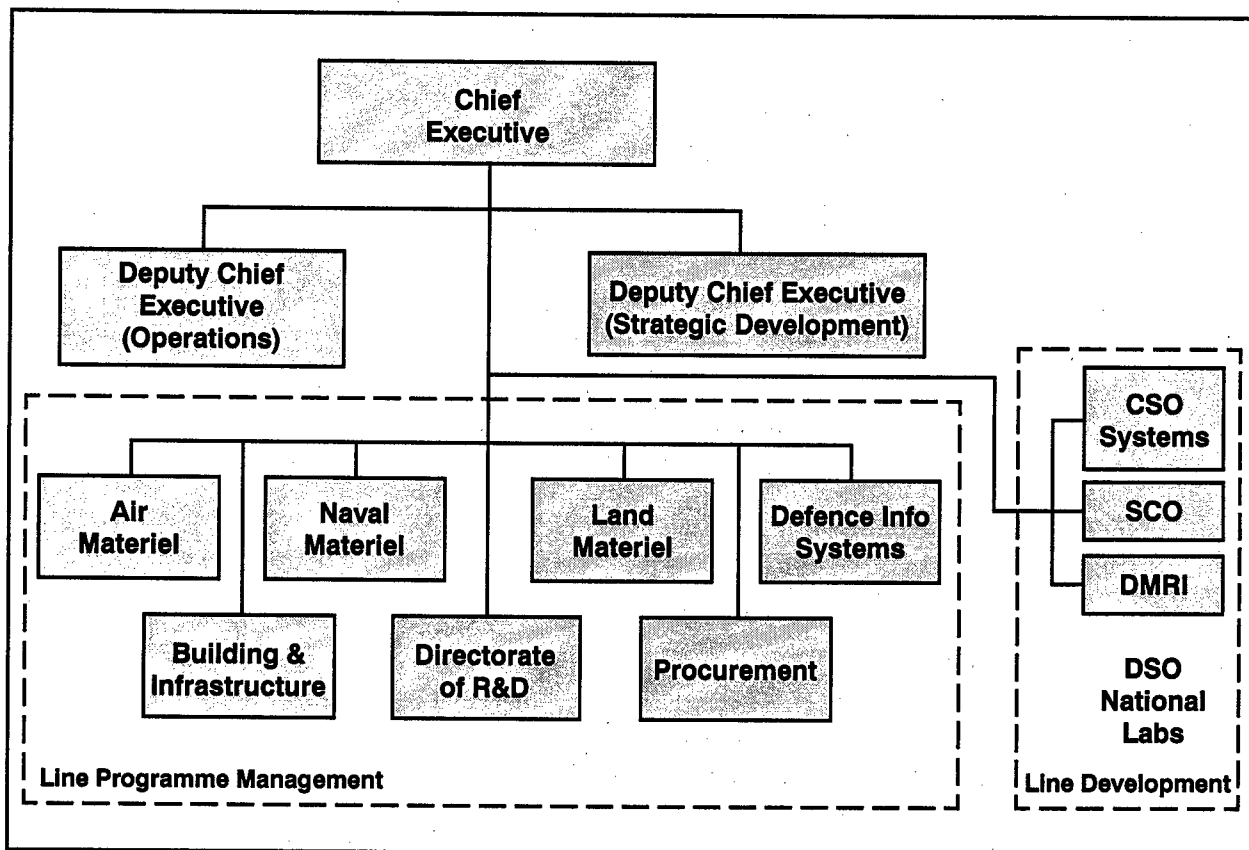


Figure 4-7. DSTA Organisation Structure – Less Corporate Entities

core of integrated program management teams. Closely allied with this theme is the need for a customer focus. DSTA will designate senior managers to serve as “Account Managers” to their customer—MINDEF, the Joint Staff and the three Services. Three of the Program Management organizations—Air, Land and Naval—are aligned directly with their service customers within SAF. The Defence Information Systems will manage Joint and MINDEF information programs. The three remaining organizations are focused on building and infrastructure construction and management, research and development (R&D) of new technologies and Procurement. DSTA’s responsibilities span the entire spectrum of a weapon system, from research, development and acquisition of new systems to modification and updating existing systems. The role of each organization is further described below.

Defence Information Systems (DIS) Directorate

DIS provides program management for joint and service command, control, communications, mission planning, computer and simulation systems throughout the life cycle of a system.

Line Service Centric Program Management Organizations

The Air, Naval and Land Materiel Directorates are the program managers for new equipment or systems acquisitions. They perform market research, develop the acquisition strategy, evaluate offers, select the contractor and manage the project once DPD has awarded the contract. Its multi-disciplined and technically competent engineers have delivered defence systems such as the Patrol Vessel, Upgraded F5 Fighter, FH2000 Artillery Gun, Barak Anti-missile Missile, and Infantry Fighting Vehicle.

Defence Procurement Directorate (DPD)

DPD is responsible for the procurement of materials and services for MINDEF. It is also the central authority for disposal management for the Ministry (see Procurement section for more information on DPD).

Directorate of Research and Development (DRD)

DRD is the research and development (R&D) manager for the Ministry. DRD has responsibility for building up critical R&D capabilities within the country. Their work involves technology and exploratory development management to include oversight of technology and exploratory development projects. This includes fostering cooperation with both international and local research and development academic institutions. It plays a role similar to the Defence Advanced Research Projects Agency (DARPA) in the United States.

Building and Infrastructure Directorate (BID)

BID is responsible for the planning, designing, developing and maintaining of defence facilities. They have handled a wide range of building projects to include building the new Changi Naval Base which can berth aircraft carriers. Many of these operational facilities are among the first in this region and are built with protective capability. BID is also the authority for conducting explosive testing for protective technologies.

LINE DEVELOPMENT

Line Development includes the Systems and Computer Organization (SCO) which has responsibility for Management Information System (MIS) software development, Command

Control, Communication, Computer, Intelligence (C4I) software development, the Defence Medical Research Institute (DMRI), previously part of DAG, and the Defence Science Organization (DSO) National Laboratories.

DSO National Laboratories

The DSO National Laboratories are an affiliated company of DSTA. DSO's 500 engineers handled over 400 projects and generated revenue of \$198 million in FY 1998, conducting research and development in science and technology to support Singapore's defence and to contribute to the economic development of the country. DSO was "corporatized" in 1997 as a not-for-profit company to enable them to attract

employees and provide better service to the MINDEF and SAF. Currently they provide support for Technology Development, Exploratory Development and Full Scale Development. Their research efforts cover a wide variety of areas, such as aeronautics, signal processing, chemical defence, computer networks, electromagnetic, materials and mechanics. As shown in Figure 4-8, DSO is led by a Chief Executive Officer (CEO) with a management team that includes three Directors—Corporate Affairs, Research and Advanced Development. Twelve centers, each reporting directly to the CEO, are shown below.

The DSO does a significant amount of research with local industry, universities, and research

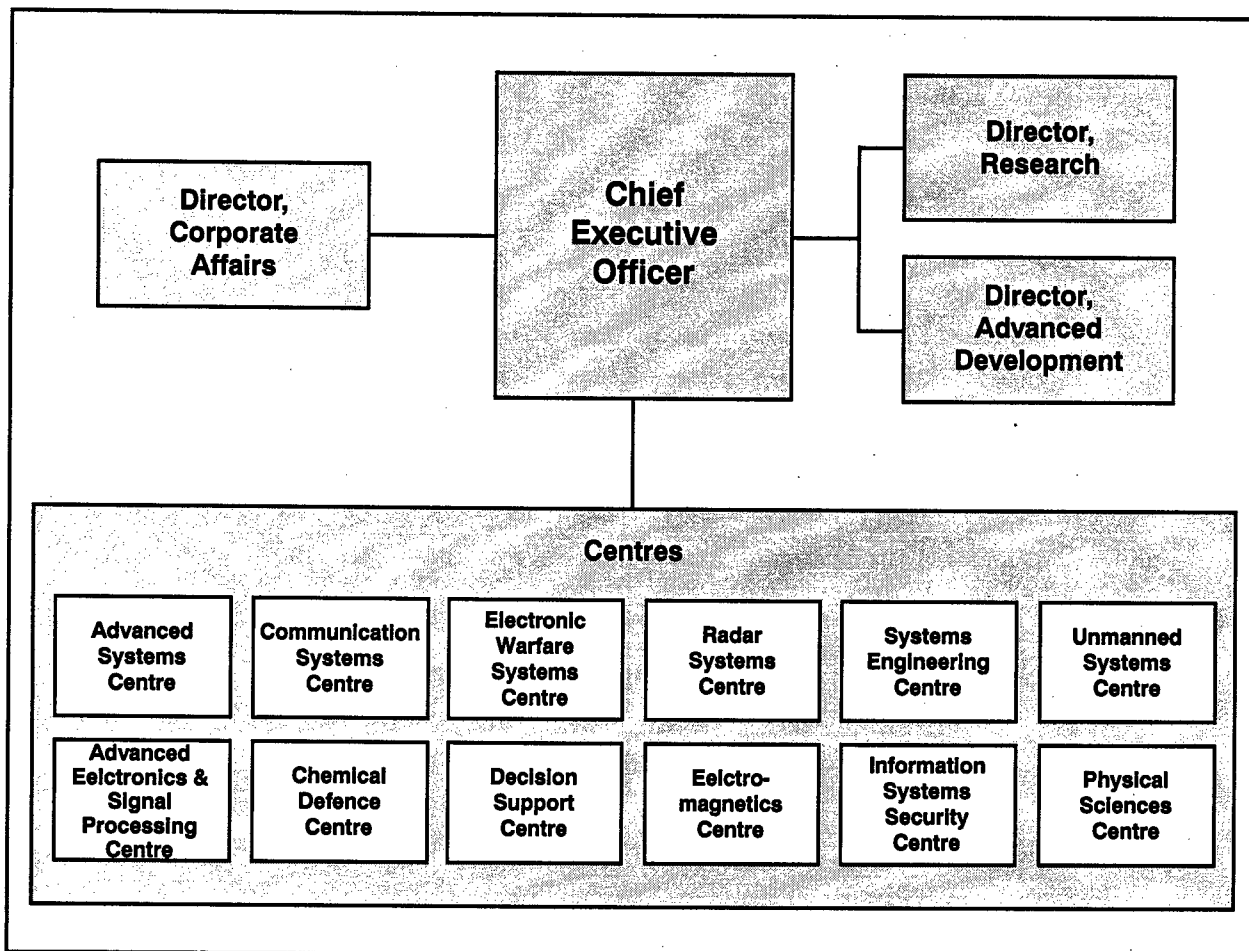


Figure 4-8. DSO National Lab Structure

institutes, such as Nanyang Technical University (NTU) and National University of Singapore (NUS). They also have established international partnerships with other countries such as the United Kingdom—Defence Evaluation and Research Agency (DERA), France—Délégation Générale pour l'Armement (DGA) and the United States—Naval Postgraduate School (NPS).

Systems and Computer Organization (SCO) Directorate

The SCO's more than 400 employees provide the MINDEF with the capability to develop and maintain the latest in Information Technology (IT). They are the planner, architect, system developer and maintainer of MINDEF information systems. They are also a service provider managing computer centers for the internet and email network. The range of their responsibilities includes the Tri-Service Integrated Logistics Management Information System, Training Systems, Financial and Accounting Management and many others MIS systems.

The Command, Control, Communications & Computer Systems Organisation (CSO) Directorate

CSO's 400 engineers provide engineering support for command, control, communications, mission planning, computer and simulation systems throughout the life cycle of a system. CSO is headed by a Director who is assisted by

a Deputy Director (Technology) and a Deputy Director (Operations). They have nine technical divisions which are organized by services needs and by technical functions that cross service specific lines, such as dual use systems, simulation systems, and information systems. They covers all stages of the system development processes from planning, design, development, integration and testing to operations and support engineering.

Defence Medical Research Institute

DMRI is a medical research institute with responsibility to coordinate and conduct human science and biomedical research. This is done with the view of enhancing safety, survivability, and performance of service personnel. Their three divisions—Applied Physiology, Human Factors and Molecular Genetics—follow worldwide military medical developments. They also have three research facilities—Applied Physiology, Human Factors and Molecular Genetics Laboratories.

DSTA's Linkage

Figure 4-9 provides a visual depiction of the relationships between DSTA and the many organizations involved in acquisition. In this new operating environment they will seek to further strengthen their relationships both with local industry and research organizations, international partners both governments and industry.

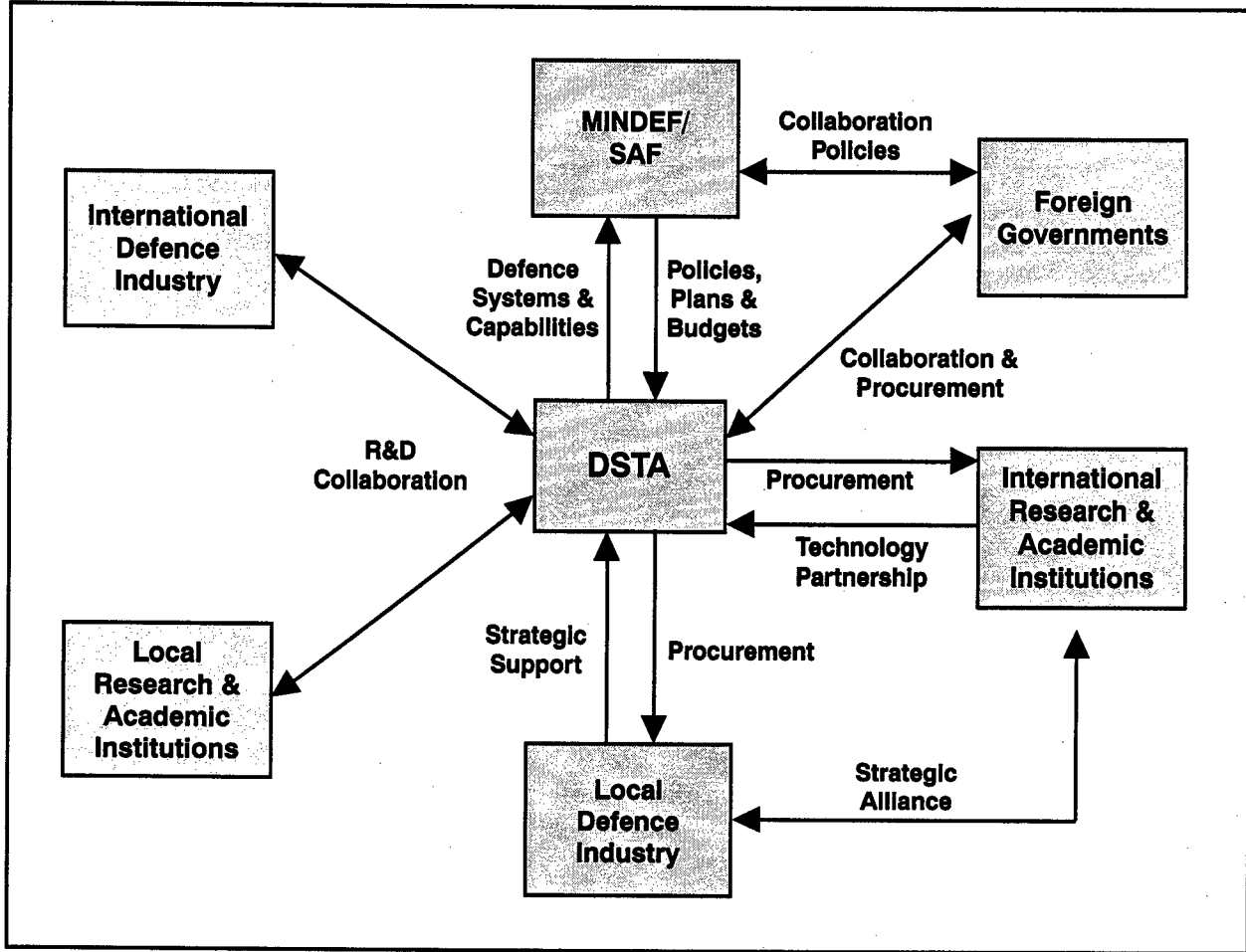


Figure 4-9. DSTA's Linkages

Chapter 5

REQUIREMENTS, PLANNING, AND BUDGETING

Requirements Generation

The first step in any acquisition is the development of an operational need. This starts on the military side of the organization—the SAF—where operational needs and weapon system requirements are developed within the Service Headquarters' Plans Departments.¹⁹ Once a need has been conceptualized, the armed forces will staff their requirement papers for discussion and approval to their respective Service Chiefs of Staff, usually at a staff meeting. An approved item then goes to the Joint Staff for validating the military need and prioritization. It then moves on to senior levels within the MINDEF for approval as a "project" to garner funds enabling it to become an acquisition program. The approval level of the requirement, depending upon dollar value, will be at a committee meeting of the Committee for Review of Requirements (CRR) chaired by the Deputy Secretary, the Weapon System Committee (WSC) chaired by the Permanent Secretary or the Headquarters Committee chaired by the Minister. Once a project is approved, the Specific Operational Requirements (SOR) document will be submitted to the Defence Technology Group for acquisition.

Planning and Budgeting

The overall framework for defence planning includes two related concepts "Diplomacy and Deterrence," which have been articulated for more than 20 years by senior government leaders. "Total Defence" provides the overarching guidance

for the capital equipment investments of the Ministry. Originally, the Singaporean defence approach was termed "Forward Defence," which was modeled on the Israeli approach and envisioned pre-emptive strategy based air superiority, armor and mobility. Today, "Total Defence" calls for a small, well-equipped military force backed by a large well-trained reserve force and an extensive civil defence organization to deter or overcome aggression. "Total Defence" is a broad-based national plan with the following five key aspect:

- Psychological Defence
- Social Defence
- Economic Defence
- Civil Defence
- Military Defence.

Total defence requires a strong economy, well-prepared military, harmonious societal relations, emergency response, and commitment to Singapore.

Within the "Total Defence" concept the armed forces develop a Long-Term Plan (10 Years) and a Five-Year Plan which covers the requirement needs of the armed forces. Yearly, each service submits its 5-year and 10-year plan in which requirements are identified and justified in a joint forum. Priorities are set centrally by the Joint Staff with the Joint Operations and Planning

Directorate (JOPD) as the responsible organization. To implement the long-term plans a more detailed two-year Procurement Plan is developed between the Services and DSTA, which identifies the individual projects that will be funded and acquired. All plans are classified. DSTA then converts operational needs, as described in the SOR, into various technical options, including the acquisition methodology, which in turn is approved at the appropriate level.

“Many countries determine their defence budget the conventional way, that is, by basing it on an assessment of threats. Singapore uses an unconventional method—its defence budget is fixed at 6 percent of the GDP, the level needed yearly for sustaining and strengthening its defence capability.”²⁰ With the six percent as a cap, the yearly budget activities, as depicted in Figure 4-10, begin with the Services preparing their budget estimates in the May–July time frame

and submitting them to the JCS. The budget estimates then go to the MINDEF, the Defence Finance Organisation (DFO) within the Defence Administrative Group, which in turn submits its estimate to the Finance Ministry in November. After MOF approval, the estimate is sent to the cabinet in the December–January time period. After cabinet approval, the budget is submitted in February to Parliament.

Once the Supply Bill (budget) becomes law, funds are allocated for new investments to the Ministry and, in turn, to the Services. Thus, each service, in accordance with the approved plans has responsibility for spending money based on its investment needs. The services can make minor adjustments to allow for unplanned events. No specific line item exists for research and development. Rather a project comes with “funds” and then a determination is made to develop a new item or buy an existing item.

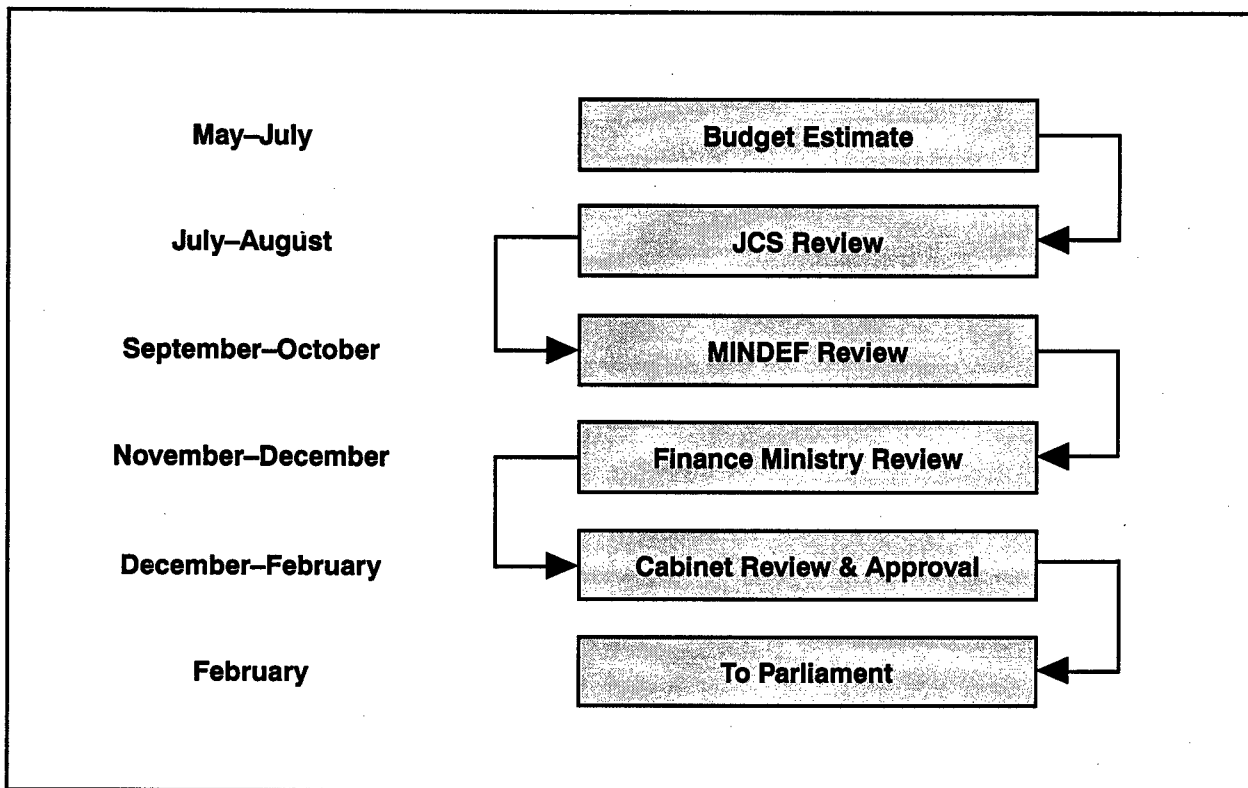


Figure 4-10. MINDEF Planning and Budgeting Process

Chapter 6

THE DEFENCE ACQUISITION SYSTEM

The Singaporean defence acquisition system has evolved over the last thirty-five years from one of a “smart user” to a “smart buyer” and now moving into the realm of a “system designer and integrator.” This requires the development of policies, procedures, personnel within the government and nourishment of a defence industry capable of developing and producing sophisticated defence equipment and system.

So far, we have described the acquisition organizational structure and the planning and programming necessary for acquisition of new equipment. Now we will switch to the policies, procedures, management approach and education of acquisition professionals.

There are three general approaches to finding the most cost-effective way to acquire a new capability—upgrade current equipment, buy new existing equipment, or develop a new item.

The first course of action the MINDEF would evaluate to enhance their military capability is to upgrade existing equipment.²¹ In implementing this policy, concerted efforts have been made to upgrade aircraft such as the A-4 and F-5 fighter upgrades and C-130 tankers and army tank upgrades for the AMX-13 and M-113 Armored Personnel Carrier. If an upgrade is impracticable, then the policy is to acquire new equipment. “Indigenous development programs must stem from a bona fide military requirement that cannot be satisfied through import purchases,” said Su Guaning, Deputy Director of DSTA.²² Equipment purchases, which have been

primarily aircraft from the United States, are the second priority. Over the last ten years the MINDEF has spent almost \$2.5 billion dollars buying U.S. fighters—F-16, A-4s, F-5s, transport—C-130s, reconnaissance and air control—E-2s, and helicopters—Ch-47s, and UH-1s.²³ Finally, if the first two approaches are unable to satisfy the military requirement, they will embark on a development program. The Singapore government has shown increasing interest in local promotion with efforts in the development of new naval vessels such as the Victory class corvet, the new Fearless class of patrol vessels, and the Bedok class Mine Counter-Measure Vessel (MCMV). Overall sales to the local defence industry were less than S\$500 million out of a 1998 Defence Budget of S\$7.3 billion.

Procedurally, once the Services have provided their SOR, their operational need, and a prioritization of the project, the DSTA will convert the operational need into various technical options. Based upon the available technical options, an acquisition methodology or approach (e.g., local development) will be determined and endorsed at one of the regularly schedule meeting of the Approval of Requirement Forum (AOR).²⁴ By U. S. norms a unique feature of the process is the AOR approval of the entire program including a commitment to long term budgeting. “Once the Singaporeans authorize a project you can be sure they are committed to it.”²⁵ Although the budget still has to be justified each year, a program that meets its requirements will not suffer the

financial uncertainty that often exists in other countries.

Once approved, the DSTA will begin acquisition of the equipment or weapons system. The acquisition approach for existing items and overseas purchases are discussed in the Procurement section.

In those cases where a new development is required, the equipment or system will take the following route—planning, design, development, integration and testing, and then operational deployment and support. The first part of the process—planning, design, development integration and testing—can take a long period of time. “Typically, from conceptualization to...operational deployment, a total cycle time of 10 years may be required.”²⁶ The Infantry Fighting Vehicle (IFV) is a good example of this.

In the late 1980s, the Army decided they needed a new fighting vehicle. The acquisition organization, with the Army, conducted a market survey of existing platforms. None met the tough operational needs of the Army. The choice was to settle for meeting only some of the requirements by upgrading an existing platform or buying a new one. At the same time local industry—Singapore Technologies Automotive (STA), on its own initiative and at its own cost,

produced a sample to demonstrate the capability to meet the SAF requirements. The decision was made to embark on a development effort to field a system that would meet the Army’s demanding parameters. STA and acquisition engineers spent the next couple of years working on early prototypes of a lightweight, highly mobile, well-protected IFV. After many trials with these early prototypes, the MINDEF awarded a contract for the final prototype and pre-production models in January 1995 of the IFV, which is now nicknamed the BIONIX. In September 1997, seven years later, the first article units were rolled off the production line. After successful trials, production delivery began in 1999 with the delivery of 300 units.

While planning, developing, and testing are the normal activities of acquisition in the MINDEF, as in other defence acquisition organizations, it has a “formal” division of acquisition activities into phases. The four phases are depicted in Figure 4-11. Front-end Planning, Operational Requirements, Engineering, and Program Implementation phases. The first three phases mostly cover the research and planning necessary to begin the development or acquisition of a system. The phases are system specific, as each program will vary based on the amount of time and effort required for each phase. The following paragraphs include a discussion and explanation

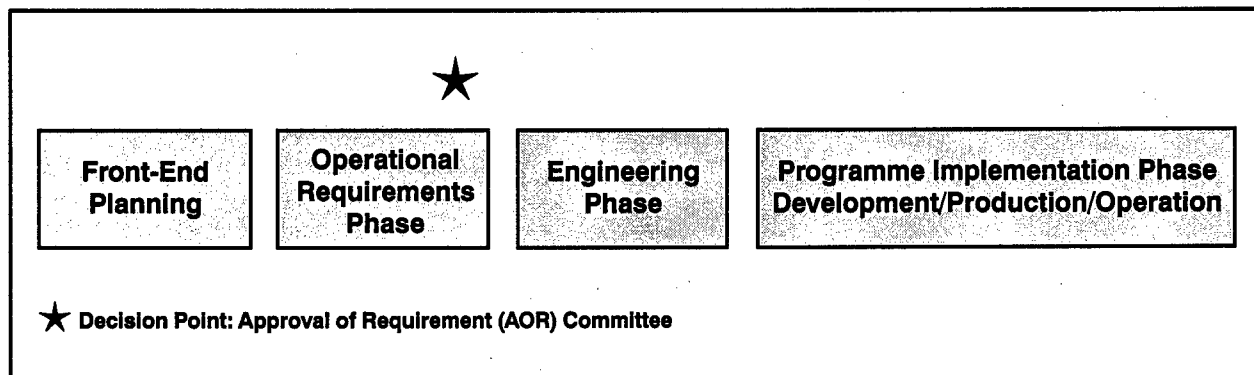


Figure 4-11. Acquisition Process

of the activities that take place during each phase.

Front-end Planning

This phase primarily involves the search for technologies to enhance operational effectiveness. DRD, the Service, and other offices within DSTA, such as Air Materiel are all involved during this phase. They will participate with researchers from industry, from the National University of Singapore (NUS) and Nanyang Technological University (NTU) and others.²⁷ A Joint Fund is created from which the costs of each project are paid.

The work in this phase is sometimes based upon military requirements (demand-pull) and sometimes based upon technological opportunity (technology push). "Currently, MINDEF does set aside a portion of its R&D funding for the exploration of future technologies and system concepts to ensure a good balance between technology push as well as the demand pull. That is, what the users want today and what the technology can offer perhaps tomorrow. This has been an integral part of MINDEF's policy on research and development for many years."²⁸ It is recognized that the known needs of the customer must be met, but also that the technologist has a role in identifying and researching improvements that will increase military capability.

Operational Requirements Phase

It is during this phase that the armed forces specify their operational requirements in the SOR. The DSTA will take these requirements and conduct exploratory studies to flesh out the requirement and in some cases develop prototypes to demonstrate technical capability. The DSTA program management office (PMO) in the Land, Air and Naval Directorates will be involved in this phase.

Engineering Phase

The design in this phase is solidified. The required engineering specifications are completed, including technical performance and interface with other systems. Technical trade-offs and various technical options are considered. This is the crucial stage because the selection of the final contractor is made during this phase. The Program Management Office will determine the technical worth of industry proposals. Not only will cost be evaluated, but also engineering performance, quality, and the contractors implementation approach. The selection of the final contractor is often a trade-off since existing vehicles usually do not meet all the requirements needed by the military.

Program Implementation Phase

This is the final phase and entails the expenditure of significant amounts of work and money. The appropriate PMO manages the system development or production to ensure project completion on time and within budget. If it is a C4I system, DIS is the program manager. Various major activities occur during this phase beginning with Full Scale Development, test and evaluation of the equipment and then its production and entry into service. There are several design and testing steps that a product must go through. During Full Scale Development, the Preliminary Design Review (PDR) and the Critical Design Review (CDR) are the "go, no-go" points for continuing with a project. Next acceptance and reliability tests and installation and integration checks are conducted to ensure that the system meets its contract requirements. From that point, the program will "transition to production." The next two key events involving the SAF are the Initial Operational Capability (IOC) and Full Operational Capability (FOC). IOC is the date when the system is first introduced into an operational unit with appropriate training of personnel completed and logistics support

available. With final delivery of all equipment to operational units, the SAF will achieve Full Operational Capability (FOC).

Two final thoughts on acquisition phases. First, throughout all these phases, the DSTA and the military user are partners in the process. The services are a part of the team and involved in the management of the program ensuring that the final product meets the services' operational needs. Secondly, while development projects are accomplished within this process, the MINDEF normal buys "off-the-shelf" items, i.e., they go from operational need to products available on the markets to fulfill the need. This significantly shortens the cycle time to achieving IOC and FOC.

Test and Evaluation

Singapore is a small country and does not have a lot of territory for testing of aircraft, munitions, tanks and other military equipment. This restricts its ability to perform the extensive operational testing other nations often conduct. The MINDEF approach to testing depends upon the type of equipment they plan to acquire. In general there are two categories of testing—production and operational testing. The first is production testing

of equipment, which is conducted by the contractor. After completion of its in house testing a contractor will issue a certificate of compliance and a certificate of conformance to confirm the item meets the military contract specification. Often sample testing will be conducted by the contractor to verify compliance.

The second category of testing concerns how well the equipment performs under battlefield conditions—the operational environment. An operational test team, part of the Program Management team, is formed for each program. In evaluating the operational effectiveness of an existing item, MINDEF acquisition and military personnel will assess the operational envelope—the limits of the equipment prior to its entry into the inventory. If the equipment is to be bought "off-the-shelf" then during the selection process the team will have access to data that indicates how the item has been used and the limits of the equipment. Once the equipment has been acquired it will be tested in operational scenarios to determine its most effective use. For items that are developed locally, such as the BIONIX Infantry Fighting Vehicle, the developing contractor (STA) and the test team, in this case from the Army, will conduct operational testing locally, if possible.

Chapter 7

PROGRAM MANAGEMENT

There is no “official” dollar value designation for Major Systems, as is traditional in the United States. The larger the dollar amount and the complexity of the project require that more senior level management is involved; but the process is handled as part of the normal business activities of the MINDEF.

Depending upon the nature of the project, the acquisition Program Manager (PM) will come from one of the Directorates in the program management line part of DSTA. The PM is responsible for the project cost, schedule and technical requirements. The program manager is vested with significant authority to manage the program, as needed, to meet the various requirements of the program. The PM leads a small team, usually five to seven people, depending upon the needs of the project.

The personnel on the team will have an engineering background and approach the project with a systems integration engineering approach. The strength of the team is based upon its ability to bring together all the necessary players to make a program successful. The formation of Integrated Management Teams (IMTs) lends itself to this. These teams consist of representatives from the user organizations, the technical and logistics specialist and contract specialist. Figure 4-12 shows a typical team structure. The PM has the ability to call upon other organizations for additional support.

In recent years, the MINDEF has emphasized the need for cooperation among the various players in acquisition through “project teams.” The Defence Technology Prize²⁹ was given last year to the “BIONIX” product team for their superior efforts. The BIONIX team included

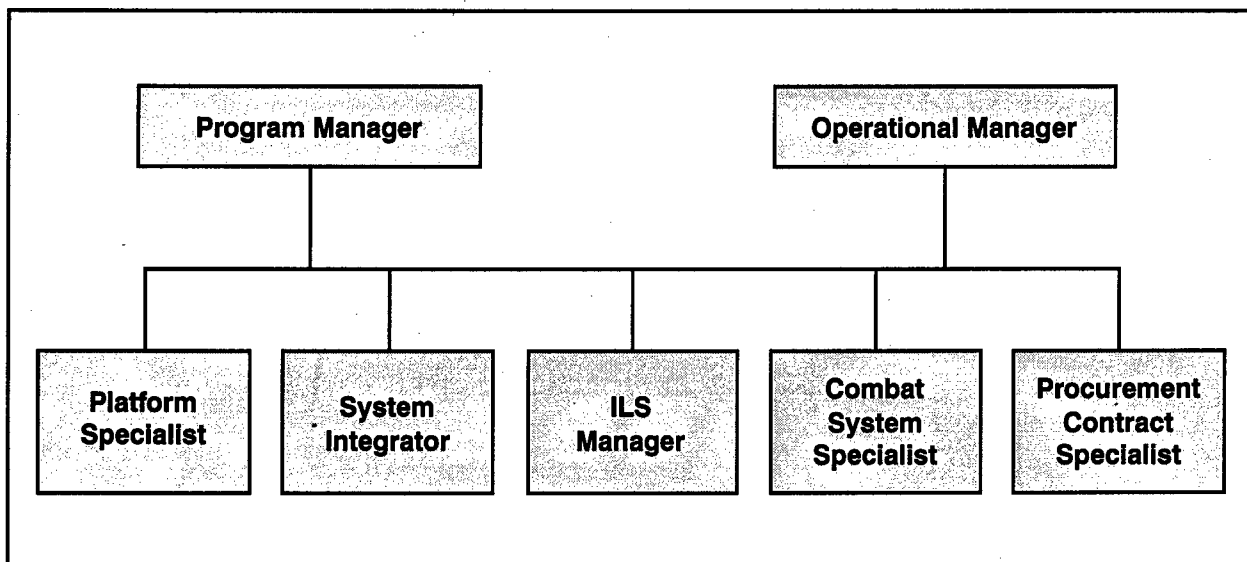


Figure 4-12. Integrated Management Team Example

industry—Singapore Technologies; user representatives—G5 Army and SAF HQ Armour; and engineers from DSTA. The BIONIX team was somewhat unusual in the level of senior management interest. Because of its large dollar investment and high visibility, a senior steering committee was formed, co-chaired by the Chief of Staff of the Army and the Deputy Secretary (Technology), to oversee the program.

Acquisition Education

The Ministry of Defence puts a heavy emphasis on training personnel overseas. "We have active programs in which we send people to academies overseas to interact with our friends and partners...When they come back they join our defence technology group. They go into research and development, acquisition management, engineering and maintenance. This is a strength for us, because it keeps the lifeblood flowing."³⁰

The personnel who manage acquisition programs in the Republic of Singapore enter service with a degree. They learn the specifics of program management through On-Job-Training (OJT), with additional training at universities locally and overseas and short-term courses. They award sixty undergraduate local or overseas scholarships, plus twenty Masters or PhD scholarships every year under their Defence Technology Training Award program.

The MINDEF recently instituted a new short-term training course called the Defence Management Systems Course, which brings together middle managers for five weeks from the three services, the civilian component of the MINDEF and industry. Using the case study method the Defence Management Systems Course covers a wide variety of topics from strategic planning, technology, manpower, finance, and logistics, to organizational effectiveness.

Chapter 8

THE PROCUREMENT PROCESS

The Defence Procurement Directorate (DPD) of DSTA is responsible for setting MINDEF procurement policy. They are also the primary buying organization within the MINDEF purchasing a wide variety of products from multi-million dollar weapon systems such as vessels, submarines and Infantry Fighting Vehicles (IFVs) to spare parts and commercial items. They are organized internally into groups that focus on specific customer needs—land, air and naval (see Figure 4-13). It is estimated that they spend approximately S\$2 billion per year. Other MINDEF organizations have limited buying authority, but act under the policies set by DPD. The other organizations are the Building and Infrastructure Directorate for construction, the Systems and Computer Organisation (SCO) for computer and computer related equipment, CSO for C4I systems and related equipment and services, plus the individual military services for lower value local purchases. DPD also provides

“professional direction” over the Army, Navy and Air Force Logistics Departments when they are procuring items

MINDEF procurement policy and principles comply with the 1994 World Trade Organizations (WTO) Agreement on Public Procurement.³¹ To comply with the WTO agreement they have developed an “open and transparent tender system” designed to provide information on future acquisitions and insight into their decision process. The law governing their procurements is the Government Contract Act and the Minister of Finance implements this law with a regulation—the Instructional Manual # 3, Stores and Services.³²

The basic policy of the DPD is to get the best business deal by making all acquisitions competitive. Sole-source contracting is permitted only for cases involving emergency, public

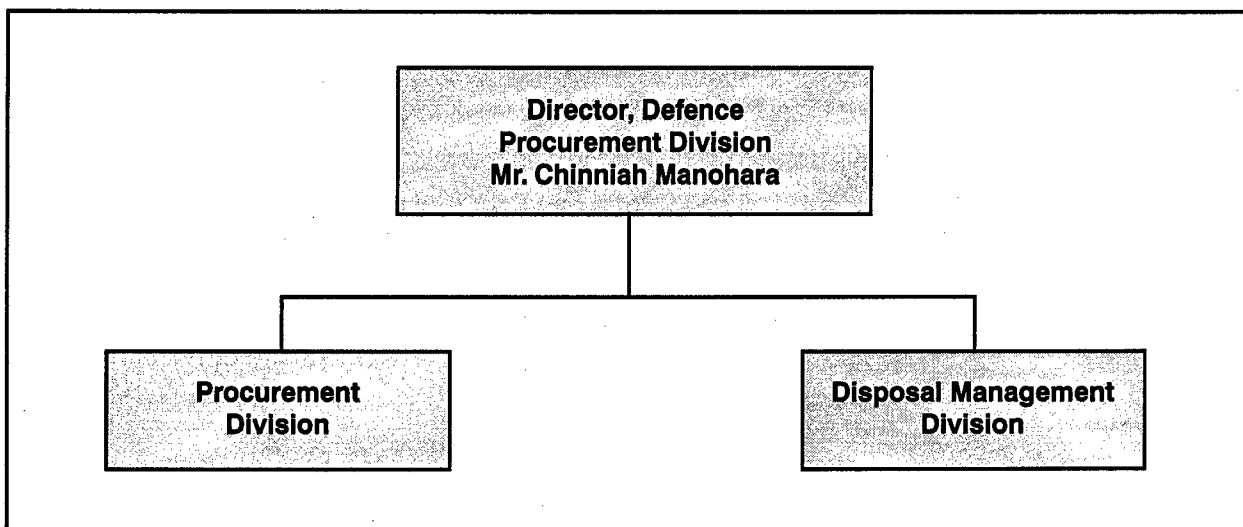


Figure 4-13. Defence Procurement Division

interest, small dollar buys, or when only one source exists. Senior level approval, at the Permanent Secretary level, is required for sole source acquisitions.

There are two general methods of solicitation— Invitation-To-Quote (ITQ) and Invitation-To-Tenders (ITT). ITQs are used for low cost requirements, typically off-the-shelf items. ITTs are used for higher-value complex items.

There are two types of tenders—Open and Closed. An Open Tender is widely advertised in the local newspapers and on the Internet and it is open to all sources. Closed Tenders restrict the number of sources that may bid for a variety of reasons such as classified tenders.

Once the decision has been made to compete an acquisition, DPD will issue an Invitation to Tenders (ITTs) to interested sources. The ITT document specifies the Terms and Conditions of the Contract, Conditions of the Tender and the Specifications. The next step is for interested

companies to submit a Proposal. Then, DPD, with the Program Management Team, will evaluate the proposals to achieve the best “Best Value for Money” with a technique called the Analytical Hierarchical Process (AHP).³³ In this process, selection of the best offer is evaluated based upon an analysis of best value characteristics, such as meeting the DPD specifications, price, past performance and life cycle cost. These factors will vary depending upon the requirements of each acquisition. In some cases, samples are submitted as part of the evaluation process.

Their goal of selecting the “Best Value for Money,” proposal can include many factors that add “points” to an offer. For example a “Best Value for Money” determination could include the availability of training facilities. With the lack of air space in Singapore for training, the availability of training opportunities at overseas bases adds additional value. With the purchase of 12 new U.S. F-16s from Lockheed for \$350 million (\$585 million) training opportunities

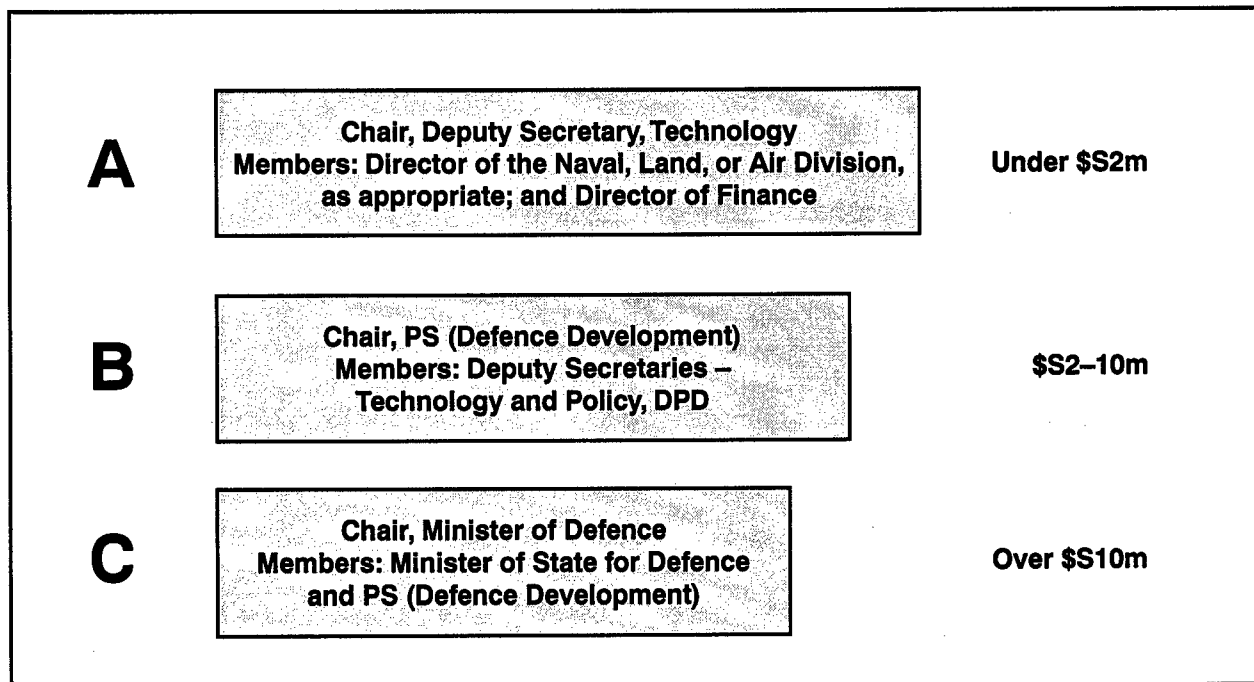


Figure 4-14. Tender Boards

were made available in the United States. Long-term training detachments were set up at Luke Air Force Base in Phoenix Arizona and at Cannon Air Force Base, Clovis, New Mexico.³⁴

After the AHP effort is completed, the most cost-effective offer is forwarded to the relevant Tenders Board for approval.

There are three levels of Tender Boards—A, B and C. Tender Board A approves tenders below S\$2 million and is chaired by the Deputy Secretary for Technology, with membership

from the Director of Finance and the appropriate DSTA program director (Land, Naval, or Air). Tender Board B approves tenders between S\$2-10 million and is chaired by the Permanent Secretary (Defence Development), with membership from the two Deputies—Technology and Policy. The Ministry of Defence chairs Tender Board C to evaluate major buys (over S\$10 million) for the SAF. Membership includes Minister of State for Defence and the Permanent Secretary (Defence Development). (See Figure 4-14.)

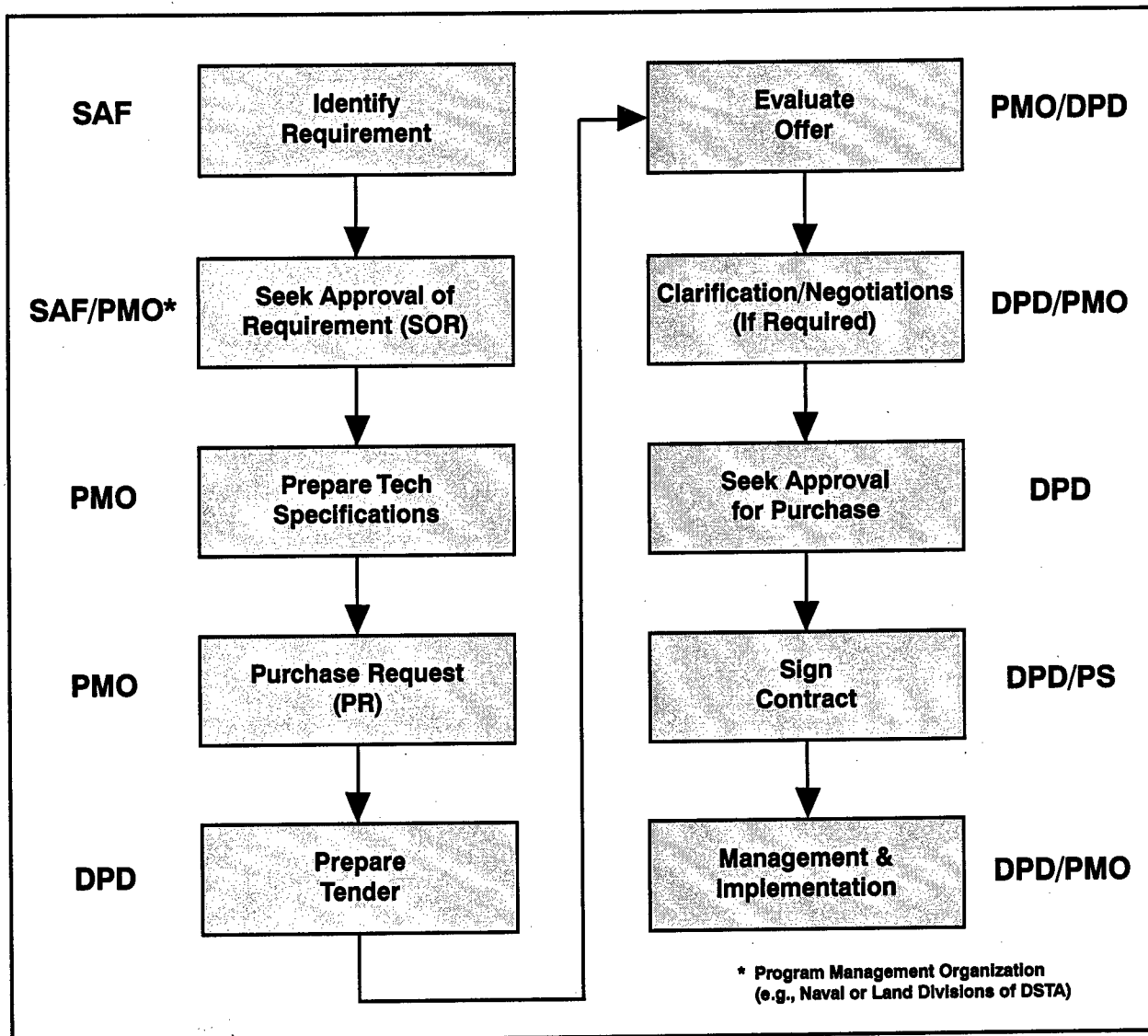


Figure 4-15. MINDEF Procurement Process

There are no formal protest forums, although informal lines of communication are available within the Ministry for unhappy bidders to question contract awards.

Once the Tender Boards have made their decision the contract will be issued to the winner. Final signature on the contract will vary with the major contracts signed at the Permanent Secretary level and lower value contracts being awarded by the Director Defence Procurement or lower level. For contracts over S\$500,000 the company is required to furnish a security deposit of five percent of the contact value. DPD will administer the contractual aspects of the procurement, while the appropriate PMO in DSTA does the management and technical oversight

of the contractor. The DFO's Revenue & Payments Division makes payment. Figure 4-15 depicts the entire procurement process.

Companies wanting to provide equipment or services for small purchases to Singapore must be registered in the MINDEF Internet Procurement System (MIPS). For contractors interested in larger procurements, they must become a trading partner and register with the "Head of Supply" as designated by the Ministry of Finance. In the MINDEF's case this would be the Defence Procurement Division. The MINDEF prefers to deal directly with suppliers, although it will work with an agent, if prior approval has been obtained.

Chapter 9

INTERNATIONAL COOPERATION AND ARMS SALES

The Singaporean government and the Ministry of Defence are committed to increasing interaction and cooperation in a wide variety of military areas with other countries. In the operational arena they conduct joint training exercises with friendly nations, such as Malaysia and Thailand. Singapore has also set up training arrangements with a variety of other countries, including training arrangements with the United States for personnel from the RSAF. In the last decade more than 100 personnel from the RSAF have trained at Luke Air Force Base in Arizona. In addition to strong bilateral relations with other states, Singapore is also party to the Five Power Defence Arrangements (FPDA) with Australia, Britain, New Zealand, and Malaysia. Among other things, this arrangement has led to the transfer of expertise, and technology among the member nations.

“Because we are small, there will always be a limit to what we can afford and what we can do by ourselves. To overcome this, we need to source for much of our technology overseas. This means leveraging on foreign expertise and seeking greater cooperation in defence technology with other countries.”³⁵ In developing their national defence capability Singapore has adopted a “global cooperation strategy” to leverage foreign expertise and equipment. They have signed Memorandums of Understanding (MOUs) with other countries to foster cooperation in research and development (R&D). The areas of cooperation range from exchanging research results and scientists to engaging in joint

research and development projects. Currently the DSTA’s Research and Development Office has collaborative agreements with countries such as the UK, Sweden, Australia, and the U.S. These agreements cover technologies such as composite materials, electromagnetic materials and underwater weapon effects. Another program, the Singapore Defence Technology Distinguished Fellowship, allows foreign scientists, engineers and medical researchers to participate in activities in Singapore such as conducting seminars and workshops, advising on research project, and exchanging views on science and technological capabilities.

The Defence Policy Group (DPG) is the organization responsible in the MINDEF for providing top-level policy guidance on export policies. The Singaporean export policy and industrial policy has been to promote the sale of locally designed weapons to foreign countries. DPG is the MINDEF focal point for staffing requests for military exports to the approval authorities, generally at the ministerial level. A government brokerage firm—Unicorn International—does the marketing for locally produced products.

Singapore’s arms sales generally comprise small arms, e.g., mortars and howitzers, but have included small naval vessels. The MINDEF, itself, doesn’t actively champion the sale of its industry products unlike many other countries. Singapore was ranked 20th internationally in arms sales with approximately \$90 million in sales in 1997.³⁶

Chapter 10

DEFENCE INDUSTRIAL BASE

“The defence industry in Singapore, namely Singapore Technologies (ST), plays an important role in developing weapons systems and equipment for the SAF’s use and also in upgrading and ensuring the sustainability of those already in the SAF’s orbit.”

— Dr. Tony Tan

The government of Singapore has played a vigorous role in managing the economy. Its industrial policy, planning, and nurturance have created one of the strongest economies in the Asian region. Its economic approach could be categorized as a combination of capitalism and socialism. As other countries in Asia have done, the 1960s planners in Singapore targeted exports and manufacturing, and later high technology, as industries that are critical to the building of a stronger economy. This requires a free market economy and free trade. But Singapore’s government’s economic policies have also been broad-based to ensure support from the people by including a state role in insuring attractive salaries, reasonable housing and educational opportunities for all.

The defence industry is a key element of the overall industrialization policy and a strategic component of the Singapore Government’s Total Defence Plan. “The development of our defence industry has always moved in tandem with the progress of the SAF. As the needs of the SAF became more sophisticated, our defence industry geared itself up correspondingly.”³⁷ A fledgling defence industry was started in the late 1960s and grew slowly through the 1970s. During the 1970s the firms were government owned corporations involved in designing, assembling and overhauling small arms, armor, military aircraft and naval vessels. As an example, Chartered

Industries began licensed production of the M16 assault rifle (now being replaced by the Singapore Assault Rifle (SAR) 21, designed and manufactured in Singapore). A nascent marketing effort was begun during this period to promote the sale of Singaporean weapons. Not all the defence industry was Singaporean, however, since a few foreign firms, such Avimo for optics, Samaero for Helicopters and Sundstrand (various items), manufactured defence equipment in Singapore to exploit the high technology base and lower production costs. The 1980s saw the defence industry expand to produce a wider variety of equipment and services to include assembling training aircraft and depot maintenance for the U.S. C-130. Recent defence development and production programs, which include the 155-mm cargo projectile (Chartered Ammunition Industries) and the BIONIX Infantry Fighting Vehicle (IFV) (ST Automotive) demonstrate the technical capabilities of Singapore’s defence industry.

The defence industry of Singapore is primarily a holding company called Singapore Technologies—a diversified, S\$5.8 billion dollar,³⁸ multinational conglomerate. There are more than one hundred companies that make up Singapore Technologies, but the bulk of defence work is performed by Singapore Technologies Engineering,³⁹ which comprises 7500 personnel with 2000 of them engineers. This body’s major

divisions include—Aerospace, Automotive, Electronics, Marine, and two affiliated companies for Ordnance (Chartered Industries) and Precision Engineering. The main areas of their defence business are aerospace, ordnance, munitions, semi-conductors, electronics, marine, precision engineering, and logistics management.

“Although the government is the majority shareholder in many of these defence companies,

they are essentially private organizations managed and run commercially by their own Board of Directors. Some of these companies are listed on the Stock Exchange of Singapore.”⁴⁰ These firms employ over 15,000 people in both commercial, industrial (70 percent) and defence markets (30 percent). (See Figure 4-16 for structure of ST.) Their defence work is not only for the SAF, but also for other international military customers such as the United States and

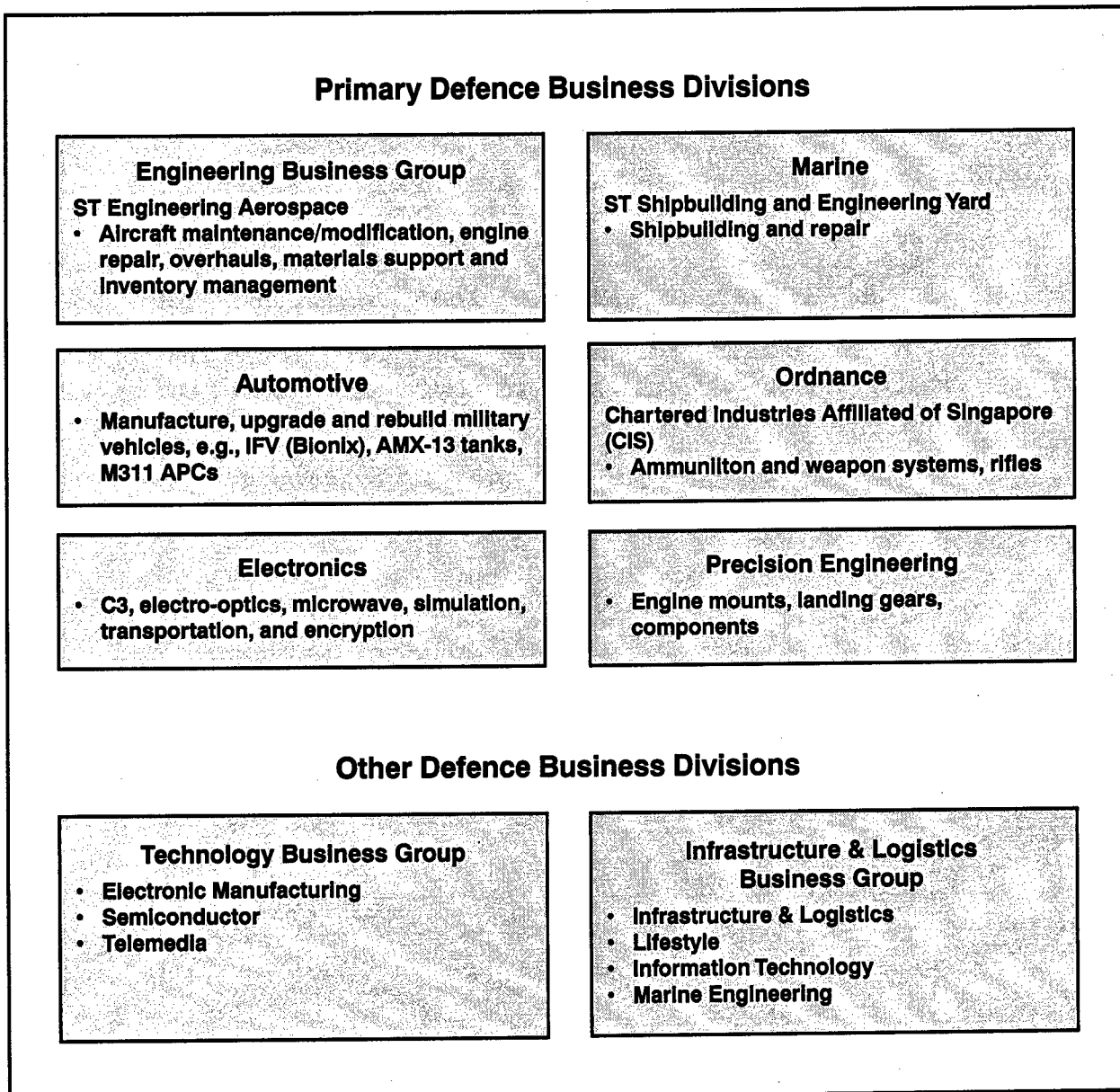


Figure 4-16. Singapore Technologies

Thailand. It also encompasses such work as upgrades to the Northrop F-5E/F.

“Economic prosperity depends on a framework of stability and security. A strong and credible Singapore Armed Forces deterrent has been a key element of this framework... Defence spending must be seen as a long-term investment, not dependent on the ups and downs of the economy

from year to year,” Finance Minister Hu told Parliament in February 1999. In the future, the government of Singapore plans to continue its modernization efforts. As part of the total defence concept, the indigenous defence industry will play a vital role in developing the technologies, manufacturing and maintenance capabilities to support the future technological needs of the Singapore Armed Forces.

FURTHER READINGS

Singapore Story: The: Memoirs of Lee Kuan Yew, Lee Kuan Yew former Prime Minister of Singapore.

Lee's Lieutenants : Singapore Old Guard, Peng-
Er Lam(Editor), Kevin YL Tan (Editor).

The Singapore Puzzle, Michael Haas (Editor).
Current look at Singapore.

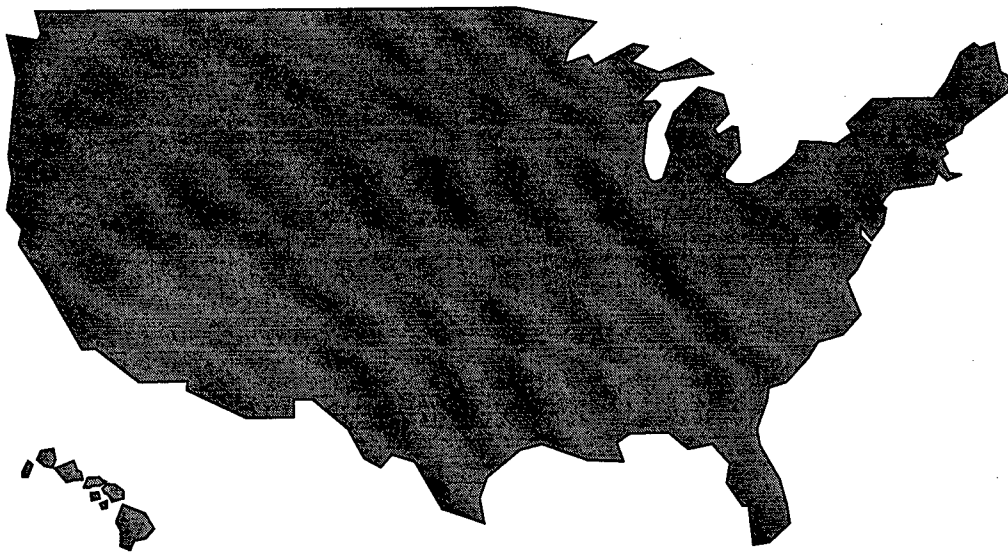
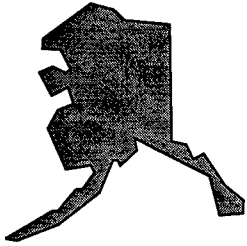
CURRENT

Straits Times Interactive:
<http://straitstimes.asia1.com.sg/>

ENDNOTES

1. Singapore name is derived from "Singa Pura"—Lion City—which is the original name given by a 13th century Malay prince who was shipwrecked on an unknown island and supposedly saw a lion—hence the name "Singa Pura."
2. The Straits Settlements also included several other geographical areas such as Dinding Islands (on the Malayan west coast), Labuan Island off the coast of Sabah, Christmas Island, and the Cocos/Keeling Islands.
3. Refers to a racial grouping of people inhabiting the Malay Peninsula, other parts of Malaysia, Indonesia and other adjacent areas, of course in this reference it refers to the Malays in what is now called Malaysia.
4. *CIA Factbook*, 1997 est.
5. Custodial powers are "reactive or blocking powers. The President does not have any executive powers," said PM Goh Chok Tong, 18 August 1999, before parliament.
6. *Ibid.*
7. Up to nine NMPs may be appointed.
8. While members of Parliament may introduce bills, those that allocate public funds or provide for the running the government can only be introduced by the government.
9. A term for junior members of parliament.
10. By PM Goh Chok Tong in speech before parliament 18 August 1999.
11. Only university graduates and diploma holders upon promotion to salary scale of Division I enter into Division I.
12. The number of ministers at the defence ministry is not fixed.
13. *Asian Military Review*, Dec 99/Jan 00, p. 16.
14. Using an exchange rate of 1.7 to 1, S\$ 7.3 billion equates to U.S. \$4.3 billion.
15. Opall, Barbara, "Singapore To Boost Defence," article in *Defense News*, 9-15 March 1998, p. 4.
16. *Asian Military Review*, Dec 99/Jan 00, p. 16.
17. March 15 budget debate as reported in the Parliament's *Hansard Report*.
18. The NAD is a general term used to designate the senior acquisition official. The term is not used officially in Singapore.
19. Requirements can come from any command.
20. *Defence of Singapore*, 1994-95, p. 63.
21. Most upgrades are accomplished by Singapore Technologies Group.
22. Opall, Barbara, *Defense News*, One-on-One interview with Su Guaning, April 1998, p. 54.
23. McAdams, Robert C., Colonel, USAF, "Strategic Partnership: The Case for Singapore," *Defense Institute of Security Assistance Management (DISAM) Journal*, Spring 1999, p. 5.

24. Similar to the DAB in the U.S. in function, although the AOR conducts most of its efforts much more informally.
25. U.S. Defense contractor at an NDIA Attaché luncheon.
26. 1998 speech by Mr. Chinniah Manohara, DPD Chief at the first IAPS in Australia.
27. MINDEF-NUS and MINDEF-NTU Joint Applied R&D Co-operation Programme were formally established on 6 May 1986 and 14 April 1988 to bring together researchers in NUS/NTU with MINDEF engineers and scientists to conduct research and undertake development projects.
28. By The Second Minister for Defence, RADM Teo Chee Hean, March 2000 in Parliament 15 March.
29. The Defence Technology Prize is given yearly for the best team and their contribution to their respective fields.
30. Opall, Barbara, One-on-One interview with Su Guaning in *Defense News*, April 1998, p. 54.
31. The WTO guidelines exempt defence procurement activities from the guidelines.
32. There are six manuals governing public administration in Singapore. They are *Instructional Manual #1, Finance and Accounting, IM #2, Staff, IM #3 Stores and Services, IM #4 Office Management, IM #5 Daily R Employees*, and *IM #6 Government Marine Craft*.
33. Same as the source selection process used in the United States.
34. Additional long-term training is done at Grand Prairie, Texas, and Wichita, Kansas, for KC-135s.
35. Tan, Peng-Yam, Deputy Director, Directorate of Research and Development MINDEF, "Harnessing Defense Technology—Singapore's Perspective," in *DISAM Journal*, Spring 1999, p. 9.
36. U.S. Arms control and Disarmament Agency—Country Ranks 1997.
37. Dr. Tony Tan, Minister of Defence, as quoted in a *Military Technology*, 2/96, interview.
38. Sales for 1998.
39. 1998 sales S\$2.3 billion dollars.
40. Ibid.



PART 5
THE UNITED STATES

Chapter 1¹

HISTORY AND TRADITIONS

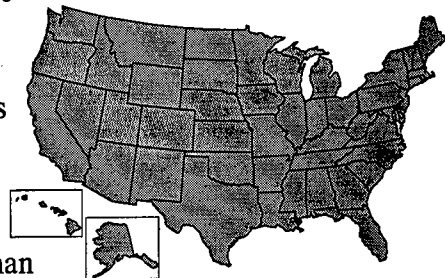
“Each jammer created a “strobe,” an opaque wedge shape on the U.S. radar screens, so that they looked like the spokes of a wagon wheel. Since every such spoke was particular to each of the radar transmitters, the controllers were able to compare data, triangulate, and plot the position of the jammers. The Tomcats closed in quickly while the radar-intercept officers in the back seat of each fighter flipped the Phoenix missile seekers to home-on-jam guidance mode. Instead of depending on the aircraft’s own radar for guidance the missiles would seek out the noise transmitted from the badgers.”

(*Red Storm Rising*, Clancy, p. 642)

It took thousands of years of warfare to move from stones to cannons. It has taken less than 100 years to move from the first airplane used in battle to the technologically sophisticated Tomcats described in Tom Clancy’s *Red Storm Rising*. The last fifty years, from the end of World War II to the present, has seen the development of weapon systems to meet the needs of the warfighters on land, at sea, in the air and beyond. It has consumed billions of dollars, employed millions of people, and led to the development of technological weapons that use sound, bits and bytes, and electrons bouncing around. As weapons have taken on greater complexity, the government’s approach to the development of these systems has evolved its own complexity. In the terminology of the trade—acquisition has become a large, complex, multifaceted business. The 2000 fiscal year budget for the Department of Defense (DoD) is over \$280 billion, of which \$92 billion is for the research, development and production of weapon systems. While the prior year—1999—budget represented a 60 percent decrease in the

procurement budget since the cold war years of the 1980s, the 2000 budget reflects a slight increase in the procurement and research and development accounts.² Currently there are 149,000 military and civil servants involved in this business. There

are over 1000 large contractors and small businesses who employ more than two million people to pro-



THE UNITED STATES

vide the services, equipment and weapon systems needed by the military. How does this system operate? Who are the players? What management processes have been devised to efficiently produce products and services for the DoD? This chapter is designed to provide an introduction for those new to the business of United States military acquisition.

THE GOVERNMENT OF THE UNITED STATES

“This budget is dead on arrival,” entombed a Senate leader with the submittal of the Department of Defense budget by President Ronald Reagan in 1982. In most other countries, a budget submitted by the president or prime minister may be discussed or debated, but then it is voted upon and approved with few changes. The United States political system operates differently. In the Fiscal Year 1998 budget, the Office of Management and Budget (OMB) identified a list of 254 programs or projects not requested by the executive branch that were added to the defense budget. The opposite is just as normal where programs are zeroed out of the budget. Unlike the parliamentary systems in which the party in power “runs” the legislature and the governmental agencies, the American presidential system has inherent in its constitution a system of political checks and balances to prevent any one branch of government from gaining too much power. This balance-of-power mechanism is a key differentiator of the American political model. To understand the procurement of weapon systems in the United States’ DoD, one must understand not just the workings of the executive branch of government, but the workings of the legislative branch. The following provides an introduction to the framework and workings of the government to aid in understanding the defense acquisition business.

It was more than a decade after the first shot was fired at Concord and Lexington in 1775 before our new democratic form of government was fully developed. From the Declaration of Independence in 1776 through the adoption of the Articles of Confederation in 1779, the ratification of a new Constitution in 1788, and the ultimate creation of a new government in 1789—the nation’s leaders grappled with the best way to govern a country. The first set of rules to operate the country were the Articles of Confederation.

In protecting the unique interests of each state, the Articles created a weak central government with neither the ability to levy taxes nor to provide for the national defense.

In 1785, delegates assembled from the 13 colonies to “fix” the Articles of Confederation. The result was not a fix, but an entirely new Constitution. Influenced by the ideals of the ancient Roman Republic; the ideas of the philosophers like Rousseau, Montesque, and Locke; and in response to the problems caused by England’s attempts to govern the colonies, the Constitutional Convention participants developed a federal system of government. In the words of Thomas Jefferson, “Hear no more of the faith of men but bind them down with the chains of the Constitution.” This constitutional “chain” provided for a structural separation of powers among three branches of government—executive, legislative, and judicial. This earliest of written constitutions spelled out the duties and responsibilities of each branch, with each branch serving as a check on the powers of other branches. The constitution also fixed one of the problems of the Articles by providing for strong central government and for the national defense.

The President

Article II of the United States Constitution stipulates that the President is Commander-in-Chief of the armed forces. He also has the dual role of being Head of State and head of the government. As Head of State, the Constitution states, “he shall receive ambassadors and other public ministers.” Head of State duties are primarily ceremonial, such as those often captured on television news reports. The image of the military band playing “Hail to the Chief” while the President escorts a world leader to a speaker podium are typical scenes that the title “Head of State” evokes in most Americans’ minds. The President is also the Chief Executive; in other words, he is charged with running the government. The

Constitution invests the executive power in the president. In the modern state, this power is exercised over a wide range of government organizations and programs, such as those dealing with the environment, military veterans, labor, foreign affairs, and national defense. To help him in this capacity, the President nominates and appoints, with the advice and consent of the Senate, 13 Cabinet members and over 2000 political appointees to work within the departments and agencies of government.

Although the constitution delegates the power of Commander in Chief of the military to the President, the power to declare war rests solely with the Congress. Further, even though the president is in “charge” of the military, the power to determine the size of the armed forces, the rules that govern the military, and the funding for the military forces and their equipment are vested only in the Congress.

As Chief Executive, the President has, at times, taken specific interest in defense acquisition problems and issues and directed specific changes. Examples of this include the following:

- Executive Order (E.O.) 12353, in 1982, which directed procurement reforms and also created a Federal Acquisition Regulation;
- National Security Decision Directive (NSDD) 219, in 1986, which directed implementation of the Packard Commission’s recommendation on management of defense acquisition; and
- National Security Review (NSR) 11, in 1989, which directed a review of the defense acquisition business and a report outlining the changes as a result of the review.

The Legislature

“Congress is so strange. A man gets up to speak and says nothing. Nobody listens—and then everybody disagrees.”

– Boris Marshalov, a Russian observer after visiting the House of Representatives

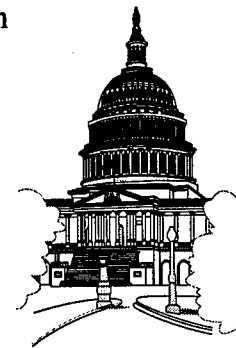
“To retain respect for sausages and laws, one must not watch them in the making.”

– Otto Von Bismarck

Contentious, confusing, complicated—the workings of the United States Congress can be a mystery to foreign visitors and, in many cases, even to American citizens. During the Constitutional Convention in 1788, the delegates debated the structure of the Congress. States with large populations were pitted against states with small populations. Each was concerned with the fairness of the representation. Proportional representation would benefit the large states at the expense of the small states, thus putting small states like Rhode Island at the mercy of large states like Virginia, which by virtue of their larger voter constituency could control the government.

Out of this concern came the “Connecticut Compromise” which created a bicameral legislature, or two-house system—the Senate with two representatives from each state and six-year terms; and the House of Representatives with proportional representation and two-year terms.

Because of the nature of its organization, each of the two bodies of Congress has its own character. The House of Representatives was designed to “have an immediate dependence on, and an intimate sympathy with, the people.”³



U.S. CONGRESS

Elected every two years, House members campaign for re-election almost constantly. They respond to the constantly changing views of the electorate and are more contentious in debate. The Senate, in which members serve 6-year terms, tends to be more collegial and responds less readily to the popular passion of the moment.

Congress plays a significant constitutional role in the management of the Department of Defense. The Constitution gives Congress the general power to "...lay and collect taxes, duties, imports, and excises, to pay the debts and *provide for the common defense* and general welfare of the United States...." It also gives Congress other powers, such as the following:

Clause 11 –

To declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water;

Clause 12 –

To raise and support armies, but no appropriation of money to that use shall be for a longer term than two years;

Clause 13 –

*To provide and maintain a navy;
To make rules for the government and regulation of the land and naval forces;*

The writers of the Constitution were very concerned about the concentration of military power within the executive branch. In the Federalist Papers written by Alexander Hamilton and James Madison, the role of the legislative versus the executive branch is clearly spelled out in the following words: "...the whole power of raising armies [is] lodged in the LEGISLATURE, not in the EXECUTIVE; ...and...that clause... forbids the appropriation of money for the support of an army for any longer period than two years a precaution which...will appear

to be a great and real security against the keeping up of troops without evident necessity."⁴

The two year restriction for the appropriation of funds for defense indicates the strong concern the representatives had at the Constitutional Convention about the role the legislative body was to play in the management of the military. "The legislature of the United States will be OBLIGED...once at least in every two years, to deliberate upon the propriety of keeping a military force on foot; to come to a new resolution on the point; and to declare their sense of the matter, by a formal vote in the face of their constituents. They are not AT LIBERTY to vest in the executive department permanent funds for the support of an army...."⁵

Throughout most of its 200-year history, the American political system has been a two-party system—Democrat and Republican. Minor parties have played a very small role. While each party generally has a unique ideological bent, they are not ideology parties in the European sense. Each party includes a wide variety of political opinion—from liberal to conservative. Another difference in a typical parliamentary system is that party loyalty is critical to keeping the government in power. By contrast, party loyalty in the United States is very weak. It is also not uncommon in the U.S. that one or both houses of Congress are controlled by one party and another party controls that the White House (the executive branch). This is the current case with the Senate and the House controlled the Republicans while President William J. Clinton, a Democrat, is in the White House.

Congressional Committees

"Congress on the floor is Congress in exhibition, Congress in Committee is Congress at work."

– Woodrow Wilson, 1885

There are 535 members of Congress. To efficiently deal with the multiplicity and complexity of the problems of government, Congress has been organized into a variety of committees that focus on specific areas of responsibility. It is in these committees where the work of Congress takes place. The majority party in each house controls not only that house and its agenda but also the committees that run the chamber. Each committee is chaired by the majority party, usually a senior member of that party, with the majority party having a majority of the seats on the committee. Additionally, each committee further subdivides the work and assigns it to subcommittees. This is where much of the discussion, hearings, and work takes place in drafting legislation. The structure of a subcommittee parallels that of a full committee, with the majority party chairing the subcommittee and constituting the majority of its members.

The committees that most influence the DoD and the defense budget are as follows:

Senate:

- Senate Armed Services Committee (SASC)**
Subcommittees dealing with defense issues
 - Emerging Threats and Capabilities
 - Air-Land
 - Personnel
 - Readiness and Management Support
 - Seapower
 - Strategic

The SASC is responsible for a wide variety of policy and budgetary issues that impact the defense acquisition business—aeronautical and space activities associated with the development of weapon systems or military operations; department organizational structures; maintenance and operations of military research and development; national security aspects of nuclear energy; pay, promotions, and retirement; and strategic and critical materials.

Senate Appropriations Committee (SAC)

Subcommittees dealing with defense matters

- Defense
- Foreign Operations, Export Financing and Related Programs
- Military Construction

The SAC provides new spending authority for defense programs, operations, and military construction. It also writes legislation defining how the monies it has appropriated can be spent.

House of Representatives:

House Armed Services Committee (HASC)

Subcommittees dealing with defense matters:

- Military Installations and Facilities
- Military Personnel
- Military Procurement
- Military Readiness
- Military Research and Development
- Morale, Welfare and Recreation
- Merchant Marine

The HASC has wide-ranging jurisdiction, including scientific research and development in support of the armed forces and control of the strategic and critical military material. It also oversees international arms control. Of particular interest to those involved in acquisition are the Military Procurement, Readiness and Research and Development subcommittees. Through its Subcommittee on Military Procurement, the annual authorization for the procurement of military weapon systems, equipment and nuclear energy is prepared. The Subcommittee on Military Readiness includes authorization for operations and maintenance (O&M), readiness and preparedness. The HASC's Subcommittee on Military Research and Development has jurisdiction over aeronautical and space activities, military research and development (R&D), the DoD generally, nuclear energy, pay, promotions, and the strategic and critical military material.

House Appropriations Committee (HAC)
Subcommittees dealing with defense matters:

Military Construction
Defense

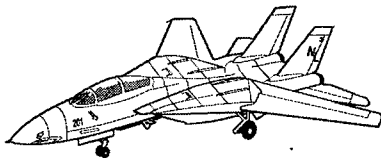
The HAC, like the SAC, provides new spending authority for defense programs, operations, and military construction. It also writes legislation on how the monies it has appropriated can be spent.

There are various other committees, such as the Budget Committees and the Government Reform and Oversight Committee, with Subcommittees—National Security, International and Criminal Justice, which have legislative oversight of defense and government activities which from time-to-time play a role in crafting acquisition legislation. Two other organizations of Congress—the Congressional Budget Office and the General Accounting Office—also play a role in acquisition, which is discussed later.

Chapter 2

CONGRESSIONAL INVOLVEMENT IN ACQUISITION

Congress has always played a significant role in overseeing the DoD and DoD's predecessor organizations. In 1809 Congress issued the first government-wide procurement statute mandating executive-legislative appointment of what we today call "contracting officers." Congress continued to play a significant role in acquisition throughout the last century, including the methods of procurement—formal advertising, creating advisory boards, and dictating the sizes and speeds of ships. Throughout World War I and



F-14

World War II for example, Congress passed legislation to prevent un-

scrupulous contractors from

overcharging the government. The modern era of congressional involvement in acquisition began with the Armed Services Procurement Act of 1947. The purpose of this law was to standardize contracting methods used by all of the services. As a result, the first joint DoD regulation was created—the Armed Services Procurement Regulation (ASPR). Congress, over the years, has passed other laws whose purpose has been to shape the department's acquisition policies and organizations. In the last 20 years the amount of legislation involving the defense business has increased. Under the Reagan Administration, with the significant increase in the defense budget, Congressional oversight increased. Almost every two years, major legislation was passed to change some aspect of

the acquisition system. Figure 5-1 provides a list of some of the major acts, which have changed the organizational structures and policies, increased ethics requirements and mandated education and training requirements for the acquisition workforce. In the last five years, several new laws, such as the Federal Acquisition Streamlining Act (FASA), have been passed to remove many of the burdensome laws passed by prior congresses.

As Figure 5-1 indicates, Congress plays a major role by enacting major legislation for the business of defense acquisition. Also, every year Congress enacts, through its authorization and appropriations legislation, changes in the acquisition system. Some of these changes are minor, but some have included changes that have had a significant impact on the acquisition business.

Congress and The Budget

"The power of the purse has always resided in Congress: it represents its ultimate weapon in dealing with the executive branch."⁶ In February of every year, the administration submits the President's budget to Congress. For the DoD, this budget culminates three years of work to justify the dollars needed for national defense. The budget goes to the House and Senate budget committees, which issue a Budget Resolution that provides the top line budget for DoD. The work of drafting the legislation needed to authorize and appropriate defense funds begins in the proper committees and subcommittees. The subcommittees hold hearings and then

Office of Federal Procurement Policy (OFPP) Act of 1983

Established a central office to define overall government contracting and acquisition policy and to oversee the system, among other things.

Competition in Contracting Act (CICA) of 1984

Revised government policy to mandate competition and created an advocate for competition, the Competition Advocate General.

DoD Procurement Reform Act 1985

Defense Procurement Reform Act established a uniform policy for technical data and created a method for resolving disputes.

Defense Procurement Improvement Act of 1986

Provided policy on the costs contractors submitted to the Government for payment and on conflicts of interest involving former DoD officials.

Defense Acquisition Improvement Act of 1986

Among other things, created the Under Secretary of Defense (Acquisition, Technology and Logistics).

DoD Reorganization Act of 1986 (commonly referred to as Goldwater-Nichols Act)

Among other items, revised the Joint Chiefs of Staff role in acquisition and requirements determination.

Ethics Reform Act of 1989

As a result of the "Ill-wind" procurement scandal Congress mandated more stringent ethics laws.

Defense Acquisition Workforce Improvement Act (DAWIA) of 1990

Mandated education, training and professional requirements for the defense acquisition corp.

Federal Acquisition Streamlining Act (FASA) of 1994

Repealed earlier laws on acquisition, such as the Brooks Act provisions on computer acquisitions.

Federal Acquisition Reform Act (FARA) of 1996

Revised procurement laws facilitate more efficient competition; included improving debriefings, limiting need for cost/pricing data and emphasizing price versus cost negotiations, among other items.

Clinger-Cohen Act of 1996

Included changes to competition practices, commercial item acquisition, and included fundamental changes in how information technology equipment is purchased.

Figure 5-1. Major Acquisition Acts

"markup" the bill and send it to the full committee. The full committee will debate, amend and report out the bill to the entire House or Senate for its consideration. After the vote is taken by both houses, a conference committee is established to "iron out" any differences. The bill is then returned to both houses and voted on a second time. If passed, the bill is sent to

the President for his signature—or, if he disapproves of the bill, for his veto.

"The exclusive privilege of originating money bills will belong to the House of Representatives."⁷ The constitution gives the lower house, the House of Representatives, the authority for funding bills thus—"All bills for raising revenue

shall originate in the House of Representatives; but the Senate may propose or concur with amendments as on other bills.”

The Congress has established special budget approval procedures for approving budgets for the various departments of government. “Every committee wants a hand in budget making. Hence, Congress has a two-step financial procedure: authorization and appropriations. Congress first passes authorization laws that establish federal agencies and programs and recommend funding them at certain levels. Then it enacts appropriations laws that allow agencies to spend money. An authorization then is like an “IOU” (I owe you) that needs to be validated by an appropriation.”⁸ While there are some exceptions to this procedure, the process of approving the next years’ budget includes both appropriation and authorization. The SASC and HASC committees are the authorizers, while the HAC and SAC are the appropriators.

This process, from the President’s budget submission through approval by Congress and the

final signature by the President takes approximately eight months (see Figure 5-2). Debates, hearings, and the committee processes, aggravated by the controversial nature of the issues, often delay the passage of bills in Congress. To ensure the smooth operation of government under these conditions, Congress may pass interim legislation, referred to as “continuing resolutions,” that allows government agencies to continue all existing programs, at prior-year amounts. Such interim legislation does not usually allow for the initiation of any new programs. The implementation of an interim budget has become the standard method for operations since 1979.

Congressional Oversight

The SASC and HASC conduct their “oversight responsibilities... primarily within the context of the Committee’s consideration of the annual defense authorization bill.”⁹ Every spring, key administration personnel, such as the Secretary of Defense and the Secretaries of the Army, Navy and Air Force, along with the senior

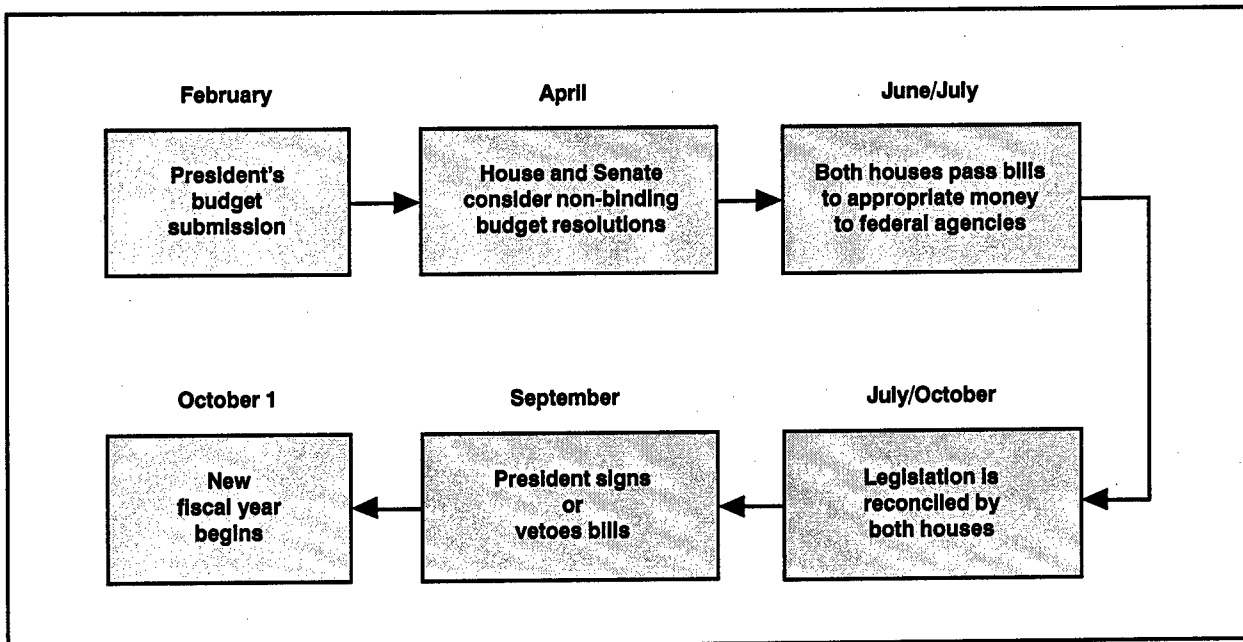


Figure 5-2. Typical Flow of Budget

military leaders, are called to testify before the appropriate subcommittees on the President's budget. The subcommittees will also have hearings with other key defense acquisition personnel on the budget, acquisition policy and programs. When Congress has a specific interest or concern, investigative committees will be created. They will have hearings on specific problems or issues which arise, or when Congress is interested in a department's implementation of prior legislation. Again, government acquisition personnel, along with industry or industry-association representatives, may be called to testify.

General Accounting Office (GAO)

For more than 75 years, the GAO has been the "watch dog" of Congress and a key player involved in overseeing the acquisition system. The GAO is headed by the Comptroller General of the United States, who is appointed by the President and confirmed by the Senate.

As the investigative arm of Congress the GAO is frequently asked by committee chairpersons, ranking minority members, and other members of Congress to review programs or issues of concern.¹⁰ Recent report topics provide an example of the scope of GAO reviews. They are: (1) Acquisition Planning for the Army Medium

Trucks; (2) Defense Industry Restructuring and its savings; (3) Weapons Acquisition Systems Planning, (4) Army Modernization plans, (5) Defense Trade Data issues; and (6) international cooperative programs, such as Medium Extended Air Defense System (MEADS).

The committees often use the GAO studies and recommendations as a basis for hearings on problems in acquisition management and programs. When a committee feels new legislation is necessary to correct problems in the acquisition system, the GAO may be called upon to provide legal advice or review proposed legislation. In FY 1998 the GAO prepared 1,573 audits and evaluations for Congress, 1,135 reports to congressional committees, presented 181 formal congressional briefings, and 256 congressional testimonies.

The GAO also has a significant role in the procurement/contracting process. It is the bid protest authority for any contractors who may wish to challenge an agency's award. In 1997 the GAO received 1,087 bid protests, and ruled in the protesters' favor 26 times, sustaining the department in 97 percent of the cases. It also provides assistance to other government agencies in interpreting the laws governing the expenditure of public funds and adjudicating claims for and against the federal government.

Chapter 3

THE CABINET

Unlike the roles of the President and the Congress, the roles of the members of the President's Cabinet are not created by the Constitution. (There is no constitutionally created cabinet). The Constitution recognized the need for ministers and other government officials. They serve as the advisors to the President on policy matters. They also "run" the government by implementing the programs of the Administration. The cabinet members are nominated and appointed by the President with the approval (advice and consent) of the Senate. Members of the United States Cabinet, unlike those in other countries, are responsible to the President rather than the legislature. They serve at the pleasure of the President and can be removed from their jobs by the President for any reason.

Traditionally, cabinet members are from the same party as the President, although, occasionally, individuals from the other party will be selected to fill posts. A good example of this is Secretary of Defense William S. Cohen, who is a member of the Republican Party and was a former Republican Senator from Maine. As is the case in other cabinets around the world, particularly those with coalition governments, individuals are selected for Cabinet posts to satisfy various factions within the President's party—to achieve diversity objectives, to ensure geographic representation, and to reward supporters. In general, however, political appointees are chosen because they share the same political beliefs the President has and can carry out his agenda.

Unlike some other countries, the members of the U.S. Cabinet cannot simultaneously be

members of the legislative branch of government. The constitution specifies that, "No senator or representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States, which shall have been created, or the emoluments whereof shall have been increased during such time; and no person holding any office under the United States, shall be a member of either house during his continuance in office."

The US cabinet is currently composed of 14 departments, as follows:

- Department of Agriculture
- Department of Commerce
- Department of Defense
(Secretary, William S. Cohen)
- Department of Education
- Department of Energy
- Department of Health and Human Services
- Department of Veterans Affairs
- Department of Housing and Urban
Development
- Department of the Interior
- Department of Justice
- Department of Labor
- Department of State
- Department of Transportation
- Department of Treasury

From time to time, other positions, such as the White House Chief of Staff to the President, the Director of the Office of Management and Budget (OMB), and the "Drug Czar," have been given cabinet-level rank. There are many other agencies of government, such as the National Air and Space Administration (NASA), that do

not have cabinet rank but nevertheless carry out important national objectives.

To assist the politically-appointed Cabinet members, the United States Government has more than 2,800 political appointees. In the United States government, political appointees fall into three categories—(1) Presidential Appointments requiring Senate (PAS) Confirmation (650 positions); (2) non-career Senior Executive Service (SES) positions (restricted to 10 percent of the SES, currently 650 positions); and (3) Schedule C appointees (personnel assistants,

secretaries, etc., approximately 1,500).¹¹ In the DoD there are 243 political appointees, of which 48 require senate confirmation.¹² They hold key positions: Secretary of Defense; Secretaries of the Army, Navy, and Air Force; and key acquisition positions such as the Under Secretary of Defense (Acquisition, Technology and Logistics) and Assistant Secretary of the Army (Acquisition, Logistics and Technology), Assistant Secretary of the Navy (Research, Development and Acquisition), and Assistant Secretary of the Air Force (Acquisition).

Chapter 4

DEPARTMENT OF DEFENSE

For the first 150 years, the United States had two separate departments, the War Department and the Department of the Navy, managing the military business. After the end of World War II, a variety of factors led many senior civilian and military leaders to see a need for a more unified structure. Specific problems during the war, such as the allocation of resources between the services, priorities, and command arrangements, were all felt to have had a negative affect on the war effort. In 1947, a single “unified” structure was created with the passage of the National Defense Act of 1947. However, as one observer noted, “Congressmen have traditionally seen their ability to influence defense policy enhanced under a decentralized structure and have feared loss of influence under a more centralized one...America’s defense establishment has reflected the pluralistic and decentralized nature of America’s national government system.” Thus, the three services were still left with a significant amount of authority and responsibility.

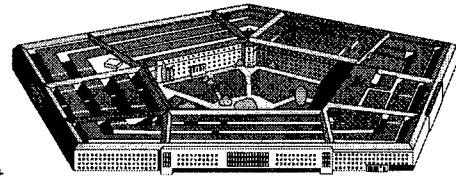
There have been changes since then, most strengthening the Secretary of Defense and his office¹³ with authority over the services.¹⁴ For the purposes of this Chapter, the department can be divided into two elements—the warfighting elements and the acquisition and logistics support elements. Figure 5-3 depicts an overall view of the department with the warfighting elements being the Unified Commanders for each theater. The three major organizations involved in acquisition within the DoD are the Army, Navy and Air Force. Other defense agen-

cies play a support role to acquisition, such as the Defense Contracting Management Agency (DCMA), which provides

contract administration for the department, and the

Defense Contract

Audit Agency (DCAA) which provides audit support for the services and defense agencies.



THE PENTAGON

This Chapter will primarily focus on the Office of the Secretary of Defense (OSD) and the Services since the primary role of organizing, training and equipping the military rests with each Service. Each service is headed by a political appointee nominated by the President and approved by Congress. Each Service Secretary reports directly to the Secretary of Defense.

OSD is the core staff that provides advice and support to the Secretary. OSD consists of approximately 2,000 personnel that, through the Secretary, sets “general policies and programs” and provides “general direction, authority, and control” of the military departments and defense agencies. As shown in Figure 5-4, the Secretary is supported by a Deputy Secretary as well as several Under Secretaries that have considerable influence in acquisition. The person charged with responsibility for acquisition matters within the Secretary’s office is the Under Secretary of

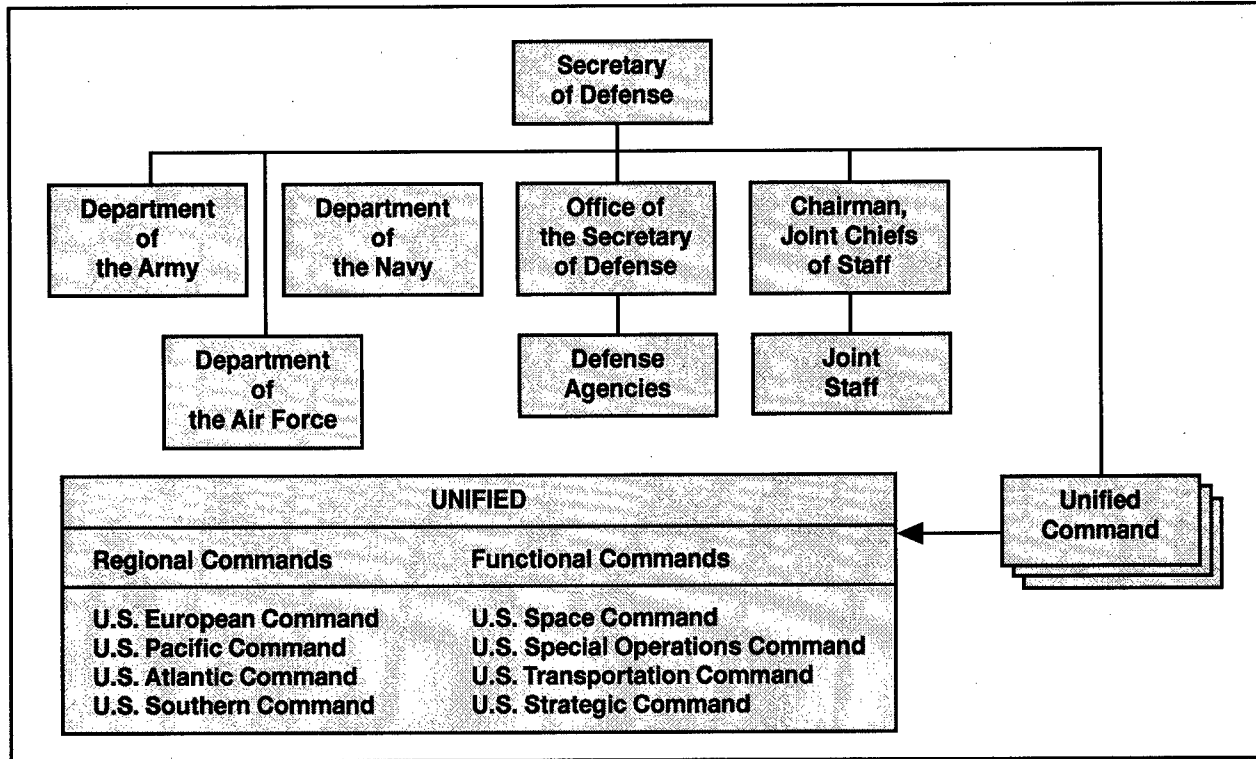


Figure 5-3. Department of Defense Warfighting Elements

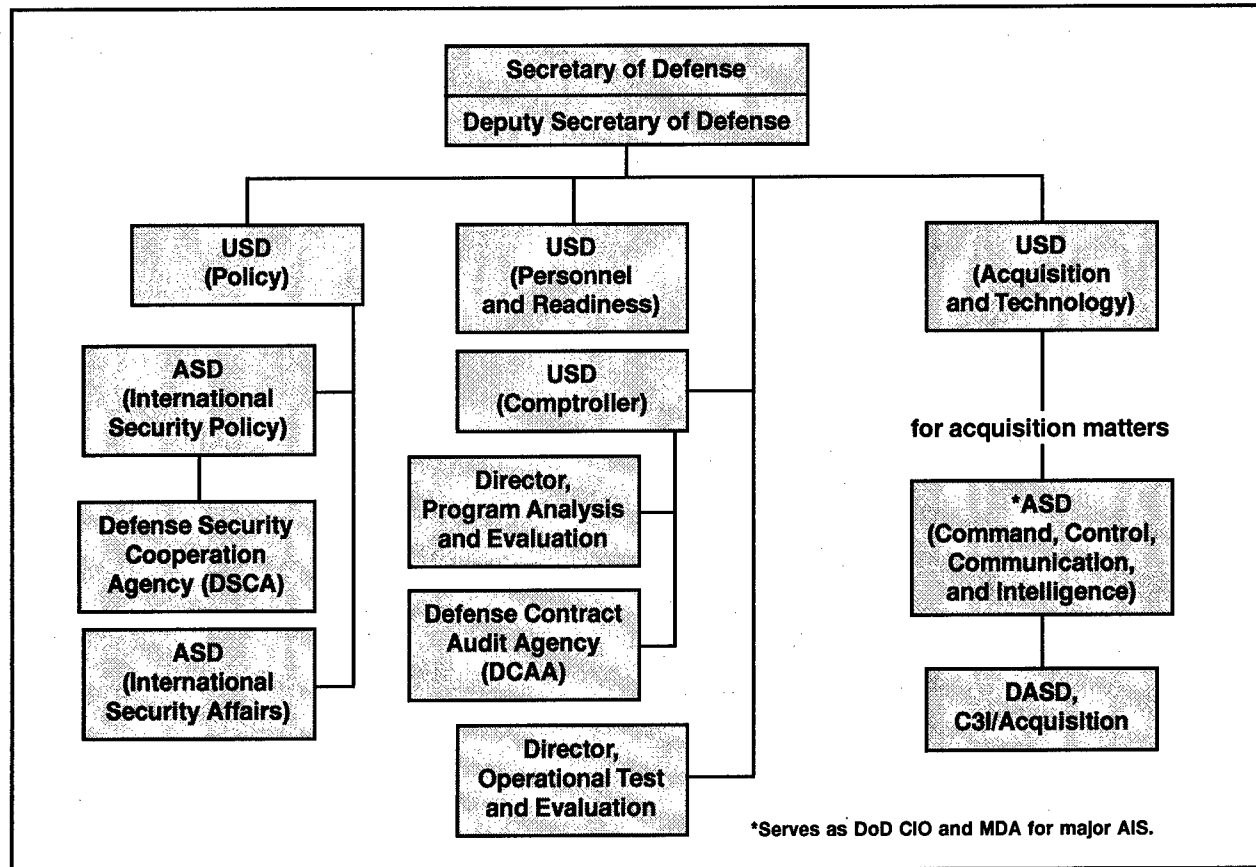


Figure 5-4. Office of the Secretary of Defense (as of May 1998)

Defense for Acquisition, Technology and Logistics (USD (AT&L)).

The Development of Military Requirements

As the 21st Century begins, the DoD and the military services strive to maintain air and space superiority, meet rapid mobility requirements, maintain naval superiority and be a force projection army. The process to determine future military needs is referred to as the *Requirements Generation Process*. All acquisition programs must be based on identifiable, documented, and validated mission needs. The Joint Chiefs of Staff (JCS) is the organization responsible in DoD for setting requirements policy. For large dollar programs, referred to as Major Defense Acquisition Programs (MDAP) or Acquisition Category (ACAT) I programs, the JCS is the approval authority for the requirement. For smaller dollar programs, referred to as ACAT II and III programs, the individual services develop their own requirement in coordination with the other services and defense agencies.

To provide approval of a requirement that could result in an ACAT I program, i.e., to validate the mission need, a forum called the Joint Requirement Operational Council (JROC) was created. The Vice-Chairman of the Joint Chiefs chairs the council with the Vice-Chiefs of the military services as voting members (see Figure 5-5). For programs that fall under the automated management information system programs, the JROC reviews and decides whether to be the validation and approval authority. If the JROC passes, the Assistant Secretary of Defense (ASD) for Command, Control, Communication and Intelligence (C3I) becomes the approval authority. While the JROC is primarily involved in requirements approval, it also participates in the Defense Acquisition Board (DAB) to ensure that the program is meeting the military needs. The JROC is a change from the historical way of the military services deciding military requirements and the next generation of weapons. The JROC has also opened the capability for the warfighting, unified commanders to play in this process. Prior to the JROC meetings, a lower level board, the JROC Review Board, previews the requirements documentation to work out concerns and to frame matters for the JROC.

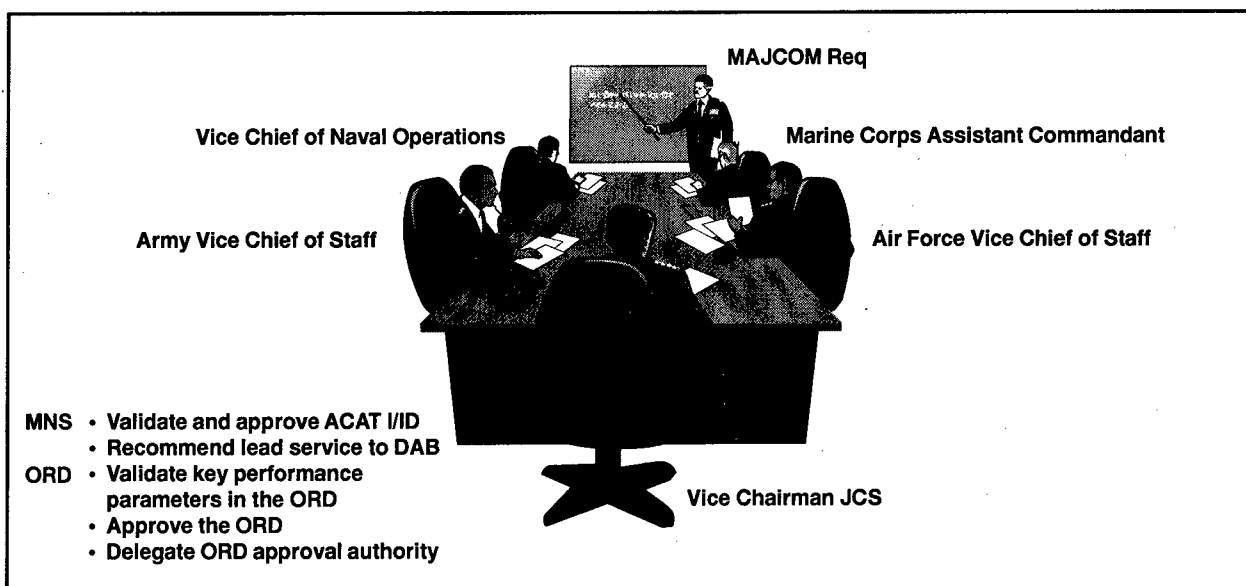


Figure 5-5. The Joint Requirement Operational Council (JROC)

The Military Departments Requirements Processes

To develop a weapon system is expensive. A major weapon system will require billions of dollars to develop and field. When the services look at shortfalls in meeting mission requirements, they first will evaluate changing military doctrine or tactics (referred to as non-materiel solutions) as the first choice. If a non-materiel solution does not work, then buying an existing system commercial or non-developmental item (NDI) is the preferred solution. By policy, the last choice for a military service is the development of a new weapon system.

Prior to beginning the requirements generation process, the department develops a series of military planning documents—part of the long term planning process which provides strategic military planning guidance. This is captured in a series of documents beginning with the National Military Strategy (NMS). The development of military requirements, and the planning, programming and budgeting system all reflect a direct linkage with this strategic planning process. The Defense Planning Guidance (DPG), the Chairman of the Joint Chiefs of Staff's "Joint Vision Capabilities Plan," the unified Commanders' "Commanders in Chief Integrated Priority Lists (CINC IPL)," and other joint and service long range plans all provide the framework for the requirements generation process to operate. The Services' long-term technology plans use this guidance for planning their investment of R&D dollars to maximize their effectiveness.

The Requirements Generation Process begins in the services, and each of the military services has taken a different approach to managing this process. The Army and Navy have a centralized process while the Air Force's process is more decentralized. However, each service determines

mission needs as a result of ongoing assessments of current and projected capability. Assessment of identified deficiencies, such as occurred after Desert Storm, has led to the establishment of new requirements and new programs. The Joint Direct Attack Munitions (JDAM) was such a program. During ideal weather conditions, for an air war, it was noted that there were still many days when missions had to be called back because of the lack of a capability to find targets. The JDAM was required to meet that mission hole, i.e., provide all weather, accurate, and low cost capability to attack a broad spectrum of fixed and relocatable targets. In this case an identified deficiency. Besides establishing new operational capability or improving an existing warfighting capability, mission needs can also be used to reduce costs or enhance the logistics performance of systems. Requirement changes can occur in the order of doctrine, training, leader development, organization, soldiers, and materials.

The two main documents used to capture requirements are the Mission Needs Statement (MNS) and the Operational Requirements Document (ORD). The MNS provides, in broad, non-system specific, operational terms, the warfighter's need. The concept is to provide, in a brief document (five pages), the user's need, which will become the basis for a material solution. Once MNS is validated, it starts the acquisition process looking at possible solutions for the MNS. The ORD becomes more specific and provides the operational parameters, such as speed, durability, reliability and precision among other items, to include thresholds (minimums) and objectives (desired outcomes). It is solution-oriented and based upon the best alternative choices. The ORD is a living document and will evolve as a program matures. The ORD is the link between the MNS and the acquisition process.

Service Requirements Organizations

*Department of the Army*¹⁵

In the Army, the Training and Doctrine Command (TRADOC) has the central responsibility for developing and approving all warfighting requirements. Within TRADOC, this is accomplished both at the headquarters level and through the various branch schools. Besides training, the Army's branch schools have responsibility for doctrine and requirements development. Each school has a combat development division, staffed by representatives of the proponent branches, such as artillery, infantry or ordnance. While requirements may evolve from a variety of organizations, such as major commands, field commanders, TRADOC schools, and others, the Army branch schools, such as the Air Defense Artillery School, Fort Bliss, TX, will define, document and defend requirements. (See Figure 5-6.) The schools are responsible for preparing the ORD and the MNS.

The Army uses Integrated Concept Teams (ICT) to improve development of requirements. The ICT is made up of members from TRADOC,

Army Materiel Command (AMC), other Army commands, other military services, academia, industry, and others. The ICT may be a tier-one or tier-two ICT. HQ TRADOC tier-one ICTs are established for requirements documentation where there are multiple proponents, joint service impacts or high management interest/visibility (HQDA, OSD, or Congress).

Tier-two ICTs are established and conducted under the guidance of school commandants or center commanders. These ICTs are used to develop or refine a warfighting concept operation unique to a single proponent, or to determine and document branch or function unique mission needs and requirements. The ICTs are responsible for developing the MNS and the ORD for the branch school. After the ICTs develop the requirements documents (MNS and ORD), they are approved by the commandant of the proponent TRADOC school or center and then forwarded to TRADOC Headquarters for issue resolution and approval by the TRADOC Commanding General.

They are then forwarded to Headquarters Army, Deputy Chief of Staff for Operations and Plans

Air Defense Artillery Center	Air Defense Artillery School
Armor Center	Armor School
Aviation Center	Aviation School
	Aviation Logistics School
Field Artillery Center	Field Artillery School
Chemical and Military Police Centers	Chemical School
	Military Policy School
Infantry Center	Infantry School
	Ordnance School
Combined Arms Center	Combined Arms Center
Transportation Center	Transportation School
Signal Center	Signal School
Engineer Center	Engineer School
Intelligence Center	Intelligence School
	Quartermaster School

Figure 5-6. TRADOC Centers/Schools

(DA DCSOPS) for review and evaluation. The Army-level review will focus on issues raised by other services, the joint staff and OSD. Changes are recommended to TRADOC for incorporation. DCSOPS is also responsible for resourcing the approved requirement by means of the PPBS, after which the process is transferred to the materiel developers and the acquisition community to develop and field the capabilities.

Department of the Navy¹⁶

The Navy has centralized the requirements development process at the HQ level. The Deputy Chief of Naval Operations (DCNO) for Resources, Warfare Requirements and Assessments (N8) is responsible for the Requirement Validation Process. He also is the validation and approval authority for requirements that do not

require JROC approval. Nicknamed N8, the Chief has several divisions that are the prime organizations responsible for developing the MNS and ORD for their areas of responsibility. They are divided into the different missions of the Navy—Expeditionary Warfare, Surface Warfare, Air Warfare, Submarine Warfare, and Special Programs Division (limited access programs) (see Figure 5-7).

Requirements can be generated from a variety of sources, such as the fleet, the shore establishment, or by one of the Office of the Chief of Naval Operations (OPNAV) requirement divisions. While the requirement may have come from somewhere else, the N8 OPNAV divisions will become sponsors of the requirement and review/coordinate/develop a MNS. N8 will validate and approve for ACAT II, III and IV MNS. The warfare divisions also have

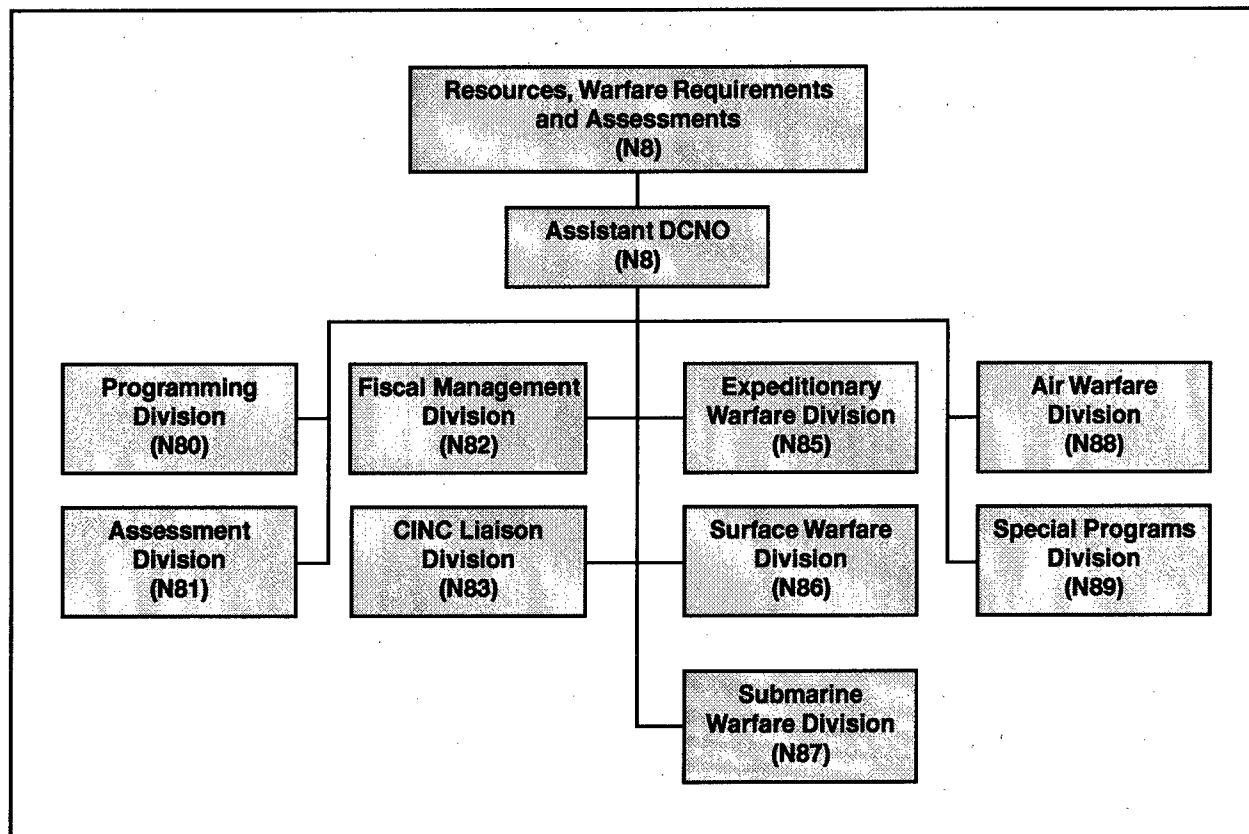


Figure 5-7. Navy Requirements Organizations

responsibility for reviewing, coordinating and preparing the ORD. The CNO validates and approves delegated MDAP ORDs. N8 approves all others.¹⁷ The warfare divisions are the program advocates and have a responsibility for providing fiscal sponsorship of the program. The Requirements Officer (RO) is the program sponsor and provides the key interface between OPNAV and the acquisition management structure. Marine Corps requirements are managed through this process and funded by appropriate warfare sponsor.

Department of the Air Force

In the Air Force, the requirements process is decentralized with the major operational commands, such as the Air Combat Command at Langley Air Force Base, VA, having responsibility for developing requirements (see Figure 5-8). Each command has a Director of Requirements (DR) who, as part of their modernization reviews and identifies deficiencies, evolving threats, or technological opportunities; and generates requirements. The operational command's DR will write the MNS and the ORD, will pri-

oritize programs, and then will advocate within the Air Force budgeting process for money to fulfill their needs.

In the HQ, Air Force, the Deputy Chief of Staff for Air and Space Operations (AF/XO), and specifically the Directorate of Operational Requirements (AF/XOR), reviews and coordinates MNS and ORDS. AF/XOR guides those programs requiring approval and validation through the JROC process. The Chief of Staff is the approval authority for all MNS and ORDs for ACAT II and III programs.

Within the Air Force, a forum similar to the JROC, the Air Force Requirement Operational Council (AFROC), reviews MNS, ORD and other requirements documents for joint issues, validity, interoperability with allies, and other items. The process is designed to emphasize the capability needed to meet Air Force needs, versus a specific design solution. To develop effective requirements documents, it is critical to understand deficiencies across all Air Force mission areas and to consider Joint Warfighting Mission Areas.

Air Combat Command	Air Force Special Operations Command
Air Education and Training	Air Intelligence Agency
Air Force Inspection Agency	Air Mobility Command
Air Force Materiel Command	Air National Guard
Air Force Personnel Center	Air University
Air Force Recruiting Service Center	Army and Air Force Exchange Service
Air Force Rescue Coordination	Pacific Air Forces
Air Force Reserve Command	U.S. Air Force Academy
Reserve Officer Training Corps	U.S. Air Forces in Europe
Air Force Safety Center	Air Force Space Command
Air Force Services Agency	

Figure 5-8. Air Force Major Requirements Organizations

Chapter 5

DEFENSE ACQUISITION STRUCTURE

At the beginning of the 1980s, the United States found itself with what some have termed the "hollow military." To correct the situation, the incoming Reagan Administration had, as one of its goals, strengthening national security by increasing the defense budget. As defense budgets increased, so too did Congressional scrutiny. Several scandals, mostly centering on overpaying for spare parts, developing expensive requirements for coffee pots and toilet seats on aircraft, and buying \$450 hammers, created an impression in the American public's mind of a system out of control.

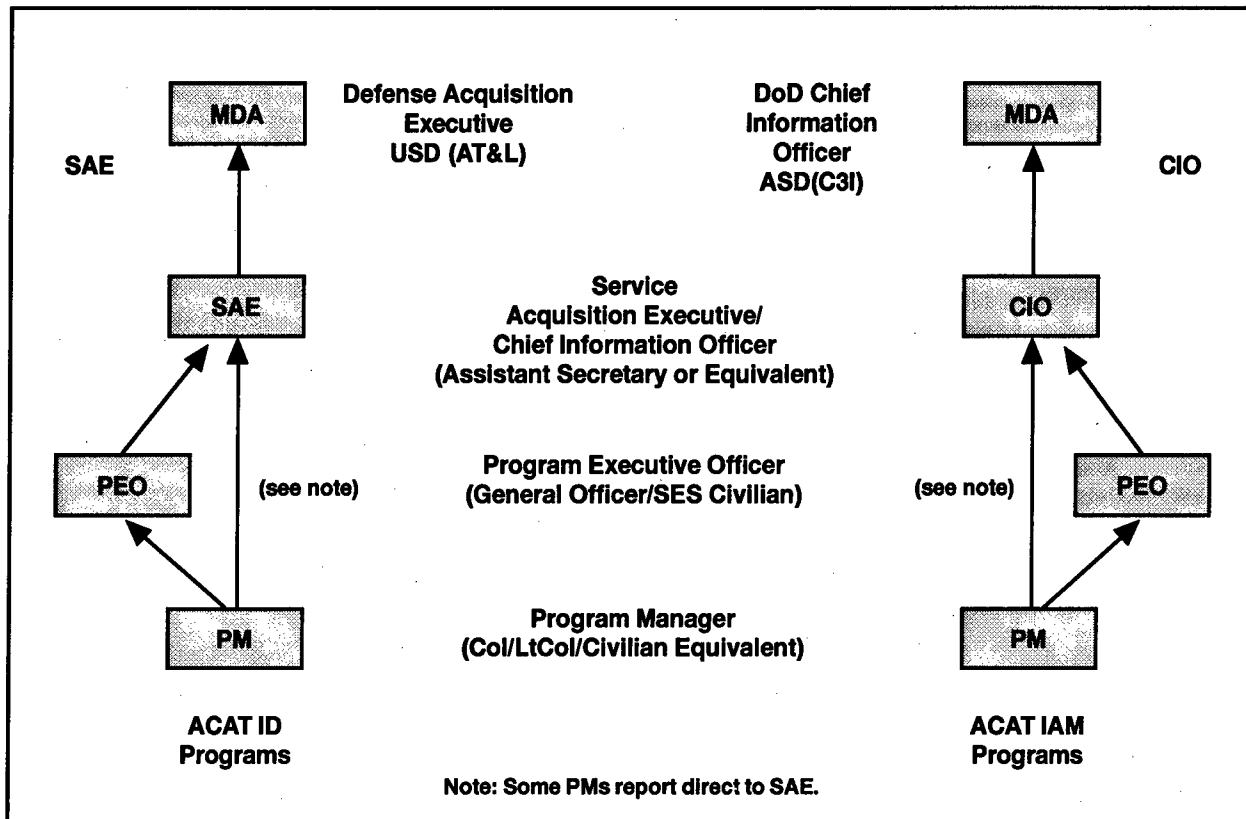
With increased public concern about the weapons development process and wasted taxpayer dollars, President Reagan tapped former Deputy Secretary of Defense and founder of Hewlett-Packard, David Packard, to chair a Blue Ribbon Commission on Defense Management. The panel issued their report in June 1986 recommending significant changes within the department in the management of acquisition programs. They called for the department to "establish unambiguous authority for overall acquisition policy, clear accountability for acquisition execution, and plain lines of command for those with program management responsibilities." Included in those plain lines of command were to be "short lines of command." The President issued National Security Directive 219¹⁸ to implement the panel's recommendations. Congress followed suit with the passage of the Goldwater-Nichols Act, which created changes in the management of the acquisition business.

In 1989 the new Secretary of Defense, Richard B. Cheney, chartered the Defense Management Review which further refined the acquisition structure to its current arrangement.

Under Secretary of Defense (Acquisition, Technology and Logistics) (USD (AT&L))

Out of the above efforts, the popularly coined "*acquisition czar*" position was created. Officially titled, the Under Secretary of Defense (Acquisition, Technology and Logistics)¹⁹ or the Defense Acquisition Executive (DAE), the "acquisition czar" was given overall responsibility for the policy and management of the acquisition system. Similar positions were created within the Services. To create the "short lines of command," the Program Executive Officer (PEO) structure was created with four levels of management. The lines of command between the Service Acquisition Executive (SAE) and the Program Manager (PM) was limited to two (see Figure 5-9).

In cases of major defense acquisition programs or programs involving Command Control and Intelligence programs the PM reports through the Head of the Component to USD (AT&L) or ASD (C3I) respectively. USD (AT&L)'s authority was strengthened when Congress determined that USD (AT&L) would take precedence over Service Secretaries in acquisition matters. It also ranks number three within the DoD hierarchy. This, along with the ability to have program funds withheld, provides USD (AT&L) with significant leverage over the services.

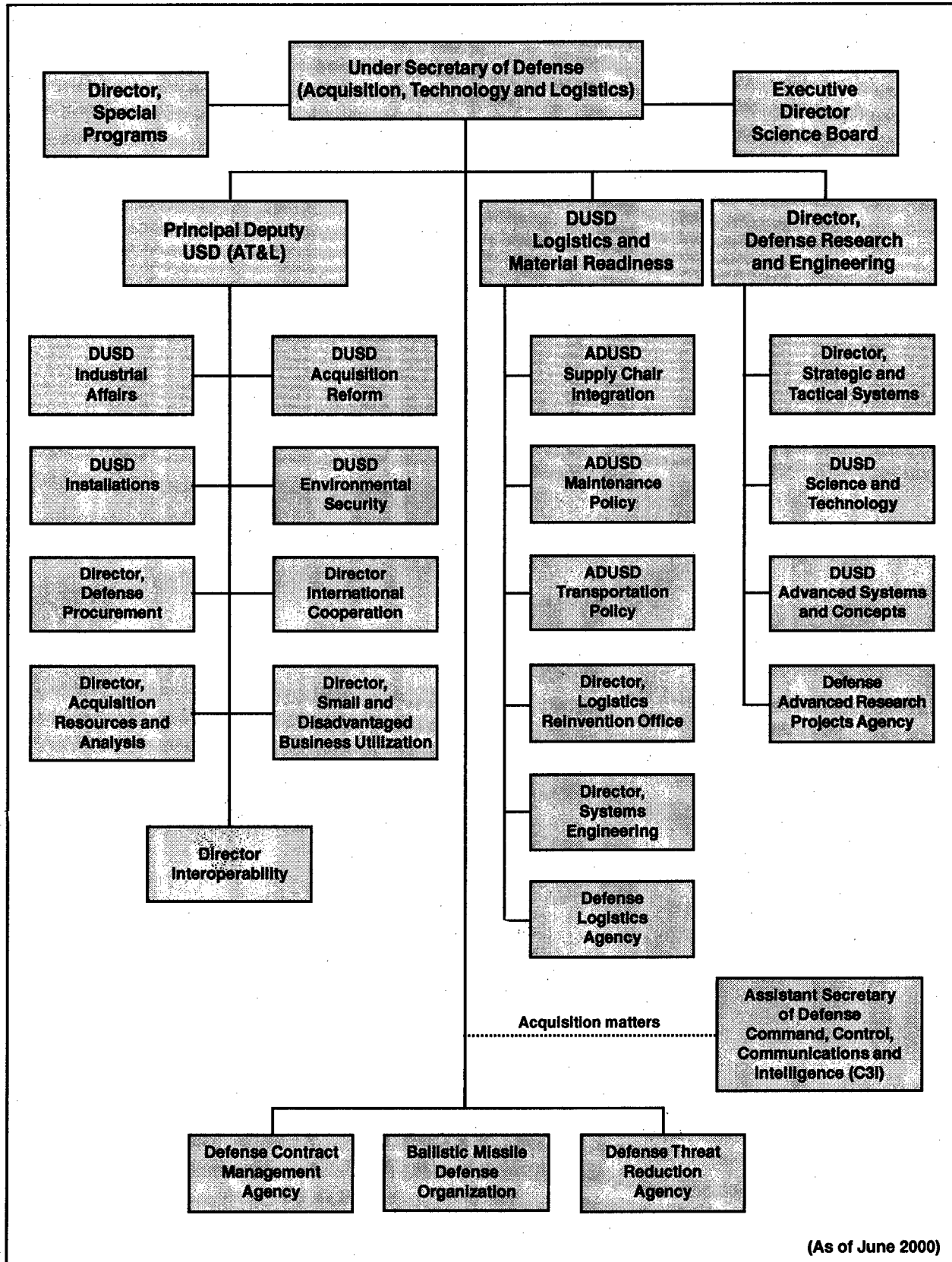


The current USD (AT&L) is the Honorable Jacques Gansler. In addition to setting acquisition policy he has a large portfolio of responsibilities. These include responsibility for R&D, advanced technology, T&E, production, logistics, military construction, procurement, international cooperative programs, economic security, and atomic energy. In the international community, he is the equivalent of the Armament Director and represents the department at the Four-Power Conference along with other major international forums. Another important role is that of the Senior Procurement Executive (SPE), responsible for management and direction of the procurement system, including implementation of unique procurement policies, regulation and standards.

Office of the Under Secretary of Defense (USD) (Acquisition, Technology and Logistics (AT&L))

The staff of the Under Secretary consists of various functional offices which provide advice and assistance on technology, procurement, testing and other areas. Figure 5-10 depicts the USD (AT&L) organization. See Appendix B for a listing of organizational functions. The Assistant Secretary of Defense for Command, Control, Communications and Intelligence (C3I) works with USD (AT&L) on acquisition matters for information systems. The office of USD (AT&L) is primarily a policy-making organization with oversight of the acquisition organizations within the Services and agencies.

Other OSD organizations involved in acquisition: USD (AT&L) is the primary acquisition



(As of June 2000)

Figure 5-10.
Office of the Under Secretary of Defense (Acquisition, Technology and Logistics
(with ASD (C3I))

organization within OSD. Several other offices, however, play critical roles in oversight of acquisition, or provide guidance to USD (AT&L), or have a key role in determining the resources available for acquisition programs.

Under Secretary of Defense (Comptroller) (USD (C)) is the principal advisor and assistant to the Secretary and Deputy Secretary of Defense for budgetary and fiscal matters (including budget formulation and execution, and contract audit administration and organization) and administers the PPBS. In addition, the USD (C) is the Chief Financial Officer of the DoD.

Director, Operational Test and Evaluation (DOT&E) sets the policy and standards for operational testing and analyzes operational test results. DOT&E has oversight responsibility for operational testing within the services.

DoD Inspector General (IG) serves as an independent official for conducting audits and investigations relating to programs and operations of the department. The IG is responsible for identifying problems, deficiencies, fraud and abuse in the management of programs and identifying the need for corrective action.

Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD (C3I)) sets policy for the management of command, control, communication, intelligence and information management systems and software for the department. He is the Department's Chief Information Officer (CIO)

and provides over-sight and policy to govern the development, acquisition, and operation of information technology (IT) and information systems. ASD (C3I) chairs the DAB for Major Automated Information Systems (MAIS).

General Council is the chief legal adviser on acquisition issues and legislation. Coordinates on significant legal issues, including litigation involving the DoD. Acts as lead counsel for the Department in all international negotiations conducted by OSD organizations. Maintains the central repository for all international agreements negotiated by DoD personnel.

Defense Logistics Agency (DLA) is a central combat support agency for the department. DLA provides worldwide logistics support for the missions of the military departments and the Unified Combatant Commands and other Federal agencies, foreign governments, international organizations, and others as authorized. Provides materiel commodities and items of supply that are common to the military services.

The **Defense Contract Management Agency (DCMA)** is the single organization responsible for worldwide contract management.

Defense Contract Audit Agency (DCAA) performs contract audits and provides accounting and financial advice to DoD procurement organizations and others, such as NASA. These services are provided in connection with negotiation, administration, and settlement of contracts and subcontracts.

Chapter 6

SERVICE ACQUISITION ORGANIZATIONS

The Services—Army, Navy and Air Force—are separate departments within DoD, required by statute to train, organize, and equip their respective military organizations. Thus, a significant responsibility of each Service is the acquisition of military equipment to meet the needs of the warfighter. Closely allied with the structural division of responsibilities is the department's management philosophy. Since the creation of DoD, the philosophy has been to centralize policy-making at the OSD and Service headquarters level, with decentralized execution of programs at field level organizations. As seen above, OSD is primarily a policy-making organization, although it plays a key role in program management through the PEO structure for Major Defense Acquisition Programs and in its oversight role through the Defense Acquisition Board (DAB).

All three Services have organized based upon OSD direction and congressional mandates. Each Service has a single, full-time Service Acquisition Executive (SAE), an "acquisition czar," at the Assistant Secretary level.²⁰ The SAE²¹ has responsibility for making acquisition policy and managing the acquisition system within their respective department. Each of the Services has created a streamlined organization required by the 1989 Defense Management Review which includes the Program Manager (PM), the Program Executive Officer (PEO), and the Service Acquisition Executive (SAE)—although each is managed slightly differently.

Within this basic structure, each of the services has organized to meet its management and mission needs. The Army and Air Force have Major Commands, headed by four-star generals, which have acquisition and logistics responsibilities—Army Materiel Command and Air Force Materiel Command. These commands manage the personnel, resources and processes involved in acquisition and logistics support of the operational forces. The Navy eliminated its Materiel Command in the 1980s and has four subordinate Naval Systems Commands, two headed by three-star admirals, with responsibility for the acquisition of systems and providing logistics support to the fleet.

At the service headquarters level, each Service has established offices with responsibility for oversight and direction of the acquisition system, and for providing acquisition and contracting policy, and budget preparation. The role of information technology in weapon system development and management of information within the services is recognized by establishment of Chief Information Officers. In the Air Force the CIO is located within the acquisition organization; while in the Navy and Army it is in a separate organization, but works with the acquisition organization on common issues. The CIOs have responsibility for information technology policies, procedures, standards, to include software policy and practices, and for the development, acquisition and fielding of information technology and systems within their service.

THE ARMY ACQUISITION ORGANIZATION

The Army's²² Acquisition Executive is the Assistant Secretary of the Army, Acquisition, Logistics and Technology (ASA (ALT)). He is responsible for policy and management of both the acquisition and logistics systems. The headquarters' organization consists of six major deputies that provide support and advice to the Assistant Secretary. They include a Principal Military Deputy who is also the Deputy for Acquisition Career Management; Deputies for Logistics; Research and Technology; Procurement; Plans, Programs and Policy; Systems Management and Horizontal Technical Integration; and a Director for Assessment and Evaluation.

The acquisition workforce education and training responsibility is assigned to the Deputy Director, Acquisition Career Management, who reports directly to the principle military deputy. With the recent emphasis on privatization, a Director for Competitive Sourcing has been added. The Army's CIO is separate from the ASA (ALT). CIO responsibility is vested in the Director of Information Systems for Command, Control, Communication and Computers who reports directly to the Secretary of the Army. The mission areas of Combat Service Support and Ammunition are assigned to Army Materiel Command for management, but the individuals are dual hatted as the "Deputy for" as part of the ASA (ALT) staff.

Medical Systems are not assigned to the Army Materiel Command. They are separately managed by the Army Medical Research and Materiel Command at Fort Detrick, Maryland. The Deputy Assistant Secretary for Chemical Demilitarization oversees the U.S. chemical weapons destruction program.

The Army currently has seven Program Executive Officers as a line organization reporting

directly to the SAE, covering program areas, such as, missiles, support systems, aviation and others. The Army's PEO organizations range in size from 50 to 100 personnel and are located at the AMC subordinate commands, such as AMCOM in Huntsville, Alabama. There is also a PEO for Reserve Component Automated Systems. Three Direct Reporting Program Managers (DRPMs) manage the Joint Tactical Radio System, Biological Defense, and Chemical Demilitarization, respectively. Figure 5-11 shows the ASA (ALT) organizational structure. Appendix C provides a functional description of each office.

Army Materiel Command

The Army Materiel Command (AMC), a major command, located in Alexandria, Virginia, employs about 65,000 military and civilian employees and is the Army's principal materiel developer. AMC provides management of numerous maintenance depots, inventory control points, arsenals, ammunition plants, laboratories, test facilities, and procurement operations—much of it in general support of the acquisition mission of the department. In addition to its logistics and maintenance responsibilities, AMC headquarters has responsibility for providing the resources for the education and training of the acquisition workforce, ensuring manpower support for program offices and Program Executive Officers, and development and maintenance of acquisition processes. Within the headquarters of AMC there are three offices primarily involved in acquisition: the Deputy Chief of Staff for Research, Development, and Acquisition; the Office for International Programs; and the Deputy Chief of Staff for Security Assistance. AMC is also the executive agent with responsibility to acquire all ammunition for the three Services.

AMC has nine sub-organizations with specific areas of responsibility for acquiring weapon

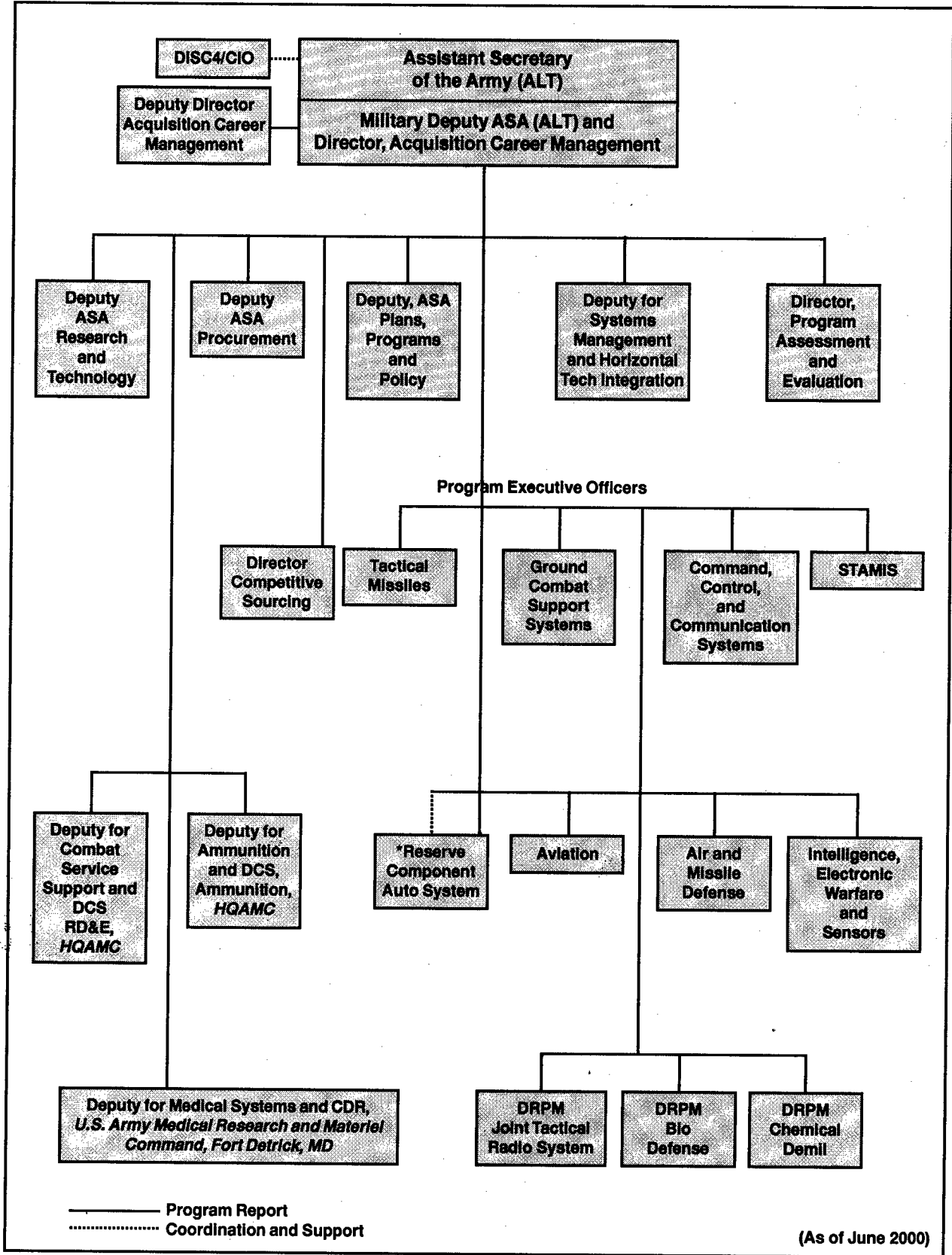


Figure 5-11.
Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology)

systems not assigned to the PEOs. In these organizations the Program Offices develop the acquisition strategies and approaches, select the contractors to develop or produce the weapon system and manage the contracts. They are:

Aviation and Missile Command/AMCOM,
Huntsville, Alabama
Army Research Laboratory/ARL, Adelphi,
Maryland
Communications - Electronics Command/
CECOM, Ft. Monmouth, New Jersey
Industrial Operations Command/IOC, Rock
Island, Illinois
Soldier & Biological Chemical Command/
SBCCOM, Aberdeen, Maryland
Simulation, Training & Instrumentation
Command/STRICOM, Orlando, Florida
Tank-automotive & Armaments Command/
TACOM, Warren, Michigan
Test and Evaluation Command/TECOM,
Alexandria, Virginia
U.S. Army Security Assistance Command/
USASAC, Alexandria, Virginia

THE NAVY ACQUISITION ORGANIZATION

The Navy Acquisition Executive is the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN (RD&A)). ASN (RD&A) sets policy and manages the Navy's acquisition system. Six Deputy Assistant Secretaries (covering the program areas of ships, mine/undersea warfare, air, C4I/electronic warfare/space, theater air defense and expeditionary forces) support him. The Navy's CIO is a separate organizations reporting directly to the Secretary of the Navy. The Navy's SAE is supported by five functional directors—Acquisition and Business Management, International Programs, Acquisition Career Management and Acquisition Reform and Planning, Programming and Resources. The Office of

Naval Research is a line unit that reports directly to the ASN (RD&A).

Eleven PEOs, with responsibility for major defense programs in areas, such as undersea warfare and mine warfare, report directly to the SAE. The Navy PEO offices are located at the Naval Systems Commands and contain about 15-20 personnel per office. The PEO Joint Strike Fighter (JSF), dual hatted as the PM, manages a joint Navy/Air Force program. This is an innovative Navy/Air Force management approach to increasing emphasis on joint program management. The current PM/PEO is a Marine Corp general officer and reports to the Assistant Secretary of the Air Force (Acquisition). At the end of his tour, the position will alternate to an Air Force PM whose reporting official will be the ASN (RD&A). Two of the PEOs are actually Direct Reporting PMs (DRPMs) for—Strategic Systems Programs (SSP) and Advance Amphibious Assault Programs (AAAP). Figure 5-12 shows the ASN (RD&A) organizational structure. Appendix C provides a functional description of each office.

Naval Systems Commands

The next level of major command in Navy acquisition is the Systems Commands, two of which are headed by three star admirals. Each of these commanders has responsibility for programs not managed by the SAE. They also have the responsibility to implement acquisition initiatives and provide the manpower and logistics support for the Navy PEOs and DRPMs. The PEOs and DRPM are collocated with the respective Systems Command. The four major Navy Systems Commands are:

Naval Air Systems Command (NAVAIR),
Patuxent Naval Air Station, Maryland
Space and Naval Warfare Systems Command (SPAWAR), San Diego, California

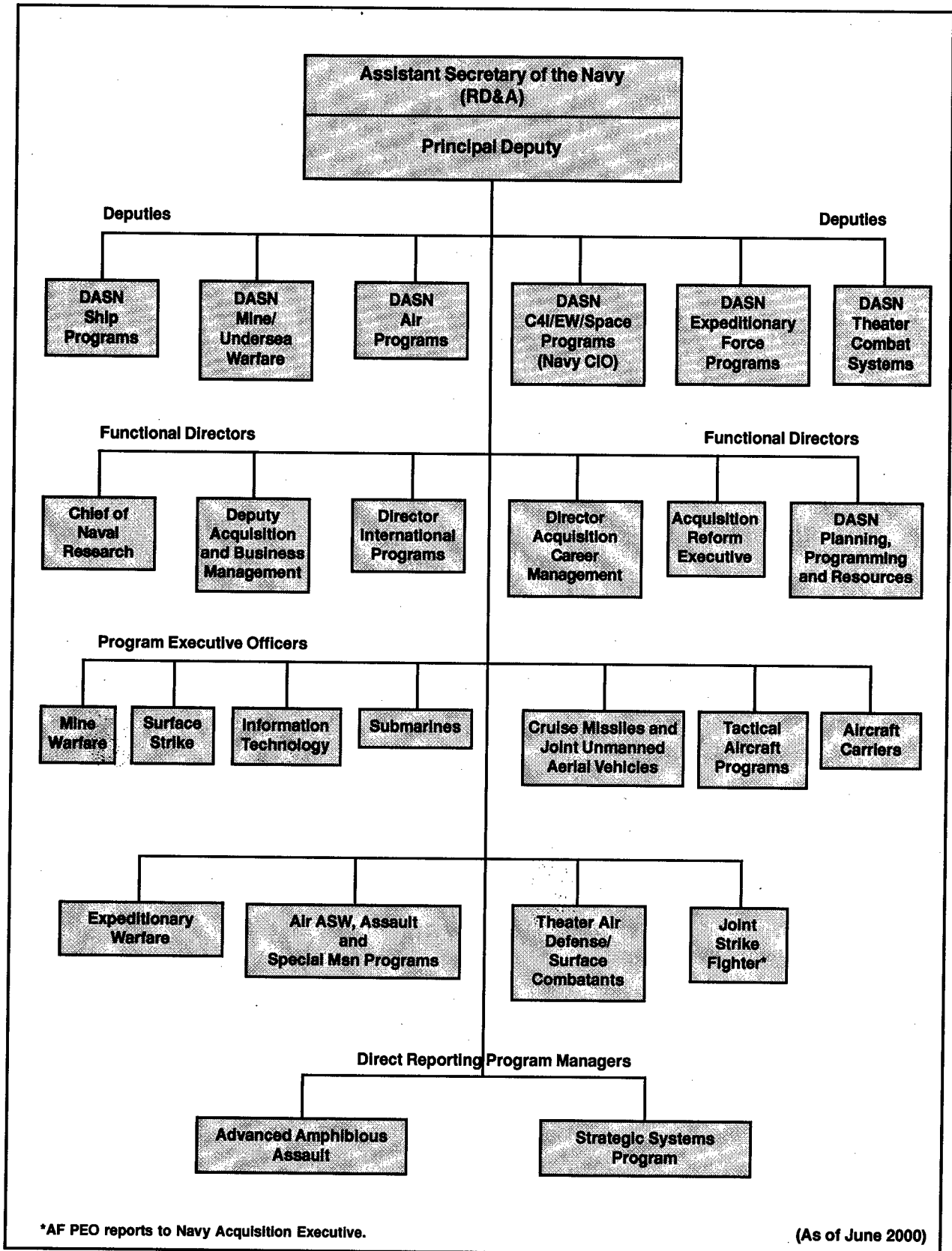


Figure 5-12.
Office of the Assistant Secretary of the Navy (Research, Development & Acquisition)

Naval Sea Systems Command (NAVSEA),
Washington, D.C.
Marine Corps Systems Command (MAR-
CORSYSCOM), Quantico, Virginia

Within these commands are various subordinate commands which support the acquisition system. For example, NAVAIR has the Naval Air Warfare Center Aircraft Division (NAWCAD), Naval Air Warfare Center Weapons Division (NAWC WD), Naval Air Warfare Center Training Systems Division (NAWCTSD), and Naval Inventory Control Point (NAVICP). There are two other support systems commands: the Navy Facilities Engineering Command, Washington, D.C., responsible for construction and facilities maintenance and the Navy Supply Systems Command, Mechanicsburg, Pennsylvania, which provides in-service logistics support.

AIR FORCE ACQUISITION ORGANIZATION

The Air Force acquisition executive is the Assistant Secretary of the Air Force (Acquisition)—(ASAF (A)). ASAF (A) has two principal deputies. The Principal Deputy (Acquisition and Management) oversees the management of Air Force acquisition programs, acquisition reform, and acquisition training and education. This individual currently holds the position of chairman of the NATO Airborne Early Warning and Control Program Management Board of Directors. The Principal Deputy (Acquisition) provides management direction of programs, works the interface with the user and the Hill. Additionally, he is designated as the Air Force's CIO.

The support staff consists of mission area directors and functional directors. The four Mission Area Directors for Information Dominance, Global Power, Global Reach and Space and Nuclear Deterrence provide policy, direc-

tion, resource allocation (PPBS) (program budgets), and oversight for programs within their mission areas. The four functional organizations are Contracting; Special Programs; Science, Technology and Engineering; and Management Policy and Program Integration. There is also the Air Force Acquisition Management Chair located at the Defense Systems Management College. Figure 5-13 shows the organizational structure. Appendix C provides a functional description of each office.

Air Force Program Executive Officers (AFPEOs) are responsible for a number of mission-related programs, which collectively comprise the PEO's portfolio. The current six PEOs have portfolios grouped into areas, such as fighters and bombers, weapons, airlift and trainers, space, command and control, and logistics information systems. The PEOs are a field unit, not part of the headquarters staff, and have small staffs, consisting of seven personnel for each office. A typical PEO will have oversight of five or six programs, each managed by a PM, who is held responsible for ensuring that cost, schedule and performance aspects of acquisition programs are executed within an approved program baseline.

For other than Major and Selected programs (ACAT IIIs), the commanders of AFMC Product Divisions and Air Logistics Centers perform a PEO role. In their PEO role they are referred to as Designated Acquisition Commanders (DACs). These DACs are also established in a direct reporting line between their subordinate PMs and the SAE. In their role as center commanders, they report to the AFMC commander. Figure 5-14 shows this relationship.

Air Force Materiel Command (AFMC)

The HQ for AFMC, a major Air Force command, is located at Wright-Patterson Air Force Base, Ohio, and employs over 100,000 personnel. Its

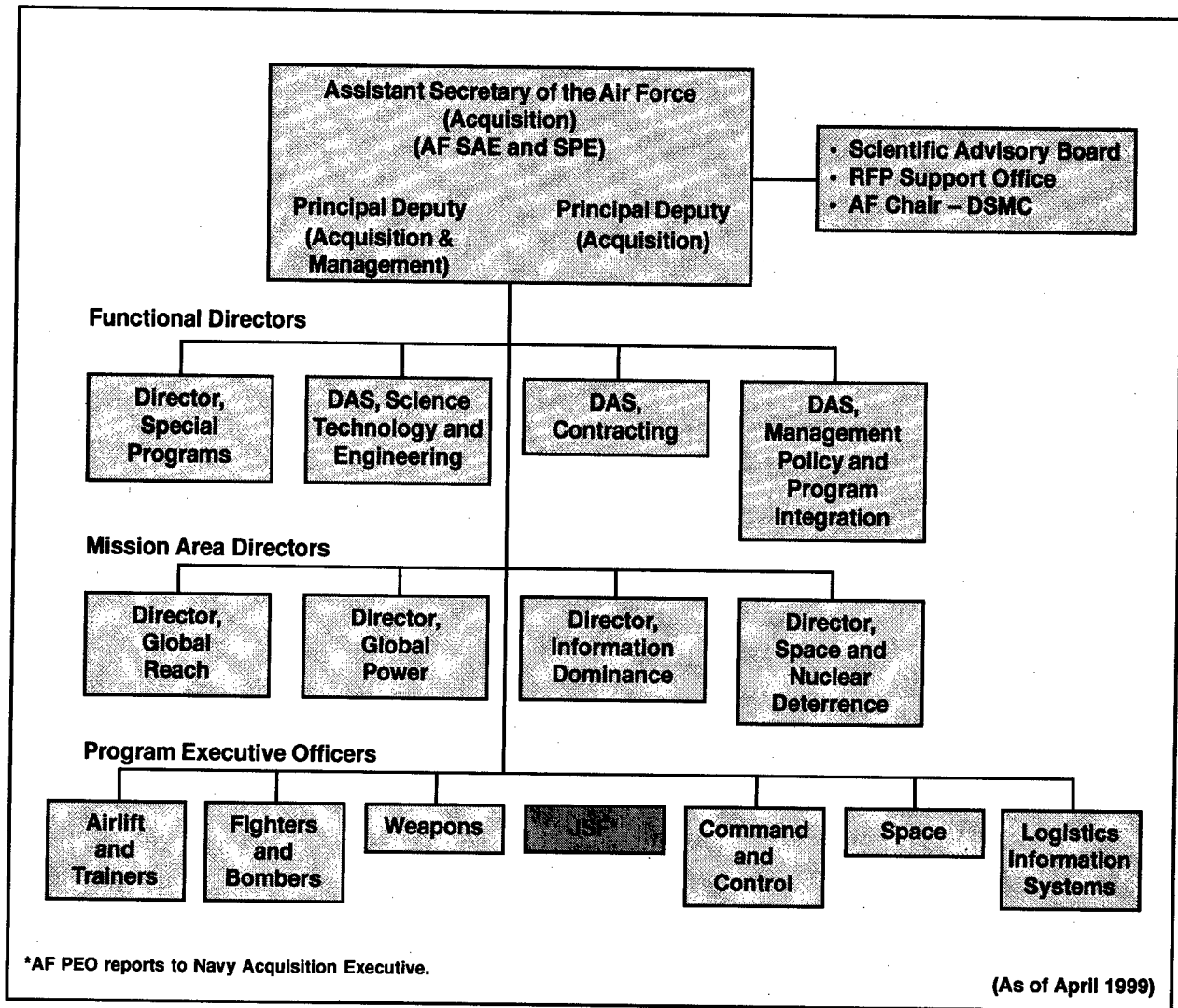


Figure 5-13.
Office of the Assistant Secretary of the Air Force (Acquisition)

mission is to manage the Air Force research, development, test, and acquisition of programs and to provide logistics support for Air Force weapons systems. Specifically, they perform scientific research and depot maintenance, provide technical support for existing weapon systems, such as the F-16, certifying and managing system safety, integrity and suitability for combat use. They also provides the manpower and process support to the PEO structure.

AFMC has management responsibility for Air Force weapons systems “womb to tomb.” Wea-

pon systems with significant development or production efforts remaining are managed by one of four Product Centers. These centers are primarily responsible for development, acquisition, testing, and fielding of new or modified weapon systems. The four centers are:

- Aeronautical Systems Center, Wright-Patterson Air Force Base, Ohio
- Space and Missile Systems Center, Los Angeles Air Force Base, California
- Electronic Systems Center, Hanscom Air Force Base, Massachusetts

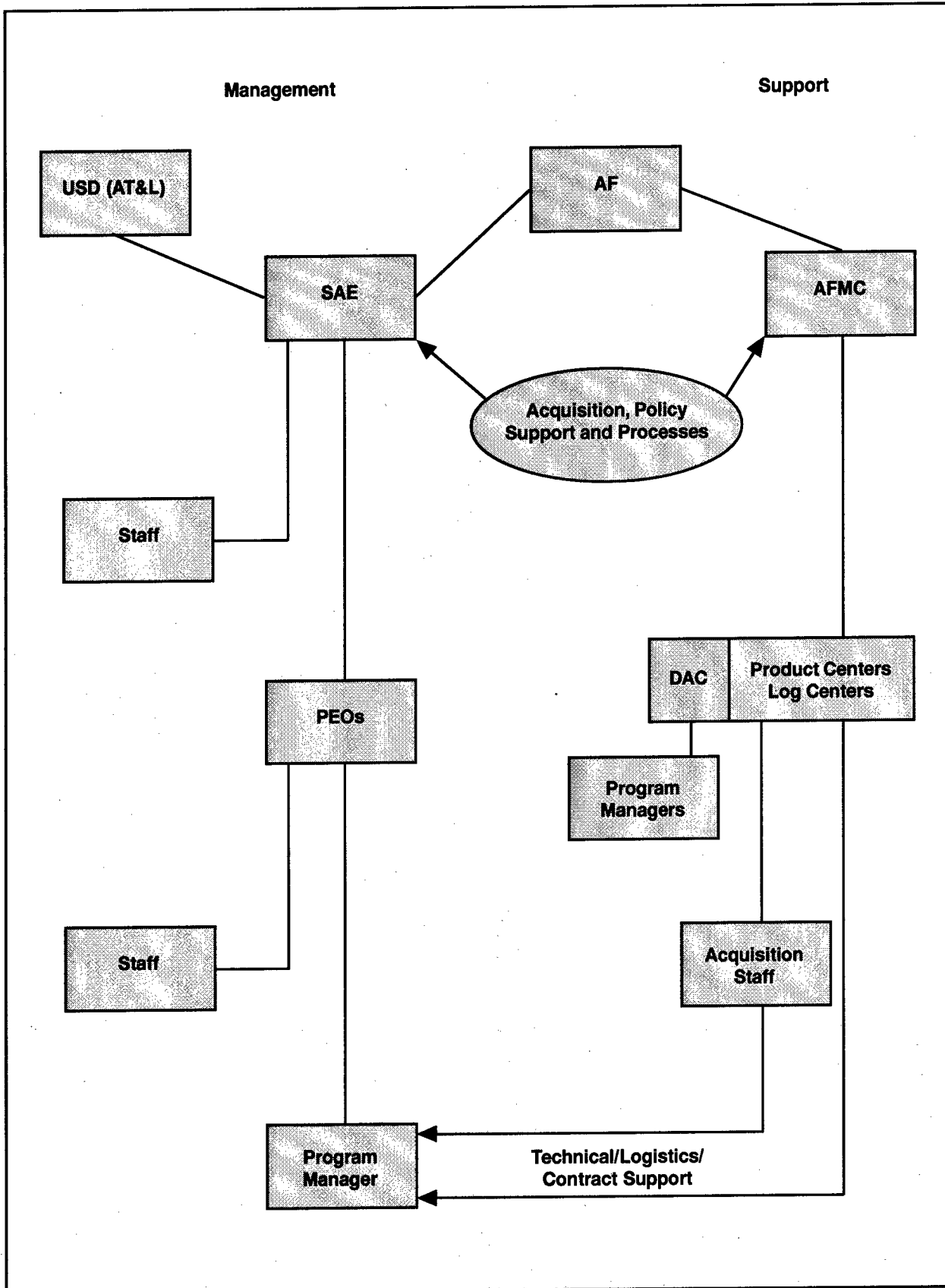


Figure 5-14. Acquisition Management Structure

Air Armament Center, Eglin Air Force Base,
Florida

Existing weapon systems and military equipment are managed by one of five air logistics centers. These centers have responsibility for logistics support and maintenance of weapon systems and equipment.

Ogden Air Logistic Center, Utah

Oklahoma City Air Logistics Center,
Oklahoma

Sacramento Air Logistics Center, California
(scheduled to close 2001)

San Antonio Air Logistics Center, Texas,
(scheduled to close 2001)

Warner-Robbins Air Logistics Center,
Georgia

In support of weapons development, AFMC has two test Centers—Arnold Engineering Development Center, Tennessee, and Air Force Flight Test Center at Edwards Air Force Base, California. AFMC is also home of the Air Force Research Laboratory (AFRL). The AFRL is the science and technology organization for the Air Force. They perform internal research and leverage the capability of other national scientific organizations, industry, and academia. The Air Force Security Assistance Center is also part of AFMC, and manages foreign military sales programs totaling in excess of \$20 billion in support of more than 80 foreign countries.

Chapter 7

THE DEFENSE ACQUISITION SYSTEM

There are three decision support systems used to manage the department. They are: (1) the Requirements Generation Process (discussed earlier); (2) the Planning, Programming, and Budgeting System (PPBS), and (3) the Acquisition Management System. All three systems are designed to assist senior decision-makers such as the SECDEF, USD (AT&L) and other senior officials in making critical decisions. The output from these systems provide the money, authority, people and other resources necessary to execute programs and deliver a product to the warfighters. Figure 5-15 provides a conceptual look at the systems and the overlap between the systems. While these systems interact, they also

operate separately, continuously and concurrently. Decisions and issues overlap from one system to the other; and each impacts on the ability of the acquisition system to deliver timely, cost effective systems.

PLANNING, PROGRAMMING, AND BUDGETING SYSTEM (PPBS)

In 1962 Defense Secretary Robert S. McNamara and Charles J. Fitch, OSD Comptroller, wanted to “run government more like a business.” They developed the Planning, Programming, and Budgeting System (PPBS) to link strategic planning

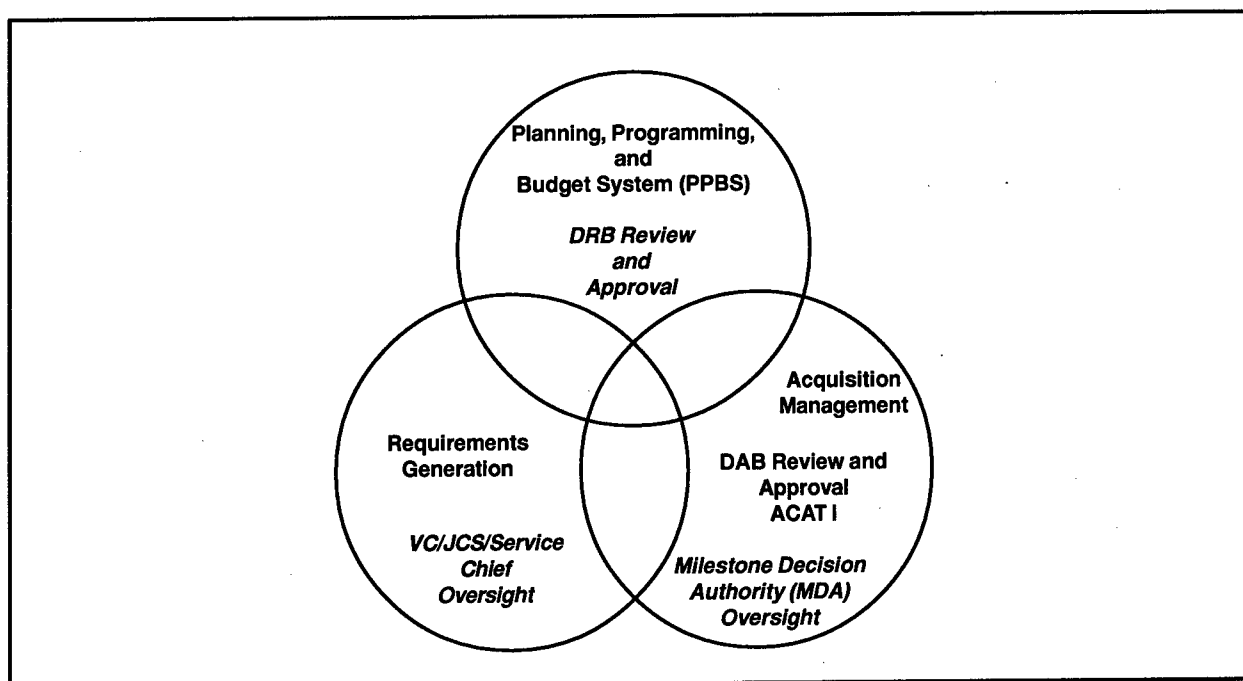


Figure 5-15. Three Decision Making Support Systems

activities to the budget. This system, unique to the Department of Defense, provides the mechanism for development of the Department's portion of the President's Budget.

Prior to implementation of the PPBS system, the military departments "planned, programmed, and budgeted" a year at a time. PPBS provides a disciplined process to tie long-term planning, such as the Defense Planning Guidance, to the resources needed to implement the planning and the budgetary dollars necessary for implementation. Senior leaders then have the information to make informed affordability assessments, to prioritize requirements and to make resource allocation decisions on defense acquisition programs. PPBS is a cyclic process, looking out five years, with annual reviews of the resources necessary for the department to operate. In each phase, OSD issues guidance; the Services, defense agencies and the JCS request resources; and the Defense Secretary issues a decision. The Deputy Secretary of Defense, with advice from the Defense Resources Board (DRB), manages the PPBS system.

The planning portion of the PPBS is the responsibility of the USD Policy. Generally, this phase begins about two years in advance of the fiscal year in which the budget will be requested. The Services and Joint Staff, with OSD, conduct this six-month process beginning in the fall and ending in March. The overall framework for planning is provided by the President in his National Security Strategy and the National Military Strategy. This phase begins when the JCS issues the Joint Planning Document (JPD) which proposes long-term strategy and force levels necessary to achieve national military objectives. Based on the JPD, OSD issues the Defense Planning Guidance (DPG) document, which provides the strategic mid-range-planning framework for developing the Service Program Objective Memorandum.

The programming phase is next and is the responsibility of OSD's Program Analysis and Evaluation office. The Services respond with their Program Objective Memoranda (POM) stating requirements for resources, such as personnel and supplies, and justifying acquisition programs. The JCS then submits to OSD the Chairman Program Assessment (CPA) assessing the capabilities and risks associated with the proposed forces and programs. A period of formal discussions (program review cycle) follows between the Services, OSD, and the JCS. Once an acceptable level of resources and programs is agreed to, the Secretary of Defense issues the Program Decision Memorandum (PDM). See Figure 5-16 for the time frames for conducting the PPBS cycle.

The final phase is the budgeting phase and the responsibility of the OSD Comptroller. The PDM has set the resource and acquisition program levels. These are translated into the Service annual budgets, which are in turn reviewed by OSD. Based upon OSD comments, the services submit a Budget Estimate Submission (BES) in September. After resolution of issues caused by the BES submittal, OSD issues program budget decisions and the DoD budget is finalized. What survives is voluminously documented and submitted to OMB for inclusion in the President's Budget, which is submitted to Capitol Hill in February.

The Acquisition Management System

The Acquisition Management System consists of the policies and procedures governing the operations of the entire DoD acquisition system. There are two documents that guide the defense acquisition business. The first regulation is the DoD Directive 5000.1, Defense Acquisition, which identifies the key officials and panels for managing the system and provides broad policy and principles for all acquisition programs. Its sister pamphlet is DoDR 5000.2, Mandatory

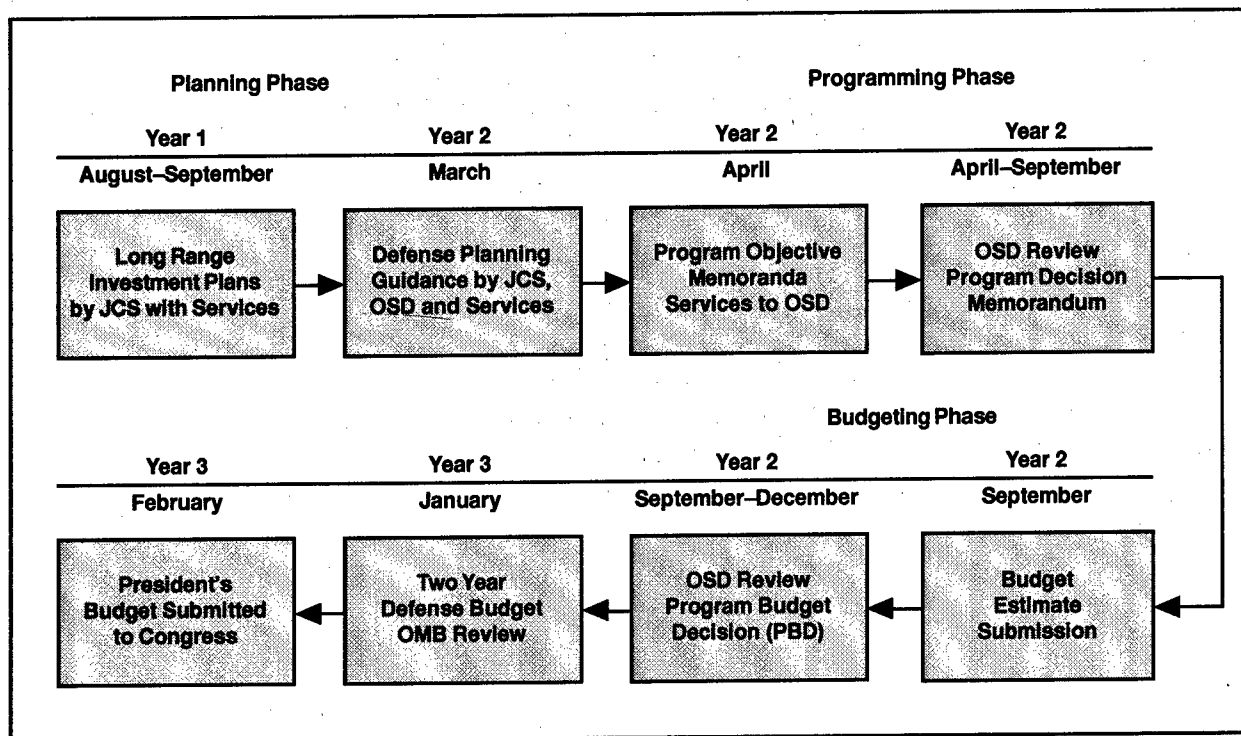


Figure 5-16. Planning, Programming, and Budgeting Cycle

Procedure for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System Acquisition Programs (MAIS). This document provides specific mandatory policies and procedures to guide the development and production of major programs. There are three general principles governing the operation of the defense acquisition system:

1. Translate operational needs into stable, affordable programs,
2. Acquire quality products, and
3. Organizing for efficiency and effectiveness.

The acquisition system is designed around a series of life-cycle phases. It begins with the conceptualization of a system and extends to actually developing and fielding a system, and eventually phasing it out of the inventory. It is more colorfully described as “womb to tomb.” The four phases of the DoD acquisition system

are: (1) Concept Exploration (CE), (2) Program Definition and Risk Reduction (PDRD), (3) Engineering and Manufacturing Development (EMD), and (4) Production, Fielding/Deployment, and Operational Support. As a system moves through its life cycle, it must pass decision points. These points are called Milestone Decision Points (Milestone 0 to IV). The phases and milestone decision points are shown in Figure 5-17.²³ At each of these milestones, the decision-maker, the Milestone Decision Authority (MDA), will make a determination whether or not the system is programmatically and technologically ready for the next phase. As an example, an Army personnel carrier entered the Program Definition and Risk Reduction phase with two goals—demonstrating certain technology and developing a successful prototype. The MDA will evaluate how successful the program performed its goals and what its projected cost, schedule and technical risks are for the next phase. If the Phase I goals have been met and the performance parameters are acceptable, the

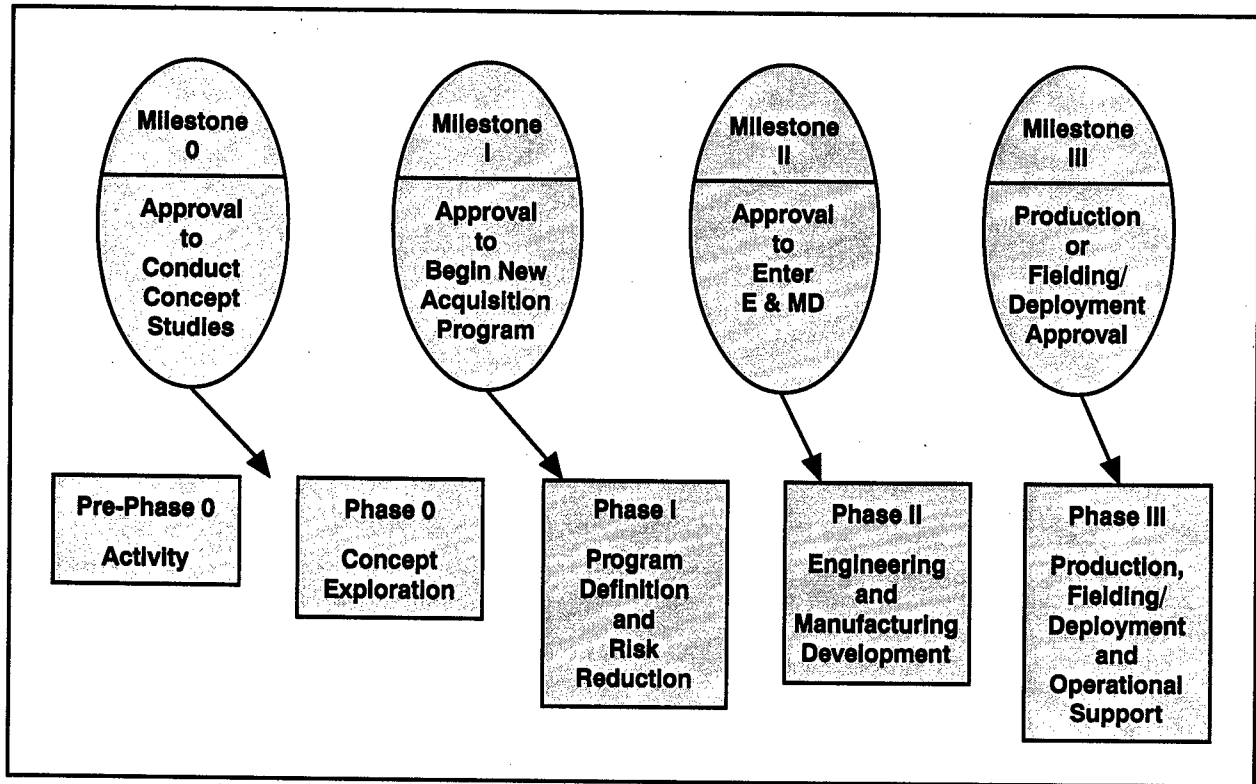


Figure 5-17. Milestones and Phases

MDA will approve the program's entry to the next phase—Engineering and Manufacturing Development. Of course, if the program has not met its goals and the risks are perceived to be too great, the program could be cancelled or additional technical efforts may be undertaken. For Major programs, the Defense Acquisition Board (DAB)(to be discussed later) is the MDA. This is an event-driven process and some programs will go through a phase in one or two years where another may take four or five years. The next section provides a description of each of the milestones and phases.

PHASES AND MILESTONE²⁴

Milestone 0/Phase 0: Concept Exploration²⁵

The Requirements Generation Process has identified a shortfall in military capability and turned to the acquisition community. The basic

questions asked by the acquisition community are "How can I solve this problem? What type of material solution is possible?" The answer could be a new aircraft, a remotely-piloted vehicle, modification of an existing aircraft, or other possible solutions. During this phase most of the effort is paper products—studies of various concepts to meet the warfighters needs. These studies will address the following types of questions:

- What technical problems must be overcome?
- What technology is available to meet military needs?
- What are the technical risks?
- What will the program cost and how long to field?

This “concept” will translate a range of ideas into a more detailed, but still abstract, description of a possible solution. Generally, this phase is short lived, possibly several years, and relatively inexpensive.

Milestone I: Approval to Begin a New Acquisition Program/Phase I – Program Definition and Risk Reduction

This is the phase where a program becomes a program. If it is an ACAT I program, the DAB will provide criteria for entering the next phase of acquisition. During this phase the program office will look at alternative acquisition strategies and solutions. New technologies will be evaluated for possible incorporation into the system. The cost, schedule, and technical risks will be assessed. Prototypes may be built and tested to further identify and reduce risks. Technical factors that drive cost will be evaluated. Estimates of the life-cycle cost of the system will be developed. Other factors, such as interoperability with other services and allies, should be pursued and evaluated. As the title to this phase indicates, the program office is trying to “flesh out” the item and focus on risk reduction of the system prior to the next decision point. This phase can be as short as two to three years or well over five years.

Milestone II: Approval to Enter Engineering and Manufacturing Development/Phase II – Engineering and Manufacturing Development

The purpose of the Milestone II decision point is to determine if the results of Phase I warrant continuation of the program, and to approve entry into Engineering and Manufacturing Development. The program is now moving from the experimental phase into the engineering design phase and it is a significant commitment of government funds. A particular approach—ship, radar, airplane—has been selected and the

actual design of the system takes place. The contractor designs the system, builds actual products, and then tests the item to ensure it performs to specification. Also during this phase, operational testing will be accomplished to ensure that it performs as it should in a combat environment. A limited commitment to production, called Low Rate Initial Production (LRIP),²⁶ will occur. Depending upon the system and the program risks, the MDA could approve the LRIP initially or when EMD is completed. This phase often takes three to five years or longer.

Milestone III: Approval for Production, Fielding/Deployment, and Operational Support/Phase III – Production, Fielding/Deployment, and Operational Support

It works! It has been tested and is ready for production. With the Milestone III production approval by the MDA, this phase brings the equipment to the warfighter. As the equipment is delivered, the military services will introduce the equipment into the inventory and into actual use. Along with the equipment will come the technical orders on how to operate and repair the equipment, the spare parts, the training and training equipment, and test equipment necessary to operate the equipment.

In summary, the development of a weapon system is a methodical, event-driven process, which can well take over 10–15 years. However, the warfighting environment is dynamic. New technology makes old technology obsolete. Testing may have identified deficiencies that need to be corrected. The enemy’s equipment and tactics may change. For these types of reasons, additional changes to the system, some major, may occur many years after the system is fielded. The first B-52 pilot’s grandson, and perhaps great grandson, may still be flying that aircraft. Systems such as the B-52, which have been in the inventory for 50 years, require constant

change to keep up-to-date with emerging threats and new technology. Some modifications, such as new avionics, or engines, could be of sufficient cost and complexity that they could qualify as a new major system program. If this happens, they will be managed as a "new" major program.

DESIGNATION OF PROGRAMS

The Department assigns a designation to a program to ensure the proper level of management review. These designations also indicate the statutory and regulatory policy that the program must comply with. The most senior level of review, OSD (DAB) review, is selected for the most costly programs—a Major Defense Acquisition Program (MDAP), also referred to as an Acquisition Category I (ACAT I) program. The next level is a Major Program, or Acquisition Category II (ACAT II). For less than major programs, or ACAT III programs, the level of review is delegated to the Program Executive Officer or Systems Command level. In most cases the cost of a program is used to determine the review level. An MDAP is based upon the cost for research, development, test and evaluation (RDT&E) of a weapons system of more than \$355 million dollars²⁷ or for production cost of an item for more than \$2.135 billion. The Service Acquisition Executive will review a major system (ACAT II) at the Service, versus OSD level. An ACAT II designation is based upon RDT&E cost of more than \$135 million, or procurement cost of more than \$640 million. All other systems are considered less-than-major systems (ACAT III). While normally the level of review is designated by a system's cost, at other times, the USD (AT&L) or the SAE will determine that because of high technical risks or political issues, a more senior review is warranted.

For over 20 years the department has provided oversight of motor automated information

systems under a separate forum. The Major Automated Information System Acquisition Review Council (MAISARC) process has recently been integrated into the DAB process. A program receives a Major Automated Information System (MAIS) Acquisition Program designation at a lower dollar value. A program with costs in any single year in excess of \$30 million dollars, or total program costs in excess of \$120 million, or total life-cycle costs in excess of \$360 million²⁸ will be designated an ACAT IAM program.

Categories of Acquisition Programs and Milestone Decision Authorities (MDA)²⁹

Category	Management Responsibility/MDA
ACAT ID	USD (AT&L)
ACAT IC	Generally the Service Acquisition Executive
ACAT IAM	Assistant Secretary of Defense (C3I) ³⁰
ACAT IAC	SAE
ACAT II	SAE
ACAT III ³¹	Delegated to PEO/PM/acquisition command

DEFENSE FORUMS

There are several key Boards the DoD uses to manage decision making in the three decision systems. These boards allow the Deputy Secretary or the Under Secretary for (AT&L) to have the benefit of the key players in the system to provide input and advise him in making his decision. The Defense Resources Board (DRB) is the senior DoD resource allocation board chaired by the Deputy Secretary of Defense. The DRB advises the Deputy Secretary on major resource allocation decisions and authorizes funds. Its membership includes Chairman and Vice Chairman JCS, Under Secretaries of Defense, Chiefs and Secretaries of the military

Departments. The DRB coordinates the two decision systems—the PPBS and Acquisition Management Systems.

The Defense Acquisition Board (DAB)³²

This body has been called the “corporate-level vice-presidents of DoD weapons acquisition.” It is the senior DoD *acquisition* review board chaired by the USD (AT&L)³³ for ACAT I programs. At each milestone the DAB authorizes program initiation or continuation. Each DAB review assesses the program’s accomplishment of its required objectives during the current phase and is it ready for the next acquisition phase. When the DAB approves continuation, it provides exit criteria, which must be met to continue into the next phase.

DAB Members

The principal members are:

- The Vice Chairman of the Joint Chiefs of Staff (vice chairman of Board);
- Principal Deputy USD (AT&L);
- Under Secretary of Defense (Comptroller);
- Assistant Secretary of Defense (Strategy and Requirements);
- Director of Operational Test and Evaluation (DOT&E);
- Director of Program Analysis and Evaluation (PA&E);
- Acquisition Executives of the Army, Navy, and the Air Force; and
- Cognizant Overarching Integrated Product Team (OIPT) Leader, PEOs and Program Managers.

Senior advisors, such as, the Director of Defense Research and Engineering also routinely support the DAB Chairman.

As part of the Department’s acquisition reform efforts, the DAB process has been changed to use Integrated Product Teams (IPT), in particular the Overarching IPT to improve the quality of information and to speed up the process. A concern of the senior OSD leaders has been the length of time and bureaucracy that has crept into the process over the years. The use of the IPT structure, along with other acquisition reform changes, is meant to overcome these problems. It should be noted that in many cases the OIPT could resolve all major issues, and not require the DAB to meet in executive session, but rather perform a “paper” DAB. If the DAB agrees, then the approval document—an Acquisition Decision Memorandum (ADM)—will be issued.³⁴

INTEGRATED PRODUCT TEAMS (IPT)

Over the last 10-15 years, the concept of IPTs, as a management approach, has gained favoritism both in government and industry. The IPT is based upon the concept that having the right people working together as a team will result in a better product for the customer. The typical IPT will have a team of experts from a variety of acquisition functions, such as, engineering, contracting, logistics, and the user. At the program office level they work the day-to-day program problems. Many IPTs include contractor (industry) representatives. As an example, an airplane program office might have the following IPTs:

- IPT for engines,
- IPT for simulators, and
- IPT for aircraft.

The IPT began in the program office, but, as the acquisition community found they worked well, the concept was expanded as part of the Department's Acquisition Reform Program. There are now three other types currently in use: (1) the Working IPT; (2) the Integrating IPT; and (3) the Overarching IPT. (See Figure 5-18.)

Working IPTs (WIPT)

The WIPT is the service Headquarters and OSD action functional officers' opportunity for insight into the program mostly from a functional viewpoint, such as, contracting or testing. This group will formulate/coordinate documents needed in

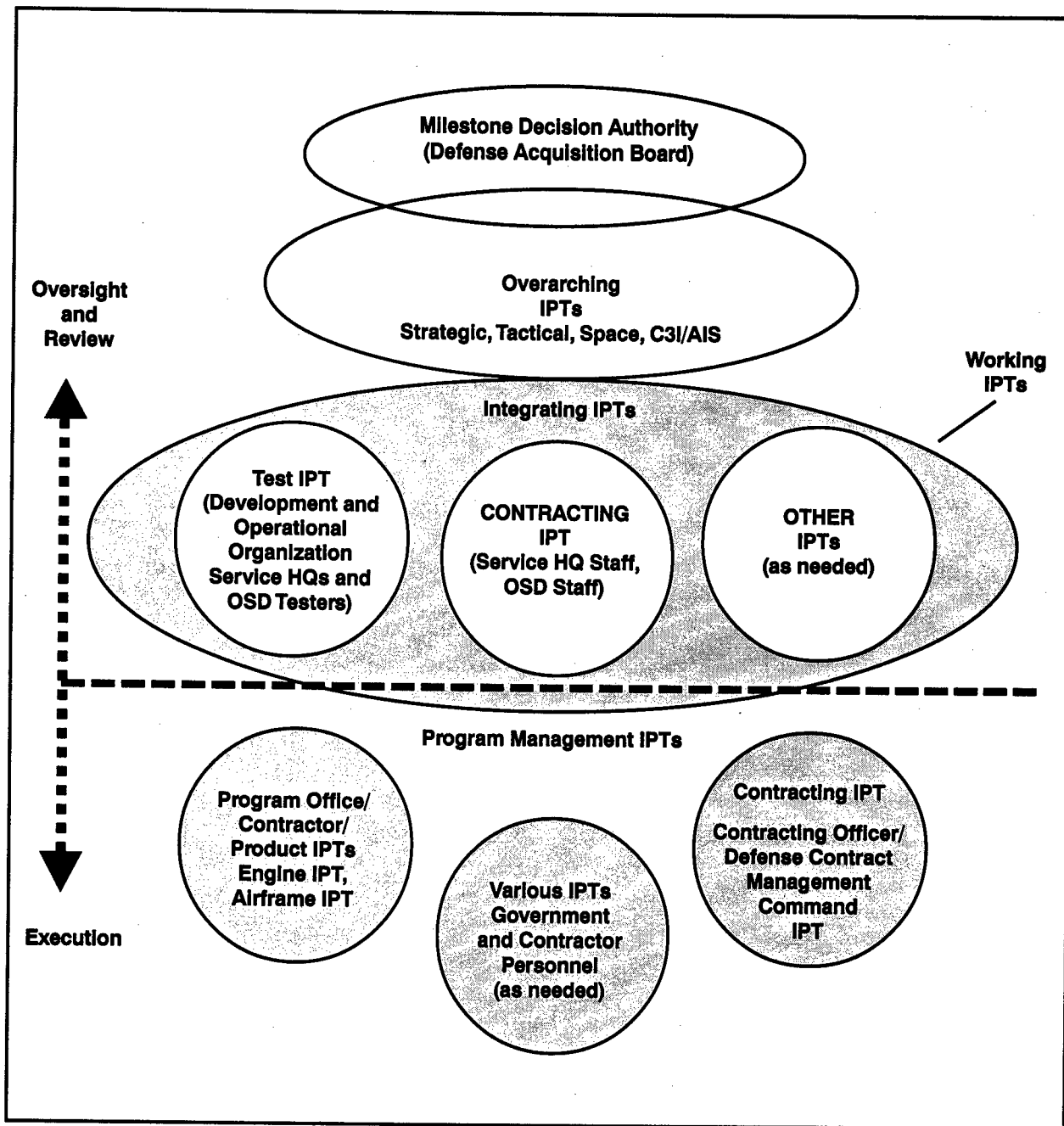


Figure 5-18. Defense Acquisition Integrated Project Team (IPT) Structure

that functional area, such as the Single Acquisition Management Plan (SAMP).

Integrating IPTs (IIPT)

The PM will generally lead the IIPT. Membership on the IIPT is generally a senior member of the functional areas represented in the WIPT. The IIPT coordinates the WIPT efforts. In doing this they will support the development of strategies for acquisition and contracts, cost estimates, evaluation of alternatives, logistics management, cost-performance trade-offs, and other efforts.

Overarching IPTs (OIPT)

The OIPT is the highest organizational level IPT and is used in managing ACAT level I programs. An OSD official assigns each program to an OIPT lead. There are four OIPTs and the officials leading them are:

OIPT	OSD Official
Strategic & Tactical	Director of Strategic and Tactical Systems
Space	Assistant Deputy Under Secretary of Defense (Space and Acquisition Management)
C3I/AIS	Deputy Assistant Secretary of Defense (C3I)

Typical OIPT membership is the PM, PEO, Component staff, Joint Staff, USD (AT&L) staff and the OSD staff principals or their representatives, involved in oversight and review of a particular the program. OIPTs meet as necessary over the life of a program. The goal is to resolve as many issues and concerns at the lowest level possible, and to expeditiously escalate issues that need resolution at a higher level, bringing only the highest level issues to the MDA for decision.

The indicated above the OIPT plays a significant role in improving the DAB process. The OIPT will meet two weeks prior to a scheduled DAB review. The acquisition strategy, the program status, outstanding issues, and criteria for next phase will be discussed. If the issues and problems can be worked at the OIPT level, the OIPT leader, with the SAE, will recommend to the Chairman of the DAB chairman not having a formal DAB, but rather a "paper" DAB.

THE PROCUREMENT/CONTRACTING SYSTEM³⁵

The Department of Defense is the largest buyer in the world. It spent over \$128 billion in FY 1998. The items bought range from developing major weapon systems, such as the F-22, to buying repair services for copiers. It is a large, complex system with hundreds of buying offices located throughout the world. The basic policy of the U.S. Government is that products and services will be bought, if possible, competitively. The original regulation governing procurement for the DoD was the Armed Services Procurement Regulation, first issued in 1948. This document has evolved over the last 50 years, going through two name changes—Defense Acquisition Regulation (DAR) in the 1970s to the FAR in 1984. While competition has always been the hallmark of the system, it was not until the passage of the Competition in Contracting Act (CICA) of 1984, which mandated full and open competition, that over 50 percent of the dollars spent were actually competed. CICA instituted a very structured process for sole source authorization. It requires approval by the local competition advocate for lower dollar acquisitions. The Senior Procurement Executive must approve acquisitions over \$50 million. In FY 1998, 58 percent of the department's dollars were competed, which equates to over \$74 billion available for competition.

The Director, Defense Procurement, on the staff of USD (AT&L), sets policy for procurement within the department. In turn, each of the Services has a functional organization at the service headquarters level responsible for policy.³⁶ The actual awarding of contracts in the DoD is decentralized. There are hundreds of contracting organizations located at military posts and bases throughout the world. In general, they buy goods and services that are most efficiently procured at local level—maintenance and repair of facilities, office supplies and food products. Weapon Systems Contracting is done at centralized agencies, such as the Army's Communications Electronics Command in New Jersey, the Navy's Space and Naval Warfare Systems in California, and the Air Force's Aeronautical Systems Center in Ohio.

There are two general types of contracts used in DoD contracting—Fixed Price and Cost Reimbursement. Fixed price type contracts, as the name implies, set the price to be paid to the contractor on the day the contract is awarded. This type of contract is used where the item is well-defined—for example, a jeep or an existing missile. For newly-developed equipment, where there are many technical and manufacturing risks, a cost-type contract is used to share the risk between the government and the contractor. In a cost-type contract, the government reimburses all allowable and reasonable costs, plus a small fee. To use a fixed-price contract for R&D over \$10 million requires approval by the USD (AT&L). In general, during the early phases of R&D through EMD, a program office will use a cost-type contract. Once the system moves to production and the design is finalized, then a fixed-price contract will be used. For a more thorough discussion of contract types, see FAR Part 16.

How are contractors competitively selected for a major acquisition contract? To ensure transparency in the procurement system and a "fair"

chance for each offeror, a highly structured process of "Source Selection" has developed. A typical source selection starts with the "Contracting Officer"³⁷ issuing a Commerce Business Daily (CBD) announcement for a pre-proposal conference. All interested bidders are invited. Attendees will be briefed on the military requirement and an approximate schedule of events. The next event is issuance of a "draft" Request for Proposal (RFP) looking for industry comments for changes and problems. Finally, all interested bidders will be provided an RFP. Interested contractors will submit a proposal. A source selection evaluation team will evaluate the proposals. Their assessment will be briefed to the Source Selection Authority (SSA), a senior government official, who will make the actual selection. For large dollar and highly controversial weapon system acquisitions, the Source Selection Authority could be the Secretary of the Department or the SAE. Most often it is a Program Executive Officer or other senior official.

What happens if you think the process was unfair? The U.S. Congress has established a protest mechanism. For dissatisfied offerors, protests of award of contracts can be sent to the agency that awarded the contract or the GAO. An alternative, but more costly method, is to go to the U.S. Federal District Court or the U.S. Court of Federal Claims. Once a contract is awarded, the DoD has a dispute forum for issues involving contract performance. Unhappy contractors can go to the Armed Services Board of Contract Appeals, which is an administrative forum, designed to be a relatively inexpensive way to administratively settle disputes. Again the Federal District Court or the U.S. Court of Federal Claims offer an alternative venue. An initiative of the DoD's acquisition reform movement is the use of a third method—Alternate Disputes Resolution (ADR). ADR is designed to be a cost-effective method of using impartial arbitrators to resolve the dispute.

Once the contract is awarded, the program office will assign contract administration activities, such as payment and quality assurance, to the DCMC. This Command has offices located in various regions throughout the U.S. Management of the contract, as it relates to key program requirements, will be maintained in the program office.

The DCAA plays a significant role in supporting program offices with contract audits and accounting and financial advice during the negotiation, administration, and settlement of contracts and subcontracts.

The U.S. defense acquisition system is highly regulated with laws and policies covering every area of procurement, such as contractor's financial systems, records keeping, socio-economic requirements, subcontracting, and ethics. But, it is also a transparent system designed to ensure fair treatment of vendors with equitable opportunities to bid on new defense work.

“Color of Money”

“I have the wrong color of money” is a refrain often heard in program offices. Since all American dollars are green, it is often a confusing statement to someone new to the acquisition

business. The “color of money” refers to the type of funds authorized and appropriated by Congress to be spent by the DoD. There are three basic types of funds most often used in acquisition—RDT&E funds, Procurement funds, and O&M funds. Congress appropriates each of these types of funds for a specific purpose. RDT&E funds may be used only for R&D, and by policy are spent (obligated) *normally in the year appropriated*. This is where the problem comes in. For example, a program office will have budgeted in FYs 1&2 for RDT&E funds and FY 3 for procurement (production) funds. If the development effort slips, a not uncommon occurrence, then the program office may need more RDT&E funds and less production funds in year 3. Thus, the refrain “I have the wrong color of money.” The financial management portion of the DoD business is complicated with many rules, and there are many variations of the “color of money” problem. It is usually solved by a reprogramming action to move money from one program to another. However, if the total amount of RDT&E funds needed for the program exceeds \$4 million (\$10 million for procurement), then Congressional approval is required. So, if you hear the term “color of money,” be aware that the program office has a money problem, not always easily solved.

Chapter 8

DEFENSE ACQUISITION AND TECHNOLOGY WORKFORCE

About 149,000³⁸ personnel, military and civilian, work in the Defense Acquisition and Technology workforce. In the 1980s a series of scandals raised questions regarding acquisition policies, organization and the effectiveness of the workforce. The Packard Commission report which had great impact on restructuring the requirements process and the acquisition management of the defense programs also played a key role in raising the issue of training and education of the workforce. Efforts were begun in the services to improve the training of the workforce and to ensure personnel met minimum standards. Finally, in 1990 Congress passed the Defense Acquisition Workforce Improvement Act (DAWIA). The purpose of DAWIA was to provide for a workforce to be fully proficient and knowledgeable in the business of acquisition. Education, training, and experience requirements were established for each acquisition position based on the level of complexity of duties required for that position.

To carry out this mission, DAWIA mandated establishment of a Defense Acquisition University (DAU) structure. Currently the structure acts as a consortium of schools, which includes the Defense Systems Management College (DSMC), Ft. Belvoir, Virginia; the Air Force Institute of Technology (AFIT), Wright-Patterson Air Force Base, Ohio; the Naval Postgraduate School (NPS), Monterey, California; and the Army Logistics Management College (ALMC), Ft. Lee, Virginia, as the prime consortium members. Through its consortium of schools, DAU offers 81 courses with

over 1,200 offerings covering all acquisition career fields. Every year more than 35,000 personnel receive training from DAU.

Typical Career Path

A typical career path in acquisition can be seen by looking at the program management career field. When individuals are hired into the workforce they enter at level I. Level I, the first of three levels of progression, generally requires that an individual possess an appropriate degree, and once hired, receive a combination of on-the-job and formal training. For program management the formal training is ACQ³⁹ 101, the Fundamentals of Systems Acquisition (see Figure 5-19 for career training). After several years on the job, an individual will continue to receive on-the-job-training plus attend the ACQ 201, Intermediate Systems Acquisition Course and achieve their level II certification. With continued successful performance on the job, and by taking the PMT 302, Advanced Program Management Course at the DSMC, an individual can achieve level III certification and be eligible for a critical acquisition job. A critical acquisition job is a senior position—GM/S 14⁴⁰ for civilians and lieutenant colonel for military. The final step in the program management career field would be competitive selection to manage a major system program and attendance at the PMT 303, Executive Program Management Course. These three levels meet the training and experience requirements to become a major systems PM. Similar types of education and training requirements exist for all acquisition career fields.

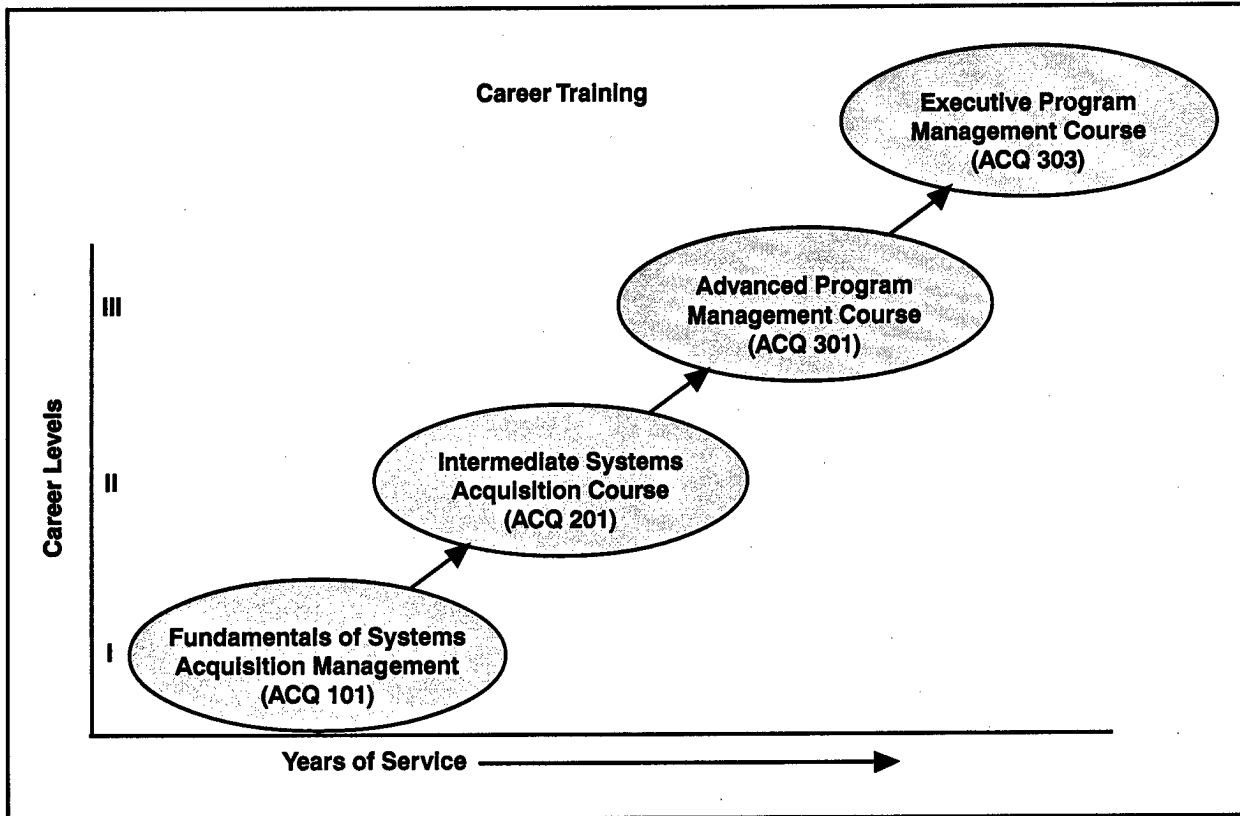


Figure 5-19. The Program Management Education Continuum

The acquisition Corps consists of both military and civilian members. As can be seen from the discussion of other areas, the Services, based upon their traditions and needs have structured the size of their acquisition workforces slightly differently. The following are the current estimates of the size of the acquisition workforce and the breakout between military and civilian (Figures 5-20 and 5-21).

The Navy has the largest number of acquisition personnel with over 49,000 personnel. However, they have the fewest military as part of the acquisition workforce. The Air Force has traditionally had the most military working in acquisition. One of the contributing factors for the military difference is the Navy's and Army's tradition of military personnel spending the first several tours in an operational environment. It is not until later in their careers that Army and Navy personnel move from an operational job,

such as an artillery officer or pilot, into the acquisition workforce. This approach is similar to the Air Force's tradition of moving its rated personnel, pilots and navigators, into the acquisition workforce, at about the 8-10 year point in their career. The Air Force also has a significant number of career acquisition military personnel who begin their career in acquisition. Military officers fill most program management positions, although one of the features of DAWIA was to increase the number of program management positions available for civilians.

As a result of the Department's Acquisition Reform efforts, the impact of downsizing the workforce and budgetary cuts, the DoD and the Services have instituted several changes from the original concepts of education and training. Initially training and education requirements were strictly functional—training only in one career field, e.g., contracting. An effort within

	Military	Civilian	Total
Army	2,675	39,338	42,013
Navy	3,304	46,379	49,683
Air Force	9,605	23,816	33,421
Other DoD ^b	754	23,176	23,979
Totals	16,378	132,709	149,087
^a Based upon the Jefferson's Solution revised Packard definition for core acquisition positions – March 1998. ^b Includes organizations such as DLA, BMDO, etc.			

Figure 5-20. Acquisition and Technology Workforce Breakout^a

Program Management	17,000
Procurement/Contracting	19,000
Science/Engineering	45,000
^a There are many other career fields not included, e.g., logistics, communications, that have acquisition personnel as part of their career programs.	

Figure 5-21. Sample Career Field Sizes^a

the services has been made to have personnel qualified in several career fields (multi-career field qualified). This provides not only a broadening of the workforce's capabilities, but also allows management the opportunity to move personnel to a broader range of positions.

The second effort focuses on continuing education. The department recognizes that the education and training as described above is the minimum necessary to do the job. "If you look throughout the commercial world at particularly successful companies, the focus on continuous education is something you see consistently across the board," said Stan Soloway, Deputy Under Secretary of Defense for Acquisition Reform. To ensure personnel continue to maintain or grow their skills and knowledge, the Department has mandated 80 hours of profes-

sional continuing training every two years. This program is designed to keep the workforce current with acquisition reform changes, functional and technical advances, and generally to improve the business knowledge and leadership competencies of the workforce.

A third effort is to "out-source some of the business education and leadership development training to universities and other training organizations." The outsourcing will allow the department to decrease its cost of education and to bring in a broader perspective in acquisition education. A fourth effort is the incorporation of distance education into the delivery methods used by the schools.

DAU is improving efficiency to train more personnel and to reduce cost. With its consortium

schools, it is developing and designing more courses to be offered by CD-ROM or on the internet. Current plans are for 50 percent of the

consortium's curriculum to be offered through CD-ROM or internet.

Chapter 9

TEST AND EVALUATION OF WEAPON SYSTEMS

“Testing is the conscience of Acquisition,” stated former Secretary of Defense William J. Perry, referring to the role DoD’s test organizations play in acquisition. As the “conscience” of the system, the DoD test organizations provide timely information to decision makers on the health of a weapon system and help to identify and reduce development risks. The department divides T&E into two parts: Development Testing (DT) and Operational Testing (OT). DT refers to the early testing often performed by the contractor, while OT is “combat testing.”

The current T&E structure is partially due to Congressional concern in the 1970s and early 1980s about the adequacy and realism of OT. In 1983, Congress created the Director, Operational Test and Evaluation (DOT&E) as a safeguard against billion-dollar weapons being produced with insufficient operational (“combat”) testing. To ensure a check and balance to the acquisition organization and to provide a bias-free view of OT to the decision-makers, the Director reports directly to SECDEF and DEPSECDEF. DOT&E is responsible for oversight of OT in the department. This is primarily a policy making and oversight role. Actual testing is conducted by the individual services through parallel organizations established within the Services. See Figure 5-22 for an organizational perspective on T&E in DoD. The Director is appointed by the President and confirmed by the Senate. DOT&E has the unusual authority to report directly to Congress without departmental approval.

Responsibility for DT testing rests with the Director, Test, Systems Engineering & Evaluation (DTSEE). DTSEE reports to the USD (AT&L), through the Principal Deputy. DTSEE serves as the advocate for DT for all major weapon systems and manages all DT activities and Systems Engineering activities. DTSEE establishes all DoD policy and procedures for DT, and also oversees all major test ranges in DoD. These test ranges, which are collectively known as the Major Range and Test Facility Base (MRTFB), are shown in Figure 5-23.

SERVICE TEST ORGANIZATIONS

While DTSEE and DOT&E direct T&E activities within OSD, they primarily have a policy making and oversight role. Actual testing is sponsored by the military components and is conducted by contractors or developing agencies (for DT) or by the independent Operational Test Agencies (for OT). Each military component has a Test Executive, who serves as a focal point for T&E policy and oversight and manages the T&E process. Each Test Executive reports directly to the senior military officer (Chief of Staff or CNO) of that military component. Each military component has an independent Operational Test Agency (OTA). As shown in Figure 5-22, the OTA commander reports directly to the service Chief of Staff, and is a general officer. They are listed below:

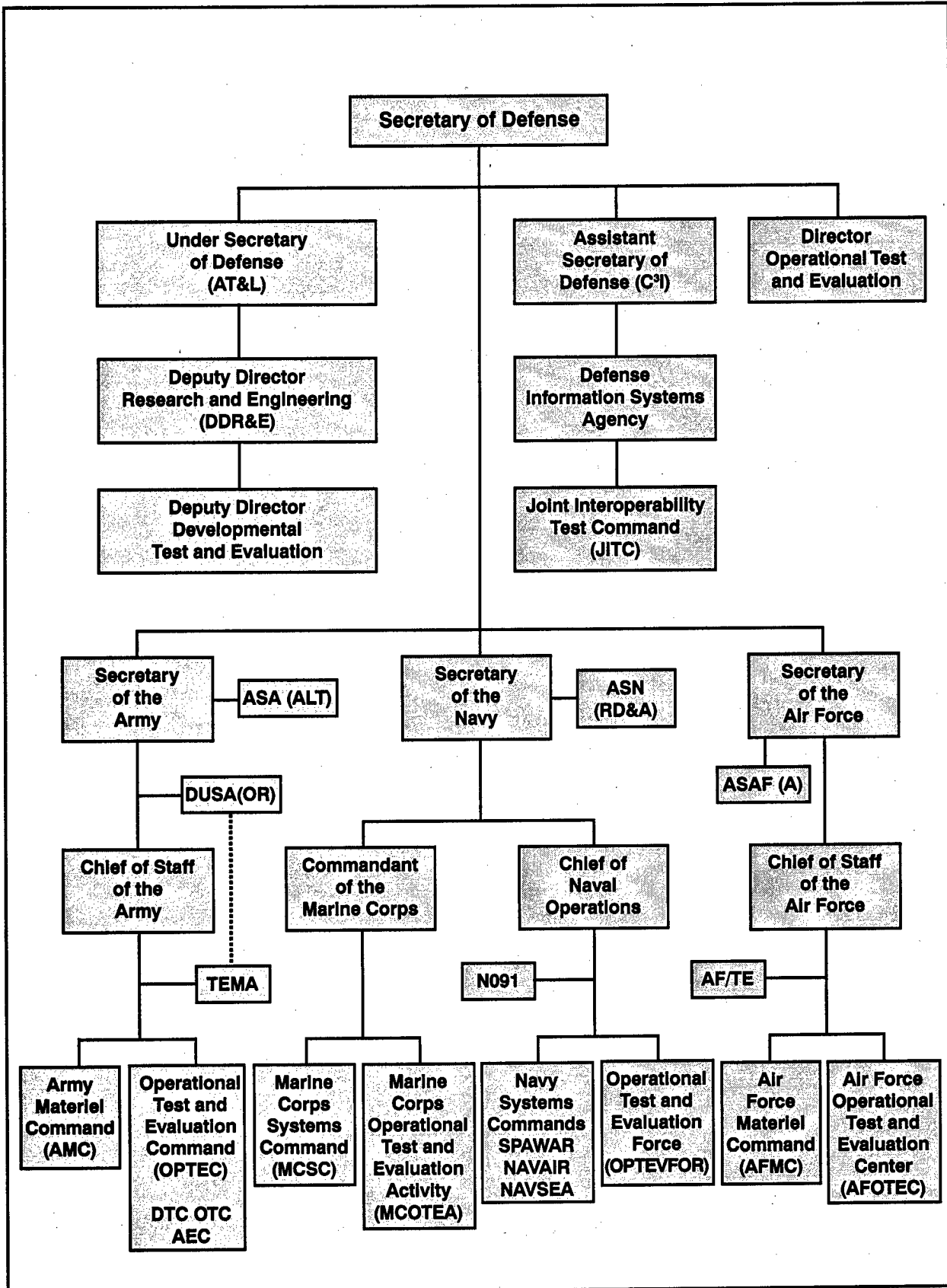


Figure 5-22. DoD Test and Evaluation Organization

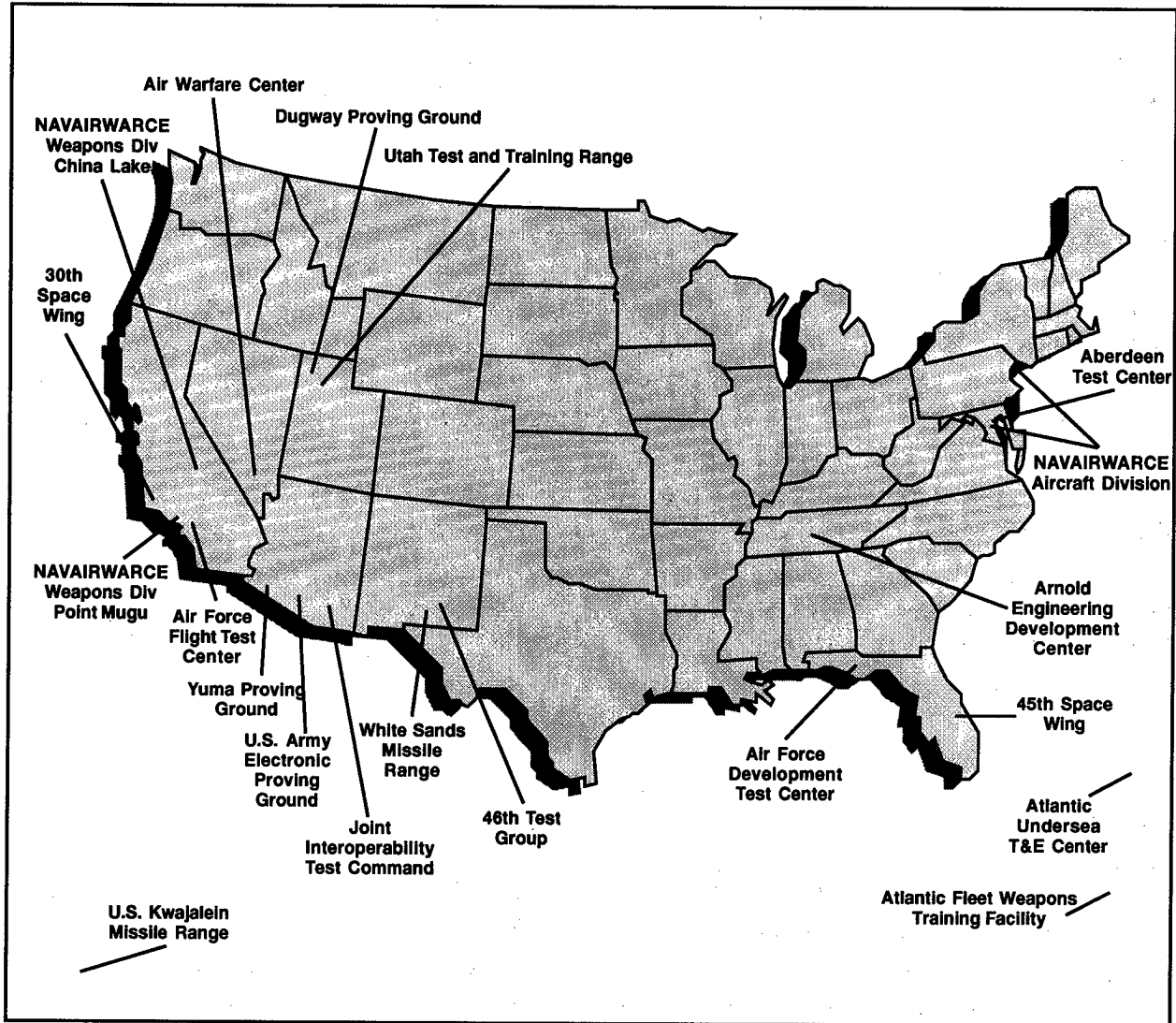


Figure 23. Department of Defense Test Ranges

ARMY: Operational Test & Evaluation Command (**OPTEC**) located in Alexandria, Virginia;

NAVY: Operational Test & Evaluation Force (**OPTEVFOR**), located in Norfolk, Virginia;

AIR FORCE: Air Force Operational Test & Evaluation Center (**AFOTEC**), located in Albuquerque, New Mexico; and

MARINE CORPS: Marine Corps Operational Test & Evaluation Activity (**MCOTEA**), located at Quantico, Virginia.

Each OTA performs Operational Test & Evaluation to determine effectiveness and suitability of weapon systems. These tests are independent of the developing agency, the Program Manager, and the contractor. This provides for an unbiased assessment of a system's combat potential. Unlike DT, which is oriented to verifying contract or specification compliance, the OT performed by the OTAs is structured to stress the weapon system as it would be used in combat, including tactics and countermeasures. The results from this type of testing give the users and the decision-makers valuable insights into combat performance. The Test Executive in each

Service provides test policy guidance, approval of ACAT II and III programs and reviews MDAPs prior to submittal to DOT&E.

Army

As seen in Figure 5-22, the Test Executive for the Army is TEMA (Test & Evaluation Management Agency). Army DT is actually conducted by TECOM (Test & Evaluation Command), which is part of the Army Materiel Command (AMC). Army OT is conducted by TEXCOM (Test and Experimentation Command), which is part of the Operational Test and Evaluation Command (OPTEC). The Army is the only Service to have a single activity responsible for evaluation of both DT and OT—the Operational Evaluation Command (OEC).⁴¹

Navy

The Test Executive for the Navy is N091 (Director of Navy Test & Evaluation and Technology Requirements). Navy DT is conducted by the cognizant systems command, such as NAVAIR, and the Operational Test and Evaluation Force (OPTEVFOR) conduct Navy OT. The Marine Corps Systems Command (MCSC) is responsible for DT testing, while the Marine Corp Operational Test and Evaluation Agency (MCOTEA) (independent of MCSC) performs operational testing.

Air Force

The Air Force Test Executive is AF/TE (Air Force Test & Evaluation). Air Force DT is conducted by the Air Force Materiel Command (AFMC) and the Air Force Operational Test and Evaluation Center (AFOTEC) conduct Air Force OT.

OBJECTIVES OF DT&E/OT&E⁴²

The primary objective of DT is to measure technical performance and to verify contract compliance or specification compliance. DT programs should be structured to identify and mitigate technical design risks. This is an iterative process. As the tests are conducted problems will be encountered and design fixes will be incorporated. The primary purpose of OT is to determine “operational effectiveness” and “operational suitability,” and survivability. Operational effectiveness refers to the ability of a system to accomplish the intended mission when used in realistic combat conditions by typically trained/skilled operators. Operational suitability refers to the ability to maintain and deploy the system, with particular emphasis on reliability, availability, maintainability, and training.

DT is the responsibility of the program manager or developing agency and is conducted by both the contractor and government test organizations. DT serves as the essential technical feedback loop of the engineering development process. OT, on the other hand, is *not* the responsibility of the program manager because OT must be accomplished independently of the systems developer.

Once DT testing is complete then the contract for Engineering and Manufacturing Development (EMD) is complete. The weapon systems then enters into OT testing which must be successfully completed for approval of LRIP and to continue into production. The results will be reported to the Secretary and the Senate and House Armed Services and Appropriations Committees.

As part of the Acquisition Reform effort within the department several changes are being evaluated. The first change is combining Developmental Test activities with Operational Test

activities where possible, which should result in more efficient use of test resources and test articles. This can be done using Integrated Product Teams or a Combined Test Force. However, the need for some totally independent OT still exists. The second change is to have contractors do more DT and the government less. This should result in placing more development risk on the contractor, and seamless testing throughout development. The third change is to have earlier involvement of the test force (especially the operational testers) during systems development. This should expose potential problem areas much sooner, when they can be addressed

more economically. The fourth change is to increase the use of modeling and simulation during systems development and test and evaluation activities. Modeling and simulation have great potential for cost/time savings because they can quickly produce repeatable test events under many varied environmental conditions. The fifth change is to combine testing and training whenever possible. The benefits of combining testing/training come from letting users operate equipment earlier in the design cycle, resulting in valuable feedback from users and early insights about combat performance in the field.

Chapter 10

COOPERATIVE ACQUISITION AND FOREIGN MILITARY SALES (FMS)

“I have determined that International Armament Cooperation is a key component of the Department of Defense’s bridge to the 21st Century,” stated Secretary Cohen shortly after he became Secretary. The pressures of smaller defense budgets, and increasing operational activities with coalition forces, makes international armaments cooperation with our allies an attractive proposition. This is nothing new. The U.S. has a history of successful cooperative programs, such as efforts beginning in the 1970s to cooperatively produce systems, such as the NATO Airborne Warning Aircraft Systems (AWACS) and the F-16 multi-national production programs. By sharing development and production costs, each national partner can buy more military power at less cost. Standardizing equipment, particularly with our NATO allies, can also lead to shared logistics lines, making the fighting forces more capable, again at less cost. While the department has participated in successful, and some not so successful, cooperative programs, many more opportunities exist for cooperation. As DoD moves to the 21st Century and budgets continue to decline, the department is putting renewed effort into expanding cooperation with our allies.

Another international defense program—Foreign Military Sales (FMS), is a part of Security Assistance. This program provides military and economic assistance to our allies. FMS includes the sales of military equipment, education and training of foreign military, and loans or grants for the purchase of U.S. equipment. Arms sales

in the United States are conducted in two ways: government to government (referred to as FMS) or foreign government to a U.S. Contractor (referred to a Direct Commercial Sale). Through FMS, allies and friendly nations spent an estimated \$23.5 billion in FY 1996.⁴³ See Figure 5-24 for top 15 U.S. FMS contractors.

Both the executive and legislative branches play significant roles in Cooperative Acquisition and Security Assistance. Congress has been an active participant in foreign policy and security assistance. The legal basis for executive branch actions in security assistance is codified in several different places, including the Foreign Assistance Act, Foreign Military Sales Act, Arms Export Control Act, Export Administration Act (which has expired and not been renewed). Cooperative projects are covered by Title 10 of the United States Code.

Besides providing the legal basis for arms sales and transfers, Congress is involved in several other ways. As part of its routine procedures, the department is required to notify Congress whenever it sells significant military equipment with a value over \$14 million to a foreign government, or when an international agreement for a cooperative acquisition project is signed, or in certain cases, proposed for signature. In some cases, Congress will pass specific legislation denying a sale of arms. One of the most famous examples of this type of congressional involvement was the passing of the “Pressler

DoD Foreign Military Sales Total: \$6,216,712,000			
Rank	Parent Company	Amount (\$000s)	Market Share
1	Boeing Co.	\$ 1,417,288	22.80 %
2	Lockheed Martin Corp.	1,079,327	17.36
3	Raytheon Co.	813,537	13.09
4	United Technologies Corp.	265,131	4.26
5	Textron Inc.	201,337	3.24
6	Science Applications Intl. Corp.	155,007	2.49
7	Northrop Grumman Corp.	148,732	2.39
8	General Electric Co.	139,308	2.24
9	Mobil Corp.	97,655	1.57
10	VSE Corp.	97,298	1.57
11	TRW Inc.	90,329	1.45
12	BDM Corp.	77,001	1.24
13	Rolls Royce PLC	71,976	1.16
14	Booz Allen & Hamilton Inc.	68,098	1.10
15	Rockwell International Corp.	64,333	1.03
<p>Rankings are based on prime contracts of \$25,000 or more for military R&D, services and products sold to non-U.S. governments</p> <p style="text-align: right;">Source: Government Executive August 1999</p>			

Figure 5-24. Top 15 Contractors 1998

Amendment³⁴⁴ which restricted the sale of F-16s to Pakistan. This, however, is extraordinarily unusual. Normally, the mere threat of legislative restriction will cause the executive department to restructure an arms sale, as was the case with the F-16 aircraft sale to Saudi Arabia.

In the executive branch, the three primary departments most heavily involved in security assistance and cooperative programs are the Departments of Defense, Commerce and State. The Department of State (DOS) has the overall responsibility for the continuous supervision and general direction of the security assistance program. The Secretary of State determines whether or not there will be a security assistance program, sale, or export for a country. Department of State makes its decisions based upon

the foreign policy and national security implications of a transaction. Does this transaction protect and promote U.S. interests throughout the world? What are the political, economic, human, environmental and security impacts of this transaction? In the DOS, two offices play key roles: The Under Secretary of State for Arms Control and International Security Affairs which is the principal adviser and focal point for security assistance matters; and the Bureau of Political Military Affairs, Office of Defense Trade Controls which has responsibility for setting policy for export of foreign military sales items and for issuing export licenses for military equipment sales. They also maintain the International Traffic in Arms Regulations (ITARs), which provides the rules for the registration of, and import and export licensing or all direct commercial imports

and exports of armament into and out of the United States. The ITARs contain the U.S. Munitions List of military equipment, such as aircraft, ships and other equipment, subject to regulation.

The Department of Commerce, Bureau of Export Administration has responsibility for setting policy and licensing for export of equipment that has primarily a commercial application but with military application as well, so-called dual use items. There are a multitude of other organizations involved in Security Assistance from the National Security Council, Arms Control and Disarmament Agency, Defense Threat Reduction Agency,⁴⁵ Security Assistance Offices and Offices of Defense Cooperation in all major foreign capitals and other organizations, which are not to be discussed here.

Department of Defense

Within DoD, the Under Secretary of Defense for Policy (USD (P)) is the principal national security and security assistance adviser to the Secretary. Reporting to the USD (P) is the lead agency within DoD for security assistance—the Defense Security Cooperation Agency.⁴⁶ Cooperative acquisition programs have a different reporting chain of command with responsibility resting within the office of the USD (AT&L) in the Deputy Under Secretary of Defense (International Programs). Figure 5-25 shows the organizational relationships for security assistance and cooperative acquisition. The senior armaments cooperation policy and oversight body in DoD is the Armaments Cooperation Steering Committee, which is chaired by USD (AT&L) and includes the SAEs as members.

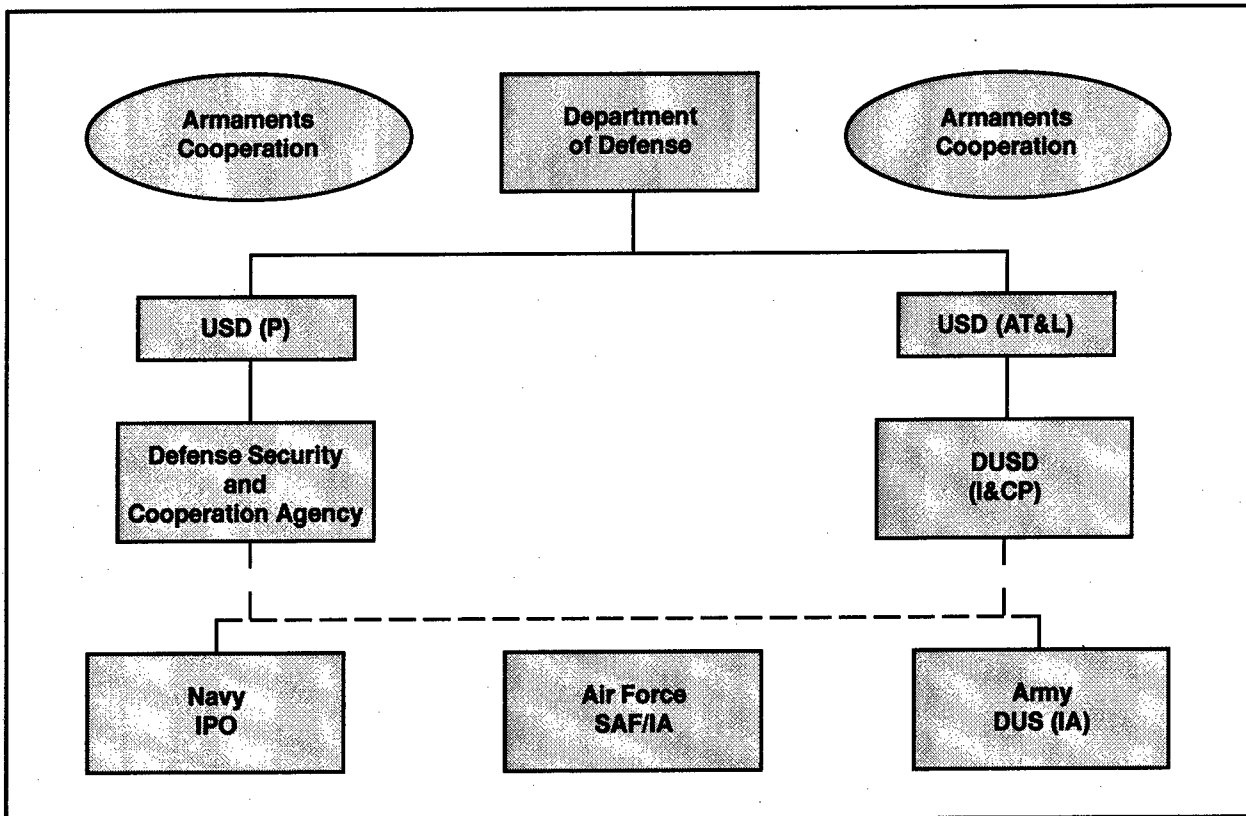


Figure 5-25.
Organizational Relationships for Security Assistance and Cooperative Acquisition

Military Services

Each of the Services has approached its management of these two programs—Cooperative Acquisition & FMS—in a different way.

Army

The Deputy Under Secretary (International Affairs) (DUS (IA)) has responsibility for security assistance and cooperative programs within Assistant Secretary of the Army (Acquisition, Logistics and Technology). Reporting to the DUS(IA) is, and with executive agent responsibility, the U.S. Army Security Assistance Command (USASAC), a major subordinate command of the Army Materiel Command (AMC). USASAC, created in 1975, is responsible for worldwide execution of the Army security assistance program including co-production of Army materiel with our allies and international partners. They also develop the Army position on commercial license applications for the export of munitions, services and technology.

Within AMC, the Deputy Chief of Staff for Security Assistance, has responsibility for the Office for International Programs. This office sets policy and provides oversight for international cooperative programs, international agreements, and interoperability. They also have several offices located overseas in Australia, Canada, France, Germany and the United Kingdom, which focus on research and development activities.

Navy

The Navy has centralized international activities into the Navy International Program Office (IPO). The Navy IPO is part of the Assistant Secretary of the Navy (Research Development and Acquisition) staff. The Navy IPO has responsibility for both cooperative programs and security assistance.

Air Force

The Deputy Under Secretary of the Air Force for International Affairs (SAF/IA) is the central office for policy and oversight of security assistance and cooperative acquisition. Air Force Materiel Command, Director of International Affairs and its subordinate command, the Air Force Security Assistance Command (AFSAC), manage the security assistance program. Cooperative acquisition program management is the responsibility of the Assistant Secretary of the Air Force (Acquisition). Management of cooperative programs is part of the normal acquisition management system.

Armaments Initiatives

The DoD policy on armaments cooperation is to “utilize International Armaments Cooperation to the maximum extent feasible, consistent with sound business practice and with overall political, economic, technological and national security goals.” This policy goal, while not always realized, gives clear indication of the priority placed by DoD on cooperative programs. A variety of initiatives exists to encourage the cooperative development of systems. NATO and non-NATO multilateral and bilateral forums, Data Exchange Agreements, and Scientific and Engineering Exchanges are efforts that can lead to the development of armament cooperation. A recent initiative by the department is the creation of the International Cooperative Opportunities Group (ICOG). The ICOG focuses early in the acquisition process by looking at the science and technology programs, Advance Concept Technology Demonstrations, and the early phases of major systems. By identifying common requirements, complementary technologies, budgets and strategies, and a potential for industrial teaming, forming a cooperative program stands a much greater chance of success. Another program, the Foreign Comparative Testing (FCT) Program, has already shown success with an

estimated \$3.3 billion dollars saved in the avoidance of costly RDT&E.⁴⁷ FCT is designed to test for eventual buy of off-the-shelf military equipment developed by other countries. This

program, which has been in existence for 20 years, has tested nearly 380 pieces of military equipment from missiles to avionics with procurement of 95 of them.

Chapter 11

THE INDUSTRIAL BASE

During the early 1940s, the demands of World War II quickly overcame the capabilities of the small U.S. peacetime arsenal system. The United States government turned to its commercial industry to produce the millions of pieces of military equipment needed to pursue the war. At the end of the war, as it has done after every war, the military demobilized. Its industrial base—the “Arsenal of Democracy”—demilitarized and returned to the lucrative pre-war commercial market—producing cars and household appliances. With the advent of the Korean “police action,” the United States again called on its commercial industry to produce military equipment. But, as we moved from the “hot” Korean conflict to the “Cold War,” the U.S. defense budget remained untraditionally high. With both the United States and the Union of Soviet Socialist Republics (USSR) continuing to produce large amounts of military weapons, each generation more capable than the preceding, the defence industry became “big business.” During this time period, U.S. industry transmuted into what President Eisenhower called the “military-industrial complex”—a permanent defense technological and manufacturing industry.

As the defense industry grew, the Defense Department developed its own set of specialised procurement rules and regulations, system of technical specifications and standards, Cost Accounting Standards (CAS), ethics requirements and oversight procedures. Congress, responding to cost overruns and to various special interest groups passed legislation imposing many new requirements on the Defense Department and its contractors, such as set-asides

of work for small businesses and domestic producers. Rather than imperil their commercial divisions with increasing costs, industry spun-off separate defense divisions. Having a separate manufacturing and technology base increased the cost of buying military equipment. An early 1990s study indicated that the defense industry legitimately charged a 20–25 percent premium because of these arcane rules and regulations mandated by the government.⁴⁸

Traditionally, the United States has relied on a privately owned, profit-oriented industrial base to provide most of the goods and services used by the military departments. This defense manufacturing and technology base industry can be characterized as providing high performance, high quality military equipment at high cost with low volume of production. Defense is currently over a \$100 billion a year business. This includes over \$80 billion a year for research and development and procurement of systems and equipment. Four firms—Lockheed Martin, Boeing, Northrup-Grumman and Raytheon—are the dominant businesses in defense. Three of the four firms, with Boeing being the exception, rely on defense contracts for over 90 percent of their business revenue.⁴⁹

Over the last 50 years, the department has “primed the pump” of R&D with its investment in many new technologies. The U.S. Government supported and directed programs that produced the basic technologies that spawned numerous military and commercial innovations. These innovations, both military and commercial applications, include mainframe computers, personal computers, stealth technology, avionics

for commercial aircraft and many other technologies. As an example, in the microelectronics industry, DoD was once the dominant buyer, with almost 70 percent of the microelectronics industry sales in 1965 and contributing significantly to that industry's investment in R&D. Today, defense accounts for less than one percent of microelectronic sales. In general, the defense investment over the last 20 years in R&D has been overshadowed by private sector investment in R&D. In 1997, defense R&D spending provided 30 percent of the U.S. investment in R&D. This was down from the peak years of the defense buildup in the mid-1980s when it was 46 percent of the national investment.

While DoD policy has been to rely on private sector facilities for the fulfillment of government contracts, remnants of the government's earlier "arsenal system" still remain. These public facilities are used to manufacture and repair aircraft, ships, ground combat systems, and other military equipment. They generally fit into two categories. The first category is government arsenals and depots where government personnel perform all the work. The other category is referred to as Government-Owned, Contractor-Operated (GOCO) facilities. See Appendix E for a listing of arsenals, depots, and GOCOs currently performing defense work.⁵⁰ While it has been a slow process, the military departments have attempted to divest itself of GOCO plants. As an example, the U.S. Air Force owned 100 GOCOs in 1950; today, it is down to seven GOCOs with two additional GOCOs planned for transfer to the private sector in late 1999. One of the chief causes of delay in the GOCO divesting process has been the need for environmental cleanup.

In recent years, several trends have emerged as a result of declining defense budgets. Businesses have left the defense market, companies have merged, and the Department has recognized that its defense budget could not support its modernization program as well as a separate

defense industrial base. While no hard data exists, significant numbers of companies at the 3rd or 4th tier vendor level have apparently left the defense business over the last decade. Large companies, such as Intel, Motorola and Hewlett-Packard have refused to do business with the Department unless it buys on commercial terms, without the imposition of expensive and burdensome federal laws and regulations. This was a simple matter of economics—smaller budgets, the concomitant drop in work orders and the "stretching out" of programs made the defense business less attractive to commercial vendors.

While many companies had lost interest in the defense market, the remaining companies still had too much manufacturing capacity to meet future defense budgets. In 1993, then Deputy Defense Secretary Perry had his famous "Last Supper" meeting with the CEOs of top defense corporations. He is quoted as having admonished them by commenting that less than 50 percent of them would be at the next meeting. This led to "merger mania." Defense consolidation and mergers became monthly news. Lockheed and Martin-Marietta merged to become Lockheed Martin. Hughes Aircraft and Raytheon merged as Raytheon. Northrop and Grumman merged into Northrop Grumman Corporation, and Boeing and McDonnell Douglas merged under the Boeing banner. Other companies like GE, Westinghouse, and IBM got out of the business completely. As a result, Lockheed, Boeing, Northrop Grumman, and Raytheon emerged from the merger mania period as "the big four."⁵¹ Defense industry went from five or six manufacturers for major weapons systems to one or two for a military product. Figure 5-26 shows the top 15 defense contractors for 1998. Figure 5-27 indicates the changes in the numbers of companies for each market.

"Merger mania" may be over for at least the major contractors. Recently, the Justice Department, with OSD concurrence, blocked the Northrop

Total Purchases: \$117,133,824,000		Fiscal 1998 Contract Awards (\$000s)			
Rank	Parent Company	Total	Air Force	Army	Navy
1	Lockheed Martin Corp.	\$12,818,777	\$7,006,636	\$1,813,054	\$3,725,670
2	Boeing Co.	11,240,937	5,921,220	1,095,229	3,959,967
3	Raytheon Co.	6,497,508	1,718,306	2,068,672	2,429,608
4	General Dynamics Corp.	3,703,333	6,207	680,068	2,971,359
5	Northrop Grumman Corp.	2,980,966	1,373,397	550,968	964,814
6	United Technologies Corp.	2,091,243	877,925	465,284	692,308
7	Litton Industries Inc.	1,644,441	258,282	163,466	1,142,425
8	Newport News Shipbuilding	1,538,481	0	0	1,538,481
9	Textron Inc.	1,282,317	180,866	208,005	876,910
10	General Electric Co.	1,221,469	467,145	105,702	534,483
11	Science Applications Intl. Corp.	1,218,182	297,158	478,672	243,380
12	TRW Inc.	1,082,092	629,506	220,751	79,129
13	General Electric Co. PLC	873,850	242,760	77,881	487,311
14	Humana Inc.	867,453	0	0	0
15	GTE Corp.	804,220	290,207	373,548	70,713

Source: Government Executive August 1999

Figure 5-26. Top 15 Defense Contractors

Department of Defense Industrial Base	Number of Suppliers	
	Past	Current
Aircraft		
Bombers	3	1
Fighters	5	2
Helicopters	4	2
Space		
Ballistic Missile Defense	6	2
Launch Vehicles	3	2
Satellites	5	2
Rocket Motors	5	2
Shipbuilding		
Aircraft Carriers	1	1
Submarines	2	1
Surface Combatants	5	2
Auxiliary/Amphibious	7	3
Shipyards	8	4
Tracked Vehicles		
Tanks	1	1
Armored/Personnel Carriers	2	1
Missiles		
Strategic	1	1
Tactical	8	3

Figure 5-27. Changes in Defense Market

with OSD concurrence, blocked the Northrop Grumman and Lockheed merger because it had the potential of creating a monopoly. One of the foundations of government procurement is competition. As companies drop out of the defense business or merge, competition disappears and costs rise. This is particularly worrisome with the large system integration companies like Lockheed and Boeing. As the defense business base continues to decline smaller companies will probably continue to merge. At the large prime level the market has probably seen the end of U.S. company mergers, although mergers or partnerships between international companies are still probable.

Since the 1950s, the U.S. has maintained a separate defense industrial base. This base is no longer sustainable. The question, then, is how to merge the defense industrial base with the U.S. commercial base. Consequently, through

its "acquisition reform" and "revolution in business affairs" initiatives, the DoD has attempted to change the way it does business. Some changes have already been implemented. Military specifications and standards are no longer the preferred method of doing business. Congress, at the DoD's urging, has passed such legislation as the Federal Acquisition Streamlining Act to remove some of the barriers. These laws made modest changes with major issues still left to be resolved, such as eliminating specialized accounting and auditing systems.

In sum, the U.S. defense industrial base is in a period of change. Current initiatives are focused on merging the defense/commercial industrial base, reducing the cost of doing business, reducing the departments and the defense industry's overcapacity, and, at the same time, maintaining a competitive market.

FURTHER READINGS

Congress

Davidson, Roger H. and Oleszek, Walter J., "Congress and Its Members," Third Edition (Washington: CQ Press, 1990).

Cabinets

Jennings, Ivor, *Cabinet Government*, 3d ed. (1969).

Herman, Valentine, and Alt, James E., eds., *Cabinet Studies* (1975).

Mackie, T., and Hogwood, Brian, *Unlocking the Cabinet: Cabinet Structures in Comparative Perspective* (1986).

Defense Acquisition Deskbook –

<http://www.deskbook.osd.mil>

Acquisition

Benson, Lawrence R., "Acquisition Management in the United States Air Force and Its Predecessors," Air Force History Office, 1997.

Ferrara, Joe, "DoD's 5000 Documents: Evolution and Change in Defense Acquisition Policy," *Acquisition Review Quarterly*, Fall 1996, Vol. 3 No. 2, pp. 109-130.

Fox, J. Ronald with James L. Field, "The Defense Management Challenge, Weapons Acquisition," Harvard Business School Press, 1988.

Gansler, Jacques S., "Defense Conversion: Transforming the Arsenal of Democracy," Cambridge, MA: MIT Press, 1995.

Gansler, Jacques S., "Affording Defense," MIT Press, Cambridge, MA 1989.

Gansler, Jacques S., "The Defense Industry," MIT Press, Cambridge, MA, 1980.

Jones, Jr., Wilbur D. "From Packard to Perry, A Quarter Century of Service to the Defense Acquisition Community," DSMC Press, GPO, Ft. Belvoir, VA, June 1996.

Kausal, Tony, "What a Difference a Century Makes... Or Does It?," in *Contract Management Magazine*, October 1989, pp. 24-25.

McNaugher, Thomas L. "New Weapons Old Politics, America's Military Procurement Muddle," The Brookings Institute, Washington, DC, 1989.

Nagle, James F., "A History of Government Contracting," The George Washington University, Washington, DC, 1992.

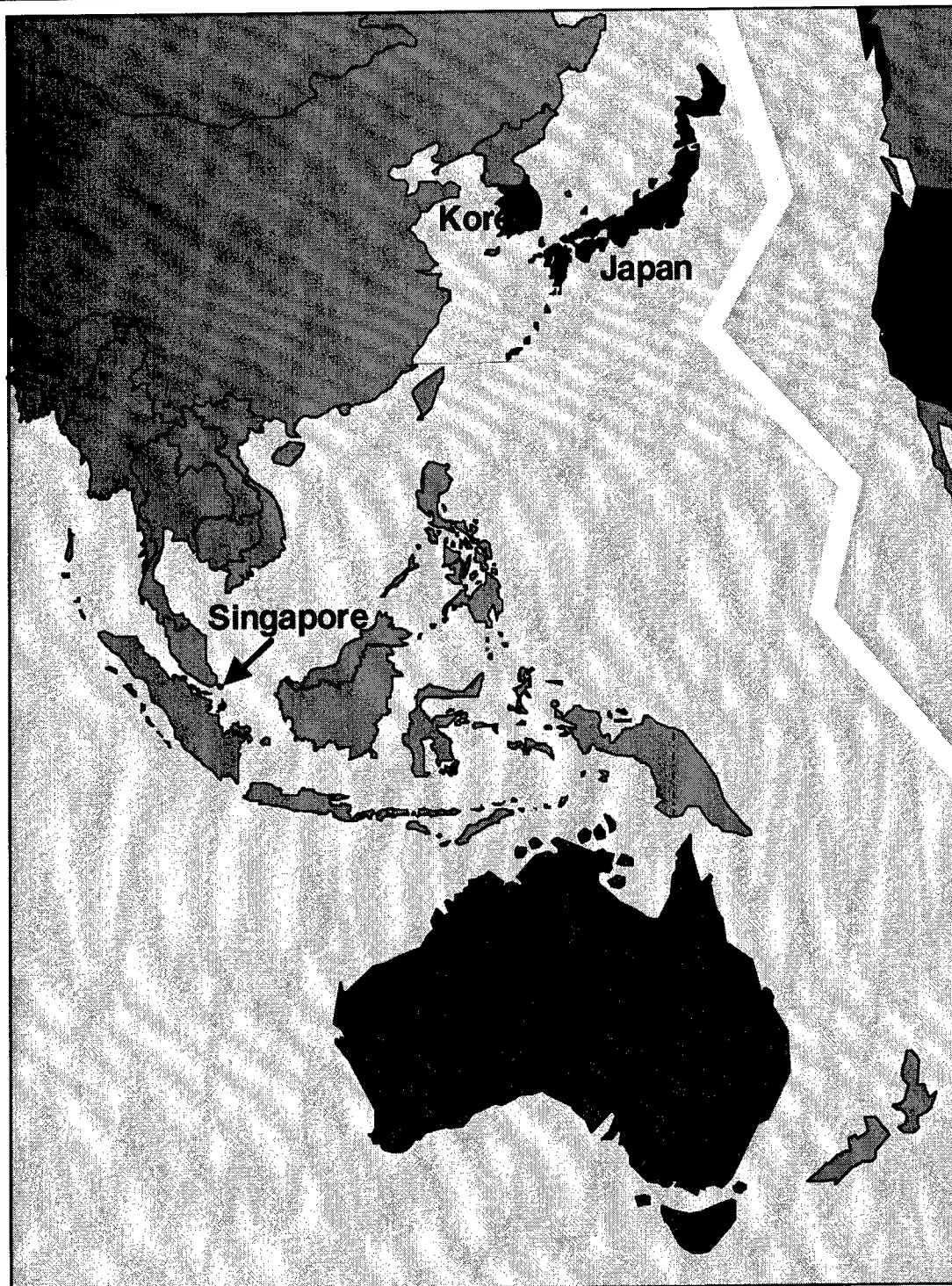
Trask, Roger R. and Alfred Goldberg, "The Department of Defense 1947-1997, Organization and Leaders," Historical Office, Office of the Secretary of Defense, Washington, DC, 1997.

ENDNOTES

1. This is a reprint from *A Comparison of the Defense Acquisition Systems of France, United Kingdom, Germany and the United States*, Part 4, September 1999, DSMC Press. Organizational charts have been updated and additional footnotes have been added to note changes or planned changes. Chapter 12, entitled "My Crystal Ball," has been deleted to make it compatible with the other parts of this book.
2. U.S. Budget request for FY 2001 included \$98.2 billion for R&D and procurement.
3. Federal Papers 52:327.
4. Federalist Paper #24.
5. Federalist Paper #26.
6. Trask, Roger R. and Alfred Goldberg, "The Department of Defense 1947-1997, Organization and Leaders," Historical Office, Office of the Secretary of Defense, Washington, DC, 1997, p. 15.
7. Federalist Paper #66.
8. Davidson, Roger H. and Oleszek, Walter J., *Congress and Its Members*, Third Edition (Washington: CQ Press, 1990), p. 327.
9. Oversight Plan for the 105th Congress, p. 1.
10. GAO also has specific legislative responsibilities and often undertakes reviews on its own.
11. Korten, p. 2.
12. The rest are Noncareer SES -67 and Schedule C-128.
13. For clarification purposes, generally, when "DoD" is used it means the entire department. OSD refers to the Secretary's office.
14. Trask, Roger R. and Alfred Goldberg, "The Department of Defense 1947-1997, Organization and Leaders," Historical Office, Office of the Secretary of Defense, Washington, DC, 1997. p. 8.
15. For a fuller explanation of the Army's requirements process see Army Regulation 71-9 and TRADOC Pam 71-9: <http://www-tradoc.army.mil/cmdpubs/reqdef.htm>
16. The incoming Chief of Naval Operations (CNO) per "Inside the Pentagon," June 1, 2000, has indicated a possible organizational change to N8. Requirements would be split out from N8 and become N9.
17. CNO (N8) may convene a Resources and Requirements Review Board (R3B) to perform a DON level review prior to endorsement or validation and approval.
18. Prior to report.
19. Originally the title was Under Secretary of Defense (Acquisition). I have used the current title to avoid confusion.
20. By law these political appointees are required to bring a significant industrial background.
21. Also referred to as the Component Acquisition Executive (CAE).

22. The departments, DoD agencies (and others) are collectively referred to as "components." Each agency has an acquisition executive; the Component Acquisition Executive, (CAE).
23. Terminology has changed over time.
24. Currently, the Under Secretary of Defense for Acquisition, Technology and Logistics has instituted the coordination process to revise the acquisition process thrust, which will result in terminology changes for Phases and Milestones. Current estimates are for reissuance of DoD Directive 5000.1 and DoD Instruction 5000.2 this summer.
25. Not every system will begin at concept development. Some systems may enter at phase II or III.
26. LRIP is not applicable to ACAT IA programs; however, a limited deployment phase may be.
27. In fiscal year (FY) 1996 constant.
28. In fiscal year (FY) 1996 constant.
29. MDA is person with authority to approve a programs entry into the next phase of acquisition. USD (AT&L) for example is normally the MDA for ACAT I programs.
30. The "M" refers to Major Automated Information System Review Council.
31. Army and Navy also have category IV programs.
32. Originally title Defense Systems Acquisition Review Council (DSARC), but revised in 1987.
33. PDUSD(A&T) may also chair DABs.
34. Note that the DAB review only approves a program to proceed; it has no direct role in the resource allocation process.
35. The terms procurement, contracting and acquisition can often be used somewhat confusingly even for acquisition professionals. In the U.S., "acquisition" is meant to be the all-encompassing term, while procurement and contracting are meant to be a subset of acquisition dealing with the awarding and management of contracts. To make it even more confusing, Congress often passes legislation using all three terms interchangeably or often with specific meanings.
36. SAF/AQC is OPR for Air Force contracting; Deputy Acquisition and Business Management is OPR for Navy contracting; and DASA Procurement is OPR for Army contracting.
37. The only person authorized by law to award or modify contracts
38. There are various measures of the acquisition workforce: 1) DoD Instruction 5000.58, acquisition organizations, 355,299 people; 2) Pub.L. no. 101-50, Defense Acquisition Workforce Improvement Act, 105,544 people; and 3) Jefferson Solutions Report, revised Packard Commission, 177,613 people. Current number reflects March 1998 data.
39. ACQ is an acronym for "acquisition."
40. GM/S – General Manager or General Scale and refers to the Program Scale/Rank for Civil Servants.

41. TECOM and OPTEC will be combined into Army Test & Evaluation Command (ATEC) effective 1 October 99.
42. Basic T&E policy is summarized in DoD Regulation 5000.2-R. Each military component publishes policy and procedure implementing T&E.
43. According to the U.S. Arms Control and Disarmament Agency (ACDA) the U.S. in 1996 exported approximately \$23.5 billion worth of defense material, which is 55 percent of the world amount of FMS.
44. Named for Senator Larry Pressler, Republican, South Dakota.
45. Formerly Defense Technology Security Administration.
46. Formerly the Defense Security Assistance Agency (DSAA).
47. The Defense System Management College, Ft. Belvoir, Virginia, conducts training for management of Cooperative Acquisition programs.
48. Coopers and Lybrand study.
49. The U.S. defense industrial base is somewhat difficult to define, since it relies upon private companies, who continuously enter and leave the business.
50. Schlesinger, Jr., Weidenbaum, M., *Defense Restructuring and the Future of the U.S. Defense Industrial Base*, CSIS Washington, DC, March 1998, p. 15.
51. *Ibid.* Forty some different aerospace companies, in whole or in part, were consolidated into three: Lockheed Martin, Boeing, and Raytheon.
52. Schlesinger, Jr., Weidenbaum, M., *Defense Restructuring and the Future of the U.S. Defense Industrial Base*, CSIS Washington, DC, March 1998, p. 15.



PART 6
A COMPARISON OF
THE ACQUISITION SYSTEMS

Chapter 1

A COMPARISON OF THE ACQUISITION SYSTEMS OF AUSTRALIA, JAPAN, SOUTH KOREA, SINGAPORE AND THE UNITED STATES¹

Introduction

Flying the vast expanse of the Pacific Ocean—13 or more hours in the air—is a traveler's tale of woe to garner sympathy from the folks back home. This vast expanse of ocean also symbolizes the vast differences in the history, culture and governments of the five nations in this study. Each country has its unique concerns when it comes to national security issues. Each country has responded differently to providing military equipment to meet the threats as perceived by the political and military leaders. The history and culture of these nations, their governmental structures, and political and economic conditions shaped their national acquisition practices.

As mentioned in the book introduction, "Looking at another system helps illuminate our own."² A goal of this book is to facilitate cooperative projects. By these comparisons, understanding each other's system, decision processes, identifying one's counterparts in government and industry increase chances for success.

The five preceding Parts provided a description of national acquisition structures and functions. From those descriptions, this chapter attempts to provide a comparative analysis of the five nations defense practices in developing and

manufacturing armaments. What are the similarities and difference in acquisition approaches? What is the best organizational structure? How does the political environment impact the decision process? What are the levels of the decision-makers? How do they approach program management? What are the military and civilian roles in the decision making process? Where does the need for a military requirement come from? What role does the indigenous industry play in weapons development?

As we try to answer these questions we also explore how states can vary in their perception of the best way to satisfy national objectives or in the current vernacular achieve "value for money." As is used in this chapter "value for money" means the most efficient way of providing high performance, quality military equipment at the least cost.

Military capability comes from the men, the machines, the logistics and the will of the nation. In Desert Storm, the machines caught the attention of military planners throughout the world. The phrase—Revolution in Military Affairs (RMA)—is now part of the lexicon of military planners when they talk about the advantages of the machines, i.e., the technological edge they provide to a military force. The

introduction of advanced technology into the acquisition process promises increased military capability. As nations look at their acquisition systems, they recognize the need for the best technology; but can they afford it? The search for advanced technology raises the cost of new weapon systems at the same time that outside pressures—end of the cold war, Asian economic crises, competing internal national needs—exist to decrease defense budgets. Furthermore, much of the research and development that leads to new technology is being performed by the commercial consumer industry. The commercial market has short cycle times contrasted with the acquisition cycles in the defense business where weapons development often takes 10-15 years. How to buy newer technology—better, faster, and cheaper—is the mantra of acquisition reform efforts throughout the nations in this study.

Political/Military Environment

A military organization operates in a national and international milieu that influences the national will to support a defense establishment. Each nation sees a need to provide protection for its people and to develop a capability to respond to external threats. The security threat(s), as perceived by the national leaders and the populace, drives the willingness to sacrifice the state's resources for security. What are the national security threats for the countries in this study? For the U.S. during the Cold War, the threat was easy to define—the Soviet Union. The DoD's response was to counter the Soviet's massive military capability with technologically sophisticated equipment. The Cold War is gone and the threat is more elusive—two regional wars, terrorism, ethnic cleansing, asymmetrical pressures. The other four countries in the study see their threats differently. They vary—from immediate—Korea, to almost none—Australia. While there are hopeful signs of improvement in Korea, there is still concern of an imminent threat of a military attack from North Korea.

Notwithstanding that concern, the Korean political and military focus has shifted in the last decade to becoming more of a regional and world-wide player. As its economy has expanded, so has its peacekeeping role in the world. They have participated in East Timor, Georgia, Western Sahara, and on the India-Pakistan Border.

Two larger countries—Malaysia and Indonesia—with large Malay Muslim populations, surround Singapore, a multiracial society, with a large Chinese population. While no specific threat is identified, this region's history of ethnic turmoil against their Chinese populations, and prior attitudes towards Singapore drives its defense planning. Diplomacy is a cornerstone of their security approach. Should diplomacy fail then having a sufficient deterrent force to discourage any nation from attacking drives their planning and programming process. Japan is restricted by its "peace constitution" to maintaining only a defensive force. Its military planning decisions are based on an adequate defensive force and the U.S. defense umbrella. Lately there are indications of changes. The national debate on the validity of its "peace constitution," North Korean missile launches, possible overseas patrols by the Maritime Safety Agency in the Straits of Malacca for hunting pirates indicate a changed outlook. Australia has no immediate external threat. But Australia has commitments as an international player. Through the UN it is playing a key role in peacekeeping activities in East Timor and through its alliance with the U.S. it envisions the necessity to be prepared for potential conflict in Asia, such as Korea or China-Taiwan.

What is the national commitment to defense? Asked differently, how much is a nation willing to spend on defense (see Figure 6-1)? The United States, in pure money and manpower terms, puts the most into defense. The U.S. still spends the largest amount for its military and has the second

U.S.	Japan	South Korea	Australia	Singapore
\$287.5b	\$44.3b	\$12.6b	\$12.2b	\$7.4b

Figure 6-1. Defense Budgets

largest standing military force in the world at 1.4 million active duty military personnel. At \$287.5 billion for fiscal year 2000, its budget is more than six times larger than the next country in this study. Japan's budget, which has been stagnate for the last five years, is the next largest at 4.92 trillion yen (\$44.3 billion). After a two-year downturn in defense spending, Korea increased its defense budget to 14.44 trillion won (\$12.6 billion) in Fiscal Year 2000. The Australian defense budget for Fiscal year 2000 is \$12.2 billion or 1.8 percent of GDP. The smallest amount spent on defense is Singapore's at S\$7.4

(\$4.4 billion) for Fiscal Year 2000. But, the perspective on defense spending changes somewhat when one looks at Figure 6-2³, which shows the largest percentage of national income invested in defense is Singapore's at 5.0 percent. Another approach to looking at defense budgets is to assess the per capita cost of defense? Currently, Singapore spends the most per capita at \$1,543 while South Korea spends the least at \$278 per person. Within those national budgets are the acquisition accounts for research and development, and investment for developing or buying new equipment. As a percentage the nations

	Percent of Gross Domestic Product (GDP)		
	1985	1997	1998
Australia	3.4	2.3	1.9
Japan	1.0	1.0	1.0
Korea (South)	5.1	3.5	3.1
Singapore	6.7	4.8	5.0
United States	6.5	3.4	3.2
Defense Per Capita in Dollars			
Australia	492	462	391
Japan	254	325	293
Korea (South)	218	333	278
Singapore	661	1,525	1,543
United States	1,537	1,031	982

Figure 6-2. Defense Spending Based on Gross Domestic Product and Per Capita

average around 25 to 30 percent, with the Japanese and Singaporeans spending the least—20 percent—on new equipment.

How have these countries approached arming the military? The methods have varied widely. Some have put their energy and resources into developing new weapon systems—primarily the United States. The U.S. has seen the acquisition of newly developed weapons as the way to provide superior capability to its armed forces. Others, such as Korea and Singapore have primarily bought the weapon systems they needed from overseas sources. Their approach was based upon the need for weapon systems at the least cost, and the expense and time necessary to develop their own defense industry. However, nascent efforts to build a defense industry have borne fruit with each of these countries having developed an internal manufacturing competence. South Korea, Singapore and Australia all manufacture a wide variety of military hardware to include many basic items such as ammunition, rifles, guns, armored vehicles, as well as more sophisticated items, such as tanks, howitzers, fighter aircraft, and ships. Japan prefers to build its own equipment, initially under licensed production, and maintains the largest defense industry in the Pacific, often at great cost.

Can the budget support the need for new equipment? Operating within this political military environment, the nations in this study try to balance new requirements with budget reality. Unfortunately, they are hampered by business processes designed in prior decades. Thus, one of the themes prevalent in this book is the search by each nation for reforms to the acquisition system. Within often-stagnating defense budgets, restructuring organizations, reducing manpower, and reforming processes become priorities. In the last ten years, the U.S. has significantly reduced its defense budget in real terms by 60 percent from its Cold War high, and its manpower, civilian and military, by 387,000⁴ and

730,000 respectively. It has reformed its laws, rules, regulations and processes all with the goal of cutting costs. Japan has a wide variety of initiatives to reform its system—from reliance on commercial/industrial specifications to reorganizing the Central Procurement Office and its headquarters staff to increase transparency and accountability. South Korea has reorganized its acquisition organization, twice in the last year. An advisory group—the Defense Reform Committee—has a five-year charter to oversee reform efforts and to advise the Minister of its successes and failures. Singapore has instituted a variety of changes one of which is the creation of a new agency—the Defence Scientific and Technology Agency (DSTA). Australia, after the Collins submarine class scandals,⁵ has reorganized its Defence Acquisition Organization and elevated its Chief to the Under Secretary level and reformed many of its process to include increased oversight during development and manufacture of weapons systems. Looking for better ways of doing business these countries have tried different business tactics. Australia has new procurement strategies such as incremental acquisition, integrated project teams, partnering, arrangements to involve industry more directly in capability planning and in the early stages of requirements development. The U.S. is using commercial contracting methods, and Korea has a new Request for Proposal process. The names of the efforts are different—acquisition reform, procurement reform, defense reviews—but the intents are all the same, to streamline and find the best way to achieve “value for money.”

The Defense Acquisition Systems

Organizational units, processes and procedures, and policies provide the elements of any acquisition system. While organizations and policies may differ, the tasks involved in defense procurement have a more generic and enduring character, i.e., all acquisition organizations need

to perform them in one way or another. What needs to be bought—military requirements—must be identified and programmed. Requirements are normally derived from consideration of strategy, doctrine, and threats. The military needs, which become programs, are prioritized. Budgets are negotiated internally within defense organizations, and nationally as they compete for scarce resources against other public sector agencies (e.g., health, education). A level of national commitment is identified when the political leaders decide the defense budget.

All five countries have identifiable formalized structures dealing with a weapon system—birth to burial—or from its conception to its disposal. Each nation has major project reviews as a weapon system moves from one phase to the next. If a program is successful in one phase, then it moves into the next. Failure can result in delays, and occasionally cancellation. Notwithstanding failures, it is not unheard of for political and economic pressures to keep a system moving from development into production. In all these countries as a weapon system moves from one phase to the next, the military organizations turns to industry to develop and produce the equipment, the essential training, maintenance, spare parts and other equipment necessary to field an operating weapon system.

Satisfaction of National Needs

The military is intended to be a warfighting machine but it serves other state purposes—economic and social. “Defense procurement can threaten or advance at least four values of concern to government. Most obviously, governments seek appropriate defense capability often with new equipment or systems to overcome an enemy threat. Secondly, governments wish to promote economic growth—defense procurement can have positive or negative effects

including employment, the generation of technology, and foreign exchange earnings through exports. Thirdly, a related but different economic concern is the government responsibility to provide a stable currency, which requires keeping public expenditure within limits. Finally, in their foreign policies governments seek to build and sustain particular relations with external states and other bodies. Defense procurement choices can play a role in all areas.”⁶

It might be possible to purchase equipment that satisfies all purposes—military, economic and social. However, it is rather unusual for a weapon system that greatly increases defense capability to be inexpensive, to create jobs and induce technology diffusion, and to allow collaboration with other nations. Trade-offs are inevitable. “The U.S. appears more associated with maximizing defense capability per se from procurement, but uses defense spending for socio-economic purposes, such as to promote small businesses, companies run by ethnic minorities and other programs. It also normally insists that foreign defense systems sold to the American forces be manufactured in the U.S.”⁷ But this approach is not limited to the U.S. Each of these countries has socio-economic concerns with the health of their defense industry—large, medium and small sized businesses, with earning currency through exports or, in Japan’s case, offsetting a commercial export imbalance with U.S. by buying defense items. Korea, Singapore and Japan have policies and programs in place to increase technology transfers to strengthen their defense industries and, thus, increase jobs and future sales. Australia has long pursued a policy of Australian Industry Involvement (Local Content Optimization). All the nations in the study have made some efforts to increase cooperation with their allies. Again, it comes to a balancing of priorities, program by program, that decision-makers must wrestle with on a year-to-year basis.

Decision Making

Who makes the decision on the need for a new weapons program? Is it the military? Is it a civilian—political appointee, civil servant, or is it the political leaders? In all the nations in this study, the military operates under civilian control. The United States, Singapore and Australia have had a long history of strong civilian leadership over the military. This has been true in Japan since World War II. On the other hand, during the 1960s, 1970s, and 1980s, the military in Korea played a very powerful role in running the country. “Under the military dictatorships, South Korea’s arms procurement process was largely dominated by a small group of power holders. Military security was a top priority....”⁸ Only in the last decade has the political system seen an ascendancy of civilian leadership.

While it is common sense for the military forces to identify and decide on the need for new military capabilities and equipment, it is not always the case. In all five states, the armed forces define the military need, but the political and bureaucratic leaders often make the final decisions. “The military is not always seen to be best at deciding what generates “value for money” for the nation as a whole. In the United States, Congress often decides which systems will have priority....”⁹ In all these countries, the legislative bodies, which approve the budgets, have the “final” say, but it is other bodies—in the Executive branch of government—the cabinet, the bureaucracy, or the Chief executive, who influence, or actually are the “real” decision authorities. In Japan, the Diet and the Cabinet have the final decision, but the civil servants in the Ministry of Finance and the Ministry of International

(Millions of Dollars)					
EXPORTS			IMPORTS		
1996 World Ranking			1996 World Ranking		
#1	United States	23,500	#2	Japan	2,400
#11	Australia	280	#9	Australia	1,300
#27	Singapore	40	#10	South Korea	1,100
#32	Japan	20	#11	United States	1,100
#33	South Korea	20	#22	Singapore	430
1997 World Ranking			1997 World Ranking		
#1	United States	23,500	#2	Japan	2,600
#20	Singapore	90	#8	United States	1,600
#28	Australia	30	#11	South Korea	1,100
#30	South Korea	20	#13	Australia	925
#37	Japan	20	#28	Singapore	400

Figure 6-3. Arms Exports and Imports

Trade and Industry have significant impact on the final outcome. In Singapore and Australia, it is the Cabinet that makes the final choice of what equipment will be bought. In Korea, the Minister and the President are often the final arbiter of all decisions affecting the acquisition of major weapons.

Arms Exports

According to Arms Control and Disarmament Agency (ACDA),¹⁰ the United States provides almost 50 percent of arms sales in the world. While this is true, somewhat paradoxically, as the U.S. plans its strategies for new weapon systems development, it does not consider Foreign Military Sales (FMS) in its game plan. Korea, Singapore and Australia all have a much smaller share of the arms pie (Figure 6-3, 1997 – \$30 Million, \$90 million and \$30 million, respectively) and have policies in place to increase the sales of defense equipment. It is part of their strategies for the development of new systems to consider overseas sales. These policies have several aims—lowering production costs by increasing sales, increase foreign exchange by increasing exports, and less reliance upon outside sources for equipment essential to the security of their county. An unstated, but conceivable additional reason is the increase in foreign policy influence. Japan, of course, prohibits the sale of arms, except military technology transfer may be made to the United States. All parties are supportive of the United Nations Arms Transparency resolution and the United States, Japan, South Korea and Australia are signatories to Wassenaar Arrangement¹¹ on the sales of arms throughout the world.

Industrial/Government Relations

Who owns the industry? What is the relationship between government and industry? What role does competition play in these relationships? Since World War II, the United States has

relied upon a competitive privatized industrial-military base for its products and services. Yet, unlike other countries the U.S. has rarely espoused an industrial base policy. “U.S. Defense Department programs during the Cold War rarely espoused broad industrial policy objectives...neither the DoD nor its supporters understood even an indirect responsibility to foster industrial policy. They were using technology and industry to enhance military capabilities in order to meet a Soviet threat.”¹² The U.S. has the largest defense industry in the world. As the defense industry grew out of the Cold War, it developed a “love-hate” relationship with its primary customer. Business was arms length and often adversarial. That picture has changed somewhat in the last decade through changes in laws governing industry, acquisition reform efforts to increase openness and to work together in a partnership and through the use of Integrated Product Teams with industry members.

Singapore, Korea and Japan are all influenced by the Confucian tradition of governmental involvement and leadership, and the need for both to work for the well being of the nation. Japan has the most powerful defense industry in the Pacific with over 1300 companies. While Japan’s economy has flourished as a result of the private ownership of industry, the government has played a direct role in that success. It has been Japanese policy not only to maintain a robust defense industrial base, but also to embed it within the commercial industry. Government agencies, such as MITI, have seen their responsibility as fostering a strong industrial base, both military and civilian. In both Singapore and Korea, the defense industry is privately owned. Although in Singapore the government has fashioned their role, similar to the French, by owning a significant portion of the major defense manufacturer—Singapore Technologies. Australian industry is mostly privately owned. Over the last decade the Australian government has

been divesting itself of its government-owned businesses in order to rely upon the efficiencies in the private sector to reduce costs.

The perspectives on competition in these countries differ and maintaining a competitive environment is difficult. The U.S. sees competition as a tool to harness industry's capabilities for better products at less expensive prices. At the other end of the spectrum is Japan, which sees competition as wasteful, duplicative and leading to squandering of resources. Korea, Australia and Singapore are more in the middle of the spectrum. Typical of competition efforts in the last decade, the DoD in 1998 and 1999 competed almost 60 percent of the dollars awarded. In Japan, only 3.7 percent of the dollars in 1997 were open for competition, while another 10.8 percent was available for limited competition.¹³ In Japan most large acquisitions are awarded on a sole source basis. Even when a competition is held, often the losers will share in producing the items. Singapore, Australia and Korea have policies to encourage competition. In Korea while efforts have been taken to increase competition, other conflicting actions, such as setting aside all future aerospace contracts for the new established Korean Aerospace Industries (KAI), raises the question of what role competition will really play. Australia has emphasized privatization of industry and made competition one of the key features of their acquisition reform efforts in an "attempts to invoke the market as a means of enhancing efficiency."¹⁴

While the attitudes on competition may differ, maintaining or growing a defense industry is difficult. The next major system buy—tank, aircraft, vessel—could be the last for a decade. Losing a competition can force a company to abandon a product line. The complexity of new systems, and advances in technology may make the reentry cost prohibitive. As dollars decrease, industry interest declines. The U.S. defense industrial base is changing and this change has

top DoD leaders worried about future competition. In the last 10 years, 50 U.S. defense related companies have consolidated to three: Boeing, Lockheed Martin, and Raytheon (see Figure 6-4 for example). These three companies along with General Dynamics and Northrop Grumman in fourth and fifth place account for total DoD sales of \$37.2 billion, or 32 percent of the \$117 billion spent by DoD in 1998. Maintaining a competitive environment is getting more difficult. DoD came out against a proposed merger of Northrop Grumman and Lockheed Martin due to fears of a lack of future sources for competition. Dusting off an old technique previously used may foreshadow a new trend to keep competitive sources alive. In the past the DoD has held competitions where the winner receives the largest share of the buy, while the losing contractor still receives an order adequate to keep them in the business. For many years the Air Force used this type of competition for its aircraft engines bought from General Electric and Pratt & Whitney. Recent deliberations on the Joint Strike Fighter (JSF) and the DD-21 destroyer to split production between two companies may presage future trends to maintain at least a semblance of competition.

International Acquisition Cooperation (Collaboration)

The development of any weapon system involves a significant expenditure of the taxpayer's money. As Dr. Jacques Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics) indicates "To stay ahead of the enemy and to counter the new dimension of threats we will face as coalition partners, we must develop these new defenses cooperatively."¹⁵ All the countries in this study indicate a desire for, and have policies in place for collaboration with other governments. Those readers familiar with cooperative efforts in Europe will find fewer projects in the Pacific, although efforts have picked up in the last 20 years. Japan works

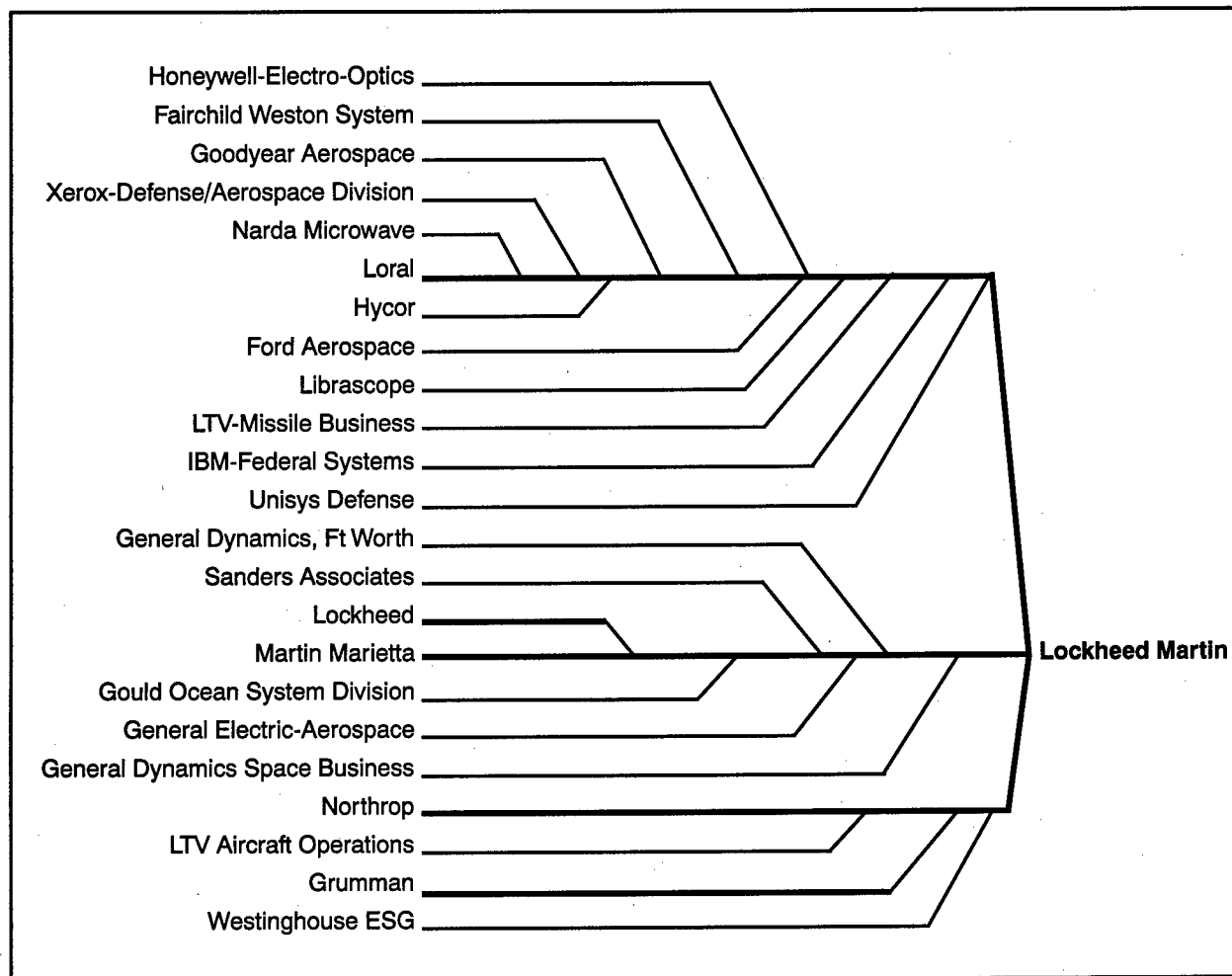


Figure 6-4. Defense Industry Consolidations – Lockheed Martin

collaboration endeavors exclusively with the U.S, through the U.S.-Japanese Systems and Technology Forum. The U.S. and Japan have cooperated on a variety of basic and applied research programs over the last 40 years, such as the Ducted Rocket Engine and the ACES II Ejection Seat. Korea's primary cooperative partner has been the U.S. Besides the Annual Security Consultative Meeting with the U.S. and the sub forums that emanate from that meeting, they have expanded their cooperative outreaches to include a formal effort with France and a variety of other countries, such as United Kingdom, Germany, Rumania, and New Zealand and Australia. Both Korea and Japan are interested in

the cost savings, but also interested in access to the latest technology and manufacturing technologies. Singapore's "global cooperation strategy" is aimed at leveraging foreign expertise. They have several R&D agreements with the United Kingdom, Sweden, Australia, and the United States. Australia has agreements in place with the United States, Britain, Canada, and Sweden, as a means of "achieving efficiencies in the sourcing of equipment, access to technology and interoperability with allies."¹⁶ They have had a range of cooperative efforts with New Zealand (the ANZAC Ships), with the U.S. (Project Nulka) and with the UK (Barra Sonobuoy).

Organizational Military/Civilian Roles

In comparing the managerial approach and organizational structures of the five nations, one notes a significant difference between the U.S. and the other four countries. The U.S. is highly decentralized both organizationally and geographically. The Military Departments, operating under the general policy guidelines of the Office of the Secretary of Defense (OSD), carry out the acquisition of military equipment. In Japan, Singapore and Australia the acquisition activities are centralized within a single (defense) agency and largely co-located. Korea's acquisition organization is centralized within the Deputy Minister's Office, but dispersed throughout the country.

Democratic governments must decide the defense roles most appropriately filled by military personnel and those best undertaken by civil servants or the private sector. Each of these nations has developed its own practice regarding the appropriate role for its military and civilian officials. In all these nations, the military define requirements. In Singapore and Australia the acquisition organizations are primarily civilian organizations. Even in these, there are differences. Australia has very few military members assigned to its Defense Acquisition Organization, while in Singapore, military members hold many key positions. In the United States, the Military Departments—Army, Navy, and Air Force—have specific budgets and authority to train and equip their fighting forces. The services have their own contracting organizations for the procurement of equipment. Such organizations, of course, make extensive use of civilian and contractor personnel. While civilian control is provided through politically appointed government officials, military members play key roles in all facets of acquisition. In Japan on the other hand the politically appointed senior personnel provide broad oversight, while many of the actual decisions are made, or at least

influenced by, senior civil servants. Central procurement and research and development organizations manned with many military personnel do the actual buying and management of development programs. In Japan, at the Internal Bureau, the civilian officials play a significant role in setting policy and in overseeing the implementation of acquisition actions. Military officials at the operational, or field level organizations hold key positions in managing the performance of the acquisition system. In Korea, civilian control is provided by politically appointed personnel who play key roles in deciding what should be bought. In its central acquisition organization, military personnel hold many of the senior positions.

Best Practices

What are best practices? One reason for a comparison is to observe best practices for possible application in ones own country. Often, however, a best practice may not be workable in another country. One example is the role and value of competition. Does it get the best deal, or does it waste resources? We have seen earlier that these countries approach competition from a different perspective. Would a partnership approach be better? Developing trust and co-operation between companies and government might possibly produce better products at a reasonable price, and employ its citizenry in technology skill developing jobs. In Japan, Korea and Singapore with a Confucian tradition, partnerships and close government relations, not competition is a best practice. In the United States, this would be antithetical to its traditions and violate many of its laws.

The United States has a separate military industrial complex, while the other four countries military industries are heavily embedded in the commercial market. This would seem to be a best practice, since it takes advantage of the advances in technology taking place in the

commercial market and offers the potential for lowering costs through single production lines. But, will these products provide the advantages in technology the military warfighter needs? Will government budgets and timeframes be able to keep pace with the commercial market?

The U.S.'s acquisition reform effort, going back a decade, has made significant uses of the Integrated Product Team concept to improve management of programs and relationships between industry and government, with the goal of lowering costs and improving performance of its weapon systems. Most of the countries in this study have conceptually agreed with the concept of IPTs and mention it in their reform efforts. Each has implemented it differently. While it is too early to determine the true effect of IPTs, it is interesting to note that every country still has concerns about projects failing to meet performance, schedule and cost targets. In Australia, there are also concerns about the anti-competitive nature

of defence-industry "teaming" arrangements, especially during the early stages of the materiel cycle.

Searching for best practices—IPTs, single RFP process, reorganization, or buying commercial items—is difficult. With the differences in each country—population, geographical size, culture and economic resources—what may work in one, may not work in another. What a search for best practices does do is to shine a light on differences and perhaps cause a rethinking of ones own practices.

The Impact of National Political Systems

One political pundit described politics as "art of the possible." Each acquisition system we have described in this book operates within a broader system, the national political system. Figure 6-5 notionally depicts the many variables and players involved in supporting the level of

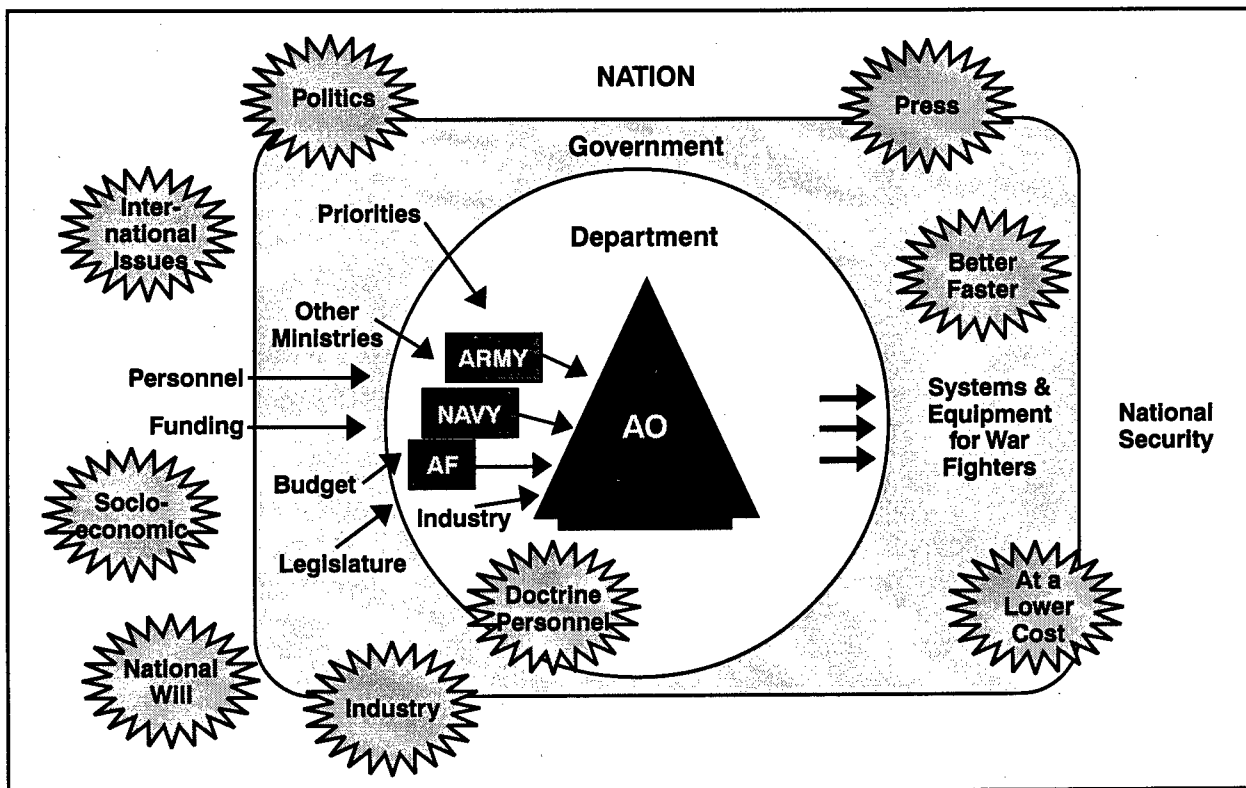


Figure 6-5. The Acquisition System Environment

military investment necessary to make an acquisition program viable. This environment shapes and constrains the acquisition system's ability to deliver equipment. There are both structural features and value features, which impact the system. The structural features are easy to see—balance of power between legislative and executive branches. Value features, such as, a pacifist sentiment in the population, are more difficult to see, but every bit as important in determining the amount of resources available.

The constitutions in all these countries lay out the duties and responsibilities of each of the major branches of government. In Australia, Japan, Korea, and Singapore, the legislatures generally review the top line details of the budget, debate the broad political outlines, and then approve the budget as submitted by the cabinets. In Singapore the legislature can only approve or reject the government's overall budget and has very little insight into the budget at the program level. In Korea, the legislature has constitutional restriction on the amount of changes it can make, plus it traditionally has been dominated by a strong president. In the last decade, its role has expanded, although it still rarely makes changes to the executive budget. The U.S. Congress is noted for its impact on the defense budget. "In contrast the U.S. Congress has developed a culture reflecting the terms of the constitution in which it sees itself as having a major say as to what the armed forces should have. Famously, it has regularly made money available for C130 purchases that the U.S. Air Force (USAF) has not requested. Responding to the practices of Congress, the U.S. services present to Congress lists of items they would like to have if more money were made available. There are many suspicions that U.S. congressional representatives support some projects more for the consequences for their electorate's prosperity and employment than for the impact on U.S. defense capability. The phrase "pork

barrel" politics is often associated with defense projects."¹⁷ Legislatures tend to be particularly sensitive to employment issues. In each case, the government was motivated by jobs, technology and defense industrial capability factors. All the legislatures perform an after the fact review of government actions, with legislative members questioning governmental actions.

The impact of the legislation on procurement can also be significant. Again the separation of powers imbedded in the U.S. constitution coupled with Congress's reluctance to commit money for more than one year makes the U.S. a difficult partner for cooperation with its allies. The other countries in this study, because of the structural relationships between the executive and legislative branch of government are able to commit to long term program efforts.

Conclusion

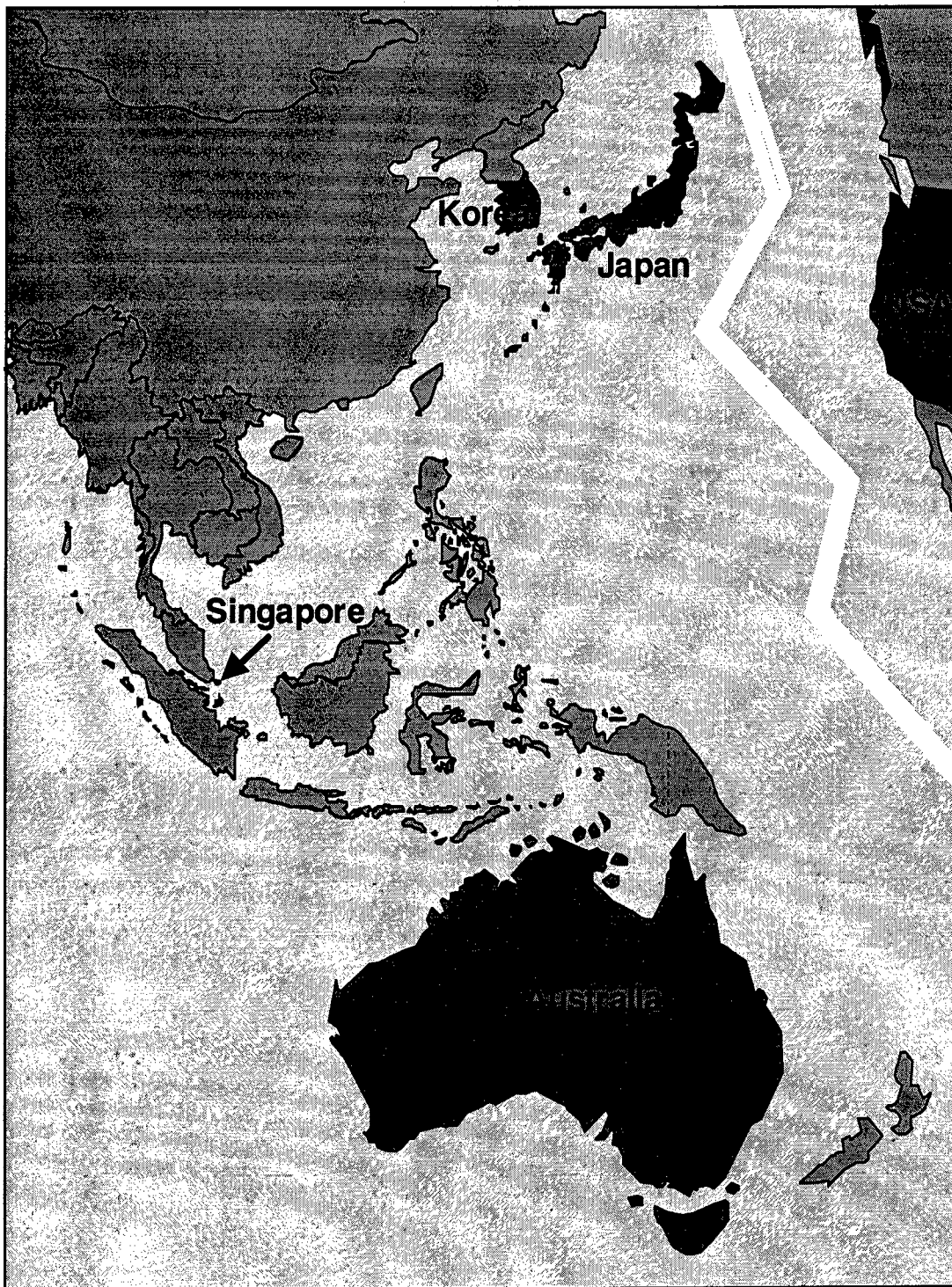
The purpose of this book is to provide a description of the defense acquisition systems of five countries, which are possible collaborative partners. This part of the book looks at similarities and differences in how each nation satisfies its national needs. Acquisition factors—competition, technology transfer, military need, and local manufacturing—all interact with the political system to color the choices made by decision-makers. As we look to the first decade of the 21st millennium, military threats exist in the Pacific; defense budgets are still constrained; and any war is likely to be a coalition endeavor. Thus, it is vital to consider developing and producing the next generation of military equipment as partners. As has been shown in the West, cooperation with allies is a difficult job for those assigned to carry out the task. At the program office level, acquisition members must be willing to work together, not only with an understanding of their own system, but with an understanding of the difficulties and issues for each of the participants. Technology transfer,

export controls, financial problems, industrial offsets, and cost issues all need to be weighed and worked. As the picture has changed in the

Pacific—economic crises to economic rebound—opportunities exist for cooperation and should continue to exist in the future.

ENDNOTES

1. I am greatly indebted to the original work done by Professor Trevor Taylor of the Royal Military College of Science (RMCS) on the comparison chapter in our earlier work—*A Comparison of the Defense Acquisition Systems of France, United Kingdom, Germany and the United States*.
2. Richard Neustadt, 1980.
3. "The Military Balance 1999/2000," International Institute for Security Studies (IISS).
4. DoD Data base for civilian personnel: <http://web1.whs.osd.mil/mmid/civilian/civtop.htm>
5. See Part 1, Chapter 9, p. 5-5.
6. *A Comparison of the Defense Acquisition Systems of France, United Kingdom, Germany and the United States*, DSMC Press, September 1999, Chapter 5, p. 5-6.
7. *Ibid.*, p. 5-7.
8. Lee, Seok Soo, abstract from "The Dynamics of the decision-making process for arms procurement," SIPRI Arms Procurement Decision Making Project, Working paper no. 43 (1995) in Singh's book, p. 304.
9. *Ibid.*, p. 5-5.
10. ACDA was merged with the State Department in accordance with the Foreign Affairs Agencies Consolidation Act of 1998 in April 1999. ACDA data for "arms sales" reflect commercial items that the U.S. would consider "dual use" items, but that Japan classifies as commercial.
11. There are two primary international agreements that try to limit the sales of arms—UN and Wassenaar Agreement.
12. MIT Professor Richard J. Samuels, *Rich Nation, Strong Army, National Security and the Technology transformation of Japan*, p. 11.
13. Limited Competition refers to practice of limiting the number of contractors that are allowed to bid on an acquisition program.
14. Chapter 1, pp. 1-63.
15. Under Secretary of Defense (Acquisition, Technology and Logistics), U.S.-Korea Defense Industrial Cooperation Committee, Rosslyn, VA, October 15, 1999.
16. This Section is based on CEPMAN, Part 2, Chapter 5.
17. *Ibid.*, pp. 5-13.



APPENDIXES

*Appendix A***ARMED FORCES**

Australia		Japan	
Army:	26,000	Ground SDF:	172,866
Navy:	14,700	Maritime SDF:	45,752
Air Force:	17,100	Air SDF:	47,236
Total:	57,800	Joint Staff:	1,426
		Total:	267,280
Reserves:	49,480	Civilians:	24,421
		Reserves:	47,900
		Ready Reserves:	3,379
Defense Budget (FY2000):	\$12.2B	Defense Budget (FY2000):	\$44.3B
South Korea		Singapore	
Army:	548,000	Army:	45,000
Navy:	60,000	Navy:	2,900
Air Force:	52,000	Air Force:	6,000
Total:	660,000	Total:	53,900
Reserves:	4,500,000	Reserves:	250,000
Defense Budget (FY2000):	\$12.6B	Defense Budget (FY2000):	\$4.4B
United States			
Army:	495,000		
Navy:	426,700		
Air Force:	388,200		
Marines:	173,900		
Coast Guard:	37,300		
Total:	1,483,800		
Reserves:	1,880,600		
Civilians:	790,000		
Defense Budget (FY2000):	\$287.5B		

Appendix B

LIST OF ACQUISITION AND RELATED ORGANIZATIONS

AUSTRALIA

Minister of Defence

Defence Organization

- Department of Defence
- Australian Defence Force

Defense Acquisition Organization (DAO)

Chief Defence Scientist

Australian Defence Forces Academy

JAPAN

Japanese Defense Agency (JDA)

Internal Bureaus

- Bureau of Finance
- Bureau of Equipment
 - Ship and Weapons Division
 - Office of Materials
 - Aircraft Division
 - Office of Guided Missiles
 - Research and Development Planning Division
 - Coordination Division
 - Office of Communication and Electronic Systems
 - Office of Procurement and Supply

Central Procurement Office (CPO)

Technical Research and Development Institute (TRDI)

- 1st Research Center
- 2nd Research Center
 - Ioka Branch
- 3rd Research Center
- 4th Research Center
- 5th Research Center
 - Kawasaki Branch
- Sapporo Test Center
- Shimokita Test Center
- Tsuchiura Test Center
- Niiijima Test Center
- Gifu Test Center

Ground Self Defense Force

Maritime Self Defense Force

Air Self Defense Force

KOREA

Ministry of National Defense (MND)

Deputy Minister Defense Acquisition Office

Defense Acquisition Office

- Program Management Bureau (PMB)
- Analysis and Evaluation Bureau (AEB)
- Acquisition Policy Bureau (APB)
- Logistics Management Bureau (LMB)
- Military Installation Bureau (MIB)

Defense Procurement Agency (DPA)

Agency for Defense Development (ADD)

- Ground Systems Development Center
 - Changwon Proving Ground
- Naval Systems Development Center
 - Naval Test Range
- Missile/Aircraft Systems Development Center

- **C3I Systems Development Center**
- **Defense Systems Test Center**
 - **Anheung Proving Ground**
 - **Daradae Test Range**
- **Dual Use Technology Center**
- **Key Technology Research Center**

Defense Quality Assurance Agency (DQAA)

Service Program Management Offices/Groups

Korean Institute of Defense Analyses (KIDA)

SINGAPORE

Ministry of Defence (MINDEF)

Permanent Secretary (Defence Development)

Deputy Secretary Technology

Defence Technology & Resource Office (DTRO)

Defence Science and Technology Agency (DSTA)

DSO National Laboratories

UNITED STATES

DOD ACQUISITION ORGANIZATIONS

Under Secretary of Defense (Acquisition, Technology and Logistics)

Army:

Assistant Secretary of the Army (Research, Development and Acquisition)

Army Materiel Command

Army Program Executive Officers/Direct Reporting Program Managers

Navy:

Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN (RD&A))
Naval Sea Systems Command (NAVSEA)
Naval Air Systems Command (NAVAIR)
Naval Supply Systems Command (NAVSUP)
Space and Naval Warfare Systems Command (SPAWAR)
Office of the Chief of Naval Research (ONR)
Navy Program Executive Officers/Direct Reporting Program Managers
USMC Systems Command

Air Force

Assistant Secretary of the Air Force (Acquisition) (ASAF (A))
Air Force Materiel Command (AFMC)
Air Force Program Executive Officers (AFPEOs)

Defense Logistics Agency (DLA)

Ballistic Missile Defense Organization (BMDO)

Defense Systems Management College (DSMC)

Special Operations Command

DOD ACQUISITION ORGANIZATIONAL FUNCTIONS

**OFFICE OF THE UNDER SECRETARY OF DEFENSE
FOR ACQUISITION, TECHNOLOGY AND LOGISTICS
(USD (AT&L))**

Principal Deputy USD (AT&L)

Second in command with responsibility for the following offices besides oversight of Defense Logistics Agency:

Director of Defense Procurement (DDP)

Sets procurement policy for the department covering areas such as contract administration, cost, pricing, finance, and foreign contracting.

Director, International Cooperation

Establishes policies for economic reinvestment, dual use technology programs, international cooperation, and Defense Export Loan Guarantees.

Deputy USD, Logistics (DUSD (L))

Sets logistic, maintenance, and transportation policy and provides oversight, and technical development of logistics systems.

Deputy USD, Acquisition Reform (DUSD (AR))

Responsible for implementation of acquisition reform within DoD and acquisition education through the Defense Acquisition University.

Deputy USD, Environmental Security (DUSD (ES))

Sets policy and provides oversight of defense acquisition environmental issues to include technology development, cleanup and pollution prevention.

Deputy USD, Industrial Affairs

Responsible for defense industrial policy.

Deputy USD, Installations

Responsible for defense infrastructure policy.

Director Acquisition Resources and Analysis

Responsible for legislative issues, and planning, programming and budgeting for USD (AT&L).

Director, Interoperability

The focal point for weapon systems interoperability.

Director, Defense Research and Engineering (DDR&E)

Oversees the Science and Technology Program and nuclear, chemical and biological matters. DDR&E has direct line authority over the Defense Advanced Research Project Agency (DARPA).

Director Strategic and Tactical Systems

Technical reviews, evaluation, treaty compliance and oversight of acquisition programs for missile defense, tactical and strategic aircraft, tactical land and naval systems, munitions, electronic warfare programs, and deep strike systems.

Deputy USD, Advanced Systems and Concepts

Oversight and management of the Advanced Concept Technology Demonstration (ACTDs) efforts.

Deputy USD, Science and Technology

Responsible for DoD science and technology planning to include international science and technology programs.

Deputy USD, Logistics and Materiel Readiness

Responsible for supply, maintenance, transportation and systems engineering. Supported by Deputy's for each of these functional areas. Also has direct line authority over the Defense Logistics Agency.

**OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
(ACQUISITION, LOGISTICS AND TECHNOLOGY)**

Deputy for Logistics

Sets supply, maintenance, and transportation policy and provides oversight and technical development of logistics systems.

Deputy Assistant Secretary Army for Research and Technology

Formulates Army-wide technology base strategy, policy, guidance and planning, and establishes and validates the Army's technology base priorities throughout the PPBES.

Deputy Assistant Secretary for Procurement

Provides management and oversight of all Army procurement functions and organizations, acquisition reform, and the industrial base.

Deputy Assistant Secretary for Plans, Programs and Policy

Develops the Army's acquisition policy and procedures and insures that Congressionally mandated laws and DOD policy are appropriately promulgated in Army regulations. Also responsible for formulating the Army's acquisition, logistics and technology long range plans and budgets.

Deputy Assistant Secretary for Chemical Demilitarization

Oversees the U.S. chemical weapons destruction program.

Deputy for Systems Management and Horizontal Technology Integration

Responsible for executive program management and implementation of acquisition policy for all Army ACAT I-IV programs. Serves as direct link between the Army SAE and PEOs (ACAT I & II). Also serves as Army lead for inserting new technology into existing programs, and technical and programmatic guidance for Army international cooperative materiel programs.

Director for Assessment and Evaluation

Provides independent management oversight, technical advice, policy guidance, vulnerability assessment and reporting related to the Army's major acquisition programs. Oversees the administrative responsibilities associated with decision reviews of Major Defense Acquisition Programs.

Deputy for Combat Services Support

Responsible for oversight and management of combat services.

Deputy for Ammunition

Responsible for executive management and implementation of DOD ammunition programs to include missiles, bombs, etc.

Deputy for Medical Systems

Responsible for executive management and implementation of Army medical systems programs for Army hospitals, etc.

**OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)
(ASN (RD&A))**

Deputy Assistant Secretary of the Navy (DASN) Ship Programs

Monitors ships programs managed by Naval Sea Systems Command and the PEOs for Ship Defense and Submarines and DRPMs for AEGIS and Strategic Systems Programs. Analyzes shipbuilding industry capability and capacity.

DASN Mine/Undersea Warfare

Monitors technology and business opportunities and provides program and policy guidance for mine and undersea warfare programs.

DASN Air Programs

Monitors PEO and Naval Air Systems Command programs for aircraft, anti-submarine warfare, cruise missiles, unmanned aerial vehicles and programs. Analyzes the aircraft industry for capability for production and repair of aircraft.

DASN C4I/EW/Space Programs

Monitors PEO, Space and Naval Warfare Systems Command's Communications and Sensors programs. Serves as the Navy Chief Information Officer.

DASN Expeditionary Force Programs

Monitors Marine Corps Systems Command and the DRPM for Advanced Amphibious Assault program(s).

DASN Theater Combat Systems

Monitors Navy PEO and Systems Command programs related to theater missile defense.

DASN Planning, Programming & Resources

Performs long range ALT planning, legislative liaison, manages the management information system and works budgeting (PPBS) issues.

Chief of Naval Research (CNR)

CNR provides policy, oversight and management of the Navy's science and technology program. Has direct line authority over the Office of Naval Research, Office of Naval Technology, and Office of Advanced Technology Transition.

Deputy Acquisition and Business Management

Responsibilities include setting acquisition policy, procurement, ethics, reliability, manufacturing, and value engineering.

Director International Programs

Responsible for cooperative research and development, foreign military sales, technology transfer, export control, security assistance, foreign comparative testing, data exchange, and other international matters.

Director Acquisition Career Management

Responsible for the management of the accession, education, training and career development of the civilian and military members of the acquisition workforce. Can be described as the career manager for all acquisition workforce members.

Acquisition Reform Executive

The Acquisition Reform Office facilitates implementation of the department's acquisition reform efforts to include changing business process. Has responsibility for reduction of total ownership cost, cycle time, and the Navy's Specifications and Standards Program.

OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION)

Deputy Assistant Secretary Contracting

Plans, develops, and implements Air Force-wide contracting policies and procedures. Oversight of worldwide Air Force contracting field activities.

Deputy Assistant Secretary Management Policy and Program Integration

Responsible for budgeting, programming, acquisition reform, contractor advisory service, federally funded research and development centers, acquisition pollution prevention, workforce education, training and development. Develops acquisition policy. Integrates all programs individually managed by other SAF/AQ Directorates to achieve the best acquisition program mix. Insures acquisition programs reflect requirements needed to support the Reserve Component.

Deputy Assistant Secretary Science, Technology and Engineering

Develops policy for and oversees the Air Force's Science and Technology program. Serves as the chief engineer for the Air Force with responsibility for manufacturing management, software management, standardization, non-developmental items advocacy, and military specifications and standards.

Mission Area Director (MAD) Global Power

Plans, programs, oversees and provides program direction for tactical systems such as fighter aircraft and combat weapons. The individuals specifically assigned to each MAD program to work the issues regarding a program are referred to as Program Element Monitors (PEMs).

Mission Area Director (MAD) Space & Nuclear Deterrence

Plans, programs, oversees and provides program direction for surveillance, communications, navigation and weather satellites, space launch systems, information warfare capabilities, ground-based strategic systems.

Mission Area Director (MAD) Global Reach

Plans, programs, oversees and provides program direction for airlift, training and special operations aircraft programs.

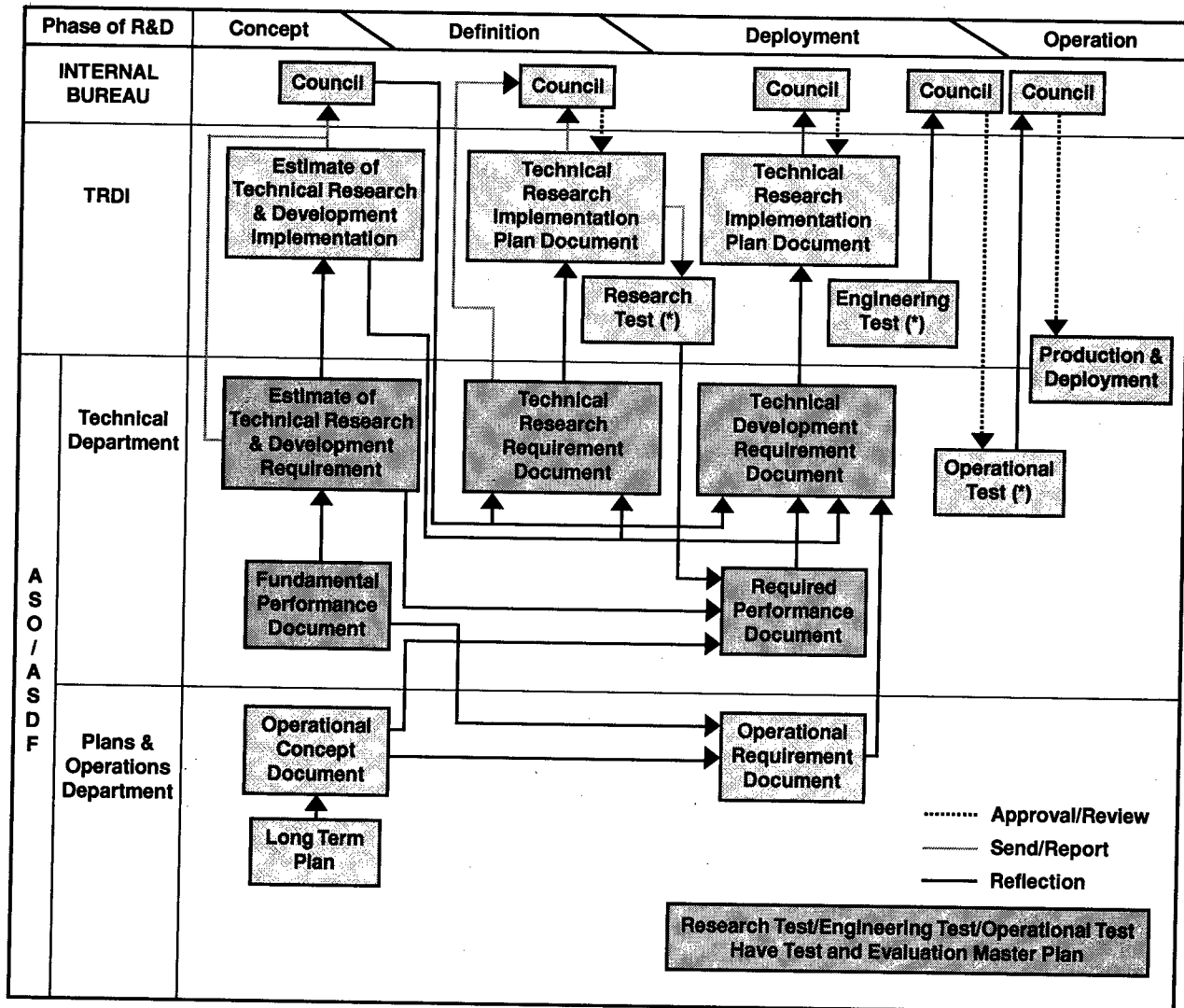
Mission Area Director (MAD) Information Dominance

Plans, programs, oversees and provides program direction for command and control, information systems, airborne command and control and radar systems, reconnaissance systems, and systems integration.

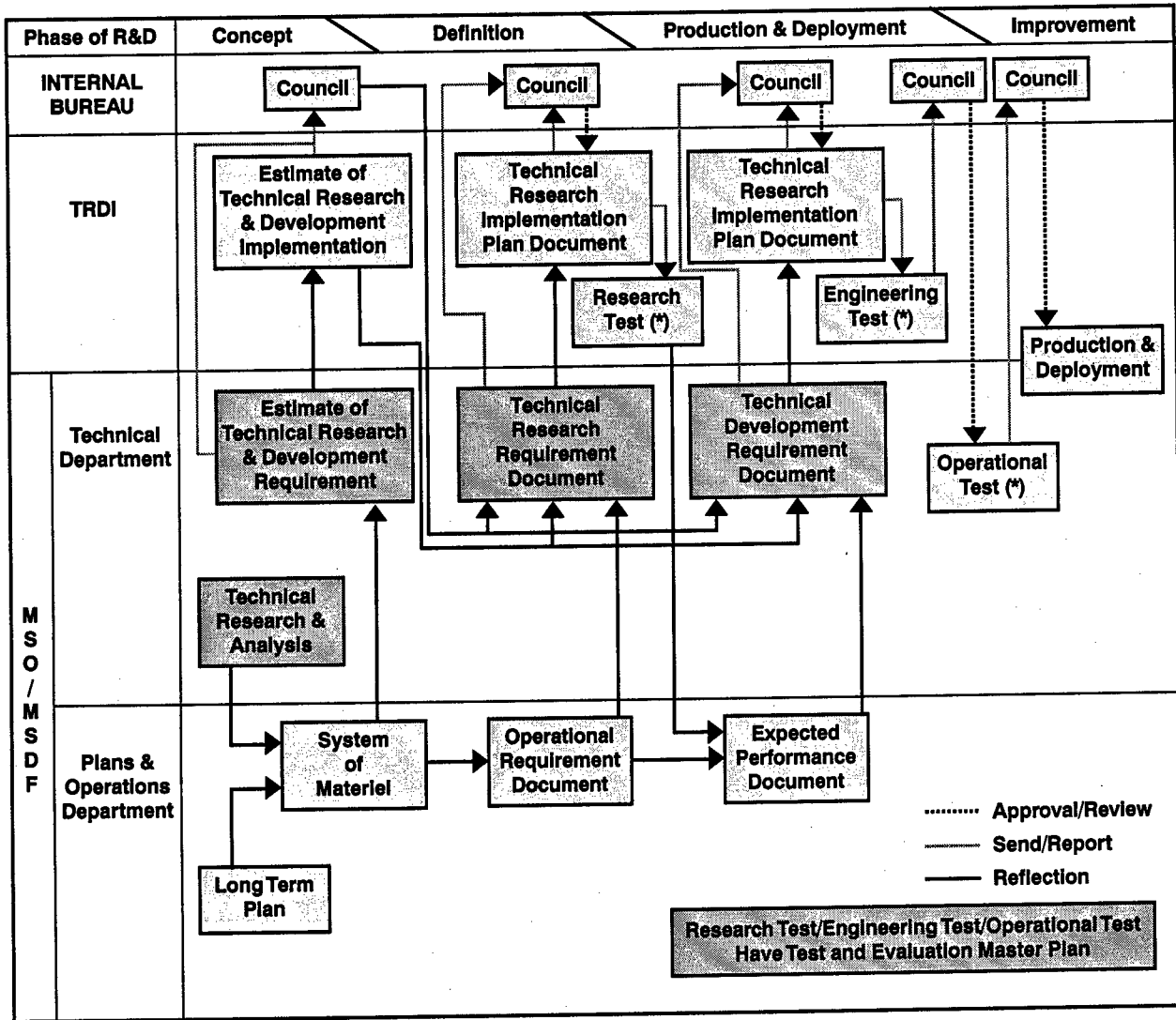
JAPAN

Maritime Self Defense Force (MSDF) and Air Self Defense Force (ASDF) Acquisition Process Charts

In both the MSDF and the ASDF they have slightly different acquisition phases and processes. The two figures illustrate the generic process for each SDF.

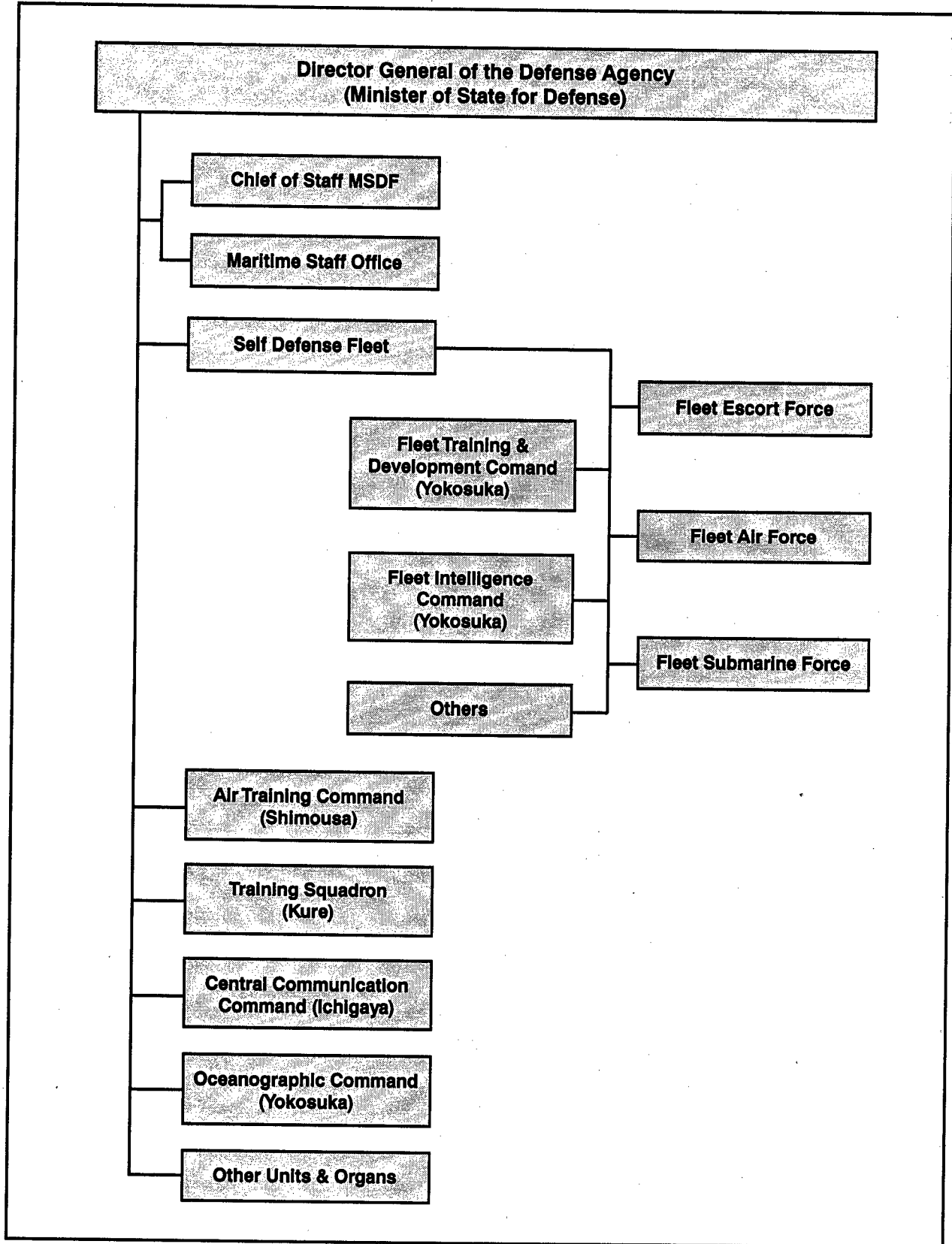


ASDF Technical Research & Development Process

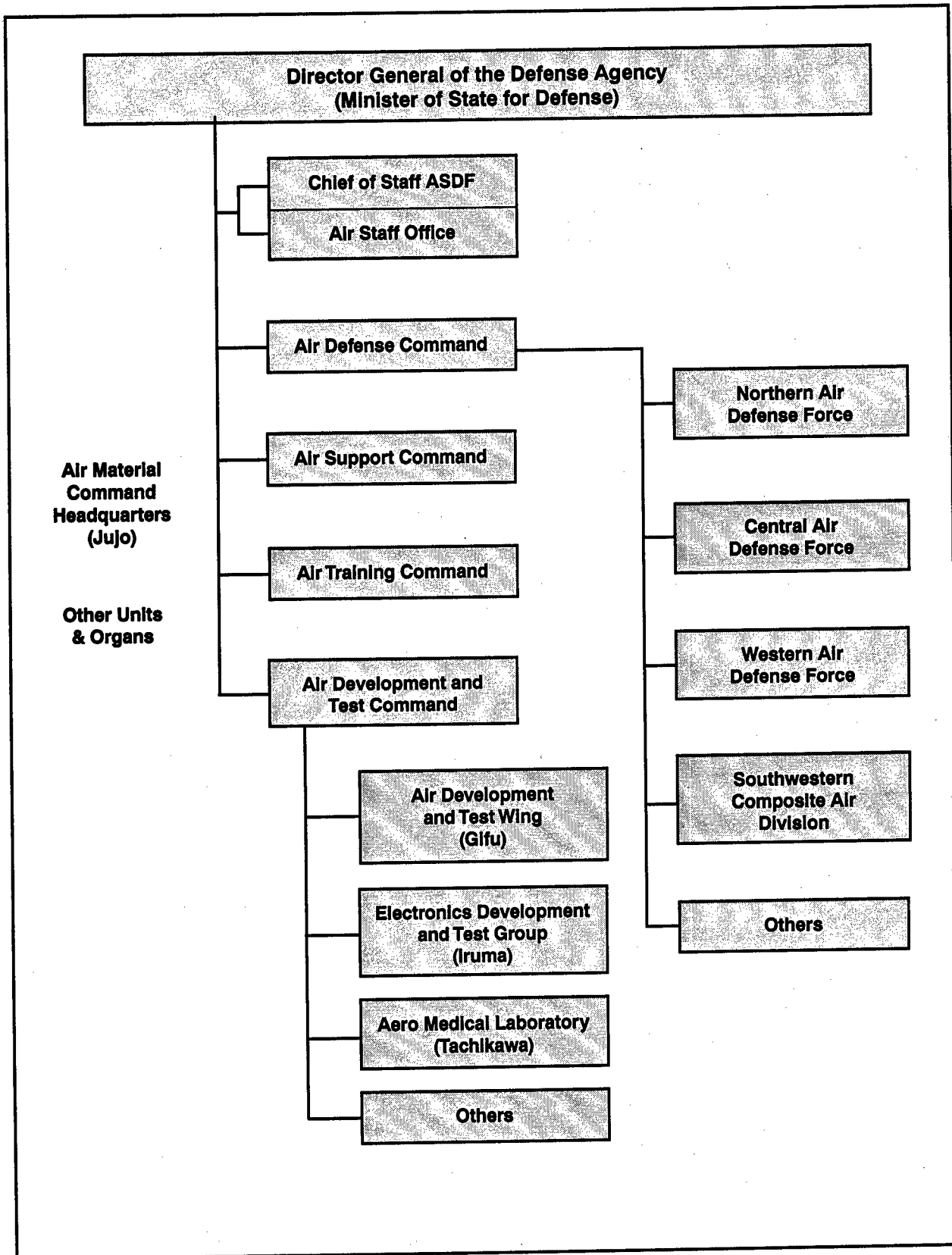


Maritime Technical Research & Development Process

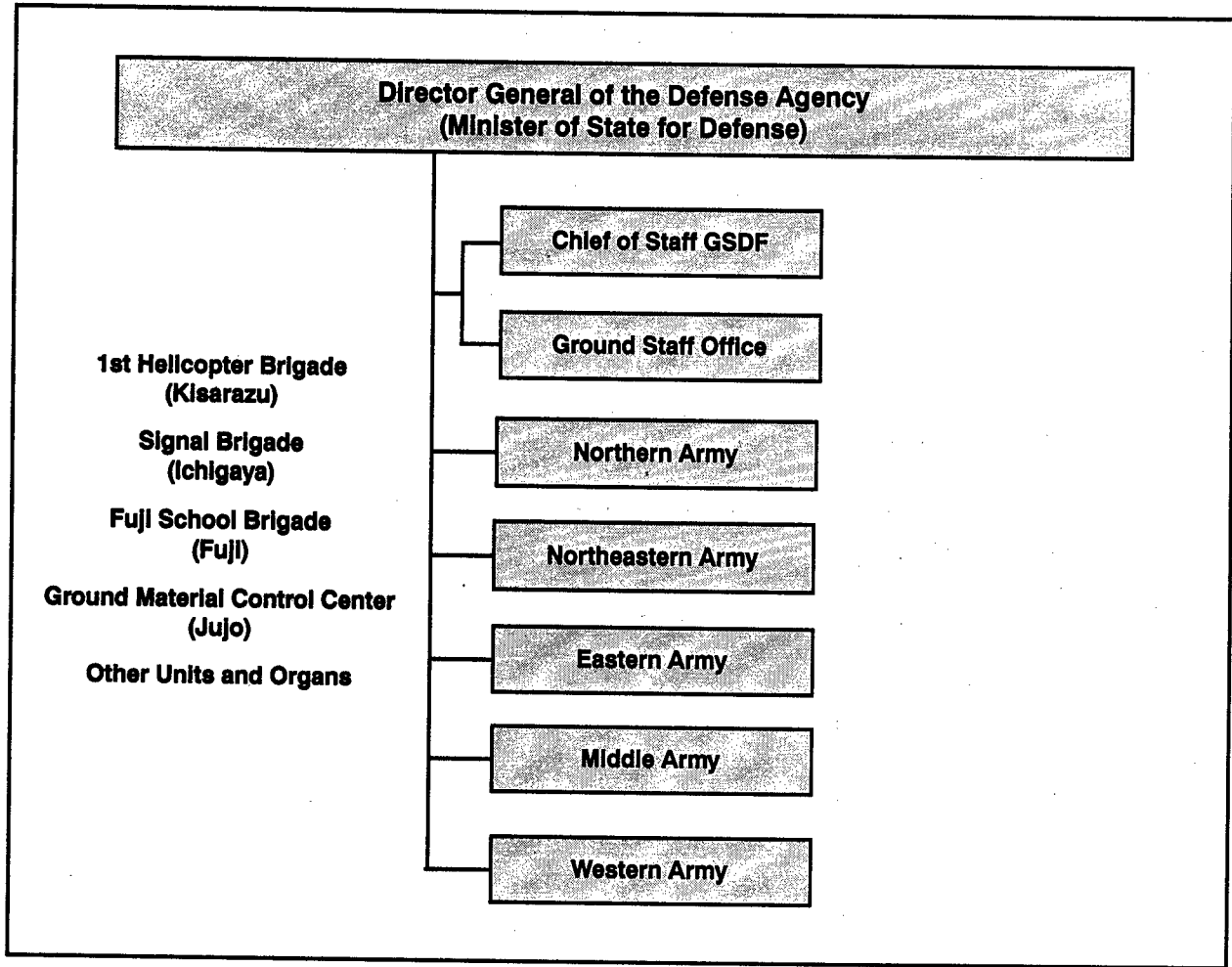
JAPAN SELF DEFENSE FORCES



Maritime Self Defense Force

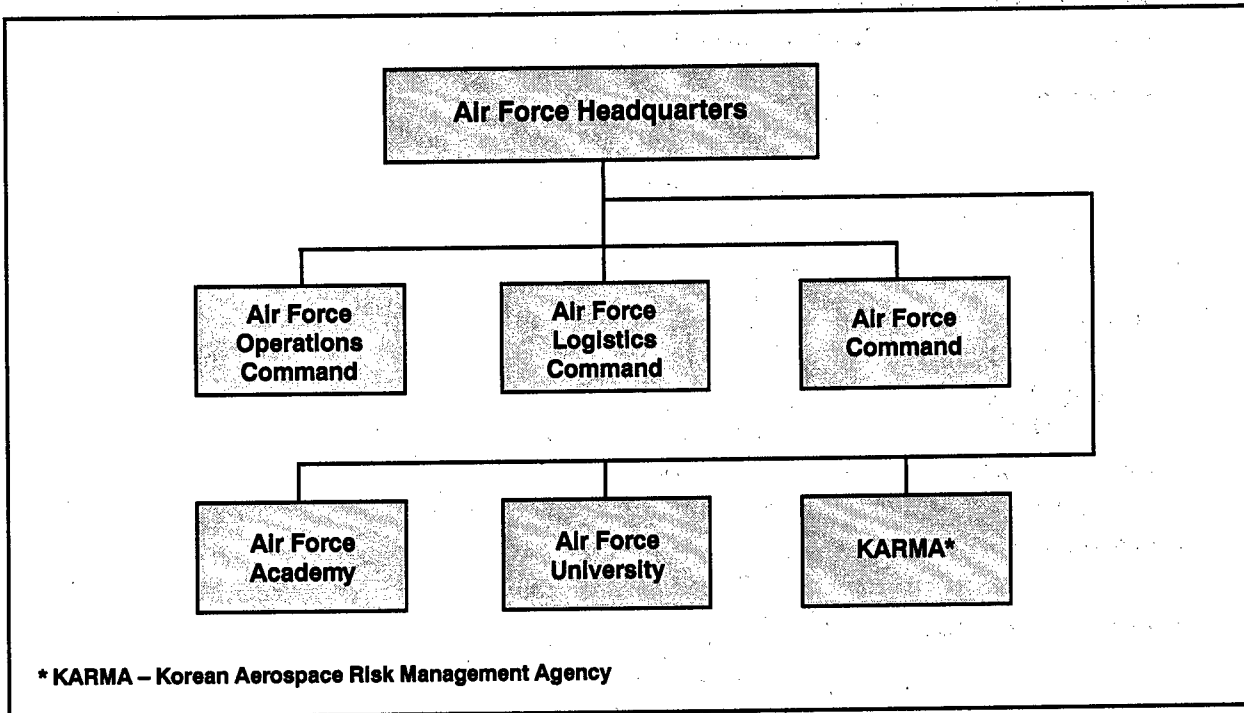


Air Self Defense Force

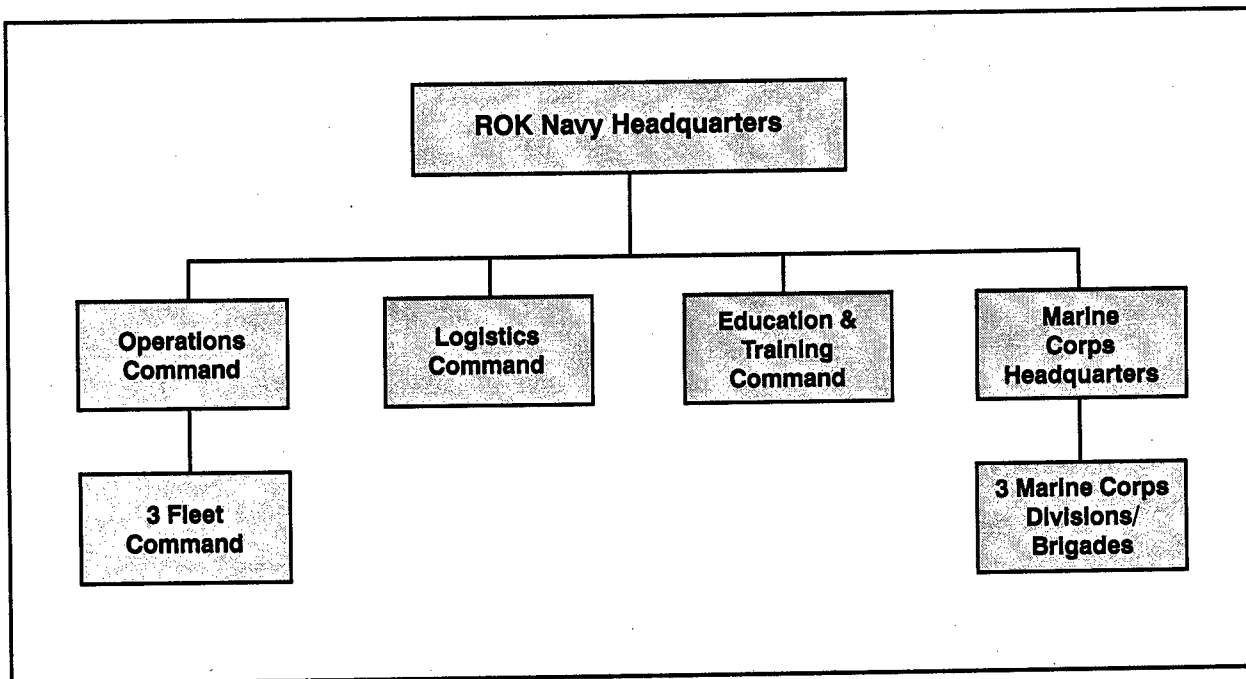


Ground Self Defense Force

REPUBLIC OF KOREA



Korean Air Force



Korean Navy

KOREAN INSTITUTE OF DEFENSE ANALYSES FUNCTIONS

Security & Strategy Directorate conducts research on domestic and international security environment and supports the MND's strategic assessments and policymaking. This directorate sponsors a variety of year seminars on cooperation acquisition issues. An example is the 1999 2nd North-east Asia Defense Forum, 2nd KIDA-INSS Security Workshop and the 4th ROK-China Defense Forum

Force Development Directorate develops policy alternatives and accumulates quantified data to support policymakers in the MND and JCS. Main areas of research include force development and military operations, military strategy and doctrine, force structure, evaluation and requirements, and counter proliferation of WMDs. The directorate operates three divisions to concentrate on these areas.

The Military Strategy Division does research on military theories and evaluation on security environment are accentuated. Military theory studies include military concepts and history. Security environment research includes analysis on military relationships of surrounding states, changes in military science and technologies, and potential threats in the future.

Manpower Management Directorate's main research foci include manpower policy, leadership, education, welfare, morale, draft administration and mobilization systems, civil-military relations, and military culture. Based on such research, the directorate suggests mid- and long-term policy alternatives to the MND. The directorate currently operates three divisions.

Resource Management Directorate provides policy alternatives on overall defense resource management through systematic research on resource planning and management systems, defense management, and logistics policy and defense CALS systems. It currently operates four divisions that focus on each area.

Resource Planning and Management System Division

At macro level, this division aims at analyzing the economic aspects of defense activities including optimal allocation of the defense budget, defense costs, and impacts of defense expenditures on the national economy. Also studied are military economic relationships between ROK and its allies. At micro level, studies are aimed to provide efficient resource management policy options, focusing on the improvement of various management systems such as PPBEE and overall evaluation of defense resource management.

Defense Management Analysis Division This division focuses on analyzing and evaluating operational efficiencies of the command system, organization, and task procedures across various functional units. By running consultative task force teams, the division evaluates logistics support units such as military depots and hospitals as well as staff organizations of each branch of service.

Logistics Policy Studies Division

Research is aimed at developing concepts, doctrines and systems of logistics support, and the management system of logistics support functions, e.g., requirement, procurement, supply, etc. Main fields of studies include evaluation of logistics support requirement and capabilities in both wartime and peacetime, logistics MIS, industrial mobilization, and development of logistics wargames and support.

Defense CALS System Division

This division was established in 1998 to execute the following missions: first, settling the basis for the Defense Continuous Acquisition and Life-Cycle Support System (CALS); second, conducting research on the Integrated Defense Information System; and third, developing, maintaining and evaluating logistics information systems including the Ammunition Information System, Supply Information System, Equipment/Maintenance System, and others.

Major Research Projects in 1998:

1. How to Determine Logistics Support Requirement Most Efficiently
2. How to Support Composition of the System & Subsystem Specification of the Equipment/Maintenance Information System
3. Improvement of Defense Management Accounting System
4. Improvement of Defense Management System and Defense Organization
5. Methods to Strengthen Materiel Mobilization Capability in Wartime

Center for Weapon Systems Studies

The center's main research areas include acquisition, C4I, defense industrial policies, and cost-effectiveness analysis. Based on such research, the center supports the ROK MND's force improvement programs. Currently, four divisions make up the center.

Acquisition System Evaluation and Analysis Division. The division supports the implementation of acquisition policies through its cost analysis and investigation on the required operational capabilities of each type of weapons system in the three services.

Military Information Policy Division. Main research focus in this division includes MTR, C4I, information and communication (I&C) system, information security system, standardization, and system acquisition procedures. Based on such research, the division supports computerization of the ROK Armed Forces' decision-making processes.

Defense Industrial Technology Division

The division establishes basic plans on the defense industry through its research on defense industrial policies, defense science and technology policies, and on technological development and management of the industry. The division's main research areas also include specialization and categorization, expediting domestic production, and international cooperation.

Cost Analysis Division

Procurement management, contract and cost evaluation, and procurement systems are the three research areas of the division. The division also creates acquisition/utilization systems on price- and cost-related information, and based on such systems, it establishes price and cost databases.

Major Research Projects in 1998 covered topics such as the Acquisition and Operation of Strategic Information Collection Systems, Acquisition of Early Airborne Warning and Control Airplanes, Policy Directions to Save Costs in Acquisition Projects, and Technology and Service Evaluation in Offset Trades. They hosted with the United States' Defense Systems Management College the 2nd International Acquisition/Procurement Seminar—Pacific in Seoul, Korea, which is designed to improve the cooperation between Pacific Rim nations.

Modeling & Simulation Center

The center was established in October 1998 with the mission of establishing a comprehensive support system of defense modeling and simulation (DM&S). The center focuses on establishing DM&S systems, developing wargame models for scientific force evaluation and military training, and supporting military operation methods.

KOREAN EXPORTS

Exports by Sector	(US\$M)							
Sector	1990	1991	1992	1993	1994	1995	1996	1997
Total	78.0	91.0	26.5	58.9	59.9	76.9	31.9	69.4
Guns	7.7	5.7	4.7	5.9	4.5	12.2	5.5	5.3
Ammuniiton	12.4	26.7	15.6	25.3	25.6	13.9	21.3	38.3
Mobil Equipment	22.5	38.6	0.1	24.7	15.7	46.4	2.0	1.2
Communication/Electronics	-	-	2.0	-	3.4	2.1	1.3	-
Vessels	12.8	2.9	-	-	-	1.4	1.5	22.8
Parts for Aircraft	0.8	0.2	1.1	0.08	0.2	0.5	0.02	1.4
Equipment/Service	12.1	1.7	1.3	3.0	10.5	0.4	0.3	0.4
Other	9.7	15.2	1.7	-	-	-	-	-

Exports by Region	(US\$M)							
Sector	1990	1991	1992	1993	1994	1995	1996	1997
Total	78.0	91.0	26.5	58.9	59.9	76.9	31.9	69.4
Southeast Asia	26.8	10.6	12.9	40.9	38.4	51.5	9.8	33.3
Middle East	29.0	64.8	0.6	0.5	0.8	1.0	1.8	1.7
Americas	11.9	8.7	3.1	6.7	8.8	2.2	5.1	4.1
Europe	6.7	4.0	8.8	7.1	11.7	21.9	14.8	30.2
Africa	3.6	2.9	1.1	3.7	0.2	0.3	0.4	0.1

Appendix C

DOD GOVERNMENT-OWNED, GOVERNMENT-OPERATED (GOGO)/ GOVERNMENT-OWNED, CONTRACTOR-OPERATED (GOCO) INDUSTRIAL FACILITIES

ARMY GOGO/GOCO

Arsenals/Depots/Ammunition Plants (GOGO)

Anniston Army Depot, Anniston, Alabama	Tobyhanna Army Depot, Tobyhanna, Pennsylvania
Blue Grass Army Depot, Richmond, Kentucky	Tooele Army Depot, Tooele, Utah
Corpus Christi Army Depot, Corpus Christi, Texas	Savanna Depot Activity, Savanna, Illinois (BRAC 95 Closure)
Crane Army Ammunition Activity, Crane, Indiana	Seneca Depot Activity, Romulus, New York (BRAC 95 Closure)
Letterkenny Army Depot, Chambersburg, Pennsylvania	Watervliet Arsenal, Watervliet, New York
McAlester Army Ammunition Plant. McAlester, Oklahoma	Picatinny Arsenal, Dover, New Jersey
Pine Bluff Arsenal, Pine Bluff, Arkansas	Ft Wingate Depot Activity, Gallup, New Mexico (BRAC 89 Closure)
Red River Army Depot, Texarkana, Texas	Pueblo Depot Activity, Pueblo, Colorado
Redstone Arsenal, Redstone Arsenal, Alabama	Umatilla Depot Activity, Umatilla, Oregon
Sierra Army Depot, Herlong, California	Rock Island Arsenal, Rock Island, Illinois

Army GOCO Active Facilities

Hawthorne Depot, Hawthorne, Nevada	Lone Star Army Ammunition Plant, Texarkana, Texas
Holston Army Ammunition Plant, Kingsport, Tennessee	Milan Army Ammunition Plant, Milan, Tennessee
Iowa Army Ammunition Plant, Middletown, Iowa	Radford Army Ammunition Plant, Radford, Virginia
Lake City Army Ammunition Plant, Independence, Missouri	Lima Army Tank Plant, Lima, Ohio

Army GOCO Inactive Facilities

Indiana Army Ammunition Plant, Charlestown, Indiana (excess)	Cornhusker Army Ammunition Plant, Grand Island, Nebraska (excess)
Volunteer Army Ammunition Plant, Chattanooga, Tennessee (excess)	Mississippi Army Ammunition Plant, Stennis Space Center, Mississippi
Scranton Army Ammunition Plant, Scranton, Pennsylvania	Sunflower Army Ammunition Plant, DeSoto, Kansas (excess)
Kansas Army Ammunition Plant, Parsons, Kansas (excess)	Riverbank Army Ammunition Plant, Riverbank, California
Longhorn Army Ammunition Plant, Marshall, Texas (excess)	Badger Army Ammunition Plant, Baraboo, Wisconsin (excess)
Joliet Army Ammunition Plant, Joliet, Illinois (excess)	Ravenna Army Ammunition Plant, Ravenna, Ohio (excess)

AIR FORCE DEPOTS/GOCO

Depots

San Antonio Air Logistics Center, Texas
(Scheduled to close in 2001)

Sacramento Air Logistics Center, California
(Scheduled to close in 2001)

Warner-Robbins Air Logistics Center, Georgia

Oklahoma City Air Logistics Center,
Oklahoma

Ogden Air Logistics Center, Utah

Air Force GOCO

Plant 4, Lockheed Martin, Ft. Worth, Texas

Plant 6, Lockheed Martin, Marietta, Georgia

Plant 44, Raytheon, Tucson, Arizona

Plant PJKS, Lockheed Martin, Denver
Colorado

Plant 42, Site 1 Boeing, Palmdale, California

Plant 3, City of Tulsa, Oklahoma, (in process
of transfer)

Plant 59, Johnson City, New York (in process
of transfer)

NAVY DEPOTS/SHIPYARDS/WEAPONS CENTERS

Naval Shipyards – GOGO

Puget Sound Naval Shipyard, Bremerton,
Washington
Pearl Harbor Naval Shipyard, Pearl Harbor,
Hawaii

Portsmouth Naval Shipyard, Portsmouth,
New Hampshire
Norfolk Naval Shipyard, Norfolk, Virginia

Naval Ordnance Weapons Centers – GOGO

Naval Ordnance Weapons Center, Seal Beach,
California
Naval Ordnance Weapons Center, Yorktown,
Virginia
Naval Ordnance Weapons Center, Earle, New
Jersey

Naval Ordnance Weapons Center, Indian
Head, Maryland
Naval Ordnance Weapons Center, Concord,
California

Navy Inventory Control Points – GOGO

Mechanicsburg, Pennsylvania

Philadelphia, Pennsylvania

Naval Aviation Depots – GOGO

Cherry Point, North Carolina
Jacksonville, Florida

North Island, California

Naval Aviation Weapons Centers – GOGO

China Lake, California
Orlando, Florida

Lake Hurst, New Jersey
Patuxant River, Maryland

Supervisors of Shipbuilding – GOGO

Pearl Harbor, Hawaii
Bath, Maine
Pascagula, Michigan
Jacksonville, Florida

New Orleans, Louisiana
Newport News, Virginia
Puget Sound, Washington
San Diego, California

Appendix D

GLOSSARY

Acquisition – The conceptualization, initiation, design, development, test, contracting, production, deployment, logistic support (LS), modification, and disposal of weapons and other systems, supplies, or services (including construction) to satisfy DoD needs, intended for use in or in support of military missions.

Acquisition Executive – The individual, within the Department and Services, charged with overall acquisition management responsibilities within his or her respective organization.

Acquisition Life Cycle – The life of an acquisition program consists of phases; each proceeded by a milestone or other decision point, during which a system goes through research, development, test and evaluation, and production. Currently, the four phases are: (1) Concept Exploration (CE) (Phase 0); Program Definition and Risk Reduction (PDRR) (Phase I); (3) Engineering and Manufacturing Development (EMD) (Phase II); and (4) Production, Fielding/Deployment, and Operational Support (PF/DOS) (Phase III).

Acquisition Management – Management of all or any of the activities within the broad spectrum of “acquisition,” as defined above. Also includes training of defense acquisition workforce, and activities in support of planning, programming, and budget system (PPBS) for defense acquisition systems/programs. For acquisition programs this term is synonymous with program management.

Appropriation – An authorization by an act of Congress that permits federal agencies to incur obligations and make payment from the treasury. An appropriation act is the most common means of providing budget authority.

Authorization – An act of Congress which permits a federal program or activity to begin or continue from year to year. It sets limits on funds that can be appropriated, but does not grant funding which must be provided by a separate congressional appropriation.

Buy-American Act – Provides that the U.S. government generally gives preference to domestic end products. (Title 10 U.S.C. & 41 A-D). This preference is accorded during the price evaluation process by applying punitive evaluation factors to most foreign products. Subsequently modified (relaxed) by Culver-Nunn Amendment (1977) and other 1979 trade agreements for dealing with North Atlantic Treaty Organization (NATO) allies.

Combat Developer – Command or agency that formulates doctrine, concepts, organization, materiel requirements, and objectives. May be used generically to represent the user community role in the materiel acquisition process. (Army and Marine Corps)

Contract, Cost Reimbursement Type – A type of contract that provides for payment to the contractor of allowable costs incurred in the performance of the contract. This type of contract establishes an estimate of total cost for the purpose of obligating funds and establishing a ceiling that the contract may not exceed, except with prior approval of the contracting officer.

Contract, Fixed-Price Type – A type of contract, which provides for a firm price to the government, or in appropriate cases, an adjustable price.

Depot – A centrally located installation for the storage, repair, or distribution of military equipment and materials.

DoD Component Acquisition Executive (CAE) – A single official within a DoD Component who is responsible for all acquisition functions within that Component. This includes Service Acquisition Executives (SAEs) for the military departments and acquisition executives in other DoD Components, such as the U.S. Special Operations Command (USSOCOM) and Defense Logistics Agency (DLA), who have acquisition management responsibilities.

Foreign Comparative Testing (FCT) – A DoD test and evaluation program that is prescribed in Title 10 U.S.C. &2350a(g), and is centrally managed by the Director, Test, Systems Engineering and Evaluation (DTSE&E). It provides funding for U.S. T&E of selected equipment items and technologies developed by allied countries when such items and technologies are identified as having good potential to satisfy valid DoD requirements.

Foreign Military Sales (FMS) – That portion of U.S. security assistance authorized by the Foreign Assistance Act of 1961, and the Arms Export Control Act. The recipient provides reimbursement for defense articles and services transferred from the U.S. that includes cash sales from stocks (inventories, services, and training) by the DoD.

Government-Owned, Contractor-Operated (GOCO) – A manufacturing plant that is owned by the government and operated by a contractual civilian organization.

Government-Owned, Government-Operated (GOGO) – A manufacturing plant that is both owned and operated by the government.

Industrial Base – That part of the total private and government owned industrial production and depot level equipment and maintenance capacity in the United States and its territories and possessions, and Canada. It is or shall be made available in an emergency for the manufacture of items required by the U.S. military services and selected allies.

Industry – The defense industry (private sector contractors) includes large and small organizations providing goods and services to DoD. Their perspective is to represent interests of the owners or stockholders.

International Agreement – An agreement concluded with one or more foreign governments or an international organization that is signed or agreed to by any DoD component personnel. Signifies the intent of the parties to be bound by international law. Denominated as an international agreement or an memorandum of understanding (MOU), memorandum of agreement (MOA), exchange of notes or letters, technical arrangement, protocol, note, verbal aide, memoir, arrangement, or any other name connoting a similar legal consequences.

Low-Rate Initial Production (LRIP) – The minimum number of systems (other than ships and satellites) needed to provide production representative articles for operational test and evaluation (OT&E), to establish an initial production base, and to permit an orderly increase in the production rate sufficient. The goal is to lead to full-rate production upon successful completion of operational testing. For major defense acquisition programs (MDAPs), LRIP quantities in excess of 10 percent of the acquisition objective must be reported in the selected acquisition report (SAR). For ships and satellites LRIP is the minimum quantity and rate that preserves mobilization.

Milestone Decision Authority (MDA) – The individual designated in accordance with criteria established by USD (AT&L) or by ASD (C3I) to approve entry of an acquisition program into the next phase.

Military Assistance Program – The U.S. program for providing military assistance under the Foreign Assistance Act of 1961, as amended by the Foreign Military Sales (FMS) act of 1968.

Program Executive Office (PEO) – A military or civilian official who has primary responsibility for directing several acquisition categories (ACAT) I programs and for assigned ACAT II and III programs. A PEO has no other command or staff responsibilities within the Component, and only reports to and receives guidance and direction from the DoD Component Acquisition Executive (CAE).

Program Manager (PM) – A military or civilian official who is responsible for managing, through integrated product teams (IPTs), an acquisition program.

Program Objectives Memorandum (POM) – An annual memorandum, in prescribed format submitted to the Secretary of Defense (SECDEF) by the DoD component heads, which recommends the total resource requirements and programs within the parameters of SECDEF's fiscal guidance. A major document in the planning, programming, and budgeting system (PPBS) is the basis for the budget. The POM is the principal programming document which details how a component proposes to respond to assignments in the defense planning guidance (DPG) and satisfy its assigned functions of the future years defense program (FYDP). The POM shows programmed needs for five or six years hence (i.e., in fiscal year (FY) 94, POM 1996-2001 was submitted; in FY 95, POM 1997-01 was submitted), and includes manpower, force levels, procurement, facilities, and research and development (R&D).

Senior Procurement Executive (SPE) – The senior official responsible for management and direction of the Service procurement system, including implementation of unique procurement policies, regulations, and standards (see Title 41 U.S.C. & 414, “Executive Agency Responsibilities”).

System Program Office (SPO) – The office of the Program Manager (PM) and the single point of contact (POC) with industry, government agencies, and other activities participating in the system acquisition process.

Test and Evaluation (T&E) – Process by which a system or components provide information regarding risk and risk mitigation and empirical data to validate models and simulations. T&E permits, as assessment of the attainment of technical performance, specifications and system maturity to determine whether systems are operationally effective, suitable and survivable for intended use. There are two types of T&E – Development (DT&E) and Operational (OT&E).

*Appendix E***BIBLIOGRAPHY****GENERAL**

Campos, Jose Edgardo and Hilton L. Root, *The Key to the Asian Miracle: Making Shared Growth Credible*, the Brooking Institution, 1996.

KOREA

Choi, Jong Chul, "South Korea," in *Arms Procurement Decision Making, Volume I: China, India, Israel, Japan, South Korea and Thailand*, Editor Ravinder Pal Singh, SIPRI, Oxford University Press, 1998.

De Mente, Boye Lafayette, *NTC's Dictionary of Korea's Business and Cultural Code Words: The Complete Guide to Key Words That Express How Koreans Think, Communicate and Behave*, published by NTC Publishing Group, 1998.

Nahm, Andrew C., *A History of the Korean People: Korea Tradition and Transformation*, Hollym International Corp., Elizabeth, New Jersey/Seoul, 1996.

Nolan, Janne E., *Military Industry in Taiwan and South Korea*, St. Martin's Press, New York, 1986.

Kim, Bun Woon, and Pan Suk Kim, *Korean Public Administration*, Hollym International Corp., Elizabeth, New Jersey/Seoul, 1997.

Lee, Yong Hak, Major ROK Army, "Defense Industry and its Impacts on Economic Growth in Korea," Masters Thesis, Navy Post Graduate School, 1992.

Oh, John Kie-Chiang, *Korean Politics*, Cornell University Press, Ithica and London, 1999.

Sengupta, Prasun K., "Market Condition Threaten Korean KTX-2 Trainer," *Asian Defense Journal*, September 1999, pp. 64-65.

Shin, Roy W. and Alfred Ho, "The Role of Science and Technology in Creating Korea's Electronics Industry," in *Asian Affairs*, 1996, pp. 235-251.

Janes Sentinel: China and Northeast Asia, Korea, United Kingdom, 1998.

Defense Acquisition Management Regulation, Ministry of National Defense (MND) Directive 610, January 2, 1999.

Web Sites:

MND: <http://www.mnd.go.kr/mnden/emainindex.html>

KIDA: <http://www.kida.re.kr/english/ehome.htm>

ADD: <http://addwww.kreonet.re.kr/eng/default.asp>

DPA: <http://www.dpa.go.kr/english/engmain.html>

Korean Times: <http://www.koreatimes.co.kr/times.htm>

Korean Herald: <http://www.koreaherald.co.kr/>

JAPAN

Defense of Japan—1999, Japanese Defense Agency, translated by Urban Connections, June 1999.

Iregami-Anderson, Masako, "Japan," in *Arms Procurement Decision Making, Volume I: China, India, Israel, Japan, South Korea and Thailand*, Editor Ravinder Pal Singh, SIPRI, Oxford University Press, 1998.

Kim, Paul S., *Japan's Civil Service System: Its Structure, Personnel and Politics*, Greenwood Press, New York, 1988.

Samuel, Richard J., *Rich Nation, Strong Army, National Security and the Technological Transformation of Japan*, Cornell University Press, Ithaca and London, 1994.

Janes' Sentinel: China and Northeast Asia, Japan, United Kingdom, 1998.

Web Sites:

JDA: http://www.jda.go.jp/e/index_.htm

TRDI: <http://www.jda-trdi.go.jp/index.html>

Daily Yomiuri: <http://www.yomiuri.co.jp/index-e.htm>

Japan Times: <http://www.japantimes.co.jp/>

House of Representatives Guide: http://www.shugiin.go.jp/top_e/guide.htm

House of Counsellors: <http://fuji.stanford.edu/diet/diet2.html>

Keidanren Homepage: <http://www.keidanren.or.jp/>

SINGAPORE

- Lepoer, Barbara Leitch, Editor, "Singapore, a country study," Federal Research Division, Library of Congress, 1989.
- Manohara, Chinniah, "Defence Procurement and Industry Policy—A Singapore Perspective," in *Defence and Peace Economics*, Vol. 9, 1997, pp. 119-136.
- Manohara, Chinniah, "Best Practice Defence Procurement, Country Report, Singapore," for the Australian Defence Studies Centre, at the 1st International Acquisition and Procurement Conference, Canberra, Australia, September 1998.
- McAdams, Robert C., Colonel USAF, "Strategic Partnership": The Case for Singapore," in the *Defense Institute of Security Assistance Management (DISAM) Journal*, Spring 1999, pp. 1-8.
- Tan, Andrew T. H., "Singapore's Defence: Capabilities, Trends and Implications," in *Contemporary Southeast Asia*, Vol. 21, No. 3 December 1999, pp. 451-474.
- Tan, Peng-Yam, Deputy Director, Directorate of Research and Development MINDEF, "Harnessing Defense Technology—Singapore's Perspective," in *DISAM Journal*, Spring 1999, pp. 9-13.
- Seah, Chee Meow, "The Civil Service," in *Government and Politics of Singapore*, edited by Quah, Chan and Seah, Institute of Southeast Asian Studies, 1987.
- Cunha, Derek Da, "Sociological Aspects of the Singapore Armed Force," in *Armed Forces and Society*, Vol. 25, No. 3, Spring 1999, pp. 459-475.
- Taylor, John Calvin, "Lee Kuan Yew: His Rise to Power 1950-1968," Masters Thesis, San Diego State University, 1976.
- "Defence of Singapore-1994-95," Ministry of Defence, MINDEF (Public Affairs), 1994.
- "Defending Singapore in the 21st Century," Ministry of Defence, January 2000.

Web Sites:

- DSTA:** <http://www.dsta.gov.sg/>
- Ministry of Defence:** <http://www.mindef.gov.sg/>
- Singapore Government:** <http://www.gov.sg/istana/>
- DSO National Labs:** <http://www.dso.org.sg/index-flash.htm>
- Singapore Straits Times:** <http://straitstimes.asia1.com/singapore/sin/>
- House of Parliament:** <http://www.gov.sg/parliament/main.htm>
- Singapore Technologies:** <http://us.st.com/stonline/company/identity/index.htm>
- Law of Singapore:** <http://www.lib.nus.edu.sg/llb/internet/spore.html>

UNITED STATES

- Benson, Lawrence R., *Acquisition Management in the United States Air Force and Its Predecessors*, Air Force History Office, 1997.
- Ferrara, Joe, DoD's 5000 Documents: "Evolution and Change in Defense Acquisition Policy," *Acquisition Review Quarterly*, Fall 1996, Vol. 3 No. 2, pp. 109-130.
- Fox, J. Ronald with James L. Field, "The Defense Management Challenge," *Weapons Acquisition*, Harvard Business School Press, 1988.
- Gansler, Jacques S., *Defense Conversion: Transforming the Arsenal of Democracy*, Cambridge, MA: MIT Press, 1995.
- Gansler, Jacques S., *Affording Defense*, MIT Press, Cambridge, MA 1989.
- Heberling, Michael E., "Defense Industrial Base Policy: Revisited," in *Acquisition Review Quarterly*, Summer 1994, Vol 1. No. 3, pp. 238-249.
- Horton, Peter, "Converting the Military-Industrial Complex: Why it's Difficult," in *Acquisition Review Quarterly*, Spring 1994, Vol 1, No. 2, pp. 100-113.
- Jones, Jr., Wilbur D., *From Packard to Perry, A Quarter Century of Service to the Defense Acquisition Community*, Defense Systems Management College Press, GPO, Ft. Belvoir, VA, June 1996.
- Jones, Jr., Wilbur D., *Congressional Involvement and Relations*, Fourth Edition, Defense Systems Management College Press, Ft. Belvoir, VA, April 1996.
- Kausal, Tony, "What a Difference a Century Makes...Or Does It?" in *Contract Management Magazine*, October 1989, pp. 24-25.
- Nagle, James F., *A History of Government Contracting*, The George Washington University, Washington, DC, 1992.
- Trask, Roger R. and Alfred Goldberg, *The Department of Defense 1947-1997, Organization and Leaders*, Historical Office, Office of the Secretary of Defense, Washington, DC, 1997.
- Williams, Richard M., "Small Business Manufacturing: An Important Component of the U.S. Defense Industrial Base," in *Acquisition Review Quarterly*, Summer 1994, Vol. 1, No. 3, pp. 250-268.

Web Sites:

- OSD Acquisition:** <http://www.acq.osd.mil/acqweb/index.html>
- Army Acquisition:** http://www.sarda.army.mil/default_nscape.htm
- Navy Acquisition:** <http://www.hq.navy.mil/RDA/>
- Air Force Acquisition:** <http://www.safaq.hq.af.mil/>