

**Report of
Defense Science Board
On**

**DEFENSE INDUSTRIAL COOPERATION
WITH
PACIFIC RIM NATIONS**



OCTOBER 1989

**Office of the Under Secretary of Defense
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Washington, D.C. 20301-3140**

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BOARD

12 SEP 1989

MEMORANDUM FOR SECRETARY OF DEFENSE
UNDER SECRETARY OF DEFENSE

SUBJECT: Final Report of the Defense Science Board on Defense
Industrial Cooperation with Pacific Rim Nations -
ACTION MEMORANDUM

I am pleased to forward to you the final report on Defense Industrial Cooperation with Pacific Rim Nations. This report is the third in a series on International Armaments Cooperation following studies on NATO and Japan completed in 1983 and 1984 respectively. The issue of defense industrial cooperation with Pacific Rim nations is particularly relevant considering the expanding economies and rapidly improving technology bases of the countries in this region coupled with the declining U.S. Defense budget.

In the attached report, the DSB stresses the necessity for acknowledging economic and technological issues as well as military in order to develop a long-range plan for defense industrial cooperation. A policy of "rigorous pragmatism based on mutual benefits" is suggested regarding this cooperation with the diverse yet economically and industrially sophisticated countries of the Pacific Rim. The DSB strongly endorses the need expressed in this report to develop a coherent strategy evolving from interagency cooperation that embraces both these economic and security objectives. The U.S. position of strength, economic (primarily technology-based) and military, must be promoted and protected.

I suggest that you read the attached letter from the Chairman, the Executive Summary, the 12 recommendations and approve the report for publication.

A handwritten signature in cursive script, reading "Robert R. Everett", is positioned above the typed name.

Robert R. Everett
Chairman



OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-3140

DEFENSE SCIENCE
BOARD

15 August 1989

Mr. Robert Everett
Chairman
Defense Science Board
The Pentagon
Washington, DC 20301-3140

Dear Mr. Everett

I am pleased to submit this final report of the DSB Task Force on Defense Industrial Cooperation with Pacific Rim Nations.

This study constitutes, in effect, a follow-on to earlier DSB studies on NATO (1983) and Japan (1984), and represents an update to the latter effort.

The world has changed significantly since the earlier studies. Economic concerns are beginning to dominate our thinking as military tensions subside. We are engaged in intense economic competition largely centered on technology, and are concerned about our ability to compete. Dual-use technologies have come to the fore; they are fundamental both to defense and commercial capabilities of the future. The formation of new economic blocs is occurring, with the Pacific Rim the most powerful by the end of the century. A global overcapacity in defense equipment has been created, with much technical levelling worldwide.

In this climate, the defense industrial cooperative policies and technology transfer policies of the past are no longer appropriate.

Furthermore, the fragmented U.S. policies of the past, in which military security and economic issues were separated, are no longer acceptable.

We must acknowledge this new reality and adapt accordingly, ---- in terms of an integrated policy framework linking defense and economic issues; in terms of a long-range national technology vision which will revitalize our leadership and industrial competitiveness; and in terms of a rigorous and firm approach to defense industrial cooperation which achieves a clear two-way flow of benefits.

This report addresses these and related issues and recommends policy and managerial actions which can build a more productive industrial and technological cooperation with our security partners and economic competitors in the crucially important Pacific Rim.

An Executive Summary provides a stand-alone picture of the report's major thrusts.

Finally, I want to express deep appreciation to Dr. Davis Bobrow, Vice Chairman, and to my exceptionally thoughtful and able colleagues on the Task Force for their contributions. We jointly thank the many leaders of the Pacific Rim nations for their consultations and to the many members of the Administration and Congress for their support. Additionally, we wish to express our appreciation to the Commander-in-Chief-Pacific (along with his staff), and to the Pacific Forum in Hawaii for providing Dr. Bobrow and myself broader insights into the strategic and political arenas that exist in the Pacific Rim. Special thanks to my colleague, Mr. James Gebhard for his close collaboration and efforts in preparing the report.

I hope this effort will help in building closer and more realistic relationships with our friends in the Pacific.

A handwritten signature in black ink, appearing to read 'M. Currie', with a stylized, flowing script.

Malcolm R. Currie
Task Group Chairman

TABLE OF CONTENTS

Executive Summary	i
Recommendations/Actions	vi
Report Outline	3
Purpose of Study	5
Task Group Membership/Activities	6-8
Key Summary Judgments	12
Task Force Approach	14
Background Considerations	29
Major Findings	40
Recommendations	60
Final Comments	76
Appendices:	77
I. Terms of Reference	A-1
II. Action Items From 1984 DSB Report on Japan	A-2
III. Related Legislation	A-3
IV. Current DoD Policy	A-4
V. Current DoD Security Assistance Organization	A-5
VI. Glossary of Terms	A-6
VII. Organizing the Defense Department For International Defense Industry Collaboration	A-7
Annexes:*	
I. Decision Logic Matrix to Assess Economic Benefits of Defense Industrial Cooperation	
II. PACRIM Country Assessment (Classified)	
III. GAO Report on International Co-Production, March 1989	
* On file with PACRIM Defense Science Board Task Force Sponsor, Deputy Undersecretary of Defense for Acquisition - Industrial and International Programs Office, Pentagon, Washington D.C.	

DEFENSE SCIENCE BOARD REPORT ON DEFENSE INDUSTRIAL COOPERATION WITH PACIFIC RIM NATIONS

EXECUTIVE SUMMARY

This report examines U.S. policies on Defense Industrial Cooperation and recommends a set of policies, changes and actions appropriate to the increasingly important Pacific Rim nations and to our desired national posture with respect to these nations as projected to the year 2000.

As a central issue, the *Defense Science Board Task Force concluded that national policies for defense industrial cooperation cannot be addressed in isolation from a much broader set of considerations involving economic and political issues*. Military security should be addressed in concert with economic security. Our approach, therefore, deals with economic issues and questions of industrial and technological competitiveness as much as it does with narrower defense objectives. These must be considered together as an integrated whole. This has not been done in the past.

This study expands on similar studies on NATO (1983) and Japan (1984). Two salient conclusions from the Japan study were:

1. Our defense, economic and political policies with respect to Japan are fragmented . . . a cohesive overall strategy does not exist and is urgently needed
2. The unilateral transfer of advanced technology to Japan that has occurred in the past (for good reason at the time) is no longer appropriate, and bilateral technology flow must be achieved.

These conclusions (and others, as summarized in Appendix II of this report) are even more applicable today than in 1984 and, in fact, apply in varying degrees to all of the Pacific Rim.

The recent FSX experience underlines the importance of these conclusions and the recommendations in this follow-up study. The FSX experience is summarized in this report together with lessons learned.

The critical importance of the Pacific Rim to our future has been widely noted. The Defense Science Board acknowledges our pivotal relationship with Japan as perhaps our most important bilateral relationship. Similarly, we recognize the great importance of all the Pacific Rim nations both to their continued mutual security and to our mutual economic vitality and strength.

However, the Defense Science Board also notes that, historically, the U.S. has supported the growth of a strong Japanese defense industry for many years by a policy of unilateral transfer of technology through licensed co-production of advanced systems. Similarly, with Korea, we have, in effect, encouraged the build-up of an increasingly self-sufficient defense industry. Our policies have been "successful" but also have created potential problems. They have resulted in capable industries, overcapacity, and with them, high ambitions and expectations for the future. For Korea, this means explicit pressure for third country sales. For Japan, we reiterate the real potential for export of defense-related equipment as incremental relaxations of current government policy may occur with time.

The Pacific Rim is a vast region characterized by dynamism and growth; by widely varying cultures and stages of industrial development; by aggressive ambitions for further industrial development and for self-sufficiency in defense industries. The latter is often viewed as important to technological development. As noted, however, an overcapacity in this arena leads inexorably to pressures for third country sales. An annual GNP growth rate of 5 to 7 percent for the Asian/Pacific region as a whole is forecast to persist through the end of the century. Already our trade with this region is much larger than with all of Europe. The region is becoming a Japanese economic sphere of influence through their industrial power and large economic aid and investment. Japan is now the world's third largest spender on defense; its defense spending has increased 6.5% per year since 1980. *By the year 2000, the Pacific Rim (led by Japan, but with others following on its heels) will be an even more dominant center of world economic power and will become a world-class technological leader in aerospace (including much defense technology), electronics, telecommunications, basic components and advanced materials.*

We also note both the vital role of technology and its changing nature. *Simply stated, technology (including the processes and management of manufacturing) has become a new measure for the power of nations and most advanced technologies are dual-use in nature* (i.e., they are applicable to both defense and commercial products). They are increasingly driven by commercial potential and clearly will predominate and drive both economic power and military capability in the 1990s and beyond. Increasing cooperation in technology areas with Pacific Rim nations is taking place outside of defense; this reduces the U.S. government "leverage" with defense industrial cooperation but allows it to be more selective.

We must also recognize that our interests in the Pacific Rim are often in conflict. In terms of military security, we have a large and continuing stabilizing role in the region, although the Task Force believes that the size (and cost) of our forward deployed forces can decrease with time, provided tensions diminish and regional defense self sufficiency continues. Defense industrial cooperation can help this process by maintaining favorable relationship with our allies and by ensuring that they have adequate defense capabilities. At the same time, however, we are intense economic (and therefore technological) competitors with many of our Pacific Rim allies and friends. *How are our best overall interests served in the often delicate trade-offs that must occur? Where is the overall long-term U.S. strategic framework* that should guide these judgments? In this context, *how can defense industrial cooperation be made productive* in an overall national sense?

These questions come at a time when concerns of long-term economic survival are supplanting concerns for military security in our national thinking.

The Task Force approach was to project various possible future scenarios for the Pacific Rim (e.g., "continuation of the status quo", "economics takes command", etc.) and then to define from them a "desirable U.S. Pacific Rim scenario for the year 2000". The latter includes movement towards more economically dominated relationships, regional stability assured by a smaller but adequate U.S. military presence, and *"strengthened two-way partnership" as the foundation for future U.S.-Pacific Rim relationships.*

The Task Force is not making a specific prediction about Soviet military capabilities in the Pacific Rim area. We note the rapid build-up of Soviet air and naval forces in the 1970's and early 1980's, and have reviewed competing claims about current directions in the Soviet force structure. The "status quo" scenario assumes the USSR maintains its facilities in Viet Nam, its extensive submarine force, and growing sophisticated ground, tactical air, and naval air forces in the region. The "economics takes command" scenario assumes a significant reduction in Soviet military presence in the region with primary focus on economic issues.

In addition to these issues, the panel evaluated the possibility of less desirable, long run political outcomes for the region. We looked closely at a third scenario, "regional power rivalry", that assumed a reduced Soviet and U.S. military presence, but greater military tension among the nations in the region. We think this is a lesser possibility and, therefore, have concentrated on the two scenarios we consider most likely.

Taking into account the tremendous diversity of the region and the many conflicting U.S. objectives, the *Task Force looked for overarching considerations and insights which can then guide policy and recommend required actions* for defense industrial cooperation so that such cooperation can be a constructive element in achieving our desired year 2000 objectives.

In summary, we found:

1. *National security can no longer be viewed only in military terms, but must include economic well-being as a key component. Therefore, we must explicitly link cooperative defense technology-sharing issues with economic issues, including trade balance and market access.* This is a distinct departure from the past. It recognizes the new trends and realities as appreciated by all other nations. This linkage should be formulated in the context of a more closely integrated long-range defense/economic/technological strategic framework with Japan, Korea, Australia, ASEAN and other Pacific Rim countries. We currently lack a *policy framework* necessary to evaluate properly defense-cooperative efforts; our policies are fragmented. Congress also has noted that we lack a high-level institutional structure to make and implement coherent policy on technical and trade issues that effect both defense and economic competitiveness. Such a policy must necessarily evolve from an inter-agency process in the Administration embracing both economic and security objectives. It must replace the disarray and fragmentation in policies that is now the case.
2. *Our comparative industrial, manufacturing, and technological strength has eroded seriously during the last decade. This erosion must be reversed so that we can then enter cooperative ventures involving technology transfer from a position of strength. To accomplish this, we must establish an explicit long-range national technology vision* from which can flow the initiatives (e.g., in education, incentives for R&D investments, industrial and manufacturing improvements) fundamental to realizing this essential goal. *A succinct top-level statement should be prepared for the President within six months as the basis for a declarative national policy.*
3. *A simple extrapolation of past "NATO style" defense industrial cooperation is not appropriate for the Pacific Rim. It should be replaced by a revised policy of rigorous pragmatism based on mutual benefits.* We must insist on rigorous rationale in terms of explicitly thought-out long-term military *and* economic justification (including the U.S. industrial and technology base); we must clearly articulate the mutual benefits beyond short-term financial considerations. This approach will, of course, vary from nation to nation as appropriate, but **in all cases a thoughtful, tough-minded approach is essential.** With Japan, and others as time goes on, this will require a clearly understood and articulated, mutually beneficial, two-way sharing of technology and other benefits. Defense industrial cooperation is recognized as a valuable element in achieving

relationships important to our long-range security objectives. Appropriately conducted, it still can form a strong link with our allies and maintain U.S. influence in defense matters, particularly as our physical presence may diminish with time.

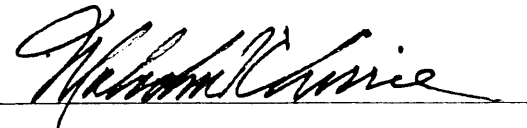
The Task Force makes a number of other recommendations related to defense industrial cooperation. These address:

- *Direct offsets*, which have proven troublesome and exacerbate a worldwide industrial overcapacity in defense equipment.
- *The DoD organization*, which has become cumbersome and outmoded and must adapt to the shift from "assistance" to "cooperative" relationships with our allies. Along with organizational streamlining, a concomitant streamlining of the decision and approval process, both within DoD and as an inter-agency process with the Department of State, the U.S. Trade Representative, and the Department of Commerce, is urgent and achievable.
- *Staffing for defense industrial cooperation*, which currently inadequately reflects the importance of the Pacific Rim.
- The special value of *cooperation in basic R&D* as contrasted with large visible end products such as aircraft.
- The potential for *expanded cooperation in logistics and maintenance* of U.S. forces.
- *Emphasis on industry-to-industry cooperation* as the most effective way to achieve productive armaments cooperation, with government as a facilitator, and a loosening of restrictions on technology transfer as long as the policy guidelines are demonstrably met.
- *Congress as an important participant.*
- *Suggested areas for defense industrial cooperation.*

All these recommendations are *designed to facilitate a new defense industrial cooperation environment* which will be mutually productive and aligned with our long-term military and economic security interests *in the Pacific Rim*.

Finally, the Defense Science Board wishes to restate that our economic, as well as our military security, depends vitally on technological leadership. *Technology is the new coinage of the realm* and ours has been seriously depleted. Further, we cannot maintain a lead by conservation and protectionism --- WE MUST RUN FASTER!

27 July 1989



Malcolm R. Currie

Chairman

ACTIONS REQUIRED FOR IMPLEMENTATION

This list summarizes the Department of Defense (DoD) actions required to implement the recommendations of the Task Force.

In order to improve its working relationships with Pacific Rim countries, the U.S. must give closer attention to the nature of the growing economic and technological importance of these countries and the effect of this growth on security concerns. Putting these recommendations into effect would enhance the ability of DoD to formulate and implement defense industrial cooperation programs which benefit the security and economic interests of the U.S. and its Pacific allies.

1. **RECOMMENDATION:** Treat defense industrial cooperation programs within an integrated economic, political, and military framework. Defense industrial cooperation should be linked directly to a cohesive, positive, long range strategy which encompasses defense, trade, and economic issues.

ACTION

- SECDEF, working through the Executive Office of the President, should work to establish a small, high-level interagency group at the Deputy or Under Secretary level, to:

(a) Create policy guidelines for achieving explicit defense/economic linkages and trade-offs in evaluating defense industrial cooperative programs.

(b). Use this as a first step to evolving an integrated long-range strategy or policy framework involving military, economic and trade considerations.

2. **RECOMMENDATION:** Establish national long-term technology vision.

ACTION

- SECDEF initiate efforts within the Administration to create a long-term technology vision for the United States. Countries with which the U.S. both competes and cooperates have such long-range strategies, and lack of such a vision handicaps U.S. industry and government. A brief top-level statement should be produced within six months. This statement of national purpose can be used by the President in catalyzing those actions (e.g., education, incentives for R&D) necessary for the U.S. to rebuild and maintain its technological leadership and industrial competitiveness, both in defense and in

commercial spheres. Here, technology is used in its broad sense and includes manufacturing processes and management.

3. **RECOMMENDATION:** Base policies for defense industrial cooperation on "rigorous pragmatism based on mutual benefits" -- i.e. justify programs in terms of clearly articulated long-term military and economic implications and benefits.

ACTION

- SECDEF task Under Secretary for Defense for Acquisition (USD(A)) to develop general guidelines and procedures for implementation of this policy. Policy developed should consider the mutual benefits of such programs. Mutually rewarding technological exchanges and production workshares must be achieved between partners.

4. **RECOMMENDATION:** Increase the amount of cooperation between the U.S. and Pacific Rim countries at the basic science and technology level. Basic science research programs may prove more important in the long term than large scale projects in building mutually beneficial industrial and economic relations.

ACTION

- SECDEF task USD(A) to support and coordinate with National Science Foundation programs; support, encourage and expand DoD and service-specific programs in basic research; develop policy initiatives for cooperation on basic science and technology.

5. **RECOMMENDATION:** Re-orient and streamline DoD organizational focus away from an overseas advisory and sales role to a role that emphasizes industrial/technological/security cooperation. Cooperative international ventures have emerged as a preferred means of doing business and DoD should reflect that organizationally.

ACTION

- SECDEF, Deputy Secretary of Defense (DEPSECDEF) place all Office of Secretary of Defense (OSD) international trade activities Defense Security Assistance Agency (DSAA), Defense Technology Security Agency (DTSA), Deputy Under Secretary of Defense for International and Industrial Programs (DUSD(I&IP)), under a single manager responsible

to the acquisition executive. Security assistance policy should remain under Under Secretary Defense for Policy (USD(P)) control. The name of DSAA should be changed to Defense Cooperative Programs Agency, in order to more accurately reflect its activity and transmit an important shift in the traditional outlook to our friends and allies. The approval process for cooperative programs should be streamlined in order to provide incentive for industry to undertake cooperative programs.

6. **RECOMMENDATION:** Staff DoD to reflect the importance of the Pacific Rim to the United States. Defense industrial cooperation staffing should be at the same general level as that in NATO. Personnel selection criteria should emphasize technology and industrial experience, as opposed to strictly arms sales backgrounds.

ACTION

- SECDEF task USD(A) to develop staffing plans that correct existing personnel assignment deficiencies in Pacific Rim nations with respect to defense industrial cooperation.

7. **RECOMMENDATION:** Streamline munitions license approval process for offset decisions. Grant approval unless specifically denied on grounds of technological consequence or 1989 defense authorization act grounds.

ACTION

- SECDEF task USD(A) to develop a streamlined approval process for offsets and secure agreement with Departments of State and Commerce on clear criteria and a timely process.

8. **RECOMMENDATION:** Increase programs for cooperative logistics and maintenance for U.S. forces along the Pacific Rim. Such programs are a critical element of allied strategy, and also assist U.S. allies by providing infrastructure and industrial support.

ACTION

- SECDEF and Chairman Joint Chief Staff (CJCS) task Commander-in-Chief Pacific Area Command (CINCPAC) to increase cooperative logistic and maintenance programs with many Asian/Pacific countries as a central element of CINCPAC's strategy.

9. **RECOMMENDATION:** Establish an ongoing dialogue with appropriate Congressional committees concerning defense industrial cooperation issues. Congress is an essential participant in establishing cooperation policy and guidance.

ACTION

- SECDEF task USD(A) personally as primary DoD Liaison with Congress on this subject, with SECDEF's own active involvement.

10. **RECOMMENDATION:** Utilize more actively existing and emerging agreements and meeting forums consistent with new defense industrial cooperation objectives.

ACTION

- USD(A) should encourage regular meetings of principals on at least an annual basis; establish an agreed upon number of attendees from both sides; establish an internal agreement on limits for cooperation; and seek approval of activities at SECDEF and Ministry of Defense levels on an annual basis.

11. **RECOMMENDATION:** Initiate several specific demonstration programs with each country (as appropriate) in the Pacific Rim, both to serve as models for broader future partnerships and to reveal problems and address solutions in each nation.

ACTION

- USD(A) should initiate several specific cooperative programs with each country, as appropriate.

12. **RECOMMENDATION:** Encourage industry to play an active role in establishing cooperative projects. DoD should consult with industry regarding negotiation with foreign governments of program-specific Memorandums of Understanding (MOUs). However, in the case of co-production, DoD should give preference to the use of commercial arrangements in lieu of governmental MOUs. Even in the area of international co-development, there is a role for industry-to-industry arrangements to the exclusion of governmental MOUs, when DoD appropriations are not involved.

ACTION

- USD(A) request from the Defense Policy Advisory Committee on Trade (DPACT) an industry study of how industry can play a more active role in cooperative defense programs.

TASK GROUP STUDY

**DEFENSE
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**DEFENSE INDUSTRIAL
COOPERATION
WITH
PACIFIC RIM NATIONS
(1989)**

THE NEW REALITY

**DEFENSE
SCIENCE
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**THE ADVANCEMENT AND APPLICATION OF TECHNOLOGY HAS
BECOME GLOBALIZED ----- IT HAS REPLACED TERRITORY AS
THE NEW COINAGE OF WORLD POWER.**

**EXPLOITING NEW DUAL-USE TECHNOLOGIES WILL DRIVE BOTH
ECONOMIC GROWTH AND MILITARY CAPABILITY IN THE 1990'S
AND BEYOND.**

**ASIAN INDUSTRY IS SETTING THE PACE FOR SUCCESS IN
COMMERCIAL EXPLOITATION OF NEW TECHNOLOGIES.**

**HISTORY IS UNKIND TO NATIONS THAT LOSE CONTROL OF
THEIR ECONOMIC DESTINY.**

REPORT OUTLINE

DEFENSE
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- **INTRODUCTION**
- **TASK FORCE APPROACH**
- **BACKGROUND CONSIDERATIONS**
- **MAJOR FINDINGS**
- **RECOMMENDATIONS/ACTIONS**
- **FINAL COMMENTS**
- **APPENDICES**

- We begin by Introducing what is meant by defense industrial cooperation, its historic rationale, current issues, and previewing our basic conclusions
- Then put forward our approach
 - Emphasize changes from the past to the present and future
 - Use two very different possible futures that have very different defense industrial cooperation implications
 - Explore ways in which the U.S. can enhance its security whichever future materializes
 - Describe future developments most beneficial to the U.S.
 - The challenge is how to use defense industrial cooperation as a tool in helping ensure that future
- Seek answers that are realistic - Consider:
 - NATO/PACRIM differences critical for defense industrial cooperation
 - Pacific dynamism
 - U.S. legislative guidance
- Against this background, report our findings on:
 - U.S. policy process
 - Defense technological and industrial situation
 - PACRIM defense industrial cooperation status, especially with Japan
 - Place defense industrial cooperation in U.S. defense industrial and Asian Pacific perspective
 - Note positive potential of basic research relationships
- Conclude with recommended policies and actions

INTRODUCTION

**DEFENSE
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DEFENSE INDUSTRIAL COOPERATION WITH PACIFIC RIM NATIONS (1989)

This report is presented in the form of annotated viewgraphs used in briefings.

A study of this breadth necessarily involves many different kinds of considerations which must be synthesized to form overall conclusions. These diverse considerations are summarized in sets of viewgraphs. Together, these trace a flow of ideas from the basic approach used by the Task Force in projecting the Pacific Rim in the year 2000, to sets of background considerations regarding the Pacific Rim and how it differs from NATO, to a set of major findings and, finally to the set of recommendations and actions.

PURPOSE OF STUDY

DEFENSE
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- **MAJOR OBJECTIVES**

- RECOMMEND NEW POLICIES FOR DEFENSE INDUSTRIAL COOPERATION WITH PACIFIC RIM COUNTRIES, LOOKING TOWARD YEAR 2000
- DETERMINE IN WHAT WAYS DEFENSE INDUSTRIAL COOPERATION WITH THE PACIFIC RIM IS IN OUR INTEREST
- IDENTIFY WAYS TO REMOVE IMPEDIMENTS TO FACILITATE DESIRABLE DEFENSE INDUSTRIAL COOPERATION IN PACIFIC RIM

- **ALSO SERVES AS A FOLLOW-ON TO DSB STUDIES ON COOPERATION IN NATO (1983) AND JAPAN (1984)**

- EXPANDS SCOPE TO INCLUDE AUSTRALIA, ASEAN COUNTRIES, KOREA, AND PRC.

The Full terms of reference for this study are located in Appendix I. This study on Defense Industrial Cooperation is preceded by two DSB studies on International Armaments Cooperation: Phase I - NATO, completed in 1983 and Phase II - Japan, completed in 1984. This study shares the same overall focus on industrial cooperation, but within a broader and distinct international context -- the Pacific Rim. To some degree, given the large role of Japan in this region, this study updates the Phase II study. However, the breadth of the regional considerations and the substantial changes in the policy environment give this study particular importance and relevance to U.S. defense and national economic policies.

Central issues regarding Defense Industrial Cooperation are far more fundamental than simple extrapolation of earlier studies. These issues involve key factors of future U.S. industrial competitiveness, apart from DoD interests alone.

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Dr. Malcolm R. Currie
Chairman and CEO, Hughes Aircraft Company
Former USDRE

Mr. Everett D. Greinke
Consultant and Former Deputy Under
Secretary of Defense (International
Programs and Technology)

Dr. Davis B. Bobrow
Dean, Graduate School of Public and
International Affairs, University of Pittsburgh

Dr. Donald A. Hicks
President, Hicks & Assoc, Inc.
Former USDRE

Albert J. Baciocco
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Development, McDonnell Douglas Corp.

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Chairman, Defense Manufacturing Board

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IBM World Trade Asia Corp (ret.)

Dr. Harold Rosenbaum
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Mr. Seymour J. Deitchman
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Institute for Defense Analyses

Mr. Gregg Rubinstein
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Dr. David B. H. Denoon
Professor of Politics and Economics
New York University

Dr. Joseph F. Shea
Sr. Vice President, Raytheon Company

Howard Fish
Lt. General, USAF (Ret)
Vice President, International
LTV Aerospace Defense Corp.

Philip D. Shutler
Lt. Gen, USMC (Ret)

Dr. Ellen L. Frost
Corporate Director, International Affairs,
United Technologies Corporation
Former DASD(ISA)

Mr. Gerald D. Sullivan
DoD Consultant,
University of Maryland Business School

Maurice F. Weisner
Admiral, USN (Ret)

GOVERNMENT PARTICIPANTS

DEFENSE
SCIENCE
BOARD

SPONSORS

Mr. Donald J. Atwood
Deputy Secretary of Defense
Dr. Robert D. Costello
Undersecretary of Defense (Acquisition)
Mr. Robert C. McCormack
Deputy Undersecretary of Defense (Industrial & Int'l Programs)

EXECUTIVE SECRETARY

Colonel Russell T. Reston, USAF

ADVISORS

Mr. Peter Allgeier, USTR
Mr. James M. Compton, OASD (P&L)
Dr. Herbert K. Fallin, CINCPAC
Dr. Jeanne Mintz, ADUSD
Ms. Tina Silverman, OASD (P&L)
Mr. David Tarbell, ISA
Colonel Robert C. Johnson, OUSD(A)

CONSULTANTS

Dr. Richard Van Atta, IDA
Mr. Erland Heginbotham, IDA
Mr. Stephen Wooley, IDA

SPONSORS

Mr. Donald J. Atwood
Deputy Secretary of Defense
Dr. Robert D. Costello
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EXECUTIVE SECRETARY

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Executive Secretary to DSB Task Force
Capt. Jim Ellington, USN
Executive Secretary to DSB Task Force

DEFENSE SCIENCE BOARD SECRETARIAT

Col. Bob Bruce, USA
Lt. Col. David L. Beadner, USAF

ADVISORS

Mr. Peter Allgeier
Assistant U.S. Trade Representative
for Asia and the Pacific
Mr. James M. Compton
Director, International Logistics OASD (P&L) L-1L

ADVISORS CONT'D

Dr. Herbert Fallin
Scientific & Technical Advisor to
USCINCPAC
USCINCPAC/STA
Dr. Jeanne Mintz
Assistant Deputy Undersecretary of
Defense
(Industrial & Int'l Programs)
Ms. Tina Silverman
Staff Director, Int'l Resources &
Planning OASD (P&L/PS/IR)
Mr. David Tarbell
Director, Int'l Economic & Energy
Affairs, ISA
Col. Robert C. Johnson
Director, Far East/Middle East Affairs
OUSD (A)/IP&T(FE/ME)

CONSULTANTS

Dr. Richard Van Atta
Assistant Director, Science and
Technology Division
Institute for Defense Analyses
Mr. Erland Heginbotham
Institute for Defense Analyses
Mr. Stephen Wooley
Institute for Defense Analyses

TASK FORCE ACTIVITIES

**DEFENSE
SCIENCE
BOARD**

EIGHT TASK FORCE MEETINGS IN WASHINGTON

DSB TRIPS

23 July - 5 August 1988	Japan and Korea
03-08 January 1989	Indonesia
09-13 January 1989	PRC
13-20 February 1989	Singapore and Australia

KEY WASHINGTON AGENCY MEETINGS

- Discussions with numerous parts of U.S. Government, private sector, Congress
- Foreign Government presentations and small team visits to Asian defense industry countries

MEETING DATES

25 March 1988	1st meeting
24 April 1988	2nd meeting
06 May 1988	3rd meeting
23 September 1988	4th meeting
21 October 1988	5th meeting
14 December 1988	6th meeting
24 February 1989	7th meeting
16 May 1989	8th meeting

DOD STATEMENT OF OBJECTIVES FOR DEFENSE INDUSTRIAL (ARMAMENTS) COOPERATION

**DEFENSE
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- 1. PROVIDE MUTUAL SHARING OF BEST TECHNOLOGIES AMONG ALLIES, ENHANCING COLLECTIVE MILITARY STRENGTH**
- 2. AVOID DUPLICATION OF DEVELOPMENT**
- 3. INCREASE MILITARY EFFECTIVENESS BY ASSURING INTEROPERABILITY OF DEPLOYED EQUIPMENT**
- 4. INDUCE ALLIES TO INCREASE DEFENSE RELATED INVESTMENT, CREATING A STRONGER DEFENSE BASE AMONG ALLIES**
- 5. ACHIEVE ECONOMIES OF SCALE THROUGH COORDINATED RESEARCH, DEVELOPMENT, PRODUCTION, AND LOGISTICS SUPPORT (E.G., A COMMON AND RATIONALIZED DEFENSE INDUSTRIAL BASE)**
- 6. ENHANCE LOGISTICS/MOBILIZATION BASE**

DoD policy on defense industrial (armaments) cooperation* states:

"...cooperation should achieve:

DoD access to, use of, and protection of the best technology developed by our allies, and comparable allied access to, use of, and protection of the best U.S. technology, thereby avoiding unnecessary duplication of development.

Deployment and support of common - - or at least interoperable - - equipment with the allies.

Incentives for the allies to make greater investment in modern conventional military equipment.

Economies of scale afforded by coordinated research, development, production and logistics support programs.

Cooperative projects where the U.S. and one or more nations make an equitable contribution to the full cost of the project, are one of the means to achieve these objectives. Such projects are normally established by government-to-government agreements, typically called Memoranda of Understanding (MOU), which establish the principles that will govern the execution of the project."

The Under Secretary of Defense, Policy Memorandum, 1 November 1988 (Appendix IV), outlines policy provision for cost/work sharing, offsets, contracting, source selection, technology transfer, data rights, third party transfers logistic support, funding, industrial consultation, and findings.

Additionally, Secretary Carlucci's Report to Congress, Fiscal Year 1990, reiterates expressed purposes of international cooperation. Ideally, cooperation should increase interoperability, reduce R&D costs, and establish new economies of scale in systems production.

* The terms "defense industrial cooperation" and "armaments cooperation" are used to discuss similar and overlapping aspects of international defense cooperation. While some differences may exist in their usage and application, they cover the same substantive domain. We use "defense industrial cooperation" in this study to convey our concern with the broader industrial base implications of technology cooperation.

PRINCIPAL MEANS FOR ACHIEVING DEFENSE INDUSTRIAL COOPERATION

**DEFENSE
SCIENCE
BOARD**

- **LICENSES TO U.S. FIRMS TO EXPORT TECHNICAL ASSISTANCE AND PRODUCTS FOR:**
 - **CO-ASSEMBLY AND CO-PRODUCTION**
 - **CO-DEVELOPMENT**
- **COOPERATIVE LOGISTICS AND MAINTENANCE**
- **EXCHANGE OF DEFENSE-RELATED SCIENCE & TECHNOLOGY DATA**
- **CONSULTATIONS BETWEEN GOVERNMENTS ON COMMON MILITARY REQUIREMENTS AND MEANS TO FULFILL THEM**
- **RECIPROCAL REQUIREMENTS IN ACQUISITION OF MILITARY EQUIPMENT**
- **JOINT FUNDING OF RDT&E TO MEET COMMON REQUIREMENTS**

- Defense industrial cooperation embraces a host of varied activities and relationships.
- Some have primarily military consequences in near and long term.
- Others have major implications for U.S. economic sector both military and dual use sectors of our industry and technology bases and competitiveness.
- Need to make policy choices and organize our policy process in ways that recognize the differences.

The broad areas considered in the definition of defense industrial cooperation which impact the U.S. industrial base concerns are co-assembly, co-production (to include licensed-production), and co-development. From the perspective of force projection, cooperative logistics and maintenance support facilities are essential elements of CINCPAC's peacetime strategy and "Conflict Response" in his Pacific area of responsibility.

Defense industrial cooperation (co-assembly, co-production, co-development) is conducted primarily by industry. DoD (with State Department Office of Munitions Control concurrence) implements cooperative programs allowing U.S. firms to undertake cooperative activities. DoD's defense industrial cooperation activities are an integral part of defense trade. They, along with military consultations on common defense requirements and security assistance funds, help to create knowledge of, and a favorable climate for, the purchase of U.S. equipments and services.

Although direct offsets are not a form of defense industrial cooperation, they are a technique extensively used in international competitive negotiations, and a "fact of life" for those in the defense industries. In direct offsets, a buyer conditions acceptance of a competing offer on seller willingness to offset partially, or fully, the purchase value by licensing technology, accepting co-production arrangements (buyer produces some components or subsystems), or similar arrangements. Direct offsets involving licensing or co-production, which help allies and friendly countries build their defense industrial capacity, also permit them to become future competitors. Such offset demands are most intensive in highly competitive, "buyers markets", and where U.S. industry competes with foreign "managed free enterprise" companies.

SOME KEY ISSUES/CONCERNS WITH DEFENSE INDUSTRIAL COOPERATION

**DEFENSE
SCIENCE
BOARD**

- **LACK OF BALANCE IN MANY DEFENSE INDUSTRIAL COOPERATION ARRANGEMENTS WHERE U.S. MILITARY GAINS HAVE SOMETIMES ENTAILED ECONOMIC PENALTY**
 - **INSUFFICIENT REVERSE FLOW OF TECHNOLOGY TO U.S., I.E., INADEQUATE ECONOMIC BENEFIT TO THE U.S.**
 - **RECIPIENTS SEEK TECHNOLOGY/KNOW-HOW RATHER THAN WEAPONS PER SE**
- **LONG-TERM COMPETITION**
 - **CREATION OF GLOBAL OVERCAPACITY**
 - **OFFSETS CAN EXACERBATE PROBLEM**
- **MERGING OF MILITARY AND COMMERCIAL FACTORS**
 - **DUAL-USE TECHNOLOGY WITH COMMERCIAL SPINOFFS**
 - **THIRD-COUNTRY SALES AND TECHNOLOGY LEAKAGE TO POTENTIAL ADVERSARIES**
- **OVERLY RESTRICTIVE U.S. TECHNOLOGY AND DEFENSE SALES CONTROLS INHIBIT DEFENSE TRADE AND COOPERATION**
- **FOR PACRIM:**
 - **ARMS PROLIFERATION IN PACRIM IS COUNTER TO U.S. SECURITY INTERESTS**
 - **HOW TO DEAL WITH SECURITY PARTNERS THAT ARE ECONOMIC/TECHNOLOGICAL COMPETITORS**

**THESE ISSUES MUST BE ADDRESSED IN ESTABLISHING A WORKABLE POLICY FOR
DEFENSE INDUSTRIAL COOPERATION**

- Pacific economic vitality challenges old modes of security relations. Regional issues can no longer be treated separately as economic, military or political. These issues are closely linked and mutually interdependent and together add up to our sense of national security.
- Lack of a perceived symmetry yields a justifiable concern that technology transfer means one-way - - from "us to them."
- The 1989 Defense Authorization Act (See Appendix III) recognized a possible future loss of our defense industrial base and the inherent creation of competition.
- Since the earlier 1983 and 1984 DSB reports on this subject, there now exist an even greater number of international (some government supported) defense industries which aggressively compete against the heretofore U.S.-dominated international market.
- Maturing defense technology and rapid changes in commercial technology over the last decade make "dual-use" technology central. U.S. export rules for "dual-use" technology and those continued via the standard "munitions list" procedures are currently under inter-agency review.
- Overly restrictive U.S. policies for controlling technology and third country sales, and excessively narrow interpretation of such policies when implemented, hinder the ability of U.S. firms to compete in increasingly competitive world markets.
- For the PACRIM, an arms sales race would detract from our common security goals for the region and from original goals for interoperability and standardization. History has shown us that international economic growth occurs best under an umbrella of peaceful relations. This is vitally important for the PACRIM.

KEY SUMMARY JUDGMENTS

DEFENSE
SCIENCE
BOARD

I. DEFENSE INDUSTRIAL COOPERATION WITH THE PACIFIC RIM NATIONS CAN BE VALUABLE IN ACHIEVING RELATIONSHIPS IMPORTANT TO LONG-TERM MUTUAL SECURITY OBJECTIVES

HOWEVER THIS TASK FORCE RECOMMENDS THAT DOD IMPLEMENT A REVISED DEFENSE INDUSTRIAL COOPERATION POLICY OF RIGOROUS REASONED PRAGMATISM WHICH:

- **REQUIRES JUSTIFICATION IN TERMS OF LONG-TERM MILITARY AND ECONOMIC IMPLICATIONS AND GOALS.**
- **RECOGNIZES COUNTRY TO COUNTRY DIFFERENCES IN TECHNOLOGY AND ECONOMIC RELATIONSHIPS**
- **FACILITATES ACCESS TO TECHNOLOGY AS APPROPRIATE BETWEEN TECHNOLOGY LEADERS, E.G., WITH JAPAN, AND OTHERS OVER TIME**
- **ENSURES PROTECTION AND ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS & INTERNATIONAL PROTOCOL STANDARDS FOR TELECOMMUNICATIONS**

IN THE PACRIM "NATO-STYLE DEFENSE INDUSTRIAL COOPERATION" USED IN THE PAST SHOULD BE REPLACED BY A "NEW " DEFENSE INDUSTRIAL COOPERATION APPROPRIATE TO HARMONIOUS FUTURE SECURITY PARTNERSHIPS AMID INTENSIVE ECONOMIC COMPETITION.

As a preview of the Task Force's overall key judgments we conclude that:

- Defense Industrial Cooperation with PACRIM can be a valuable long-term mechanism to support bilateral defense relations within PACRIM
- However - - rigorous pragmatism must prevail
 - be consistent with long term civilian and military goals
 - recognizes wide variation among PACRIM countries
 - with Japan, U.S. must seek mutually beneficial programs as is appropriate between equals.
- We recommend a new type of defense industrial cooperation put forward in our recommendations.

The new cooperation is defined as bilateral cooperation with countries outside NATO which is not controlled by a common alliance structure. Cooperation with these countries aims at promoting common defense objectives and building defense relationships while recognizing U.S. competitive economic interests. It must also have as a goal the mutual sharing of defense and other important technologies.

KEY SUMMARY JUDGMENTS (CONT'D)

**DEFENSE
SCIENCE
BOARD**

- II. DSB REAFFIRMS THAT IT IS IMPERATIVE FOR U.S. TO ENTER LONG-TERM COOPERATIVE VENTURES FROM A POSITION OF STRENGTH. THE U.S. CANNOT MAINTAIN ITS MILITARY AND INDUSTRIAL POSTURE BY A PROTECTIONIST POLICY PER SE. WE MUST DEVELOP OUR OWN LONG-RANGE NATIONAL TECHNOLOGY VISION ASSOCIATED WITH NATIONAL SECURITY WHICH IS ALSO FUNDAMENTAL TO U.S. INDUSTRIAL COMPETITIVENESS.**

**UNLESS WE GET OUR OWN ACT TOGETHER THE
SUBJECT OF FUTURE DEFENSE INDUSTRIAL
COOPERATION BECOMES MOOT.**

TASK FORCE APPROACH

CONSIDERS

- THE WAY WE WERE
- THE WAY WE ARE
- POSSIBLE SCENARIOS FOR YEAR 2000
 - • "CURRENT TRENDS/STATUS QUO PREVAIL"
 - • "ECONOMICS TAKES COMMAND"

The Task Force has considered the past, the present, and possible future scenarios for U.S. relations with the Pacific Rim. The past has been characterized by strong U.S. leadership, a largely healthy U.S. economy, focus of U.S. security policy on the Soviet threat, and de facto separation of economic and security issues. The past several years has seen a blurring of this distinction. Economic concerns have grown more important and interconnected with security concerns. The future holds at least two likely scenarios. One hypothesizes an extrapolation of the current state of affairs -- a continuing interrelationship between economic and security issues and ongoing cold war tensions. This is termed the "status quo" scenario. Bilateral relations with Pacific Rim countries remain important to further the regions security goals. The second possible scenario assumes that economic concerns begin to dominate U.S. foreign policy. This scenario is termed "economics takes command". Cold war tensions will give way to occasional tensions which will not require major military action.

The Task Force is not making a specific prediction about Soviet military capabilities in the Pacific Rim area. We note the rapid build-up of Soviet air and naval forces in the 1970's and early 1980's, and have reviewed competing claims about current directions in the Soviet force structure. The "status quo:" scenario assumes the USSR maintains its facilities in Viet Nam, its extensive submarine force, and growing sophisticated ground, tactical air, and naval air forces in the region. The "economics takes command" scenario assumes a significant reduction in Soviet military presence in the region with primary focus on economic issues.

In addition to these issues, the panel evaluated the possibility of less desirable, long run political outcomes for the region. We looked closely at a third scenario, "regional power rivalry", that assumed a reduced Soviet and U.S. military presence, but greater military tension among the nations in the region. We think this is a lesser possibility and, therefore, have concentrated on the two scenarios we consider most likely.

APPROACH

DEFENSE
SCIENCE
BOARD

"THE WAY WE WERE"

- **STRONG U.S. ECONOMY; CONFIDENT INDUSTRIAL LEADERSHIP**
- **POSITIVE TRADE BALANCE/DIRECT FOREIGN INVESTMENT BALANCE/TECHNOLOGICAL SUPERIORITY ADVANTAGES**
- **MILITARY & ECONOMIC CONCERNS VIEWED SEPARATELY BY POLICY**
- **SENSE OF OVERRIDING NEED TO INCREASE FREE WORLD MILITARY STRENGTH AND, BY IMPLICATION, TO ENLARGE FREE WORLD DEFENSE INDUSTRIAL BASE.**
- **PREOCCUPATION WITH SOVIET THREAT AND NATO SECURITY**

CONSEQUENCES

- **DEFENSE INDUSTRIAL COOPERATION WAS CONSIDERED DESIRABLE FOR OVERRIDING SECURITY REASONS**
- **ECONOMIC CONSIDERATIONS WERE NOT OF PRIMARY IMPORTANCE**

The primary focus of U.S. national security policy has been the political-military threat of the USSR and its partners. Economic factors came into play primarily in rebuilding and strengthening the economies of our allies to contend with the Soviet threat. Defense industrial cooperation was seen as a tool for supporting the political-military efforts to contain and deter the Soviet Union. Economic concerns, when raised, were often seen as parochial and narrow in contrast to the needs to bolster allies' defense capabilities.

In the past the U.S. was trading economic help to our allies for their military cooperation -- we were "spending" our economic strength to fill military gaps. Now we find the military threat apparently receding in comparison with the economic threat of rapidly growing industrial and technological competition. Thus, we have to rethink the relationships between the military and the economic aspects of our alliance policies. We now find ourselves paying economically for the success of prior politically-militarily focused policies, and the need to come to terms with the situation created by that very success. "The way we were," was made possible, in part, from the strong U.S. economic base; our internationally recognized leadership position in technology (defense and commercial); and a strong military posture. During this period of economic strength :

- Economic leadership was not seriously threatened by extensive defense industrial cooperation and technology transfer.
- Even "two-way street" with Europe was seen as providing military gains without major costs to the U.S. economy.
- Benefits to others were not seen as zero-sum for U.S.

APPROACH

DEFENSE
SCIENCE
BOARD

"THE WAY WE ARE"

- **NEGATIVE BALANCE OF TRADE; ANXIETY OVER ECONOMIC & TECHNOLOGICAL COMPETITION**
- **U.S. TECHNOLOGY LEAD SIGNIFICANTLY DIMINISHED**
- **PERCEIVED DECREASED EAST-WEST TENSION**
- **ECONOMIC CONCERNS BECOMING DOMINANT**
- **ALTHOUGH PERCEPTION IS CHANGING, MILITARY THREAT REMAINS REAL (AT LEAST FOR NOW)**
- **OVERLAP BETWEEN DEFENSE & COMMERCIAL INDUSTRIAL BASE**

CONSEQUENCES

- **POLICY TORN BETWEEN:**
 - - **PURSUING DEFENSE INDUSTRIAL COOPERATION TO HELP MILITARY POSTURE AND STRENGTHEN FABRIC OF SECURITY COOPERATION**
 - - **LIMITING DEFENSE INDUSTRIAL COOPERATION TO AVOID DAMAGE TO U.S. INDUSTRIAL/ TECHNOLOGY COMPETITIVE HEALTH**

Our national situation can be characterized as economic and technological anxiety. The rapid economic advance of our PACRIM neighbors - - - and their successes over the past decade in markets previously dominated by the U.S. - - - have contributed significantly to this anxiety.

This market concern is coupled with:

- A serious negative balance of trade with the industrialized PACRIM nations;
- Growing overcapacity in the region's and world's defense industries;
- Maturing of conventional military technology combined with growth in new directions
- Major shift in manufacturing tasks and skills, i.e., capability to foreign suppliers.
- Advances in dual-use technologies which are equally fundamental to both defense and commercial products.
- Perception of reduced common military threat.

As a result, our national and regional thinking has been dramatically altered. Concerns of economic threat have supplanted those of military threat. This change means that policy divisions - between cooperative defense requirements on the one hand and industrial/technology base retention on the other - must be addressed in terms that foster overall U.S. national goals.

APPROACH

DEFENSE
SCIENCE
BOARD

"THE WAY WE MAY BE - YEAR 2000"

TWO SCENARIOS

"STATUS QUO PREVAILS"

VS.

"ECONOMICS TAKES COMMAND"

Through the course of the Task Force's deliberations we considered several broad scenarios from "Peace Breaks Out" to "Wartime Posture." In addition, CINCPAC provided a review of its peacetime and wartime strategies and view of the future.

Through this analysis the Task Group developed a framework for assessing defense industrial cooperation based upon national economic and defense concerns (Annex I). Subsequently, two possible scenarios were agreed upon to clarify forces which will drive defense industrial cooperation policies. These scenarios are "Status Quo Prevails", i.e., no change in our existing defense industrial cooperation policy and/or organization, and "Economics Takes Command", i.e., regional economic concerns clearly supplant military concern due to perceived decline in military threat. The Task Force, in addressing these two scenarios, looked for overarching insights to PACRIM defense industrial cooperation objectives and recommendations for the future.

"THE STATUS - QUO PREVAILS"

- **CURRENT TRENDS (THE WAY WE ARE) CONTINUE**
- **U.S. - SOVIET STRATEGIC RIVALRY CONTINUES**
- **U.S. PACIFIC PEACETIME STRATEGY REMAINS IN PLACE, WITH CURRENT FORWARD DEPLOYED FORCES**
- **U.S. AND ASIAN DEFENSE MARKETS RETAIN CURRENT SIZE, WITH GROWING & INCREASINGLY CAPABLE ASIAN ARMS INDUSTRIES**
- **INTENSE EUROPEAN DEFENSE INDUSTRY COMPETITION IN ASIA**
- **INCREASING GLOBAL ARMS SALES COMPETITION**
- **PRC CONTINUES TO DEPEND ON ARMS EXPORTS WHILE RETAINING NON-ALIGNED POSTURE**

The Status Quo scenario as defined for the purposes of our report means "no change" to our existing defense industrial cooperation policies and organizations. Therefore, status quo as used in this context does not mean absence of international or regional change brought about by economic, political or military issues. Instead it means that current trends brought on by these forces continue into the future. The bullets identify the probable progression of these events by the year 2000. In the past, the U.S. has traded economic help to allies for military cooperation in defending strategic locations. The status quo assumes a continuation of this trend. The price of the success of past policies which encouraged these tradeoffs is dealing with maturing industries/economies in the Pacific Rim.

"THE STATUS - QUO PREVAILS" CONT'D

- **U.S. - ASIAN SECURITY ARRANGEMENTS REMAIN BILATERAL**
- **U.S. BELIEVES THAT MILITARY CONFRONTATIONS MAY OCCUR AND REQUIRE MILITARY ACTIONS**
- **U.S. CONTINUES MILITARY GUARANTEES FOR ASIAN OIL LIFELINE TO MIDDLE EASTERN/SOUTHWEST ASIAN OIL**
- **MAJOR MILITARY COMPETITION AND POWER BLOCS COULD EVOLVE AMONG ASIAN PACIFIC NATIONS**
- **U.S.-JAPAN DEFENSE RELATIONSHIP REMAINS PIVOTAL FOR PACRIM SECURITY**

KEY ISSUE: WHAT DEFENSE INDUSTRIAL COOPERATION POLICIES WILL MAINTAIN ADEQUATE MILITARY SECURITY WITHOUT HARMING U.S. INDUSTRIAL AND TECHNOLOGICAL COMPETITIVENESS?

"ECONOMICS TAKES COMMAND"

- **U.S. FOREIGN/SECURITY POLICY ECONOMICALLY CENTERED**
- **REDUCED U.S. - SOVIET MILITARY TENSION**
- **OCCASIONAL MILITARY FLASHPOINTS IN PACIFIC ARE RESOLVABLE WITHOUT MAJOR U.S. MILITARY ACTIONS**
- **MUCH LESS U.S. FORWARD MILITARY DEPLOYMENT IN PACIFIC**
- **INTENSE U.S. - ASIAN INDUSTRIAL/TECHNOLOGICAL COMPETITION**
- **TIGHTENING CONSTRAINTS ON U.S. AND ASIAN DEFENSE BUDGETS**
- **GLOBAL ARMS SURPLUS WITH INCREASES IN BOTH SUPPLY AND NUMBER OF SUPPLIERS**
- **INCREASINGLY INTENSE GLOBAL COMPETITION FOR ARMS SALES**
- **JAPAN SURPASSES U.S. IN MOST DUAL-USE TECHNOLOGIES**

These developments do not preclude continuing volatility and military tension in the Middle East and Southwest Asia. They are a potential result of U.S. practices of interchanging economic and military assistance. The U.S. must now come to terms with the increasingly competitive situation created by the success of past practices.

"ECONOMICS TAKES COMMAND" (CONT'D)

- **RAPID INDUSTRIAL DEVELOPMENT OF OTHER ASIAN COUNTRIES**
- **A NON-ALIGNED CHINA RETURNS TO PREVIOUS RAPID ECONOMIC GROWTH AND MODERNIZATION**
 - **DEPENDS ON OUTCOME OF RECENT POLITICAL TURMOIL**
- **REDUCED MILITARY REQUIREMENTS CREATE SUBSTANTIAL OVERCAPACITY IN DEFENSE INDUSTRIES**

KEY ISSUE: WHAT DEFENSE INDUSTRIAL COOPERATION POLICIES WILL MAINTAIN ADEQUATE MILITARY SECURITY WITHOUT HARMING U.S. INDUSTRIAL AND TECHNOLOGICAL COMPETITIVENESS?

The "Economics Takes Command" scenario projects that U.S. foreign and defense policy will continue to become more economically focused. Reduced U.S.-Soviet tensions will give way to acute U.S.-Asian industrial/technological competition. Of great concern to the U.S. will be Japan's manufacturing capabilities, particularly manufacture of dual-use items. Major U.S. security concerns will be fundamentally different than during the past 40 years.

THE PREFERRED PACRIM SCENARIO YEAR 2000

**DEFENSE
SCIENCE
BOARD**

- **MOVEMENT TOWARD FAVORABLE ELEMENTS OF "ECONOMICS TAKES COMMAND" SCENARIO, BUT WITH REVIVED U.S. INDUSTRIAL/TECHNOLOGICAL COMPETITIVENESS.**
- **U.S. CONTINUES AS UNIFYING CENTER FOR A WESTERN SECURITY SYSTEM**
- **ADEQUATE BUT MODEST U.S. PACIFIC COMMAND (PACOM) FORCES REQUIRED TO ASSURE STABILITY**
- **CONTINUATION OF REGIONAL STABILITY**

The Task Force concludes that the U.S. must pursue the following major defense goals by the year 2000 AD: "Status quo" scenario has unacceptable economic implications that may have to be addressed even AT THE RISK OF TENSION WITH SOME CLOSE U.S. ALLIES

(1) Assure that U.S. economic and technological competitiveness is restored. This is the sine qua non for effective achievement of the other goals and objectives of this report. Only with an effective policy and program for this purpose will the U.S. assure (a) a vigorous technology base essential for generation of leading-edge dual-use and defense technologies, vital defense requirements, and peace in the 1990's and beyond; (b) the leverage necessary to develop effective defense technology cooperation with Japan and other PACRIM countries; (c) avoidance of recourse to self-defeating long-term protection of afflicted U.S. industries; (d) maintenance of the industrial base required for leadership both in national defense and in peaceful economic competition, and (e) private and government initiatives aimed at restoring U.S. technological leadership internationally.

(2) Adopt and implement strategies responding to the "Economics Take Command" scenario. This involves at a minimum implementing the recommendations of this report. Basically these recommendations aim at a substantial revision of "NATO-style cooperation" to achieve updated defense industrial cooperation policies requiring mutuality of benefit between the U.S. and its PACRIM allies, measured by reflow of economic as well as defense benefits.

(3) Maintain PACOM forces at levels modest but adequate as security shield. U.S. strategy should capitalize on the emerging defense strengths of PACRIM allies and friends in ways that permit reduced forward deployment of U.S. forces. Greater capabilities exist in the PACRIM for increasing cooperative logistics and maintenance support than PACOM has yet exploited. Similarly the U.S. may be able to identify additional ways to support the peacekeeping efforts of ASEAN in Southeast Asia. U.S. defense policy in the region should look for opportunities to reduce forward deployments on terms that strengthen cooperative defense relationships within the region.

(4) Continuation of Regional Stability. Attainment of peace and stability in the post-1975 PACRIM has contributed greatly to reduction of U.S. defense burdens. Concentration of PACRIM countries on building economic strength has concurrently improved their defense posture and capabilities as well. Continuation of this regional stability must remain a paramount goal of U.S. relations with the PACRIM to 2000 AD and beyond.

(5) Maintain the U.S. role as a unifying security influence for the region. Whether or not present efforts to relax superpower tensions and reduce conventional forces progress smoothly, the U.S. and its allies require the strength to deter or respond to threats both at the superpower and local levels. The emergence of (a) important powers in Asia (some with nuclear capabilities) (b) several substantial arms exporters, and (c) widespread defense industries each with increasingly sophisticated defense technological and industrial capabilities, may over time raise concerns about the spread of local power struggles. The U.S. security influence thus also fills what might otherwise become local power vacuums and should limit the scope for secondary power struggles within Asia.

THE PREFERRED PACRIM SCENARIO YEAR 2000 (CONT'D)

**DEFENSE
SCIENCE
BOARD**

- **STRONG, INDEPENDENT ASIAN NATIONS**
 - **FRIENDLY TO U.S.**
 - **COMMON INTERESTS IN INTERNATIONAL ECONOMIC VITALITY**
 - **ESCHEW USE OF FORCE**
- **ECONOMIC COMPETITION WITH OPEN MARKETS AND MINIMAL HOSTILITY**
- **COMMITMENT TO REGIONAL STABILITY**
- **RESTRAINED MILITARY EXPORTS TO THIRD COUNTRIES**

(1) Assurance of strong, independent Asian nations, friendly to the U.S., with common economic interests. Until now the U.S. has been able to take for granted the friendship and common economic interests of most Asian nations. However, three developing trends may now undermine these presumptions.

a. Reduced security tensions: If Soviet threats are perceived as diminished, appreciation for the U.S. security shield is likely to decline (e.g. popular pressures in Korea and the Philippines for U.S. force reductions).

b. Growing self-reliance: Expanding economic strength, defense self-sufficiency, and independence from U.S. defense support and assistance, may also bring greater independence of view and potential for divergence in defense policies and actions (e.g. problems enforcing defense exports controls).

c. Economic Tensions with U.S.: Budget and balance of payments problems often translate into U.S. bilateral pressures on allies. U.S. deficit-inspired pressures on allies to open access to their markets for U.S. exports are currently most intensive (e.g. "Super 301" retaliation threats) but are steadily expanding into financial issues (pressures for exchange rate appreciation), technology issues (pressures to buy-U.S., not co-produce, as in FSX development with Japan and KFP development with Korea; pressures for technology reflow), and investment issues (rejection of foreign acquisition of U.S. defense industries). Congressional actions often elevate the visibility and political reactions to these pressures. Special executive branch and DoD efforts and skills will be required to keep legitimate efforts to achieve U.S. economic objectives from damaging friendly relations and undermining mutual security and long-term economic interests.

(2) Bridging between intra-regional economic competition and overriding mutual security interests. This bridging will require vision and a forceful strategic plan of cooperation with PACRIM friends to prevent troublesome trade, investment, and technology issues from becoming symbols of an adverse U.S. relationship with Asia. Nascent nationalism and anti-Americanism can be expected to grow rapidly unless we manage these conflicting interests with understanding and respect, and with positive initiatives. Limited bilateral relations in the PACRIM lack the regional organizations which exist in Europe that provide a mechanism for reducing and resolving issues, and creating harmonization of policies. This void makes the challenge of resolving issues in the Pacific Region much more difficult, but still attainable.

(3) Strengthened partnerships can be the foundation of future relations. To help reverse the erosion of U.S. defense industry and technology leadership, it is essential that the U.S. speed the transition from unilateral assistance (NATO-style cooperation) to two-way, reciprocal relationships in trade, investment, and technology with each PACRIM country as its strength in each of these areas justifies it. Clearly Japan's strength warrants a closer partnership in all three areas. In addition, the balance of payments strength and outward foreign investment patterns demonstrated by Korea and Taiwan justify determined U.S. efforts to achieve reciprocity in trade and investment, and selectively in technology. U.S. policy and programs need to make these objectives clear.

Changes that we believe are "fair and equitable" are likely to be viewed in Tokyo and Seoul as "concessions to U.S. pressures". Reciprocity might be unilaterally dictated or achieved only at the expense of other objectives. Combining the goal of achieving mutually beneficial partnerships with that of maintaining friendship and the perception of common economic interests requires extraordinary skill and effort. Policy provides the framework and guiding support for U.S. interests. Positive policy guidance therefore is preferable to legislative restraints which limit international dialog.

(4) Responsible restraint on foreign defense exports. Growing self-sufficiency and overcapacity in PACRIM defense industries has and will increase incentives to export arms. Acquisition of non-U.S., or development of indigenous, defense technology is one way of avoiding U.S. export controls, and has become attractive in part for that reason. U.S. leverage in assuring continued export restraint diminishes as PACRIM self-defense capability achieved. By contrast, U.S. leverage over destabilizing arms exports improves with each advance in the restoration of U.S. technological and industrial leadership.

THE PREFERRED PACRIM SCENARIO YEAR 2000 (CONT'D)

DEFENSE
SCIENCE
BOARD

- **PARTNERSHIP IN U.S. - JAPAN RELATIONS, WITH MUTUAL OPENNESS IN THE FLOW OF TECHNOLOGY (CIVIL, DUAL-USE, AND MILITARY)**
- **CONTINUATION OF JAPANESE LIMITATIONS ON ITS MILITARY POSTURE AND DEFENSE TRADE**
- **ACCESS TO U.S. DEFENSE MARKETS FOR INDUSTRIALLY QUALIFIED PACRIM COUNTRIES BASED ON OPEN CIVILIAN TRADE**
- **CHINA AS A NON-ALIGNED, RESPONSIBLE TRADER IN GLOBAL CIVIL AND DEFENSE MARKETS**
- **ASEAN - KEY FORCE FOR ECONOMIC GROWTH AND REGIONAL STABILITY IN SOUTHEAST ASIA. SELECTIVE DEFENSE INDUSTRIAL COOPERATION BASED UPON ECONOMIC AND DEFENSE REQUIREMENTS AND INDUSTRIAL DEVELOPMENT**

**STRENGTHENED TWO-WAY PARTNERSHIPS CAN BE
THE FOUNDATION OF FUTURE U.S.-PACRIM RELATIONS**

1. Japan as an equal partner in defense cooperation. Japan, through its remarkable growth in economic strength and competitiveness, has earned the responsibilities of sharing international economic leadership. Just as the U.S. compromised domestic objectives after World War II to assume international responsibilities in the interest of global peace and stability, Japan is facing pressures to compromise its tightly collaborative internal economic system with the exigencies of reciprocity required by membership in a global open trading system. A vital step in this direction must be Japan's achievement of open, reciprocal relationships with the U.S., as its main trading partner, not only in trade but also in industrial and defense technology. This must be a primary U.S. goal in defense industrial cooperation with Japan.

2. Japan's continued adherence to her defense policy principles. Japan's constitution affirms its national intention not to develop offensive forces and principles/policies restrict arms exports. The Task Force considers Japan's continued adherence to these principles vital to regional stability and to acceptance of Japan's expanded economic and political international leadership.

3. Korea: Constructive partner in defense and trade. U.S.-Korean industry collaboration on the K-1 tank is a current example of defense industrial cooperation assistance to Korea to expand its self-sufficiency in defense industry. A promising next area for defense industrial cooperation in the Task Force view is to assist Korea to expand capabilities to produce common logistics items. With regard to the future, the U.S. has an on-going interest in; (1) Korean support in restraint of destabilizing and unfair arms export practices, and (2) seeing a balance of benefits in future cooperation in light of Korea's strong international export and payments position and growing technological sophistication.

4. China's continuing support for regional stability. Recent turmoil in China has put defense industrial cooperation on hold. The Administration, in consultation with Congress, can determine how to proceed given this delicate situation. It is of great importance to have the PRC treat its own citizens humanely and for the PRC to maintain effective working relationships with the U.S. and its own neighbors. To the extent that defense industrial cooperation can contribute to a broadly-accepted U.S.-China relationship, it may continue, but the character and extent of interaction will assuredly be influenced by the events of May and June 1989. Certainly a unified government respectful of popular aspirations can play a large role in promoting regional stability. Under these circumstances, a U.S.-PRC partnership in economic and technology areas might be compatible with U.S. security objectives. The U.S. and China should jointly aim to reduce international tensions, but will continue also to have some conflicting goals and policies.

5. Southeast Asia and Oceania continued intra-regional cooperation for stability and economic development. The continuation of present collaborative efforts by ASEAN nations with cooperating powers to resolve residual tensions and conflicts on the Indochinese peninsula, and to encourage peaceful reintegration of Kampuchea and Vietnam is expected and encouraged. Australia and New Zealand will play responsible roles by contributing to those efforts, by providing a regional economic and security anchor, and by continuing to provide a defense posture that contributes to regional security. Australia, Singapore and Indonesia are seen as the primary countries in this region where defense industrial cooperation will be a significant issue.

POLICY CHALLENGE

DEFENSE
SCIENCE
BOARD

"THE WAY WE ARE"-

- CONTINUING POLICY CONFLICT
- EMBITTERED RELATIONS WITH FRIENDLY COUNTRIES BY AROUSING EXPECTATIONS THAT WILL NOT BE READILY FULFILLED
- DEFENSE INDUSTRIAL COOPERATION EMBROILED IN CONFLICT WITHIN THE EXECUTIVE BRANCH AND BETWEEN THE EXECUTIVE AND THE CONGRESS
- PERCEPTION OF DEFENSE INDUSTRIAL POLICY AS UNREWARDING, FRUSTRATING APPROACH

A POLICY CHALLENGE BECAUSE

- IT ASSURES INTENSE CONFLICT BETWEEN ADVOCATES OF NATO-STYLE DEFENSE INDUSTRIAL COOPERATION AND WELL REPRESENTED CONCERNS ABOUT NATIONAL ECONOMIC DECLINE
- IT FAILS TO COME TO TERMS WITH CURRENT AND EMERGING DEFENSE INDUSTRIAL/TECHNOLOGICAL ENVIRONMENT IN THE PACIFIC RIM AND THE WORLD

Through our analysis it became clearly evident that left unchanged our present limited coordination on defense industrial cooperation policies will cause policy conflict. Simply stated, they will exacerbate the conflict between advocates of NATO-style defense industrial cooperation who strive for the positive side of defense industrial cooperation (interoperability, shared costs, etc.) and those for policies which strive to safeguard the U.S. industrial base.

- These conflicts are well illustrated by the FSX experience with Japan.
- Continued calls for protectionist actions and laws
- Increasing go-it-alone policy of allies because of over-restrictive U.S. withholding of technology and denial of third country sales

In addition, the rapid economic and industrial growth in the PACRIM that has occurred over the past decades and the projection for continued growth must be recognized in a context of opportunity versus market restrictions.

BACKGROUND CONSIDERATIONS

RATIONALE FOR NATO-STYLE COOPERATION

PROJECTING FROM "OLD" NATO TENETS, DEFENSE INDUSTRIAL COOPERATION IS PRESUMED TO:

- **STRENGTHEN ALLIES' TIES WITH U.S. (LESSEN POLITICAL/ECONOMIC FRICTIONS)**
- **INCREASE COALITION DEFENSE CAPABILITY THROUGH THE TRINITY OF RATIONALIZATION, STANDARDIZATION, INTEROPERABILITY**
- **PROVIDE ECONOMIES OF SCALE FROM A LARGER, MORE EFFICIENT COLLECTIVE DEFENSE INDUSTRIAL BASE**
- **ENHANCE U.S. INFLUENCE ON DEFENSE PLANS OF ALLIES**
- **IMPROVE THE FORCE BALANCE AND MOBILIZATION INDUSTRIAL BASE VIS-A-VIS THE SOVIET UNION**
- **CREATE ATTRACTIVE OPPORTUNITIES FOR TECHNOLOGY TRANSFER TO U.S.**

UNDERLYING BELIEF:

- **ON BALANCE, EXPECTED DEFENSE/SECURITY GAINS WOULD OUTWEIGH NET ADVERSE EFFECTS OF DEFENSE INDUSTRIAL COOPERATION ON U.S. INDUSTRIAL AND TECHNOLOGICAL COMPETITIVE POSITION.**

Defense industrial cooperation with NATO allies has in general strengthened the alliance by removing barriers to technology exchange, promoting joint planning and providing standardized/interoperable equipment. The NATO-wide industrial base has expanded as a result of U.S. armaments cooperation with NATO partners. New economies of scale have sometimes been established as manufacturers have shared production techniques and reduced risk to individual manufacturers, making procurement of large systems more affordable for member countries. Additionally, cost sharing is supposed to make research and development more affordable, particularly the more expensive R&D programs.

Defense industrial cooperation has encouraged the members of NATO to work more closely with one another, and has attempted to reduce duplication of effort in both research and development and production. Defense industries in member countries have become more closely linked. Even as industrial relationships matured within NATO, the role of the U.S. as the technological leader in NATO has remained implicitly intact, although this is decreasing markedly with time.

Potential adverse effects of defense industrial cooperation are considered to be balanced by gains in security and defense efficiency and effectiveness.

U.S. DEFENSE INDUSTRIAL AND TECHNOLOGICAL CONCERNS

**DEFENSE
SCIENCE
BOARD**

- **GROWING COMPETITION**
- **SURPLUS CAPACITY IN KEY AREAS (E.G., MILITARY AVIATION)**
- **RIVALRY FOR THIRD COUNTRY SALES**
- **FOREIGN PENETRATION OF U.S. DEFENSE MARKET**
- **U.S. FOREIGN DEPENDENCY**
 - **TECHNOLOGY**
 - **INDUSTRIAL BASE**
 - **PRODUCTION BASE**
- **DECLINE IN U.S. MANUFACTURING COMPETITIVENESS**
- **DECLINE IN U.S. TECHNOLOGICAL LEAD**
- **RECOGNITION THAT SELF-SUFFICIENCY CAN INCREASE INDEPENDENCE OF OTHERS AND THE CHANCES OF POLICIES UNFAVORABLE TO THE U.S.**
- **TECHNOLOGY LEAKAGE TO POTENTIAL ADVERSARIES**
- **SHRINKING U.S. INFLUENCE AND INDEPENDENCE. MORE BROADLY, RECOGNITION THAT NEW DUAL USE TECHNOLOGIES CENTRAL TO DEFENSE WILL ALSO DRIVE ECONOMIC GROWTH.**
- **FOREIGN PENETRATION OF DEFENSE MARKETS**
- **U.S. FIRMS FACING INCREASED FINANCING PROBLEMS**

The U.S. faces increased competition at home and in overseas defense markets from rapid growth of foreign defense industries and technology capabilities. PACRIM countries are among those showing the most rapid defense industry expansion. Their competitive impact has accelerated as commercial technologies with defense applications (dual-use technologies) have become more important. NATO and PACRIM efforts to expand defense self-sufficiency has created overcapacity, intensifying competition for third country arms markets, and reducing U.S. export opportunities. Paralleling this decline in U.S. world defense market, a decline in general competitiveness has eroded the U.S. industrial base as well. The U.S. ratio of defense trade with NATO has fallen from a 9:1 U.S. advantage in 1980 to a 1.4:1 advantage in 1988. The value of this trade remains under 2 percent of the DoD acquisition budget.

Taken together, reduced U.S. competitiveness and declining U.S. ability and willingness to finance allied defense needs brought about: a) increased dependence on allies' capabilities to produce a growing share of their defense materiel and equipment; b) expanded transfers of technology to enable them to produce more sophisticated defense equipment; c) expanded U.S. dependence on foreign sources of dual-use components for U.S.-produced weapons systems; and d) increased U.S. dependence on the allied defense industrial base, and on the broader allied production base (both for dual-use components and product R&D).

The Task Force shares national concerns over the consequences resulting from a decline of the U.S. defense industrial and general production bases and over the related decline in U.S. technology leadership. These forces increase U.S. dependence on offshore capabilities. They also increase the potential for divergence in defense objectives with NATO or PACRIM countries, as their freedom of action grows with expanding self-sufficiency and reduced dependence on U.S. defense assistance. Erosion of U.S. dominance in technologies, mirrored in rapid dispersion of sophisticated defense and dual-use technologies throughout the developed and industrializing world, also brings growing risk of technology leakage to hostile powers.

NATO / PACRIM COMPARISON

DEFENSE
SCIENCE
BOARD

NATO

- MULTILATERAL ALLIANCE
- REGULAR REGIONAL CONSULTATION
- COMMON THREAT
- COORDINATION OF FORCES MULTINATIONAL
- DIVERSE, MAINLY INDUSTRIAL ECONOMIES
- MODEST U.S. CONCERNS WITH EUROPEAN ECONOMIC COMPETITION

PACRIM

- BILATERAL AGREEMENTS
- LESS FORMAL CONSULTATIVE FRAMEWORK
- DIVERSE THREATS
- COORDINATION OF FORCES MAINLY BILATERAL
- WIDELY DIVERSE, INDUSTRIAL/ INDUSTRIALIZING ECONOMIES
- CONCERNS WITH EMERGING ASIAN ECONOMIC, TECHNOLOGY COMPETITION

**WE SHOULD NOT AUTOMATICALLY EXTRAPOLATE
NATO-STYLE DEFENSE INDUSTRIAL COOPERATION
TO PACIFIC RIM**

Significant differences exist between the relationships of the U.S. to NATO and the U.S. to Pacific Rim countries, and within the Pacific Rim itself. The structure of the NATO Alliance facilitates negotiation of defense industrial programs and timely resolution of disputes. There are standard procedures for defense industrial activity within the Conference of National Armaments Directors in NATO. Specifically, Senior National Representatives of the U.S. armed services play an important role in determining common needs of the U.S. and its allies. Similar organizational assets do not accompany bilateral negotiations with Pacific Rim countries. A bureaucratic familiarity, which would be impossible to duplicate in the Pacific Rim, exists among the NATO members.

The NATO alliance has in large measure been focused on a common, prominent threat, and bonded by a common recent history. Most NATO members have achieved similar levels of industrial development. Although the extent of the U.S. technology lead has diminished over time, the U.S. still maintains a significant technology advantages relative to other NATO members. The market reforms of 1992 raise some competitive questions for the U.S., but the U.S. maintains its competitive advantage in important commercial and defense markets. Questions of U.S. competitiveness vis-a-vis NATO are not as pressing as are questions of U.S. competitive strengths vis-a-vis the North Pacific.

Defense industrial cooperation with Pacific Rim countries is substantially different from cooperation with NATO. Some program-specific and research-oriented bilateral agreements for defense cooperation exist between the U.S. and Pacific Rim countries, but cooperation does not occur on the scale that it does within NATO. This is in part due to the lack of structured defense relationship with the Pacific Rim as a region. Problems caused by the lack of structure are compounded by the fact that Asian governments and manufacturing firms are structured and conduct business significantly different from their European or U.S. counterparts.

Pacific Rim countries have varied interpretations of threats to their national security. For example, residual World War II animosity toward Japan remains in many Pacific Rim countries, particularly Korea and the PRC. Yet other countries harbor suspicion of the regional aspirations of the PRC.

Soviet economic emphasis and positive diplomacy toward Asia may lead to some "political warming" and Asian economic interests in Soviet trade and investment.

Within the Pacific Rim there is a wide range of manufacturing and technical capabilities. Thus U.S. cooperation in the Pacific is more disparate than in NATO, with cooperative projects ranging from logistics support agreements with Singapore, to co-production programs in Korea, to co-development programs with Japan. U.S. industry faces stiff competitive challenges in the Pacific Rim particularly in countries where governments promote their defense industries for national economic gain. Because of rapid industrial development in the Pacific Rim and the export orientation of Pacific Rim industry, the future risks and benefits of U.S. cooperation are potentially greater than in NATO.

PACRIM ENVIRONMENT

DEFENSE
SCIENCE
BOARD

- **DYNAMIC ECONOMIC DEVELOPMENT**
- **WORLD FINANCIAL POWER CENTER**
- **HIGHER REAL GROWTH RATES THAN EUROPE AND NORTH AMERICA**
- **LARGEST CONCENTRATION OF POPULATION AND MARKET POTENTIAL**
- **DESIRE FOR DEFENSE INDUSTRY SELF-SUFFICIENCY IN MANY COUNTRIES**
- **HIGH QUALITY HUMAN CAPITAL AND EDUCATION SYSTEMS IN MANY COUNTRIES**
- **DEFENSE MARKET APPROACHING LEVEL OF NATO**
- **DEMONSTRATED EXPORT ORIENTATION (IF NOT YET IN ARMS, IN SOME RELATED AREAS)**
- **JAPAN ACHIEVING WORLD CLASS DEFENSE, AEROSPACE, TELECOM INDUSTRY BY YEAR 2000**
- **JAPAN GAINS INFLUENCE AS THE LARGEST SOURCE OF ECONOMIC AID, DEVELOPMENT AND INVESTMENT**
- **PACRIM BECOMING JAPANESE "ECONOMIC SPHERE OF INFLUENCE"**
- **JAPAN'S DEMONSTRATED COMPETENCE IN POLICIES THAT PROVIDE GOOD POSITION FOR EITHER "ECONOMICS TAKES COMMAND" OR "STATUS QUO" SCENARIOS**

The Pacific Rim is a uniquely dynamic economic region. Growth rates in general exceed that of NATO countries as a whole, showing a 29 percent increase in real GDP from 1980-86, compared with 25 percent for NATO (excluding the U.S.). Including China the growth rates of the two regions are a stand-off at 25 percent. Minimum annual growth rate of 5 to 7 percent until the end of the century is projected. With its accompanying rapid gains in real income, Asia's huge population (including China, almost four times that of NATO) increasingly translates into market power. In 1986 its value as a market was about 55 percent that of European NATO, but is expected to reach 70 percent by 1992. A most telling indicator of its new economic strength is the magnitude of its trade imbalance with the rest of the world, which, at \$66 billion in 1985 dwarfed NATO surpluses of \$9 billion. PACRIM trade surpluses with the U.S. accounted for roughly two-thirds of the U.S. trade deficit. These rapidly accumulating surpluses brought about a swift and dramatic shift of world financial power to East Asia, largely concentrated in Japan. Despite large government budget deficits, Japan has become the dominant national supplier of economic aid world-wide and of aid and investment in East Asia. Clearly Japan, Korea, and most other Asian countries covered by this study are well positioned to thrive on a PACRIM scenario dominated by economic priorities -- by virtue of their competitive strengths, technological dynamism, and aggressive commercial policies.

At the same time, by concentrated efforts to expand defense self-sufficiency, and with unique dual-use technology advantages, many PACRIM countries have also positioned their economies well to respond to any continuation or outbreak of military conflict in the region, should that scenario come to dominate again at some future date. Defense self-sufficiency is receiving greater priority in spite of perceptions of reduced superpower tensions. As a defense market, the PACRIM is gaining on NATO. Measured in terms of defense budgets, those of the PACRIM including China were roughly 70 percent of those for NATO excluding the U.S. in 1986-87. Although this percentage was lower than for 1980-81 because of sharp cutbacks in PRC defense spending, the remaining countries showed a marked expansion relative to growth in NATO spending (current dollar equivalents). Defense imports as a percent of total imports for PACRIM countries were more than twice as large a share, with or without the PRC, at roughly 1.5 percent in 1986-87. With their striving for self-sufficiency, this percentage could decline over time even as growth of the region causes defense trade to increase in absolute value.

In qualitative terms, Japan leads the region, with world-class defense or dual-use industries in aerospace, telecommunications, electronic systems, microelectronic devices and components, optical systems, and advanced materials, among others. Japan will achieve defense technology leadership in at least several of these fields before the year 2000. Korea advances steadily toward world-class capabilities in land-based-defense industries, having been a world leader in ship-building capabilities for many years. Korea now seeks to develop an aerospace industry. The PRC, Singapore, Australia and Indonesia all aspire to (and do) export defense equipment. As dual-use technologies come increasingly to drive progress in defense systems in the 1990's, Japan, closely followed by Korea, Taiwan, and in limited and specialized areas Singapore, will play an even more prominent role as defense producers and suppliers, since these technologies will be driving economic growth as well. The PRC will continue to use exports from their defense industries to achieve foreign currency. The ability of the PRC to produce low-cost conventional weapons has already attracted Thailand away from U.S. defense equipment.

From the perspective of their rising economic stature, trade surpluses, and ascendent trends in dual-use and defense technologies, reinforced by their observation of visible reductions in the U.S. defense, economic, and financial presence in the PACRIM region since 1975, these PACRIM nations understandably see the United States as a superpower in relative but persistent decline, both globally and in the Pacific. However, they still recognize the U.S. as providing the nuclear security shield under which a vibrant economic environment can prevail without risks to their key U.S. trading power.

Consider the following quote from an Address by then Under Secretary of State Michael H. Armacost, currently U.S. Ambassador to Japan, May 16, 1988

-- Assuming a continuation of present policy moves to liberalize financial, trade, and foreign investment rules, the East Asian region should amass the world's largest and most modern stock of industrial capital. At present East Asian nations are investing nearly 20 percent more of their industrial capital in real terms than the United States, an annual gap of roughly \$120 billion. The consequences for comparative industrial strength in the future are self-evident.

-- By the end of the century, East Asia could provide the world's largest source of credit. Already, Japan is the world's largest net creditor nation, while the United States has become the largest net debtor. In the future, competing demands for Japanese funds -- and for surplus capital from the newly industrialized countries (NIC's) of East Asia (e.g., Korea, Taiwan, Singapore, and Hong Kong) -- will come from Latin America, Africa, and the commodity exporters of Southeast Asia. This will give the Japanese and the NIC's a growing ability to influence international financial affairs.

-- East Asia may also become the world technological leader. A recent survey of trends in nine key technologies suggests that Japan may soon achieve a clear lead in four (semiconductors, advanced structural materials, manufacturing technology, and bio-technology), rough parity in two (telecommunications and data processing), while still lagging somewhat in three (aircraft, space, and nuclear power). The technological prowess of other East Asian nations will be augmented, and U.S. and Japanese investors will disperse technological know-how to them through direct investment and the relocation of licensed production facilities. East Asian NIC's already host a large part of the regional semiconductor industry and they are focusing future efforts on luring bio-technology industries.

In short, we already face a formidable industrial, financial, and technological challenge from the nations of East Asia. That challenge will continue to grow.

BACKGROUND: WHAT IS PACIFIC RIM?

DEFENSE
SCIENCE
BOARD



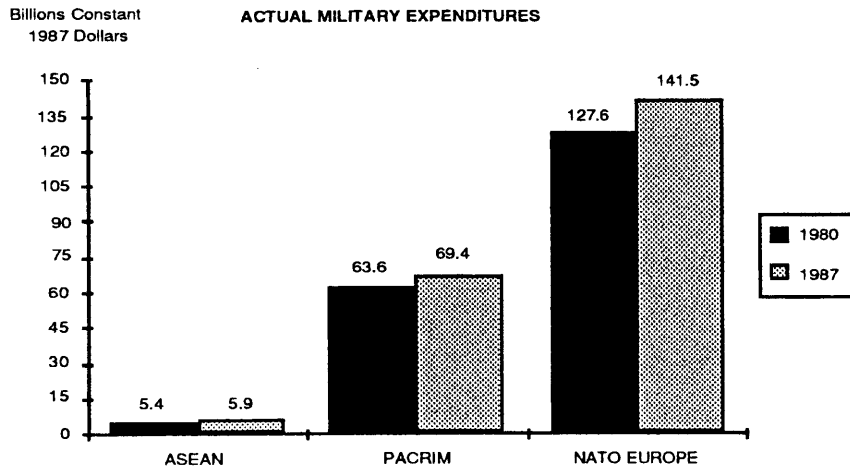
	GDP (B)	DEF Budget (B)	POP (M)
AUSTRALIA	194.2	5.03	16.6
INDONESIA	68.4	1.32	172.6
JAPAN	2119.6	25.42	122.1
KOREA (SOUTH)	121.3	5.73	42.9
MALAYSIA	33.2	.85	16.1
PRC	271.7	21.75	1072.0
PHILIPPINES	34.6	.53	57.7
SINGAPORE	21.5	1.13	2.6
TAIWAN	94.5	5.90	20.7
THAILAND	47.1	1.74	53.9
TOTAL	3006.1	69.40	1577.2
UNITED STATES	4461.2	283.50	245.3
(1987 FIGURES)			

*NOTE: THIS DSB TASK FORCE WAS NOT CHARGED TO ASSESS TAIWAN'S ROLE IN THIS STUDY. WE RECOGNIZE TAIWAN'S REGIONAL ECONOMIC IMPORTANCE AND ITS POTENTIAL TO CONTRIBUTE TO REGIONAL SECURITY. DATA FROM CIA, UN, AND INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES.

The Pacific Rim countries considered for this report have growing economies and varied levels of defense spending. The population of the Pacific continues to grow, with a total of over 1.5 billion people -- a staggering number when compared to the 830 million people in all Europe. The Pacific Rim comprises almost a third of the world's population of 5.04 billion people. The dynamic countries of the Pacific will have continually increasing visibility in world affairs in the coming years.

COMPARATIVE DEFENSE SPENDING

DEFENSE
SCIENCE
BOARD

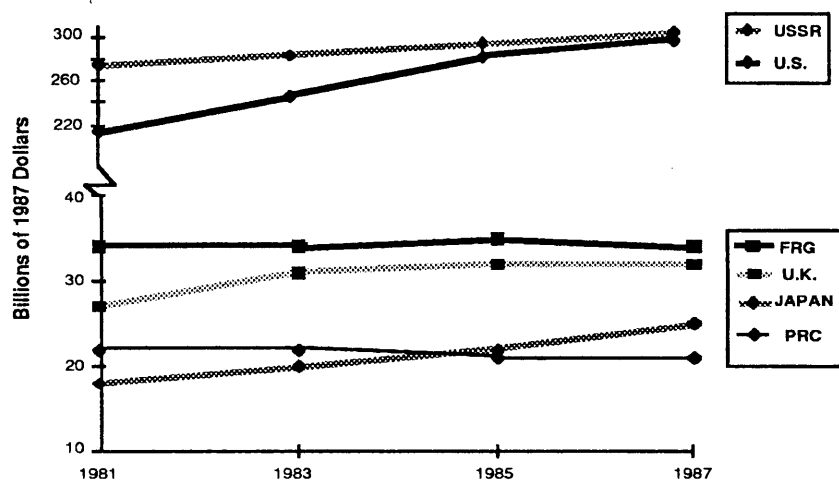


Source: World Military Expenditures and Arms Transfers, 1988,
Washington, D.C.: U.S. Arms Control and Disarmament Agency.

Defense expenditures in the Pacific Rim have risen steadily in the 1980s, due to increases in defense spending in Japan, Australia, Korea, Singapore and Thailand. The total amount of defense expenditure is much lower than that of European NATO members, but Pacific Rim countries (with the exception of Japan) spend an equivalent percentage of GNP on defense. In the immediate future, military expenditures in the Pacific Rim are likely to continue rising slowly. Although expenditure levels in NATO are likely to plateau or even fall, the gap in expenditure levels between NATO and PACRIM will remain. As the expenditure figures for ASEAN countries help illustrate, Japan, China, Australia and Korea account for the bulk of Pacific Rim expenditures.

TRENDS IN DEFENSE EXPENDITURES

DEFENSE
SCIENCE
BOARD



Source: World Military Expenditures and Arms Transfers, 1988,
Washington, D.C.: U.S. Arms Control and Disarmament Agency.

U.S. and Soviet levels of military expenditure are several orders of magnitude above other important defense leaders. Recent trends in defense spending indicate that Japan is approaching the spending levels of important NATO members. In most assessments of defense spending, Japan's military expenditures have surpassed those of China. (Data on Chinese defense spending usually reflects the best estimates of U.S. experts; the impact of exchange rates on such figures is significant, bringing into question the accuracy of even the best data). Nevertheless, based on spending power alone, Japan has the potential to emerge as a regional military power. Its defense budget for FY 1989 is \$32 billion, placing it about even with West Germany and Britain in budget allocation for defense. If current trends continue, Japan will be number three in the world based on defense expenditures alone.

The Task Group conducted a more detailed PACRIM Country Assessment which is included in Annex II (classified).

KEY LEGISLATION

DEFENSE
SCIENCE
BOARD

- 1986 NUNN AMENDMENT - ENCOURAGED DOD TO COOPERATE IN R&D WITH NATO ALLIES
- 1987 QUAYLE AMENDMENT - CLARIFIED FUNDING FOR INTERNATIONAL COOPERATIVE PROGRAMS OUTSIDE THE PROVISIONS OF FOREIGN MILITARY SALES.
- 1987 FY 1987 DEFENSE AUTHORIZATION ACT - EXPANDED COUNTRY PARTICIPATION TO "SELECTED" (BY SECDEF) NON-NATO COUNTRIES
- 1988 TRADE AND COMPETITIVENESS ACT OF 1988 AUTHORIZES NEGOTIATION AND PENALTIES AIMED AT IMPROVING FOREIGN MARKET ACCESS ("SUPER 301"). INTELLECTUAL PROPERTY PROTECTION ("SPECIAL 301") AND TELECOMMUNICATION MARKET ACCESS (DANFORTH PROVISIONS) FOR U.S. FIRMS.
- 1989 FY 1989 DEFENSE AUTHORIZATION ACT (SEE APPENDIX III) INTRODUCED CONCERNS FOR U.S. DEFENSE INDUSTRIAL BASE. AMENDED ARMS EXPORT CONTROL ACT TO AUTHORIZE LOANS OF DEFENSE ARTICLES TO NATO COUNTRIES AND MAJOR NON-NATO ALLIES FOR COOPERATIVE RDT & E WITHOUT REQUIREMENT FOR REIMBURSEMENT.

Congressional concerns, e.g., reducing U.S. defense expenditures through cooperative (and in some cases competitive) programs with our allies, and pressures to maintain our defense industrial base contributed to conflict in our existing (e.g., FSX) and future defense industrial cooperation in the PACRIM. The Defense Authorization Act of 1989 authorized \$150 Million of "Nunn" monies for cooperative programs. \$15M of this amount is authorized by SECDEF to spend on cooperative programs with selected non-NATO countries, i.e., Japan, Korea, Australia, Israel and Egypt. Expectations for growth in available "Nunn" monies is the plan. Meanwhile, the Defense Authorization Act of 1989 also resulted in the passage of Public Law 100-456 related to concerns for the U.S. Defense Industrial Base (APPENDIX III). A revised Defense Production Act (1950) is also due to be passed this year which could contain protectionist measures such as preferred procurement from domestic sources for "critical technologies and materials" and protection from "unfair foreign competition".

Thus, DoD is faced with executing somewhat conflicting legislative requirements through the provisions of these key legislative actions which affect international defense industrial cooperation.

MAJOR FINDINGS

FINDINGS: U.S. DEFENSE INDUSTRIAL COOPERATION POLICY

**DEFENSE
SCIENCE
BOARD**

- **NATIONAL AND INTERNATIONAL CHANGES HAVE OVERTAKEN EXISTING POLICIES**
 - **EXECUTIVE/CONGRESSIONAL POLICIES/LEGISLATION ARE FRAGMENTED AND ARE REACTIVE TO ECONOMIC AND POLITICAL CHANGE.**
- **EXTRAPOLATION OF PRESENT DEFENSE INDUSTRIAL COOPERATION POLICIES ARE NOT APPROPRIATE TO PACRIM**
 - **DOD POLICIES ORIENTED TOWARD NATO ARMAMENTS COOPERATION AND "ASSISTANCE" VERSUS "COOPERATION"**
- **DOD PERSONNEL BILLETS (FOREIGN AND DOMESTIC) FAVOR LOGISTICS ASSISTANCE RATHER THAN ACHIEVING EXPERTISE WITH DEFENSE INDUSTRIAL ORIENTATION.**
- **TIME-CONSUMING PROCEDURES DETER DEFENSE INDUSTRIAL COOPERATION**

Conflict between past objectives of sales and future of cooperation...emphasis must be shifted.

If risks of defense industrial cooperation in the Pacific Rim are to be minimized and the benefits maximized, a thorough policy review is necessary. Existing policy does not address the full range of methods for defense cooperation; it is still largely oriented toward foreign military sales cooperation with NATO allies and "assistance" vis-a-vis "cooperation" in the PACRIM. Future policies should consider the impact and diversity of forms of defense cooperation between the U.S. and Pacific Rim countries. Events have overtaken existing policy. Implementation of defense industrial cooperation is dominated by the non-technical side of Office of Secretary of Defense, and does not adequately involve the industrial base office of the Under Secretary for Acquisition.

Current executive branch policy, as contained in DoD directives and memoranda, reflects the U.S. preoccupation with armaments sales and cooperation with NATO. Recent legislative direction on issues of defense industrial cooperation has centered on protection of the U.S. industrial base. In particular, the 1989 Defense Authorization Act focuses strongly on all areas impacting the U.S. industrial base to include offsets, MOUs, technology transfer, machine tools, etc. Concerns for issues such as technology flow-back to the U.S. and protection of U.S. technology abroad have recently intensified.

Because of the differences between the rapidly changing Pacific Rim and NATO, an extension of current policy would not be adequate for defense industrial policy. Current policy was primarily developed with NATO, and geared mainly toward sales. The transfer of technology involved in a sale is significantly different from that involved in other forms of defense industrial cooperation such as co-production and co-development. Transfers of defense technology have become particularly problematic in some Pacific countries; policy must address transfers of technology involving countries other than NATO members. Additionally, the complexity and time intensive nature of current procedures for cooperation tend to alienate even NATO countries.

DEFENSE INDUSTRIAL COOPERATION PERSONNEL ALLOCATION

DEFENSE
SCIENCE
BOARD

DEFENSE INDUSTRIAL COOPERATION	NATO	PACOM
OSD OVERSEAS	40	6
OSD (I&IP)	10	3
SERVICES	25	9
SECURITY ASSISTANCE		
OSD OVERSEAS	191	250
DSAA	8	7

PERSONNEL ASSIGNED: SECURITY ASSISTANCE & DEFENSE INDUSTRIAL COOPERATION

Key considerations:

1. In **Defense Industrial Cooperation**, over four times as many defense personnel are concerned with NATO as with PACOM (The ratios are 20:3 in overseas assignments, 10:3 in OSD (I&IP), just over 8:3 in the Services, and 13.3:3 overall, or 75 billets in NATO compared to 18 in PACRIM).
2. By contrast, in **Security Assistance** (SA) the NATO/PACOM ratio of overseas assignments for OSD is roughly 3:4, with three assigned to NATO for every four (roughly) to PACRIM.
3. For every OSD person assigned overseas in these two regions there are nearly 7.5 times as many working in **Security Assistance** as in **Defense Industrial Cooperation** -- 441 to 46.
4. Conclusions:
 - (a) The SA program is rich in personnel compared to the Defense Industrial Cooperation program.
 - (b) The SA program might provide a feasible source of billets to improve the balance of defense industrial cooperation staffing between NATO and PACOM.

**FINDINGS RE: PACRIM-U.S.
ARRANGEMENTS RELATED TO
DEFENSE INDUSTRIAL COOPERATION**

**DEFENSE
SCIENCE
BOARD**

- JAPAN - - - - - SYSTEMS & TECHNOLOGY FORUM
- KOREA - - - - - DEFENSE TECHNOLOGY & INDUSTRY COMMITTEE
 - • U.S.-KOREAN DEFENSE INDUSTRIAL COOPERATION COMMITTEE
- AUSTRALIA - - - - - 1968 MOU ON R&D COOPERATION
 - - - - - THE TECHNICAL COOPERATION PROGRAM (TTCP)

Currently there exist three loosely structured organizational arrangements with Japan, Korea and Australia to provide government-to-government dialog for cooperative programs. Each agreement is country specific and therefore varies. Only the agreement with Korea addresses, in part, industrial cooperation. Most efforts to date have been ad hoc in nature, stemming from reactive actions to senior level visits or political actions.

Australia is currently urging expansion of 1968 agreement to include co-production.

These arrangements should be evaluated. If they are productive, they should then be updated.

**U.S.-JAPAN EXCHANGE OF NOTES (1983)
JAPAN'S DEFENSE TECHNOLOGY FLOW AGREEMENT
(EXCERPTS)**

**DEFENSE
SCIENCE
BOARD**

"...AND RECOGNIZING THE NEW SITUATION WHICH HAS BEEN BROUGHT ABOUT BY INTER ALIA, THE RECENT ADVANCE OF TECHNOLOGY IN JAPAN...JAPAN HAS DECIDED TO RECIPROCATE...BY OPENING A WAY FOR THE TRANSFER TO THE UNITED STATES OF AMERICA OF MILITARY TECHNOLOGIES."

"...THE GOVERNMENT OF JAPAN CONFIRMS THAT THE TRANSFER OF ANY DEFENSE-RELATED TECHNOLOGIES IS IN PRINCIPLE FREE FROM RESTRICTIONS, AND WELCOMES THE TRANSFER TO THE UNITED STATES OF AMERICA OF DEFENSE-RELATED TECHNOLOGIES...BY MUTUAL CONSENT OF THE PARTIES CONCERNED. SUCH TRANSFER WILL BE ENCOURAGED."

BUT - - NEGLIGIBLE RESULTS TO DATE

This exchange of notes was regarded as a breakthrough which would facilitate reciprocal exchange of technology between the U.S. and Japan. It led to great expectations (see DSB Japan Report) at the time. However, very little has happened substantively. Why?

- Bureaucratic inertia in both governments
- Political sensitivity of technology transfers (Toshiba, FSX, Japanese Arms Export Policy)
- Japanese industrial caution -- In Japan, industry owns the technology and is protective of all technology for commercial reasons.
- Japanese industry is reluctant to place its technology under Government control due to restrictions (e.g., security, technology transfer, etc.) that could affect the development of commercial applications.

FINDINGS: FSX EXPERIENCE WHAT DID WE LEARN?

**DEFENSE
SCIENCE
BOARD**

- 1. WE LACK A LONG-TERM TECHNOLOGY/ECONOMIC/POLITICAL FRAMEWORK FOR LARGE-SCALE COOPERATIVE PROGRAMS INVOLVING ADVANCED DUAL-PURPOSE (MILITARY AND COMMERCIAL) TECHNOLOGIES**
- 2. GREATER UNDERSTANDING THAT ECONOMIC ISSUES AND TECHNICAL/SECURITY ISSUES MUST BE COMBINED INTO A LONG-TERM SENSE OF DIRECTION**
- 3. PARTICIPATION BY CONGRESS AND OTHER ELEMENTS OF THE ADMINISTRATION IS NECESSARY TO DEVELOP THIS COHERENT VIEW**
- 4. GREATER AWARENESS OF THE INCREASINGLY PRECARIOUS COMPETITIVE POSITION OF U.S. TECHNOLOGY AND ITS KEY ROLE IN FUTURE ECONOMIC SECURITY**
- 5. THE CREDIBILITY OF THE U.S. AS A SUPPLIER IS IN QUESTION WITHOUT POLICIES AND COMMITMENTS THAT SPAN CHANGES IN ADMINISTRATION**

The controversy aroused by the proposed terms of the U.S.-Japan FSX agreement alerted Congress and the public to generic issues, common to such agreements, that had largely been ignored heretofore: (a) how do such agreements affect U.S. technology leads and industrial competitiveness? (b) is the U.S. sharing critical defense technologies too extensively or too freely? (c) should the U.S. be holding out for greater export benefits or technological back flow? (d) how should procedures for developing and negotiating these agreements be changed to protect U.S. defense and economic interests more effectively?

As a result of the FSX controversy, procedures for developing such defense industrial cooperation agreements have been changed to require direct participation in decision-making by elements of government responsible for industrial base issues; these include the Department of Commerce, and the Under Secretary of Defense for Acquisition.

These issues are highly relevant to defense industrial cooperation with countries that have demonstrated capabilities to rapidly convert advanced technologies to commercial and military use. They may have special application in cooperation agreements with Pacific Rim countries less competitive in advanced technologies, when the technologies involved are uniquely important for defense or industrial competitiveness.

New procedures announced by DoD explicitly call for consideration for the effects of cooperative international agreements on the U.S. industrial base, but omit reference to consideration of the technology base. It is important to remedy this omission because they differ in important ways. The U.S. could lose its capability to lead in technology while remaining a leading producer, or the reverse.

While it is important to give full consideration to new concerns - - impact on U.S. technology and industrial base, and appropriate sharing of production and technology benefits - - the debate over the FSX did little to clarify how planners and negotiators should calculate the balance of potential risks and benefits.

Opponents of the FSX emphasized its potential costs: (a) loss of key technologies and technological leadership; (b) risks of foreign commercialization at U.S. expense; (c) insufficient work-share for U.S. firms; and (d) loss of exports that the U.S. might have achieved by reduced technology sharing and lower co-production shares.

THE FSX EXPERIENCE - - - - - CONCLUSIONS

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THE FSX CONTROVERSY DRAMATIZED THE NEED FOR:

- **AN INTEGRATED U.S. STRATEGY INVOLVING TECHNOLOGY, ECONOMICS AND SECURITY**
- **A PRAGMATIC APPROACH TO COOPERATION**
 - - - CLEARLY STATED MUTUAL BENEFITS BEYOND SHORT-RANGE FINANCIAL RESULTS
 - - - RECOGNITION OF IMPORTANCE FOR FUTURE OF DUAL- USE TECHNOLOGIES
 - - - IMPACT ON U.S. TECHNOLOGY BASE
- **ACTIVE CONGRESSIONAL AND EXECUTIVE COORDINATION OF MAJOR PROGRAMS**

**DEFENSE INDUSTRIAL COOPERATION CAN BE
IMPORTANT IN SUPPORT OF MUTUAL
SECURITY ARRANGEMENTS**

- - - BUT ONLY UNDER THESE CONDITIONS

Proponents emphasized: (a) potential for access to new technology from an emerging technology leader; (b) risks of undermining expanding, Japanese openness to technology cooperation; (c) risks of provoking greater Japanese effort to gain an independent technology base and to steer a more independent defense policy; (d) strong preference of Japanese officials to produce not buy; and (e) ready availability of equivalent or competing product or technologies from other advanced nations.

Beyond these pros and cons lie additional considerations - - how important as potential offsets to the industrial and technological risks of sharing are such broad considerations as retaining a friendly and cooperative bilateral relationship, and the possibility of reaching resolution on outstanding defense, trade, and technology issues as part of a cooperation agreement.

The change in procedure to include those responsible for industrial base considerations in the decision-making process is a step in the right direction, and should improve consideration of the alternative costs, risks, and benefits involved and achievable, but is the easy part. Deciding how to quantify and balance these costs, risks, and benefits, and which are avoidable and achievable, is the hard part.

The U.S. has been wide open (de facto national policy) on sharing basic science and technology - - e.g., in this case, computer codes for large scale computational aerodynamic design, basic to Japan's long range goal of a world-class competitive aerospace industry.

The transfer of a specific design will not affect attainment of this long term goal as will sharing of the underlying basic technologies in this and other fields.

A coherent U.S. policy for defense industrial cooperation is necessary if problems such as those which arose with the FSX are to be avoided in the future. U.S. policy must promote better coordination within and between the Executive and Congress. Important Executive Branch participants include DoD, Department of State, Department of Commerce, U.S. Trade Representative, Central Intelligence Agency, National Security Council and the Department of Labor. Policy must stress coordination, particularly on issues of U.S. competitiveness and basic science and technology research. If concerns of the various agencies are not addressed in policy, defense industrial cooperation will continue to be a policy problem.

FINDINGS: CHANGING NATURE OF DEFENSE TECHNOLOGY

**DEFENSE
SCIENCE
BOARD**

- **MATURING AND GENERAL TECHNOLOGICAL LEVELING OF MOST DEFENSE TECHNOLOGIES**
 - **INTERNATIONALIZATION OF AEROSPACE/DEFENSE INDUSTRY**
- **U.S. STILL HAS OVERALL LEAD — BUT IS NO LONGER UNIQUE**
 - **EUROPE AND JAPAN RAPIDLY NARROWING GAP**
 - **OTHERS WILL PROGRESS STEADILY**
- **TREND TOWARDS COMPLEXITY OR "MACRO SYSTEMS" INTEGRATION AT HIGH END (SOFTWARE INTENSIVE)**
 - **CONTINUED U.S. LEAD HERE WHICH SHOULD BE PROTECTED**
 - **EXAMPLES: LARGE-SCALE C³I, ASW, AEW, ATBM, PRECISION LONG-RANGE FORCE PROJECTION ETC.**
 - **CONTINUED U.S. "NICHE", E.G., LEAD IN STEALTH, FIGHTER AIRCRAFT PERFORMANCE, JET ENGINES AND SPECIALTY AIRCRAFT**
- **YEAR 2000 AND BEYOND WILL BE DOMINATED BY**
 - **THE INFORMATION INDUSTRIES**
 - **DUAL-USE TECHNOLOGIES**
- **CONTINUED WORLD-WIDE RACE IN TECHNOLOGY**
 - **DRIVEN BY DUAL-USE TECHNOLOGIES**
 - **INCREASING COMMERCIAL/DEFENSE TECHNOLOGY LINKAGE**
- **RAPID DIFFUSION AND PERISHABILITY OF TECHNOLOGY**
- **ADVANCED INFORMATION TECHNOLOGY IS PROFOUNDLY CHANGING GLOBAL COMPETITION, BOTH COMMERCIAL AND MILITARY**

Policies concerning future technology sharing and cooperative developments should be evolved with full recognition of certain fundamental trends in the nature of defense technology. These changes are occurring rapidly. They will have profound effects on defense systems and can complicate long-term cooperative arrangements.

For example, it would be hard to overestimate the importance of dual-purpose technology and the linkage between the worlds of commercial and defense equipment (or product) developments. With a common technology base in terms of basic components and design approaches, and in terms of materials and information sciences, conflicts between "cooperation" and "competition" will increasingly arise and must be addressed head-on.

Similarly, the rapid dissemination (and therefore perishability) of technology is a fact of life, as is the international levelling of industrial defense-related capabilities.

We note the "high-end" macro-systems (large integrated systems, software intensive, fusion of data, etc.) as of particular importance to overall defense capabilities and as an area in which the U.S. must maintain leadership momentum.

FINDINGS: HIGH-TECH DEFENSE-RELATED INDUSTRIAL COOPERATION

DEFENSE
SCIENCE
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- LARGE AND GROWING PACRIM HIGH-TECHNOLOGY INDUSTRIAL COOPERATION ALREADY TAKING PLACE OUTSIDE OF DEFENSE

E.G.: SATELLITES
ADVANCED INTEGRATED CIRCUITS
LAUNCH VEHICLES
SOFTWARE

AERODYNAMIC DESIGN
MATERIALS
COMPUTERS
COMMERCIAL AIRCRAFT

ALL ARE DUAL-USE TECHNOLOGIES

- IN THE PAST, U.S. HAS UNILATERALLY TRADED ADVANCED DEFENSE TECHNOLOGY FOR SUPPORT BY OTHER NATIONS FOR INCREASED MUTUAL SECURITY
 - POLICY HAS BEEN "SUCCESSFUL" IN EUROPE AND JAPAN IN TERMS OF ORIGINAL GOALS OF POSTWAR U.S. FOREIGN POLICY
- NEED NOW TO EMPHASIZE TWO-WAY FLOWS OF TECHNOLOGY AND ECONOMIC BENEFITS

Many "dual-use" industries -- those which produce commercial products that are also highly important to defense -- are now truly international industries in which firms based throughout the world compete in markets worldwide often entering into joint arrangements for developing and producing products. International licensing of technology between firms is commonplace in the commercial arena. Large, multinational, high technology firms, U.S. and foreign, have research, development, and production facilities worldwide, both to take advantage of capabilities around the world and to compete effectively in global markets.

It must be recognized that globally there is a wide-range of firm-to-firm international cooperation of direct relevance to defense that is not directly under the purview of DoD policy or control. Moreover, this "dual-use" international technology cooperation has spread the technology base applicable for developing and producing defense components and systems to many countries that previously lacked such capabilities. This has been particularly true in the Pacific Rim.

Given this fundamental "globalization" of technology, ***security assistance-based efforts must be supplanted by industrial cooperation programs that are responsive to economic as well as defense interests.***

FINDINGS: INTERNATIONAL DEFENSE INDUSTRY

**DEFENSE
SCIENCE
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DEFENSE INDUSTRIAL TRENDS WORLDWIDE

- **NATIONAL PUSH FOR SELF-SUFFICIENCY**
- **GROWING DEFENSE INDUSTRY CAPACITY WITH DECLINE IN DEMAND**
- **NUMEROUS COSTLY NATIONAL DEFENSE (DEVELOPMENT AND MANUFACTURE) PROGRAMS, E.G. PLANES, MISSILES, RADARS, ETC.**
- **SEVERE PRESSURE FOR EXPORT SALES**
- **DIRECT OFFSETS CONTINUE TO CONTRIBUTE TO INTERNATIONAL TECHNOLOGY LEVELING**
- **INTERNATIONAL JOINT VENTURES IN DEFENSE RELATED INDUSTRIES (AEROSPACE/ELECTRONICS) ARE ON THE INCREASE AS A RESULT OF UNDER-CAPACITY (COMMERCIAL AIRCRAFT), JOINT INVESTMENT AND/OR RECIPROCAL TECHNICAL EXCHANGE. MILITARY EQUIPMENT CURRENTLY NOT A MAJOR COMPONENT OF THIS INDUSTRIAL COOPERATION IN THE PACRIM.**

Defense industry in some Pacific Rim countries has matured to the point where purchasing military systems from the U.S. is no longer the preferred means of providing for their defense. A general trend is to seek co-production arrangements with U.S. or other advanced foreign firms as a step toward independent production. Infusion of advanced technology is essential to industrial expansion in many Pacific Rim countries. This trend has led to increased world capacity in major defense systems at a time when demand for such systems is slipping. Relatively small domestic markets have pushed some Pacific Rim manufacturers to look toward increasingly competitive export markets to defray costs of production. Some of the same countries also employ offsets to foreign purchases in order to increase access to advanced technology and promote self-sufficiency.

The U.S. currently enjoys a positive balance of defense trade with its PACRIM neighbors. However, U.S. commercial trade balance with PACRIM countries accounts for two-thirds of the trade deficit. Within the Pacific Rim, there is a wide range of manufacturing capabilities, but one commonality is the desire to increase technological base and industrial output by entering cooperative arrangements with international firms.

Cooperative ventures, when properly managed can reduce the negative impact on the economic health of the U.S., and limit the losses incurred by extreme offsets. International cooperation distributes commercial benefits while reducing the potential for excessive offset requirements. **It is not prudent to pursue expanded defense industrial cooperation in the absence of policy which places U.S. economic security interests first.**

FINDINGS: DEFENSE INDUSTRY IN PERSPECTIVE

**DEFENSE
SCIENCE
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- **U.S. DOMINANCE OF FREE WORLD'S AEROSPACE AND DEFENSE MARKETS ENDING**
 - INTERNATIONALIZATION OF INDUSTRY
 - RELATIVE DECLINE OF U.S. TECHNOLOGICAL POSTURE
 - U.S. CRITICALLY DEPENDENT NOW ON FOREIGN (JAPAN) COMPONENTS FOR DEFENSE SYSTEMS
 - WORSENING FINANCIAL PROBLEMS FACING U.S. DEFENSE FIRMS
- **MANY NATIONS (E.G., JAPAN, KOREA, PRC AND AUSTRALIA) STRIVING FOR SELF-SUFFICIENCY IN DEFENSE TECHNOLOGY.**
- **INCREASING CLOSE SYNERGY BETWEEN CONSUMER ELECTRONICS, TELECOMMUNICATIONS, COMPUTER/DATA PROCESSING, DEFENSE ELECTRONICS INDUSTRIES.**
- **JAPAN'S EXPANDING ROLE AS A SOURCE OF TECHNOLOGY**

JAPAN'S NATIONAL POLICY IS TO ESTABLISH WORLD-CLASS AEROSPACE INDUSTRY AND DOMINANT WORLD POSITION IN TELECOMMUNICATIONS AND COMPUTERS BY YEAR 2000.

The United States previously held dominant role as the free world's primary arms supplier has fast eroded during the past decade. The global arms industry has now internationalized. National self sufficiency and domestic arms exports industries in many countries overshadow U.S. security assistance initiatives which heretofore, were key to bilateral security relationships in the Pacific Rim.

A report of the Japan Ministry of International Trade and Industry (*MITI: 2000*) indicates that Japan's goal is to establish itself as a dominant global player in high-tech industries by the year 2000. MITI's more recent report entitled, "Trends and Future Tasks in Industrial Technology," reinforces Japan's policy direction which stresses a cooperative relationship between industry and Government to achieve long-range national goals. Regardless of Japan's ability to exploit these markets, continued U.S. dominance in these industries is not likely. U.S. government and industry must be encouraged to take a joint, long-term view of this situation and important issues such as technology transfer restrictions, foreign investment in U.S. defense and high tech industries.

The point is, it is not Japan's aggressive roadmap for the future that is at fault. *Rather, it has been our own inability to get our act together and create a national vision and set of goals of our own.*

DEFENSE INDUSTRY IN PERSPECTIVE: INTERNATIONALIZATION

DEFENSE
SCIENCE
BOARD

EXAMPLE: INTERNATIONAL FIGHTER/ATTACK AIRCRAFT

	<u>UNITED STATES</u>	<u>INTERNATIONAL</u>	<u>COUNTRY</u>	
CURRENT	F-14	AV-8B	MIRAGE F-1	FRANCE
	F-15	A-7	MIRAGE 2000	FRANCE
	F-16	A-6	TORNADO	UK/FRG
	F/A-18		VIGGEN	SWEDEN
		HARRIER	UK	
PLANNED	ATF	EFA		EUROPE
	ATA	RAFALE		FRANCE
	AGILE FALCON	JAS-39		SWEDEN
	HORNET 2000	AMX		ITALY/BRAZIL
		LCA		INDIA
		FSX		<u>JAPAN</u>
		KFP		<u>KOREA</u>
		IDF		<u>TAIWAN</u>
	F-8		<u>PRC</u>	
ABORTED	F-20	LAVI	ISRAEL	

The aircraft industry, both commercial and military, illustrates the growing internationalization of industry. Today, U.S. military fighter aircraft compete against several European planes in the world market. Although still the leader in aviation technology, U.S. firms are facing strong challenge from competitors as their governments often provide substantial support in obtaining overseas sales.

Several Pacific Rim countries plan future initiatives for introducing new advanced fighters. The FSX development in Japan, a co-development with the United States, signals increasingly ambitious Japanese objectives in the military aircraft arena. Moreover, Korea is looking to produce its own fighter based on substantial technology transfer from the U.S. or Europe.

These planned developments are evidence of considerable "technology leveling" in this key military sector, and of the increasing capabilities of Pacific Rim countries to produce and even develop advanced weapons and other defense systems.

FINDINGS: U.S. DEFENSE INDUSTRY COMPETITIVENESS

**DEFENSE
SCIENCE
BOARD**

- **U.S. DEFENSE INDUSTRY DOWNSIZING IN WAKE OF DECLINING DEFENSE BUDGETS**
- **INDUSTRY PLAGUED BY THE HIGH COST AND SHORTAGES OF CAPITAL AND BY INCREASING RISK AVERSION OF VENTURE CAPITAL**
- **PRESSURES FOR SHORT-TERM PROFITS INDUCE SHORT-TERM, NON-STRATEGIC APPROACHES TO COMPETITION**
- **LACK OF U.S. GOVERNMENT / INDUSTRY COORDINATION AND JOINT STRATEGIES. CONTRASTS WITH FOREIGN "MANAGED FREE ENTERPRISE", AND DISADVANTAGES THE INDUSTRY'S LONG-TERM COMPETITIVE POSITION**

DEFENSE INDUSTRIAL BASE FACES DECLINING BUSINESS

Many segments of the U.S. defense industrial base face difficult times as a combination of factors has reduced demand and increased competition. Continued pressures to reduce the federal budget deficit and lack of politically viable revenue solutions increase the likelihood of further budget cuts beyond 1990. Moreover a global push for defense self-sufficiency, increased export competition, and foreign market access barriers have dimmed prospects for export business, as have Congressional pressures in opposition to certain major defense sales, which result in sales captured by key foreign competitors.

SHORT-TERM PROFIT DEMANDS DRIVE A SHORT-TERM VIEW OF TECHNOLOGY AND COMPETITIVENESS

U.S. firms are under extraordinary pressure from capital markets for short-term results, in part because of their heavier dependence on equity capital than many European and Asian firms, which are financed more by long-term credit and internal funds. Corporate take-overs and leveraged buy-outs have intensified these short-term pressures. Although these same pressures do not apply to privately held firms, there are few of these in defense, or defense-related industries. Firms struggling to show short-term results risk lower stock prices and increased equity costs by undertaking long-term investments and high ratios of R&D to sales. The pressure for short-term profits is all the more restrictive for narrowly specialized companies that cannot draw on cash flow from mature established products to underwrite development of emerging technologies. By contrast, Japanese firms place a premium on maintaining high R&D levels regardless of the stage of the business cycle, draw on cash from within a widely diversified corporate structure, and aim at market share rather than short-term profits because they respond to their corporation banker rather than the stock market. As a result they invest heavily in R&D and are shifting their emphasis toward longer-term research to develop new technologies. Long-range national economic goals and "visions", often followed by government-sponsored and supported research consortia and R&D funding, strongly shape the direction of strategic business plans.

LACK OF U.S. GOVERNMENT - INDUSTRY STRATEGIC APPROACH

The U.S. government, supported by Congress and industry, has consistently taken a long-term strategic approach to national security since the late 1940's. However, with regard to the U.S. economic strategy, a governmental approach was basically *de facto* in nature. Government-industry-labor relations are characterized as more adversarial than cooperative. Divergences from this economic approach have emerged as DoD has concluded that it could not afford to see critical parts of the defense industry and technology base disappear, and as political pressures become proactive in promoting our national industrial base to support employment concerns.

By contrast again, Japan, Korea, and other Asian countries embarked on vigorous, long-term strategies and efforts to direct their economies in a path emphasizing export-lead growth and more recently promotion of knowledge-intensive and advanced materials industries. Such strategies have involved close, collaborative government-industry-labor relationships, and a distinctly long-term, strategic planning. These strategic plans and policies included favored low-cost, long-term financing for industry, and protective policies toward development of new domestic industries and technologies. Such strategies take into account not only the underlying needs for education and training, but even the relevance of demographic trends.

The terms of competition between industries situated in such dramatically different industrial - governmental environments distinctly disfavor those in the *laissez-faire*, short-term oriented economy, i.e., the U.S. These differences create serious challenges in assuring the survival of the U.S. defense industrial and technology bases.

FINDINGS: CHANGES NEEDED TO IMPROVE U.S. TECHNOLOGY FLOW BALANCE

**DEFENSE
SCIENCE
BOARD**

- **U.S. DEFENSE INDUSTRY UNDERINVESTS IN LONG-TERM R&D AND IN OPPORTUNITIES TO BENEFIT FROM FOREIGN SCIENCE AND TECHNOLOGY, ESPECIALLY JAPAN'S.**
- **FIRMS SOMETIME ENGAGE IN TECHNOLOGY TRANSFER IN PURSUIT OF NARROW COMPANY INTERESTS WITHOUT ADEQUATE REGARD FOR NATIONAL OR INDUSTRY-WIDE INTERESTS. U.S. GOVERNMENT REVIEW IN THESE AREAS IS INADEQUATE.**

NEGLECTED OPPORTUNITIES TO BENEFIT FROM JAPANESE S&T

Over the past several years the U.S. government has undertaken a series of negotiations to open and facilitate access by U.S. industry generally and by defense industries in particular to Japanese science and technology. Since the 1983 U.S.-Japan agreement on defense technology transfers, a number of exchange visits have taken place between DoD and Japanese officials to identify and facilitate specific cooperative activities. Little success has emerged to date from U.S. industry, perhaps because of Japanese industrial protection of their dual purpose technology and concern about their experience in competitive commercial applications. The Task Force strongly supports a finding that DoD and industry should greatly expand their efforts to follow through on openings developed under the new U.S.-Japan Science and Technology Agreement of October, 1988. The Task Force also agrees that U.S. firms must make more thorough preparations for dealing with Japan. Even as Japan has an ever greater number of new technologies to offer, we see the Japanese making far greater efforts to acquire U.S. technology than the reverse.

BUSINESS PRESSURES INCREASE RISKS OF TECHNOLOGY LOSSES

As we have seen, the pressures of competition for export business have in turn generated increased competition to gain revenues through license or sale of technology where other prospects fail. These conditions can encourage individual firms, facing, for example, loss of a major defense contract, to license technology which may help the firm survive, but could be costly to national competitiveness. A somewhat more complex situation is faced when U.S. technology is acquired or sold through takeover or sale of a division or corporation. Although the industrial capacity may remain in the U.S., the rights to its further use may transfer to foreign hands. More than one PACRIM country has begun to acquire U.S. technology through such acquisitions. The significance of this trend is sufficient that Congress has formally granted to the President or his designee, for the first time, discretionary authority to restrict or prohibit foreign acquisitions on national security grounds -- thus effectively strengthening the influence of DoD in the review process.

FINDINGS: OFFSET POLICY

**DEFENSE
SCIENCE
BOARD**

- **SINCE 1978 DoD POLICY FORBIDS U.S. GOVERNMENT GUARANTEES OF PRIVATE SECTOR OFFSETS**
 - **IN PRACTICE DOD HAS BEEN FLEXIBLE ON INDUSTRY PROPOSED OFFSETS WITH TECHNOLOGY TRANSFER THE MAIN CONCERN**
- **CONGRESS HAS BECOME INCREASINGLY CONCERNED ABOUT OFFSETS**
 - **DEFENSE PRODUCTION ACT REPORTING REQUIREMENTS ARE NOW SIGNIFICANT**
 - **FY 1989 DEFENSE AUTHORIZATION ACT REQUIRES THE PRESIDENT TO ESTABLISH OFFSET POLICY, TO NEGOTIATE OFFSET POLICY WITH FOREIGN COUNTRIES AND TO PROVIDE A REPORT TO CONGRESS**

FINDINGS: INTERNATIONAL OFFSETS

**DEFENSE
SCIENCE
BOARD**

DIRECT OFFSETS

- **HIGHEST PERCENTAGE OFFSET DEMANDS IN PACRIM COME FROM KOREA AND AUSTRALIA**
- **U.S. DEFENSE FIRMS FACE INCREASING OFFSET DEMANDS IN EXPORT MARKETS**
- **OFFSETS CREATE ADDITIONAL INTERNATIONAL DEFENSE CAPACITY, BUT ARE A FACT OF LIFE IN A BUYERS' MARKET**
- **A UNILATERAL U.S. PROHIBITION AGAINST OFFSETS WILL NOT WORK**

The U.S. must recognize the importance of offsets to Pacific Rim countries. Although the benefits of offsets are currently being debated in Australia, other countries have committed themselves to improving trade balance and industrial base through offsets. For example, to ensure industrial expansion within Korea, mandatory offsets were enacted by the Korean Ministry of Defense in January 1984. Mandatory offsets have been raised as high as 50 percent in some manufacturing areas by the Defense Industry Bureau of the Ministry of Defense. Korean benefits from offsets of purchases between 1980-87 will be worth 46 percent of total defense-related imports. Current negotiations related to the Korean KFP indicate that offsets could be considerably higher than these values. The trend in other areas within the PACRIM continues upward with regard to offset requirements. Not recognizing the importance of offsets is essentially ignoring the requirements of conducting business overseas.

Although offsets are important to the economies of important Asian allies, offsets create serious tensions between technology/industrial base issues and market issues. Offset policy must walk a line between a "hands off" approach and strict government control on offset issues. This will require a continued dialog between governments.

A unilateral U.S. prohibition of offsets does not recognize that offsets are "a fact of life" in the international market place. Thus, a U.S. unilateral prohibition to offsets would be counterproductive to past and present common defense initiatives designed to achieve commonality and inter-operability of defense equipment with regional allies and friendly nations in the Pacific Rim. Offset concerns must be dealt with in a positive tone. A possible first step would be to assist, where appropriate, to streamline offset approvals on items that do not jeopardize our security and economic interests posture.

At the same time, the U.S. should enter into constructive discussions with PACRIM nations with the objective to reduce offset requirements while achieving a common ground of understanding toward shared security concerns and continued regional economic growth. Most nations in the PACRIM recognize that the rapid economic regional growth is the direct result of a strong protective U.S. security presence along with a responsive system to supply and logistically support their defense requirements with U.S. defense equipment.

More broadly, the U.S. needs to enter into similar discussion with our European allies. Together all nations need to recognize that offsets are counter to our mutual long term security and economic interests.

FINDINGS: LOGISTICS AND MAINTENANCE COOPERATION

**DEFENSE
SCIENCE
BOARD**

- **KEY TO CINCPAC'S FORCE DEPLOYMENT PLANS IN INDIAN OCEAN AS WELL AS PACRIM**
- **ASSISTS ALLIES BY PROVIDING BASIC SUPPORT OF INFRASTRUCTURE/INDUSTRY**
- **ASSISTS U.S. DEFENSE INTERESTS BY REDUCING LOGISTICS SUPPLY LINE AND PROVIDING "TASK FORCE" THEATER REPAIR**
- **REQUIRES, AT TIMES, TRANSFER OF EXISTING U.S. MAINTENANCE/REPAIR EQUIPMENT/SUPPLIES TO ALLIED COUNTRIES**
- **LOGISTICS & MAINTENANCE SUPPORT ARE IMPORTANT METHODS OF COOPERATION BECAUSE OF SIGNIFICANT BENEFITS TO PARTICIPANTS**

**DEFENSE INDUSTRIAL COOPERATION SHOULD BE
AIMED AT BUILDING THESE CAPABILITIES**

Logistics and maintenance are a critical part of defense industrial cooperation. Without assistance from important U.S. allies, U.S. goals in the Pacific Rim will not be met in the future. Logistics and maintenance also contributes significantly to the economic and industrial health of U.S. allies.

The U.S. defense forces should continue to utilize Pacific Rim nations industrial growth for logistics support in: Korea (aerospace, ship building), Singapore (aerospace, ship repair/building), Thailand (ship repair), Indonesia (aerospace), Malaysia (ship repair and aircraft modification), Australia (aerospace, ship building, communications), and Philippines (ship repair).

FINDINGS: BASIC RESEARCH

DEFENSE
SCIENCE
BOARD

- BASIC SCIENCE EXCHANGES ARE NOT PART OF DEFENSE INDUSTRIAL COOPERATION, BUT CAN CONTRIBUTE TO SOME OF ITS OBJECTIVES
- SYMBOLIZES FRIENDLY RELATIONS, MUTUAL RESPECT
- ENLARGES THE BASE OF KNOWLEDGE WITH POTENTIAL DEFENSE RELEVANCE IN AN ECONOMICALLY EFFICIENT WAY
- AVOIDS THE ECONOMIC ISSUES THAT ARISE WITH TECHNOLOGY CLOSER TO APPLICATION
- CAN LESSEN POSSIBLE TENSIONS THAT FOLLOW FROM A MORE RESTRICTIVE U.S. POSTURE ON INDUSTRIAL/TECHNOLOGY BASE ASPECTS OF DEFENSE INDUSTRIAL COOPERATION

FACT OF LIFE - - OPEN TRANSFER OF U.S. BASIC SCIENCE AND TECHNOLOGY HAS BEEN U.S. POLICY. U.S. IS LOSING COMPETITIVENESS IN THE APPLICATION OF OUR OWN SCIENCE AND TECHNOLOGY, NOT IN BASIC SCIENCE ITSELF

Throughout the Defense Science Board's meetings with leaders in the Pacific Rim nations, we were impressed by the special importance of collaboration in more basic or applied research as a means to strong mutual relationships in the future. Although this level of collaboration is once or twice removed from cooperation as a specific defense product per se, it can build strong relationships which support the growth of expanded mutual trust and success for the future in defense as well as other areas.

All nations hold scientific and applied basic research in high regard. We should build on this by supporting such programs by DoD and supporting the NSF program.

We note that much of our research "collaboration" in the past has been unilateral rather than participative. The extensive U.S. residence of foreign graduate students (Japan and Korea) should be matched by a corresponding interest in foreign study by U.S. graduates. The focus of their joint efforts should be directed toward working in each others laboratories as peers. Major inhibitions are over lack of language skills and our implicit arrogance in a patron-client relationship. ***These will need to be overcome in the future as a requisite for a productive long-term relationship with the Pacific Rim.***

One thing the Defense Science Board is firm on, however, is the two-way mutually contributory nature of such expanded programs. This should be the strong basis for relationships which will help us both in defense and in economically related areas over the long term.

FINDINGS: OTHER PERSPECTIVES ON PACRIM COOPERATION

DEFENSE
SCIENCE
BOARD

- DEFENSE INDUSTRIAL COOPERATION IS NOT CURRENTLY, NOR IS IT LIKELY TO BECOME A PRIMARY U.S. POLICY LEVER FOR PACRIM ECONOMIC RELATIONS
- DEFENSE INDUSTRIAL COOPERATION IS IMPORTANT TO MANY ASIAN COUNTRIES AS A SYMBOL OF U.S. REGIONAL POLITICAL STANCE, AND AS A SOURCE OF TECHNOLOGY FOR FURTHER MODERNIZATION IN NON-MILITARY AREAS
- DEFENSE INDUSTRIAL COOPERATION WILL REMAIN AN ECONOMIC INDUCEMENT TO SECURE FORMS OF MILITARY COOPERATION
- U.S. RELATIONS WITH JAPAN CAN BENEFIT FROM DEFENSE INDUSTRIAL COOPERATION, ALTHOUGH ABORTIVE DEFENSE INDUSTRIAL INITIATIVES CAN HURT RELATIONS
- JAPAN AND THE U.S. CAN BENEFIT FROM EACH OTHERS' DEFENSE-RELEVANT TECHNOLOGY BUT JAPANESE INDUSTRIAL OWNERSHIP OF DUAL-USE TECHNOLOGY MAKES RECIPROCAL GOVERNMENT-TO-GOVERNMENT AGREEMENTS DIFFICULT TO IMPLEMENT
- U.S. AND ASIAN SECURITY STAND TO BENEFIT FROM INCREASED LOGISTICS AND MAINTENANCE FORMS OF DEFENSE INDUSTRIAL COOPERATION
 - AS A SYMBOL OF POSITIVE POLITICAL MILITARY RELATIONS
 - SAFEGUARDING THE MIDDLE EAST/SOUTHWEST ASIA OIL LINE
 - AS A QUICKLY AVAILABLE PART OF A MOBILIZATION, INCREASED FORWARD DEPLOYMENT AND COALITION DEFENSE POSTURE

Defense industrial cooperation provides important potential benefits to the U.S. and its partners. Such cooperation does not provide a major mechanism for influencing general economic relations with other countries, because a large and increasing amount of commercial technology cooperation is taking place (semiconductors, computers, aircraft structures, etc.). Defense industrial cooperation does provide important economic incentives for broader military cooperation with the U.S. Cooperation potentially provides significant benefits to involved parties.

U.S. policy should clarify issues of technology ownership to further assist in the implementation of government to government agreements. If defense industrial cooperation is to continue to provide mutual benefits, there must be less uncertainty regarding technology ownership, and as a result, less risk endured by U.S. participants.

RECOMMENDATIONS

Recommendations for action are condensed into two groupings, namely, Policy Recommendations and Managerial Recommendations.

Of the four policy recommendations, the first two are the most general and perhaps diverse, dealing with issues which necessarily transcend the responsibilities of DoD alone, at least as viewed within a narrow framework of security, based on military capability per se. The Task Force also believes these to be the most important, albeit, the most difficult to implement and requiring great leadership and perhaps an enlarged internal philosophical view of DoD and its future role.

The remaining policy recommendations and the eight managerial recommendations are clearly within DoD's scope of action. These recommendations will do much to define and implement a "new defense industrial cooperation" appropriate for our Pacific Rim allies and friends and in tune with the dynamic Pacific Rim environment as we move towards the 21st century.

POLICY RECOMMENDATION #1
LINKAGE OF DEFENSE COOPERATION & ECONOMIC
ISSUES

DEFENSE
SCIENCE
BOARD

- **ECONOMIC WELL-BEING IS A KEY COMPONENT OF NATIONAL SECURITY. SECURITY SHOULD NO LONGER BE VIEWED ONLY IN MILITARY TERMS.**
- **DEFENSE INDUSTRIAL COOPERATION POLICY SHOULD EMBRACE ECONOMIC AS WELL AS DEFENSE AND POLITICAL OBJECTIVES.**
 - **REQUIRES ACTIVE COHESIVE POLICY DEVELOPMENT AMONG DoD STATE, COMMERCE AND U.S. TRADE REPRESENTATIVE**

ACTION: SECDEF WORK WITH THE OFFICE OF THE PRESIDENT(NSC) TO ESTABLISH A SMALL HIGH-LEVEL GROUP AT THE DEPUTY OR UNDER SECRETARY LEVEL WHOSE PURPOSE IS:

- **ESTABLISH POLICY GUIDELINES FOR ACHIEVING EXPLICIT DEFENSE/ECONOMIC LINKAGES AND TRADE-OFFS IN EVALUATING DEFENSE INDUSTRIAL COOPERATIVE PROGRAMS.**
- **WITH THIS AS FIRST STEP, EVOLVE AN INTEGRATED LONG-RANGE STRATEGY OR POLICY FRAMEWORK INVOLVING MILITARY, ECONOMIC AND TRADE CONSIDERATIONS.**

In the past, defense cooperation issues have been considered separately from more general (and often difficult) economic and trade issues. Our policies are fragmented and often lead to actions having undesirable longer-range impacts. This is no longer acceptable in an era of intensified economic and technological competition in which our "economic security" is a crucial part of our overall national security and in which dual-purpose technologies dominate both military and commercial capabilities.

It is therefore necessary to evolve an integrated long-range strategy or policy framework involving economic, technological and trade considerations as well as narrower defense and political objectives. Such a framework must underpin a constructive program of defense industrial and technological cooperation. By definition, this integrated policy framework is an inter-agency task. The Task Force recommends that a small high-level group be established to begin to evolve this much-needed national strategy and to use the issues surrounding defense industrial cooperation as a specific step in this long-range task.

It is not the objective of the Defense Science Board to create a new bureaucracy and a new set of onerous management controls. Rather, this group should establish policy guidelines, coordination and broad oversight only and should involve Defense, Commerce, State and U.S. Trade Representative.

We recommend that this group be at the Deputy Secretary or Undersecretary level.

Further, we recommend that Deputy Secretary of Defense and Deputy Secretary of Commerce start this process. Secretary of Defense should lead the implementation of this activity and cause it to be expanded, as appropriate, with the knowledge and support of the President.

POLICY RECOMMENDATION #2 NATIONAL TECHNOLOGY VISION

**DEFENSE
SCIENCE
BOARD**

- **IT IS OF UTMOST IMPORTANCE TO U.S. INDUSTRIAL COMPETITIVENESS AND SECURITY INTERESTS THAT THE U.S. DEVELOP A NATIONAL TECHNOLOGY VISION AND BROAD GOALS**
- **INTERNATIONAL COMPETITION NECESSITATES HIGH LEVELS OF INVESTMENT IN R&D TO CONSTANTLY REPLENISH TECHNOLOGY BASE. THIS PERMITS DEFENSE INDUSTRIAL COOPERATION NEGOTIATION FROM A POSITION OF STRENGTH.**
- **DoD MUST HAVE THE VISION TO INITIATE THIS PROCESS**
- **THIS LONG-TERM TECHNOLOGY STRATEGY SHOULD EMPHASIZE**
 - **APPLICATION AND COMMERCIALIZATION OF TECHNOLOGY**
 - **TECHNICAL EDUCATION**
 - **INCENTIVES FOR INDUSTRIAL INVESTMENT IN THE TECHNOLOGIES FUNDAMENTAL TO OUR COMPETITIVENESS IN BOTH CIVILIAN AND MILITARY APPLICATIONS (DUAL--USE TECHNOLOGIES, MANUFACTURING)**
 - - **INCLUDING TAX INCENTIVES, RESEARCH CONSORTIA**

ACTION: SECDEF INITIATE AN EFFORT WITHIN THE ADMINISTRATION OVER THE NEXT SIX MONTHS TO CREATE A LONG-TERM NATIONAL TECHNOLOGY VISION TO BE IMPLEMENTED THROUGH A PRESIDENTIAL STATEMENT.

One powerful key to future national security and economic well-being is the strength of the country's technology base. U.S. interests will be best served if the SECDEF works with the Administration to create a long-range technology plan for the U.S. This was identified five years ago as an important area of focus by the 1984 Defense Science Board Task Force Report on Industry-to-Industry Armaments Cooperation with Japan (APPENDIX II). To date no action has been taken on the action items included in this report. However, U.S. cooperation abroad and protection of the domestic industrial base are dependent on a coherent strategy.

This strategy must be multi-disciplinary. It will not suffice simply to protect U.S. technology. The competitive situation confronting the U.S. is indeed severe. A recent report from the Massachusetts Institute of Technology Commission on Industrial Productivity indicates that the U.S. is a nation at risk.* The trade deficit, measures of productivity and lack of growth in real wages all reflect problems in U.S. industry. Outdated strategies, including overemphasis of mass production of standard goods and economic and technical parochialism impede industrial progress. Training and educational procedures require improvement. If the U.S. is to remain a viable economic and political force, significant national effort is required. Long-term investment, improved education, increased efficacy of the worker in the production process, and incorporation of new manufacturing techniques are necessary. Defense manufacturing involves some of the most critical technologies and important members of the manufacturing sector. Thus, industrial and educational reforms are required to protect the U.S. position as a leading defense manufacturer.

Therefore, the Science Advisor, with strong support from DoD, NSF, NASA, Commerce and the National Academies should define a succinct, top-level technology vision statement for the President within the next six months. This statement of national purpose can be used by the President in catalyzing those actions (e.g., education, incentives for R&D) necessary for the U.S. to rebuild and maintain its technological leadership and industrial competitiveness, both in defense and in commercial spheres.

*"Made in America-Regaining the Productive Edge", Michael L. Dertouzos, et al., and the MIT Committee on Industrial Productivity, MIT Press Cambridge, Massachusetts, 1989

POLICY RECOMMENDATION #3

DEFENSE
SCIENCE
BOARD

GUIDELINE FOR DEFENSE INDUSTRIAL COOPERATION PROGRAMS - - "RIGOROUS PRAGMATISM BASED ON MUTUAL BENEFITS":

- PROGRAMS SHOULD BE CLEARLY JUSTIFIED IN TERMS OF LONG-TERM MILITARY AND ECONOMIC IMPLICATIONS AND GOALS CONSISTENT WITH POLICY RECOMMENDATION #1
- FOR JAPAN (AND OTHER PACRIM NATIONS INCREASINGLY WITH TIME), MUTUALLY REWARDING TECHNOLOGICAL EXCHANGES AND PRODUCTION WORKSHARES MUST BE ACHIEVED, AS APPROPRIATE BETWEEN PARTNERS
- THE FORM OF DEFENSE INDUSTRIAL COOPERATION WILL VARY WIDELY FROM NATION TO NATION WITHIN PACRIM, BUT THE "NEW DEFENSE INDUSTRIAL COOPERATION" MUST BE CONSISTENT WITH A FUTURE OF SECURITY PARTNERSHIP AND ECONOMIC COMPETITION

ACTION: SECDEF TASK USD(A) TO DEVELOP DOD PROCEDURES FOR IMPLEMENTING PROGRAMS CONSISTENT WITH NEW POLICY GUIDELINES TO ACHIEVE CLEARLY STATED MUTUAL BENEFITS

These steps are essential to insure that defense industrial cooperation decisions are responsive to national concerns. While some of this recommendation follows the Defense Authorization Act of 1989, we urge implementation steps that recognize the limited capacities of a particular project office to do the job. We can begin now, as with the promising U.S. Army reciprocal visits to Japan.*

CLEARLY JUSTIFIED IN TERMS OF MILITARY AND ECONOMIC IMPLICATIONS

While defense industrial cooperation benefits U.S. allies, it should no longer be seen *solely* as a program for assisting allies. Rather it must be viewed as a **genuine program of mutual cooperation intended to achieve mutual benefits**. The national value to the United States should include not only enhancements in foreign military and defense industry capabilities, but also must include defense-related benefits to the U.S. in technology sharing, industrial base planning, joint logistics planning and support, and/or defense-related economic objectives. With advanced technology countries, net national value should be attained primarily through partnership sharing of technology. With countries having little or no new technology to share, net value, in addition to direct defense benefits, may include improved burden-sharing, intellectual property protection, moderation of offset demands, and improved coordination of logistics and maintenance support. With newly industrializing countries, the net national value objectives of defense industrial cooperation may involve primarily improvements in offset terms, increased reliance on U.S. defense suppliers, or improved defense-related economic policies. Such conditions for newly industrializing countries will have to take account of alternative country sources of technology so as not to force recipient countries into reducing defense cooperation in areas of keen interest to the U.S.

WITH JAPAN, REQUIRE CLEAR TWO-WAY FLOW OF TECHNOLOGY AS PREREQUISITE FOR ALL FUTURE COOPERATION INVOLVING U.S. TECHNOLOGY TRANSFER

In support of this requirement, DoD should develop closer working relationships with U.S. defense contractors and with the President's Office of Science and Technology Policy to assure adequate U.S. industry preparations are made to identify, and acquire operational knowledge and achieve effective exploitation of Japanese technologies to which the U.S. gains access.

*"Assessment of Research & Development Opportunities in Defense-Related Technologies", U.S. Army Material Command Report, March 1989

The Task Force realizes that this issue, like that addressed in Policy Recommendation #1, has broad implications and transcends the narrower subject of military security per se. However, we point out that DoD has assumed a leadership role since World War II in advocating and spearheading state-of-the-art technologies key to defense and, more generally, to much of our industrial vitality. With the rapid rise of dual-purpose technologies, this traditional role of DoD has attenuated and is now shared (conceptually) with other agencies. However, the Defense Science Board believes that DoD should not completely abandon its traditional role and should be active at the highest levels as a catalyst for evolving a long-term technology and industrial vision or set of goals for the nation which directly benefit defense and the private sector. DoD's participation in creating activities such as Sematech and focussing on the pervasive importance of HDTV technology are two recent examples of such leadership.

**COOPERATION AT BASIC SCIENCE AND TECHNOLOGY
LEVEL**

- **COOPERATION AT BASIC RESEARCH LEVEL WITH ALL PACRIM COUNTRIES, HELPS BUILD STRONG MUTUALLY SUPPORTING INDUSTRIAL AND ECONOMIC RELATIONS**

ACTION: SECDEF TASK USD(A) TO

- **SUPPORT AND COORDINATE WITH NATIONAL SCIENCE FOUNDATION PROGRAMS**
- **ENCOURAGE, ENLARGE, SUPPORT DOD AND AF, NAVY AND ARMY SPECIFIC PROGRAMS IN BASIC RESEARCH (WITH SERVICES)**
- **INSIST ON MUTUALLY BENEFICIAL PROGRAMS**
- **DEVELOP POLICY INITIATIVES FOR COOPERATION ON BASIC SCIENCE AND TECHNOLOGY**
- **INCLUDE ALL PACIFIC RIM COUNTRIES**

Basic science and research is an important and often overlooked aspect of defense cooperation. DoD should promote cooperation at the basic science level as an area which produces great long-range economic and industrial benefits without creating near-term competitive tensions. As steps in this general direction (though non-military) have been taken by the National Science Foundation, DoD should coordinate its efforts with those of the NSF.

The Task Force notes that at the more basic levels of technological research (versus applications of technology to military or commercial products), it is possible to promote close and harmonious working relationships among participants. Such programs are also of particular interest and importance to less advanced, developing nations who often have areas of great scientific talent and expertise. The relationships that are formed often have an enduring value in building strong international relationships and in growing, over time, into larger joint industrial projects.

This can be a particularly productive form of defense (and defense industrial) cooperation.

MANAGERIAL RECOMMENDATION #1

DEFENSE
SCIENCE
BOARD

STREAMLINE AND REORIENT DOD ORGANIZATION

- SHIFT EMPHASIS FROM OVERSEAS ADVISORY "ASSISTANCE" MODE OF OPERATION TO ONE OF TWO-WAY INDUSTRIAL/TECHNOLOGICAL/ SECURITY "COOPERATION"
- ORGANIZATIONAL RECOMMENDATIONS:
 - MERGE OSD INTERNATIONAL TRADE ACTIVITIES (DSAA, DTSA, USD(A)-I&IP, USD(A) P&L/IA, USD(A) P&L/IL UNDER A SINGLE MANAGER RESPONSIBLE TO THE ACQUISITION EXECUTIVE
 - SECURITY ASSISTANCE POLICY REMAINS UNDER USDP CONTROL
 - CHANGE NAME OF DSAA TO "DEFENSE COOPERATIVE PROGRAMS AGENCY"
 - STREAMLINE APPROVAL PROCESS
 - SERVICES ORGANIZED AND RESPONSIVE TO OSD DIRECTION

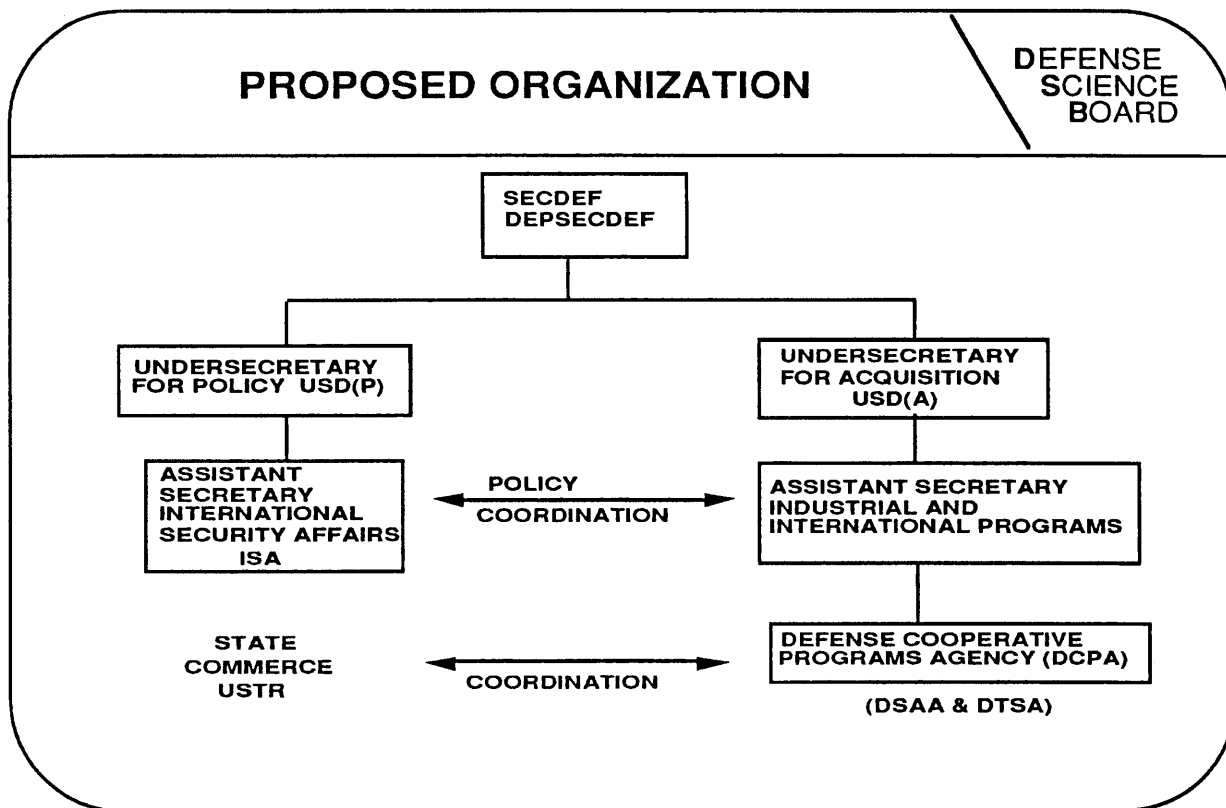
ACTION: SECDEF, DEPSECDEF

The Task Force recommends that the Secretary of Defense establish the Deputy Under Secretary of Defense for Acquisition USD(A) as the primary office of responsibility in matters concerning defense industrial cooperation, approval of cooperative ventures, government-to-government MOU's, Congressional impact statements, coordination on international science and technology forums, and all related functions. ***This is the third time in three separate Administrations that the DSB has made such a recommendation.*** Cooperative ventures involve transfers of significantly different technology than direct sales. The locus of policy for defense industrial cooperation should be within an office which deals with international technology and procurement issues, (and is not exclusively geared toward foreign sales).

The objectives of these changes are to explicitly shift the international role of the DoD from provider of "foreign assistance" to partner in "industrial cooperation". Industry has moved in this general direction, and it remains for policy to follow. The recommendations are designed to insure early awareness at the senior policy level of technological implications.

The following is a suggested diagram of the proposed organization.

*Note: A more detailed history and rationale on organizing the defense agreement for international defense industrial cooperation is included in Appendix VII.



DSB recommends that the position for industrial and international programs be filled by a newly appointed Assistant Secretary of Defense. An Assistant Secretary position is commensurate with the responsibility of that position.

The OSD Policy role clearly is to establish, within DoD, the relationships with foreign countries (including security assistance policy). The OSD Acquisition Executive role must have the authority to execute. This involves all of the management and technical resources needed to streamline the decision/action process and to operate efficiently. These resources include DSAA, DTSA, Industrial and International Programs, Director (Office of Industrial Base), International Logistics, International Acquisition and the Deputy USD (TWP) for tactical weapons programs (the latter five organizations already report to USDA). Although the final form of the organization may depart somewhat from the above model, these general objectives (policy versus execution, all necessary resources under one responsible manager) are important and should be achieved.

The recommended name change from Defense Security Assistance Agency (DSAA) to Defense Cooperative Programs Agency (DCPA) reflects the shift from a primary "assistance mode", which is outmoded and sometimes even resented, to a new "cooperative mode" reflecting the primary direction for the future.

The decision and approval process between major departments (DoD, State, DoC) should also be studied and streamlined.

A streamlined and effective process for cooperative programs, including defense industrial cooperation, cannot be implemented in the disorder that now exists.

MANAGERIAL RECOMMENDATION #2

DEFENSE
SCIENCE
BOARD

STAFFING

- STAFF DOD APPROPRIATE TO IMPORTANCE OF PACRIM; BRING UP TO GENERAL LEVEL OF NATO
- EMPHASIZE TECHNOLOGY AND, INDUSTRIAL PROFESSIONALS (VS. LOGISTICS AND ARMS SALES EXPERTISE)
- PROVIDE PACOM WITH INCREASED DEFENSE INDUSTRIAL COOPERATION BILLETS FOR KEY PACIFIC COUNTRIES
- INCREASE COORDINATION AND DISSEMINATION OF INFORMATION DERIVED FROM SERVICE SPECIFIC AND OTHER GOVERNMENT S & T PERSONNEL IN THE PACIFIC RIM
- ESTABLISH A PACRIM DARPA OFFICE IN TOKYO

ACTION: SECDEF TASK USD(A) TO DEVELOP STAFFING PLANS COMMENSURATE WITH THE INCREASING INDUSTRIAL AND TECHNOLOGICAL GROWTH IN PACIFIC RIM NATIONS.

There is no substitute for adequate staff resources, and the present situation is unrealistic. The PACRIM is more complicated and diverse than NATO, and the policy issues more difficult. In order to broaden the scope of cooperation and more effectively work to protect the interests of U.S. industry, it is recommended that Pacific command billets be staffed commensurate to NATO billets involved in international cooperation. Additionally, USD(A) billets which deal with PACRIM cooperation issues require equal staffing levels to similar positions involved in NATO defense cooperation. Personnel assigned to these positions must have a solid background either in international defense industrial policy or appropriate industry experience. Proper implementation of policy depends on adequate numbers of highly qualified personnel in these billets.

Absolutely essential to building a solid framework of productively cooperative programs in the future is to build an adequate size staff of qualified personnel. However, as the shift of personnel from assistance and sales to cooperation takes place, the total staff level billets should remain constant or be decreased.

DIRECT OFFSETS AND COOPERATIVE MOU'S

- **STREAMLINE MUNITIONS LICENSE APPROVAL PROCESS FOR DIRECT OFFSETS AND COOPERATIVE MOU'S. GRANT APPROVAL UNLESS SPECIFICALLY DENIED ON GROUNDS OF TECHNOLOGY TRANSFER, ECONOMIC IMPACT OR REQUIREMENTS OF THE 1989 DEFENSE AUTHORIZATION ACT.**
- **UNILATERAL U.S. PROHIBITION ON OFFSETS WILL NOT WORK.**

ACTION: SECDEF TASK USD(A) TO DEVELOP SUCH AN APPROVAL PROCESS AND SECURE AGREEMENT WITH DEPARTMENTS OF STATE AND COMMERCE FOR A CLEAR CRITERIA AND TIMELY PROCESS. INITIATE JOINT DISCUSSION WITH NATIONS FOR MULTINATIONAL RESTRAINT OF OFFSETS.

The Task Force recommends streamlining the decision-making process for technology transfer in the implementation of direct offsets and cooperative MOU's by enacting presumptive approval process unless there are sufficient grounds for denial. Grounds for refusing approval include:

- Proposed exports exceed DoD guidelines or provisions of the Defense Authorization Act of 1989 (see Appendix III)
- Technology release must be consistent with national disclosure policy criteria

Further DoD, supported by DOC and USTR should initiate discussions with PACRIM nations to gain a common understanding for the need to reduce offset requirements. These discussions should achieve a shared recognition of the role for each nations security concerns and contributions and an understanding of the role that a strong U.S. defense posture contributes to continued regional economic growth.

MANAGERIAL RECOMMENDATION #4

**DEFENSE
SCIENCE
BOARD**

INCREASE PACRIM PROGRAMS FOR COOPERATIVE LOGISTICS AND MAINTENANCE FOR U.S. FORCES

- **CRITICAL ELEMENT TO CINCPAC'S DEFENSE STRATEGY**
- **ASSISTS ALLIES BY PROVIDING BASIC INFRASTRUCTURE AND INDUSTRIAL SUPPORT**

ACTION: SECDEF AND CJCS REQUEST CINCPAC TO FURTHER INCREASE COOPERATIVE LOGISTICS AND MAINTENANCE PROGRAMS WITH APPROPRIATE ASIAN/PACIFIC COUNTRIES, AND PROVIDE REPORT ON ENHANCED PLAN IN SIX MONTHS.

Because of the growing strategic importance of the Pacific Rim, it is imperative that the U.S. secure access to adequate support and logistic facilities. Logistic and support relationships enjoyed with Singapore, Indonesia, Thailand, and Korea are all important forms of cooperation. Therefore, the Task Force recommends that the U.S. pursue additional opportunities for logistical and maintenance support for U.S. forces in the Pacific throughout the Pacific Rim countries. Additional logistical and maintenance support is vital for the Commander in Chief, U.S. forces Pacific (CINCPAC) to carry out appropriate wartime and peacetime strategies. Increased logistic and maintenance cooperation with Asian/Pacific countries is one very positive avenue for defense industrial cooperation which should be pursued vigorously in the future.

MANAGERIAL RECOMMENDATION #5

DEFENSE
SCIENCE
BOARD

CONGRESSIONAL INTERFACE

- BECAUSE CONGRESS IS AN ESSENTIAL PARTICIPANT IN EVOLVING A COHERENT DEFENSE INDUSTRIAL COOPERATION POLICY AND GUIDANCE, DOD SHOULD ESTABLISH AN ON-GOING DIALOGUE WITH APPROPRIATE COMMITTEES

ACTION: SECDEF TASK USD(A) PERSONALLY AS PRIMARY DOD LIAISON WITH CONGRESS ON THIS SUBJECT, WITH SECDEF'S OWN ACTIVE INVOLVEMENT

The wealth of committees in both houses of Congress that have jurisdiction over defense industrial cooperation issues need simplification. Similarly, it is in the best interests of the country to resolve the contradictory priorities spelled out by Nunn-Quayle and Dixon legislative guidance.

CONDUCT ACTIVE DIALOG CONCERNING DEFENSE INDUSTRIAL COOPERATION POLICY GOALS WITH APPROPRIATE HOUSE AND SENATE COMMITTEES. AS A MINIMUM THESE INCLUDE :

HOUSE

ARMED SERVICES
FOREIGN AFFAIRS
ENERGY & COMMERCE
BANKING, FINANCE & URBAN
AFFAIRS

SENATE

ARMED SERVICES
FOREIGN RELATIONS
SCIENCE, TECHNOLOGY & SPACE
BANKING, FINANCE & URBAN
AFFAIRS

Congress has made clear its concerns about issues of technology relationships with Japan in connection with the FSX agreement. These concerns make it essential that DoD regularly share its goals and conditions for future cooperation with key Congressional leaders to avoid public controversy and adverse impact on bilateral relations.

Congress should be an important participant in evolving a cohesive policy.

MANAGERIAL RECOMMENDATION #6

**DEFENSE
SCIENCE
BOARD**

PACRIM INTERNATIONAL COOPERATION AGREEMENTS.

DOD SHOULD MORE ACTIVELY UTILIZE EXISTING BILATERAL AGREEMENTS AND MEETING FORUMS TO ACHIEVE NEW DEFENSE INDUSTRIAL COOPERATION OBJECTIVES. THIS NEW ACTIVITY SHOULD INCLUDE:

- REGULAR MEETINGS OF PRINCIPALS ON AT LEAST AN ANNUAL BASIS**
- APPROVAL OF ACTIVITIES AT SECDEF AND MINISTRY OF DEFENSE LEVEL ON AN ANNUAL BASIS**
- AGREED UPON LEVEL OF ATTENDEES FROM BOTH SIDES**
- INTERNAL U.S. INTERAGENCY AGREEMENT ON SPECIFIC COUNTRY OBJECTIVES REQUIRED BEFORE BILATERAL DISCUSSION COMMENCES.**

ACTION: USD(A)

Currently there exist three loosely structured organizations with Japan, Korea and Australia to provide government-to-government dialog for cooperative programs. Most efforts to date have been ad hoc in nature, stemming from reactive actions to senior level visits or political actions. DoD has consequently been put in a defensive/reactive role to respond vis-a-vis a development role. This lack of a framework for common/generic organizational structure, if not changed, will limit DoD to continued ad hoc reaction.

MANAGERIAL RECOMMENDATION #7

**DEFENSE
SCIENCE
BOARD**

DEMONSTRATION PROGRAMS

- **DOD SHOULD INITIATE SEVERAL SPECIFIC SMALL NEW PROGRAMS WITH EACH COUNTRY DESIGNED TO SERVE AS MODELS TO REVEAL PROBLEMS AND EVOLVE SOLUTIONS**

E.G. FOR JAPAN, OF THE FIVE JDA-PROPOSED PROGRAMS (MM WAVE/HYBRID SEEKER; DUCTED ROCKET; ANTI-TANK WARHEADS/SHIP DEGAUSSING), PICK TWO OR THREE AND GET ON WITH IT.

ACTION: USD(A) INITIATE SEVERAL SPECIFIC PROGRAMS WITH EACH COUNTRY, AS APPROPRIATE.

MANAGERIAL RECOMMENDATION #8 INDUSTRY-TO-INDUSTRY RELATIONSHIPS

**DEFENSE
SCIENCE
BOARD**

- **INDUSTRY SHOULD PLAY AN ACTIVE ROLE IN ESTABLISHING COOPERATIVE PROJECTS**
 - **DoD SHOULD CONSULT WITH INDUSTRY BEFORE AND DURING NEGOTIATIONS WITH FOREIGN NATIONS ON PROGRAM SPECIFIC MOUs**
- **IN THE CASE OF CO-PRODUCTION, DoD SHOULD GIVE PREFERENCE TO THE USE OF COMMERCIAL ARRANGEMENTS IN LIEU OF GOVERNMENTAL MOUs**
- **DoD SHOULD ENCOURAGE INDUSTRY TO INDUSTRY COLLABORATION, EVEN WHEN DoD APPROPRIATIONS ARE NOT INVOLVED AS LONG AS THE NET NATIONAL LONG TERM GOALS ARE SUBSTANTIAL**

ACTION: GIVEN THE NEED TO MAINTAIN U.S. COMPETITIVENESS STRESSED IN THIS REPORT, USD(A) REQUEST FROM THE DEFENSE POLICY ADVISORY COMMITTEE ON TRADE (DPACT) AN INDUSTRY STUDY OF HOW INDUSTRY CAN PLAY A MORE ACTIVE ROLE IN COOPERATIVE DEFENSE PROGRAMS

The Task Group recommends new directions for industry-to-industry relationships, whereby industry plays an active role to establish cooperative programs. Equally important is the DoD role to establish U.S. industry interface and consultation before and during negotiations with friendly and allied nations. Where possible, and especially in the case of co-production, the DoD should give preference to commercial arrangements in lieu of governmental MOUs. Where firms are willing to take the initiative and independently invest, the governments should encourage such activities by making the process easier to undertake. The governments will ultimately benefit since they are the market, but can avoid the risk and costs of the development and facilitation.

GENERAL RECOMMENDATION
Recommended General Posture For
Cooperative Efforts With Each PacRim Country

**DEFENSE
SCIENCE
BOARD**

ASEAN	REMAIN RESPONSIVE TO ASEAN COUNTRY-TO-COUNTRY COOPERATION INTERESTS. ACTIVELY SUPPORT U.S. INDUSTRY INITIATIVES TO PROMOTE DEFENSE INDUSTRY COOPERATION, WITH EMPHASIS ON LOGISTICS AND MAINTENANCE SUPPORT ACTIVITIES.
AUSTRALIA	CONTINUE PRESENT BALANCED COOPERATION RELATIONSHIP; SEEK OPPORTUNITIES TO EXPAND INDUSTRY-TO-INDUSTRY COOPERATION.
CHINA	KEEP COOPERATION PROGRAMS ON HOLD PENDING RESOLUTION OF CURRENT ISSUES AND CLARIFICATION OF PRC-U.S. DEFENSE AND POLITICAL RELATIONSHIP
JAPAN	STRENGTHEN STAFF RESOURCES TO IMPROVE DOD COOPERATION MANAGEMENT. IDENTIFY AND PROMOTE COOPERATIVE EFFORTS ON TERMS THAT ASSURE GENUINE BALANCE OF BENEFITS. ENERGIZE U.S. INDUSTRY EXPLOITATION OF TECHNOLOGY REFLOW OPPORTUNITIES AND OTHER TWO-WAY BENEFITS.
KOREA	IDENTIFY AND PROMOTE COOPERATIVE EFFORTS ON TERMS THAT ASSURE RIGOROUS BALANCE OF BENEFITS AND ASSURANCES REGARDING THIRD COUNTRY SALES. ENERGIZE U.S. INDUSTRY EFFORTS TO MAKE FULL USE OF OPPORTUNITIES TO DEVELOP TWO-WAY BENEFITS THROUGH JOINT VENTURES AND OTHER COOPERATION TECHNIQUES.

FINAL COMMENTS

**DEFENSE
SCIENCE
BOARD**

- **WE SHOULD DECLARE AS A NATIONAL GOAL
ACHIEVEMENT OF PREEMINENCE IN CIVIL AND
MILITARY TECHNOLOGY**
- **WE CANNOT MAINTAIN LEADERSHIP BY
CONSERVATION AND PROTECTION**

WE MUST RUN FASTER!

FINAL COMMENTS MOST IMPORTANT OF ALL

U.S. Government should:

- Declare national goal to maintain technical preeminence in civil and military technology
- Invest in IR&D, research and exploratory advanced developments to achieve this national goal

APPENDICES

- I. Terms of Reference
- II. Action Items From 1984 DSB Report on Japan
- III. Related Legislation
- IV. Current DoD Policy
- V. Current U.S. Government Security Assistance Organizational Diagrams
- VI. Glossary of Terms
- VII. Background of Defense Security Assistance Agency

Annex

**On File in Defense Science Board Task Force Sponsor,
Deputy Under Secretary of Defense for Acquisition -
Industrial and International Programs Office,
Pentagon, Washington, D.C.**

- I. Decision Logic Matrix to Assess Economic Benefits of
Defense Industrial Cooperation**
- II. PACRIM Country Assessment (Classified)**
- III. GAO Report on International Co-Production, March 1989**

APPENDIX I

TERMS OF REFERENCE

FOR

PACRIM TASK GROUP

ON

DEFENSE INDUSTRIAL COOPERATION

WITH

PACIFIC RIM NATIONS



THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301

ACQUISITION

11 MAR 1988

MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Defense Science Board Task Force on Defense Industrial Cooperation with Pacific Rim Nations

You are requested to form a Defense Science Board Task Force to examine the potential for achieving US security objectives in the Pacific Rim area through defense industrial cooperation with the nations of that area.

The objectives of the Task Force are to:

- Determine the potential for and forms of defense industrial cooperation that can have major impacts on modernization, readiness and sustainability of participating nations, which will advance US security objectives within the area.

- Assess the industrial/economic/military climate within the US and the Pacific Rim nations that affect such cooperation. Identify policies, procedures, and problems (e.g., adverse effects on defense industrial and technological base) that impede or might impede such cooperation, and recommend solutions.

- Assess the mechanisms to enable cooperation (MOU's, codevelopment/coproduction, direct aid), and recommend the substantive and procedural initiatives by which the US might realize the potential benefits of defense cooperation, such as increased standardization and interoperability, complementary production and maintenance capabilities, and reduced costs.

The Task Force should take into account the diverse economic and political environments of the nations of the Pacific Rim, and should project its conclusions to the future of the area, rather than focusing on the present.

The Deputy Under Secretary of Defense (International Programs and Technology) will sponsor the Task Force. Dr. Malcolm R. Currie will chair the Task Force, and Prof. Davis B. Bobrow will serve as vice chair. Col(Sel) Russell T. Reston, USAF, will be the Executive Secretary, and COL Robert Bruce, USA, will be the DSB Secretariat Representative. It is not anticipated that your inquiry will need to address any "particular matters" within the meaning of Section 208 of Title 18, US Code.



The Terms of Reference for this Task Force include no assignments to the Task Force that would indicate the Task Force would be participating personally and substantially in the conduct of any specific procurement or place any member in the position of acting as a "procurement official".

OGC:  _____

Date: 12 May 89



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

August 18, 1989

RECEIVED

AUG 25 1989

ROBERT R. EVERETT

Dear Bob:

This is to confirm our discussion this date relative to a continuation of the Defense Science Board Study on the Pacific Rim.

I support the activities that have already been undertaken and urge that its implementation be initiated.

With best wishes,

Sincerely,

A handwritten signature in black ink, appearing to read "Don", is located below the word "Sincerely,".

Donald J. Atwood

Mr. Robert R. Everett
Chairman, Defense Science Board
The Mitre Corporation
Mail Stop A-130
Burlington Road
Bedford, Massachusetts 01730

cc: Malcolm Currie

APPENDIX II

Actions Listed

in

Report of

Defense Science Board Task Force

on

**INDUSTRY-TO-INDUSTRY INTERNATIONAL
ARMAMENTS COOPERATION
PHASE II - JAPAN**

June 1984

A2

ACTIONS REQUIRED FOR IMPLEMENTATION

This list summarizes the Defense Department actions required to implement the recommendations of the Task Force. If these recommendations are implemented, the feasibility of increased technological competition with Japan and the basis for reciprocity in technological exchange will be enhanced.

A. Initiation of Technological Cooperation

- Recommendation: Undertake to broaden, judiciously and reciprocally, our technological cooperation with Japan, based on the firm requirement of a mutually beneficial two-way flow of technology.

Actions:

1. DoD make a *Secretary-level policy statement* encouraging industry-to-industry technological cooperation and assuring government support and encourage the Japanese Government to do the same. DoD to be kept informed of all such arrangements.
2. DoD make clear to the Japanese Government that the general prerequisite for continued transfer of technology from the U.S. is reciprocal technological transfer from Japan.
3. USDRE prepare for SecDef a policy directive to the Chairman JCS, Service Secretaries, and relevant Defense Agencies endorsing increased technological cooperation with Japan and specifying the requirement for a balanced two-way flow of technology, along with a strong endorsement of interoperability between U.S. - Japan military systems.
4. USDRE prepare SecDef transmittal of the DSB report to major Congressional committees with a cover letter explaining the thrust and DoD plans.

- Recommendation: Encourage industry-to-industry initiatives for technological cooperation that serve the national interests and meet the requirement of balanced two-way technology flow. Industry on both sides will need better access to their Government's requirements and plans to ensure that projects that will meet needs and have a real utility to proceed into production.

Action: USDRE encourage industry-to-industry initiatives. USDRE guide technological cooperation to ensure suitable balance of technology flow and overall national benefit. USDRE develop means to assess balance of technology exchange.

B. Conduct of Technology Cooperation

- Recommendation: Define intergovernmental and government-industry roles and procedures for identifying, initiating, and conducting projects involving technological cooperation.

Action: USDRE formulate the U.S. rules and procedures and request that the U.S. - Japan Systems and Technology Forum undertake intergovernmental aspects.

- Recommendation: Perform a high priority, comprehensive interagency study on overall trade/defense/economic trade-offs and strategy with respect to Japan to provide a broader policy context for technological cooperation.

Action: DoD stimulate initiation of an appropriate interdepartmental study which, probably, should be lead by the State Department.

D. Most Important of All

- Recommendation: Strong Presidential and SecDef policy statements specifying that technological leadership is a firm national goal and a cornerstone of our military and economic security. Research and development funding and incentives in industry and universities should support this goal.*

Action: USDRE and USDP prepare a statement for Presidential consideration. Continued emphasis from SecDef to Congress for strengthened long-range R&D budgets and incentive policies.

*NOTE: This is also the final recommendation of the NATO Phase I study, and applies equally to both NATO Europe and Japan.

APPENDIX III

PUBLIC LAW 100-456

SEPTEMBER 29, 1988

NATIONAL DEFENSE AUTHORIZATION ACT

FISCAL YEAR 1989

CHAPTER 148 - DEFENSE INDUSTRIAL BASE

2501. Centralized guidance, analysis, and planning

"The Secretary of Defense, acting through the Under-Secretary of Defense for Acquisition, shall -

1. provide overall policy guidance and direction to the military departments and the Defense Agencies on matters relating to the maintenance, expansion, and readiness of the defense industrial base of the United States.
2. analyze the capabilities of the defense industrial base of the United States to fulfil the requirements of national defense strategy in time of peace and the expanded requirements of national defense strategy in time of war or national emergency;
3. develop clear standards for assessing military mobilization requirements and the manner in which those requirements will be met;
4. develop and direct the implementation of plans, programs, and policies that promote the ability of the defense industrial base of the United States to fulfill the requirements of the Department of Defense; and
5. identify and plan for the procurement of items of supply that -
 - a. are suitable substitutes for military standard items of supply, or suitable substitutes for subsystems or components of military standard items of supply, that are anticipated to be unavailable from existing sources in quantities that are sufficient to meet planned requirements in time of war or national emergency; and
 - b. are commercially available from domestic sources

2502. Policies relating to defense industrial base

(A) Acquisition Policies - The Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, shall establish and implement policies requiring --

1. for each major defense acquisition program, an analysis of the capabilities of the defense industrial base to develop, produce, maintain, and support such program;
2. The consideration of requirements for efficient manufacture during the design and production of the systems to be procured under the major defense acquisition program;
3. the use of advanced manufacturing technology, processes, and systems during the research and development and production phases of the acquisition of a weapon system under a major defense acquisition program;
4. to the maximum extent practicable for each major defense acquisition program, the development of an acquisition plan that provides for contract solicitations which encourage competing offerers to acquire, for use in the performance of the contract, modern technology, production equipment,

and production systems (including hardware and software) that increase the productivity of the offerers and reduce life-cycle costs;

5. the encouragement of domestic source investment in advanced manufacturing technology production equipment and processes through --
 - a. recognition of the contractor's investment in advanced manufacturing technology production equipment and processes in the development of the contract objective; and
 - b. increased emphasis in source selections to the efficiency of production;
6. the expanded use of commercial manufacturing processes rather than processes specified by the Department of Defense;
7. elimination of barriers to, and facilitation of, the integrated manufacture of commercial items and items being produced under defense contracts; and
8. the expanded use of commercial products as set forth in section 2325 of this title.

(b) Analysis-(1) In the conduct of any analysis required under subsection (a)(1), the following factors, as appropriate, may be considered:

- a. The availability of essential raw materials, special alloys, and composite materials.
- b. The availability of components, subsystems, production equipment and facilities that are essential for --
 - 1) the sustained production of a system that is fully capable of performing its purpose;
 - 2) The uninterrupted maintenance and repair of such system; and
 - 3) the sustained operation of such system.
- c. The availability of required special tooling and production test equipment.
- d. The identification of components or subsystems that are available solely from sources outside the United States.
- e. Planned alternatives, if appropriate, for fulfilling requirements that during peacetime are fulfilled by sources outside the United States.

(2) In the conduct of the analysis required under subsection (a)(1), the Under Secretary shall minimize the paperwork burden on the contractor, its subcontractors, and suppliers.

"(c) Assessments. -- (1) The Secretary of Defense, acting through the Under Secretary of Defense for Acquisition, shall ensure that, for each major defense acquisition program --

- a. the capability of the domestic defense industrial base to meet requirements for that program has been assessed by the military department or Defense Agency carrying out such program; and

- b. the capability of the domestic defense industrial base to meet the aggregate requirements for all such programs has been assessed in the Office of the Secretary of Defense.

(2) For purposes of this subsection, the term 'domestic defense industrial base' means firms engaged in production in the United States and Canada.

2503 Defense industrial base office

"The Under Secretary of Defense for Acquisition may establish within the office of the Under Secretary of Defense for Acquisition a defense industrial base office to be the principal office in the Department of Defense for the development of policies and plans regarding the conduct of programs for the improvement of the defense industrial base of the United States. Such an office shall, at a minimum --

1. develop and propose plans and programs for the maintenance and fostering of defense industrial readiness in the United States;
2. develop and propose plans and programs to encourage the use by the defense industries of the United States of advanced manufacturing technology and processes and investment in improved productivity;
3. propose, consistent with existing law, the repeal or amendment of the regulations of the Department of Defense prescribed as part of the Federal Acquisition Regulation (the single system of Government-wide procurement regulation as defined in section 4(4) of the Office of Federal Procurement Policy Act) and such other regulations and policies as may be necessary to eliminate any adverse effect that the regulations and policies may have on investment in improved productivity; and
4. evaluate and propose for testing innovative ideas for improving defense industrial readiness in the United States, including ideas for improving --
 - a. manufacturing processes; and
 - b. the acquisition procedures of the Department of Defense."

(2) The items relating to chapter 148 in the tables of chapters at the beginning of part IV of subtitle A of title 10, United States Code, and at the beginning of such subtitle, are each amended to read as follows:

148. Defense Industrial Base.....2501. PUBLIC LAW 100-456 - SEPT. 29, 1988

(c)Analysis of Defense Industrial Base Capability - (1) The Under Secretary of Defense for Acquisition shall require the Secretary of each military department to provide to the Under Secretary at least one analysis of the type described in section 2505(a)(1) of title 10, United States Code (as added by subsection (b) for an acquisition program carried out by such department. The Under Secretary shall compile and analyze the data obtained from such analysis in order to ascertain whether the industrial base is capable of supporting each such program.

(2) A program may not be selected for an analysis under this subsection if production of the system to be acquired under such program has begun.

(3) All analyses required under this subsection shall be completed not later than September 30, 1990.

(4) Not later than February 1, 1991, the Under Secretary of Defense for Acquisition shall submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the analyses required under this subsection.

SEC. 822. SOURCE FOR PROCUREMENT OF CERTAIN VALVES AND MACHINE TOOLS

Section 2507 of title 10, United States Code, as redesignated by section 821, is amended by adding at the end of the following new subsection:

(d) Valves and Machine Tools -- (1) During fiscal years 1989, 1990, and 1991, funds appropriated or otherwise made available to the Department of Defense may not be used to enter into a contract for the procurement of items described in paragraph (2) that are not manufactured in the United States or Canada.

(2) Items covered by paragraph (1) are the following:

- a. Powered and non-powered valves in Federal Supply Classes 4810 and 4820 used in piping for naval surface ships and submarines.
- b. Machine tools in the Federal Supply Classes for metalworking machinery numbered 3405, 3408, 3410 through 3419, 3426, 3433, 3438, 3441 through 3443, 3445, 3446, 3448, 3449, 3460, and 3461.

(3) The Secretary of Defense may waive the requirement of paragraph (1) with respect to the procurement of an item if the Secretary determines that any of the following apply with respect to that item:

- a. The restriction would cause unreasonable costs or delays to be incurred.
- b. United States producers of the item would not be jeopardized by competition from a foreign country and that country does not discriminate against defense items produced in the United States to a greater degree than the United States discriminates against defense items produced in that country.
- c. Satisfactory quality items manufactured in the United States or Canada are not available.
- d. The restriction would impede cooperative programs entered into between the Department of Defense and a foreign country and that country does not discriminate against defense items produced in the United States to a greater degree than the United States discriminates against defense items produced in that country.

PUBLIC LAW 100-456-SEPT. 29, 1988

(b) First Report - The first report under section 2368 of title 10, United States Code (as added by subsection (A)), shall be submitted in 1989.

SEC 824. DEFENSE MEMORANDA OR UNDERSTANDING

Chapter 148 of title 10, United States Code, as amended by section 821, is further amended by inserting after section 2503 the following new section:

2504. Defense memoranda of understanding

In the negotiation and renegotiation of each memorandum of understanding between the Secretary of Defense, acting on behalf of the United States, and one or more foreign countries (or any instrumentality of a foreign country) relating to research, development, or production of defense equipment, the Secretary of Defense shall --

1. consider the effect of such proposed memorandum of understanding on the defense industrial base of the United States; and
2. regularly solicit and consider information or recommendations from the Secretary of Commerce with respect to the effect on the United States industrial base of such memorandum of understanding.

SEC. 825. DEPARTMENT OF DEFENSE OFFSET POLICY

(a) FINDINGS - Congress makes the following findings:

1. Many contracts entered into by United States firms for the supply of weapon systems of defense-related items to foreign countries and foreign firms are subject to contractual arrangements under which United States firms must agree --
 - a. to have a specified percentage of work under, or monetary amount of, the contract performed by one of more foreign firms;
 - b. to purchase a specified amount or quantity of unrelated goods or services from domestic sources of such foreign countries; or
 - c. to invest a specified amount in domestic businesses of such foreign countries.

Such contractual arrangements, known as "offsets", are a component of international trade and could have an impact on United States defense industry opportunities in domestic and foreign markets. Some United States contractors and subcontractors may be adversely affected by such contractual arrangements. Many contracts which provide for or are subject to offset arrangements require, in connection with such arrangements, the transfer of United States technology to foreign firms. The use of such transferred technology by foreign firms in conjunction with foreign trade practices permitted under the trade policies of the countries of such firms can give foreign firms a competitive advantage against United States firms in world markets for products using such technology. A purchase of defense equipment pursuant to an offset arrangement may increase the cost of the the defense equipment pursuant to an offset arrangement may increase the cost of the defense equipment to the purchasing country and may reduce the amount of defense equipment that a country may purchase. The exporting of defense equipment produced in the United States is important to

maintain the defense industrial base of the United States, lower the unit cost of such equipment to the Department of Defense, and encourage the standardized utilization of United States equipment by the allies of the United States.

(b) Amendment to Title 10 - Chapter 148 of title 10, United States Code as amended by sections 821 and 824, is further amended by inserting after section 2504 the following new section:

2505. Offset policy; notification

(a) Establishment of Offset Policy - The President shall establish, consistent with the requirements of this section, a comprehensive policy with respect to contractual offset arrangements in connection with the purchase of defense equipment or supplies which addresses the following:

1. Transfer of technology in connection with offset arrangements.
2. Application of offset arrangements, including cases in which United States funds are used to finance the purchase by a foreign government.
3. Effects of offset arrangements on specific subsectors of the industrial base of the United States and for preventing or ameliorating any serious adverse effects on such subsectors.

(b) Technology Transfer - (1) No official of the United States may enter into a memorandum of understanding or other agreement with a foreign government that would require the transfer of United States defense technology to a foreign country or a foreign firm in connection with a contract that is subject to an offset arrangement if the implementation of such memorandum or agreement would significantly and adversely affect the defense industrial base of the United States and would result in a substantial financial loss to a United States firm.

(2) Paragraph (1) shall not apply in the case of a memorandum of understanding, or agreement described in paragraph (1) if the Secretary of Defense, in consultation with the Secretary of Commerce and the Secretary of State, determines that a transfer of United States defense technology pursuant to such understanding or agreement will result in strengthening the national security of the United States and so certifies to Congress.

(3) If a United States firm is required under the terms of a memorandum of understanding, or other agreement entered into by the United States with a foreign country, to transfer defense technology to a foreign country, the United States firm may protest the transfer of such technology would adversely affect the defense industrial base of the United States and would result in substantial financial loss to the protesting firm. The Secretary of Defense, in consultation with the Secretary of Commerce and the Secretary of State shall make the final determination of the validity of the protesting firm's claim.

(c) Notification Regarding Offsets -- If at any time a United States firm entered into a contract for the sale of a weapon system or defense-related item to a foreign country or foreign firm and such contract is subject to an offset arrangement exceeding \$50,000,000 in value, such firm shall notify the Secretary of Defense of the proposed sale. Notification shall be made under this subsection in accordance with regulations prescribed by the Secretary of Defense in consultation with the Secretary of Commerce.

(d) Definitions - In this section:

1. The term 'United States firm' means a business entity that performs substantially all of its manufacturing, production, and research and development activities in the United States.

2. The term 'foreign firm' means a business entity other than a United States firm.

(c) Negotiations - (1) The President shall enter into negotiations with foreign countries that have a policy of requiring an offset arrangement in connection with the purchase of defense equipment or supplies from the United States. The negotiations should be conducted with a view to achieving an agreement with the countries concerned that would limit the adverse effects that such arrangements have on the defense industrial base of each such country.

(2) Every effort shall be made to achieve such agreements within two years after the date of the enactment of this Act.

(d) Reports - (1) Not later than November 15, 1988, the President shall submit to Congress a comprehensive report on contractual offset arrangements required of United States firms for the supply of weapon systems or defense-related items to foreign countries or foreign firms. Such report shall include, at a minimum, the following:

- a. An analysis of the amount and type of contractual offsets required of United States firms by the governments of foreign countries or by foreign firms.
- b. An assessment of the benefits for and costs to United States manufacturers of defense products at all tiers that result from requirements of foreign governments for contractual offset arrangements in the case of products procured from United States firms.
- c. An assessment of the benefits for and the costs to United States manufacturers of defense products at all tiers that would result from restriction of the ability of foreign governments or foreign firms to require contractual offsets in the case of defense products procured from United States firms.
- d. An assessment of the benefits and costs of a United States policy that requires reciprocal offsets in the procurement of defense products from those countries whose governments have a policy of requiring contractual offsets in the case of defense products procured from United States firms.
- e. An assessment of the impact that elimination of contractual offset requirements in international sale of defense products would have on the national security of the United States.
- f. Recommendations for a national policy with respect to contractual offset arrangements.
- g. A preliminary discussion of the actions referred to in paragraph (2).

(2) Not later than March 15, 1990, the President shall transmit to Congress a report containing a discussion of appropriate actions to be taken by the United States with respect to purchases from United States firms by a foreign country (or a firm of that country) when that country or firm requires an offset

arrangement in connection with the purchase of defense equipment or supplies in favor of such country. The report shall include a discussion of the following possible actions:

- a. A requirement for an offset in favor of the United States or United States firms in any case in which the Department of Defense or any other department or agency of the United States purchases goods from such foreign country or a firm of such country.
- b. A demand for offset credits from such foreign country to be used, to the extent practicable, to meet offset obligations of United States firms to such foreign country or to a firm of such country.
- c. A reduction in assistance furnished such foreign country by the United States.
- d. A requirement for alternative equivalent advantages in the case of any such foreign country or a firm of such country if the United States does not purchase a sufficient volume of goods from such country of firm for a requirement described in subparagraph (A) to be effective.

(3) The President shall report to Congress at least once each year, for a period of 4 years, on the progress of the negotiations referred to in subsection (c). The first such report shall be submitted not later than one year after the date of the enactment of this Act.

(4) In this subsection, the terms "United States firm" and "foreign firm" have the same meanings as are provided in section 2505(d) of title 10, United States Code, as added by subsection (b).

APPENDIX IV

CURRENT DOD POLICY



ACQUISITION

THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301

1 NOV 1988

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Policy for the Negotiation of International Agreements
for Cooperative Projects and Follow-On Activities

ARMAMENTS COOPERATION POLICY

As set forth in Department of Defense (DoD) Directives 3100.3 and 2010.6, it is DoD policy to engage in armaments cooperation with our allies as one of the primary methods to attain adequate conventional defense capabilities. We must capitalize on each opportunity in order to make the most efficient use of limited resources and enhance combined combat capabilities. Armaments cooperation should achieve:

DoD access to, use of, and protection of the best technology developed by our allies, and comparable allied access to, use of, and protection of the best U.S. technology, thereby avoiding unnecessary duplication of development.

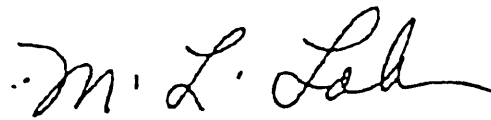
Deployment and support of common--or at least inter-operable--equipment with the allies.

Incentives for the allies to make greater investment in modern conventional military equipment.

Economies of scale afforded by coordinated research, development, production and logistics support programs.

Cooperative projects where the United States and one or more nations make an equitable contribution to the full cost of the project, are one of the means to achieve these objectives. Such projects are normally established by government-to-government agreements, typically called Memoranda of Understanding (MOU), which establish the principles that will govern the execution of the project.

The attached policy guidance is provided for all U.S. negotiators of MOUs for international cooperative projects.

A handwritten signature in cursive script, appearing to read "M. L. Loh".

DEPUTY UNDER SECRETARY

Attachment

Policy for the Negotiation of International Agreements for Cooperative Projects

APPLICABILITY

This document provides general policy guidance for DoD negotiators of international agreements for cooperative research, development, testing, evaluation and production. The guidance is also intended to be used by negotiators of any other international agreements which address the issues herein.

NUMBER OF PARTICIPATING NATIONS

Generally, participation in cooperative programs should be open to all allied and friendly nations consistent with security considerations (including the National Disclosure Policy), the ability to contribute to the program, and, for ongoing programs, prior understandings with current participants.

LEAD NATION SELECTION

Assignment of lead nation responsibility will be accomplished through negotiations and should be a function of the program parameters. The following are some of the factors that should be considered in this regard:

- o The nation which has the technology, manufacturing know-how, facilities and contracting capabilities most relevant to the problem.
- o The nation which has an ongoing program which others would join.
- o The nation which has the most time-critical requirement for the system under development and has allocated sufficient financial resources to support the program.
- o The nation which will make the greatest financial contribution to the project.

COST SHARING

Cost sharing should be resolved on the basis of equity to ensure that all parties bear costs in proportion to the benefits they receive. Thus, cost sharing in each cooperative program or project is a subject for negotiation. Generally, (1) costs for feasibility studies should be shared equally, (2) development expenses should be shared equitably and (3) in cooperative production and logistics programs, each nation should pay the full costs of its portion of production and logistics.

In multilateral programs involving large numbers of participants, consideration should be given to structuring the program to include two tiers of participation, i.e., members and associate members. Associate members would have limited rights (e.g. data rights, recoupment of nonrecurring costs, management of the program) consistent with their contributing lesser amounts of funding.

OFFSETS

It is Department of Defense policy not to enter into any agreement which commits or appears to commit the U.S. government or U.S. private contractors to achieve or guarantee the achievement of a specified level of offsets. A Deputy Secretary of Defense memorandum of May 4, 1978, states that an exception to this policy "will be made only when there is no feasible alternative to ensure the successful completion of transactions considered to be of significant importance to United States national security interests (e.g., rationalization of mutual defense arrangements)." An offset subject to the May 4, 1978, memorandum occurs when there is an agreement by the DoD to purchase items from a foreign country in order to offset some specific amount or percentage of the foreign country's expenditures for U.S. defense items. Any use of offsets, as opposed to work sharing, will require the approval of the Deputy Secretary of Defense.

WORK SHARING

Ideally the work in a cooperative program or project should be contracted on a competitive basis to the most qualified firms that can perform at the lowest cost regardless of nationality. However, when this ideal cannot be achieved, some form of work sharing may be the only way to make the program or project acceptable to the parties. Work sharing is the agreed participation of the cooperating governments or their industries in the performance of the cooperative program or project. The purpose of work sharing is to reserve to the cooperating nations the economic, defense, and political benefits flowing from the cooperative program or project. Work sharing is not subject to the May 4, 1978, memo concerning offsets.

Agreements on work sharing can take many forms. For example, a general statement can be included in the MOU, and any resultant request for proposals (RFPs), encouraging, but not requiring, industry to distribute the work widely among the firms of the participants consistent with technical capabilities, cost and any other relevant factors. A more extreme example is to require the firms submitting proposals to distribute the work to the firms of the participating countries in proportion to cost share or production share.

Work sharing and cost sharing should be treated as separate issues and resolved on their separate merits. Allocating work based on a nation's contribution to program costs only may result in program inefficiencies and deficiencies in system performance. Therefore, DoD negotiators should avoid agreeing to provisions in an MOU requiring a specific dollar value or percentage of work sharing.

Ideally competition will be used to select the prime and all major subcontractors. However, restricting competition at the prime and major subsystem level to firms from those nations cooperating in the project may occasionally be acceptable; however, restrictions on competition at subcontract and vendor levels are discouraged and should be used only in exceptional circumstances. Our goal is to maintain the maximum possible competition throughout the life cycle of the system produced.

RFPs should provide general guidance to industry encouraging the equitable work sharing arrangements within an individual project. The extent of work sharing in a proposal should be determined not solely on the basis of monetary value, but should also consider the value of the technology and the opportunity to exploit the technology outside the program.

Solicitations for cooperative projects may give recognition in their evaluation criteria to the value of having firms from participating nations cooperate in meeting common requirements. However, this factor will be given less weight than such standard criteria as technical competence and cost effectiveness.

CONTRACTING AND COMPETITION

The responsibility for contracting in cooperative projects will normally proceed along one of two approaches or a combination of them. Either nations will separately contract for their portions of the project or a single nation (most likely the lead nation) will execute contracts on behalf of all the participating nations by using its own contracting laws, regulations and procedures.

In most cases the U.S. must contract for its own requirements. However, for "Cooperative Projects" under Section 27 of the Arms Export Control Act (AECA), the Department of Defense is authorized by Section 27 and by 10 U.S.C. 2407 (e) to permit, under certain conditions, other countries to contract for U.S. requirements in accordance with their contracting laws and procedures. One of the conditions is that, unless waived, the contract will be made on a competitive basis and U.S. firms will be given the opportunity to compete. The approvals required before entering into such an agreement are specified in Secretary of Defense Memorandum on NATO Cooperative Projects of January 28, 1986.

Similarly under certain conditions, the Department of Defense is authorized in accordance with Section 27 of the AECA to contract on behalf of other participating countries. When the United States is the contracting party, the Competition in Contracting Act (10 U.S.C. 2304(C)) provides for exceptions to the requirements for full and open competition.

SOURCE SELECTION

Source selection will be conducted in accordance with the procedures of the contracting nation. A Source Selection Authority (SSA) must be established and will typically be a representative of the contracting nation.

The SSA may also be advised by a multinational committee chaired by a representative of the contracting nation. In such instances, it is a goal that source selection will be based on the unanimous agreement of the participating nations. Unanimous agreement may not always be possible. Therefore MOUs should contain provisions defining what actions will be taken if unanimous agreement cannot be reached in a timely manner.

PROJECT ORGANIZATION

Cooperative projects should be organized so that authority, responsibility and accountability are clearly defined and the layers of review over project office activities are kept to a minimum. Essential decisions concerning the cooperative project (e.g., cost, schedule, project scope) may require the unanimous agreement of all participating nations. Those decisions requiring unanimity will be clearly identified in the program MOU and will be kept to a minimum. The MOU will provide procedures for resolution of decisions where unanimity is not obtained.

The authority and responsibility for managing the cooperative project will reside with the project manager, who will be responsible for making most of the decisions concerning project activities subject to periodic review by the participating nations. The lead nation normally provides the project manager. In order to ensure joint management, each participating nation should contribute qualified personnel to assume functional responsibilities in the project office.

TECHNOLOGY TRANSFER

Cooperative projects must provide for the transfer and protection of technology among the participants that is necessary to ensure the success of the program. DoD offices which initiate cooperative programs will work with the Defense Technology Security Administration (DTSA) to review export license

requirements and procedures necessary to enable prospective U.S. contractors to negotiate industrial arrangements with foreign contractors. Approval of technology release criteria based upon a technology security risk assessment, is a pre-condition for negotiation of an MOU (DoDD 5530.3). The Technology Security Risk Assessment (TSRA) is: (1) initiated by the project office, (2) prepared by technical experts in coordination with appropriate disclosure officers and intelligence agencies, and (3) reviewed by DTSA and Under Secretary of Defense for Acquisition. The TSRA itemizes all sensitive data; assesses the risk to U.S. national security through the proposed transfer; and identifies the foreign technologies or other benefits the U.S. is likely to acquire as a result of the proposed agreement. The Militarily Critical Technologies List is an excellent aid in identifying "sensitive technology." The cognizant military department must then translate the TSRA into appropriate negotiation guidance, outlining those technologies which cannot be shared, as well as those which will be shared only on a limited or restricted basis. The MOU should explicitly address program dependency on specific technology, time or event phased release of technology, and arrangements and authority for technology transfer and technology protection.

UNCLASSIFIED TECHNOLOGY SECURITY

DoD Directive 5230.25, which implements Public Law 98-94, establishes policies, procedures and responsibilities for the withholding of unclassified technical data from public disclosure. DoD Directive 5230.24 establishes a distribution marking system for technical documents. The International Traffic in Arms Regulation (ITAR) controls export of classified and unclassified technology consisting of technical data, services, defense articles and implements of war. To ensure that unclassified technology is protected from unauthorized disclosure, negotiators should be familiar with the requirements of these directives and regulations. The intent is to ensure that recipients of U.S. controlled or U.S. corporate proprietary unclassified (but often sensitive) information provide such information, as a minimum, the same protection as they provide for their own official or proprietary information. To accomplish this, the language at Attachment 2 should be placed in international agreements.

INFORMATION SECURITY

The U.S. has concluded general security of military information agreements (many also have industrial security annexes) with most major allies. Negotiators should be familiar with these, as well as with the U.S. National Disclosure Policy (NDP Category 1).

The DoD proponent for a cooperative project must first determine what classified information will need to be provided to participating nations and their contractors and ascertain the feasibility of technology release before commencing negotiations for a cooperative project. MOUs must contain specific provisions for the protection of classified information and material which ensures high standards of industrial security, physical security and personnel security (see the security guidelines at Attachment 1).

The MOU should establish security procedures which will avoid long deleterious delays before adequate and meaningful information can be exchanged among companies trying to prepare for and execute cooperative projects. Collectively and individually the governments need to establish procedures to transmit and receive classified information for the program within as short a period of time as possible. These provisions should provide for timely exchange of classified information needed for formation of industrial teams, meaningful exchange needed in response to RFPs and subsequent negotiations and interchange necessary to effective project execution. These issues should be resolved prior to signing the MOU.

DATA RIGHTS

MOUs must provide for protection of data rights, including intellectual property not owned by the governments. Background and foreground information should be identified so data rights can be assessed. Any restrictions on use, including the costs to acquire privately owned data, will be specifically addressed as early in the program as possible. Data should be thoroughly marked to assist in identification and record keeping. U.S. Government law and policy regarding rights in technical data are changing rapidly, therefore, U.S. negotiators should be careful not to commit to provide data or rights in data which the U.S. Government is not legally able to obtain.

THIRD PARTY TRANSFERS

MOUs for cooperative programs must address the transfer of equipment and information to third parties. In this regard, MOU procedures for third-party transfers will require that defense articles or services, including technical information produced pursuant to the cooperative project, will not be transferred to third parties (other than cooperative project participants) without prior written approval of the U.S. Government. Similarly, U.S. defense articles and services, including technical information, provided to other project participants may not be transferred to third parties without prior written U.S. Government approval. Generally, all U.S. products and information defined as munitions under the ITAR are considered to be defense articles and services subject to these restrictions.

The MOU provisions governing third country transfers of products developed by any participating nation (including the United States) under the cooperative project may restrict future unilateral U.S. Government actions. In such cases it is essential that these provisions provide for rapid resolution of differences. Where sales or transfers among program participants to third countries are authorized in the cooperative project MOU, Department of State, and in some cases Department of Commerce, approval must be obtained before or concurrent with MOU negotiations.

COST RECOUPMENT

MOU procedures for transfers of articles and data within the project and for third-party transfers must address the recoupment of nonrecurring research, development, and production costs and for the reimbursement of administrative costs. It is the policy of the United States to obtain a recoupment or reimbursement for its share of these costs.

For projects which are equitably financed by DoD and other signatories to the MOU, there is no charge to participants to the agreement for the DoD share of the nonrecurring costs (NRC). However, DoD will recoup a prorata share on third-party sales. For articles or data that are financed solely with DoD funds and which are provided to a cooperative project, the DoD will recoup a prorata share of development costs from both participants and non-participants. Waivers of NRC charges must be requested by the foreign governments involved in advance of any commitment to the sale or transfer of the items to which the charge applies, in order to ensure compliance with the necessary legal and policy requirements applicable to such waivers (see DoD Directive 2140.2, August 5, 1985 and DoD Federal Acquisition Regulation Part 271). All MOUs, with applicable countries, should explicitly provide the option to waive, for participating nations and separately for third countries, the recoupment charge for U.S. costs as well as for those of other participating nations: the degree of reciprocity will be a significant factor in making waiver decisions.

FUNDING

DoD components will ensure, prior to signing any MOU for cooperative projects, that all funds for the U.S. share of the project are in an approved program. If funds have not been programmed the MOU will not be approved for signature until a joint statement has been signed by the Service Secretary and the Deputy Secretary of Defense establishing the appropriate funding priority for that cooperative project. Cooperative projects will not be funded unless the Service is committed to the project, the project enhances the combined military strength of the allies and affords realistically predictable cost savings.

FOLLOW-ON ACTIVITIES

The procedures and principles for follow-on activities such as further development, production, procurement, integrated logistics support (ILS), and product improvements should be stated as a basis for planning. These following issues should be considered if appropriate:

- o List of the expected participants.
- o Identification of the phases, decisions at phases, and responsibilities and limits of these decisions.
- o Selection of, and expected framework for, any industrial structure appropriate to the follow-on programs and its relationship to the governmental organizations.
- o Permitted application and limits of data rights from development program to follow-on programs.
- o Factors affecting worksharing.
- o Provisions for follow-on program participation in, or sales to, third parties.
- o Provisions for security of information and products.
- o Provisions for periodic review of releasability issues and updating of disclosure guidance.

LOGISTICS SUPPORT

Cooperative projects should assign a full-time professional logistician at the same time as the primary financial and technical managers are assigned. The logistician is to be responsible directly to the program manager for formulation of all integrated logistics support plans and coordinating all national requirements in such a way that logistics support receives the same consideration and planning as the financial and technical aspects of the program.

While each nation is responsible for the logistics support of its own forces, mutual provision of logistics support is encouraged. Whenever the United States and one or more of the NATO Allies field the same weapon system, the United States should consider joining with those allies in a NATO Maintenance and Supply Organization (NAMSU) weapon system partnership agreement for combined logistics support in Europe for those functions that are practicable, unless doing so would be disadvantageous to the United States.

INDUSTRY CONSULTATION

U.S. industry should be encouraged to take an active part in establishing cooperative projects, especially in developing cooperative relationships with industries in allied countries to

meet common requirements. The project office will notify industry of its intent to negotiate an MOU for a cooperative project, using the Commerce Business Daily, Federal Register, or other appropriate media, and invite the views of industry prior to negotiating. The decision as to the need for and extent of industry consultation during the subsequent negotiations will be made by the project manager on a case by case basis. However, care will be taken to avoid giving preference or an unfair advantage to any potential contractor.

APPROVALS

The major issues to be addressed during negotiations (e.g., acquisition strategy, technology sharing, cost sharing), and the "going in" and "fallback" position for each of the major issues will be provided for review, appropriate staffing and approval as part of the request for authority to negotiate. Commitments to our allies on issues to be addressed in MOUs are not authorized until authority to negotiate has been granted in accordance with DoDD 5530.3. The authorizing memorandum will include the name and telephone number of a member of the OSD staff whom the U.S. negotiators may contact for guidance and advice while negotiations are in progress. This point of contact will serve as the focal point for dealings with the OSD staff.

EXCEPTIONS

Exceptions to this policy guidance will be considered in conjunction with the review of requests for authority to negotiate or conclude international agreements for cooperative projects submitted in accordance with DoDD 5530.3. This guidance will be incorporated into a DoD instruction in the near future.

APPENDIX V

SECRETARY OF STATE

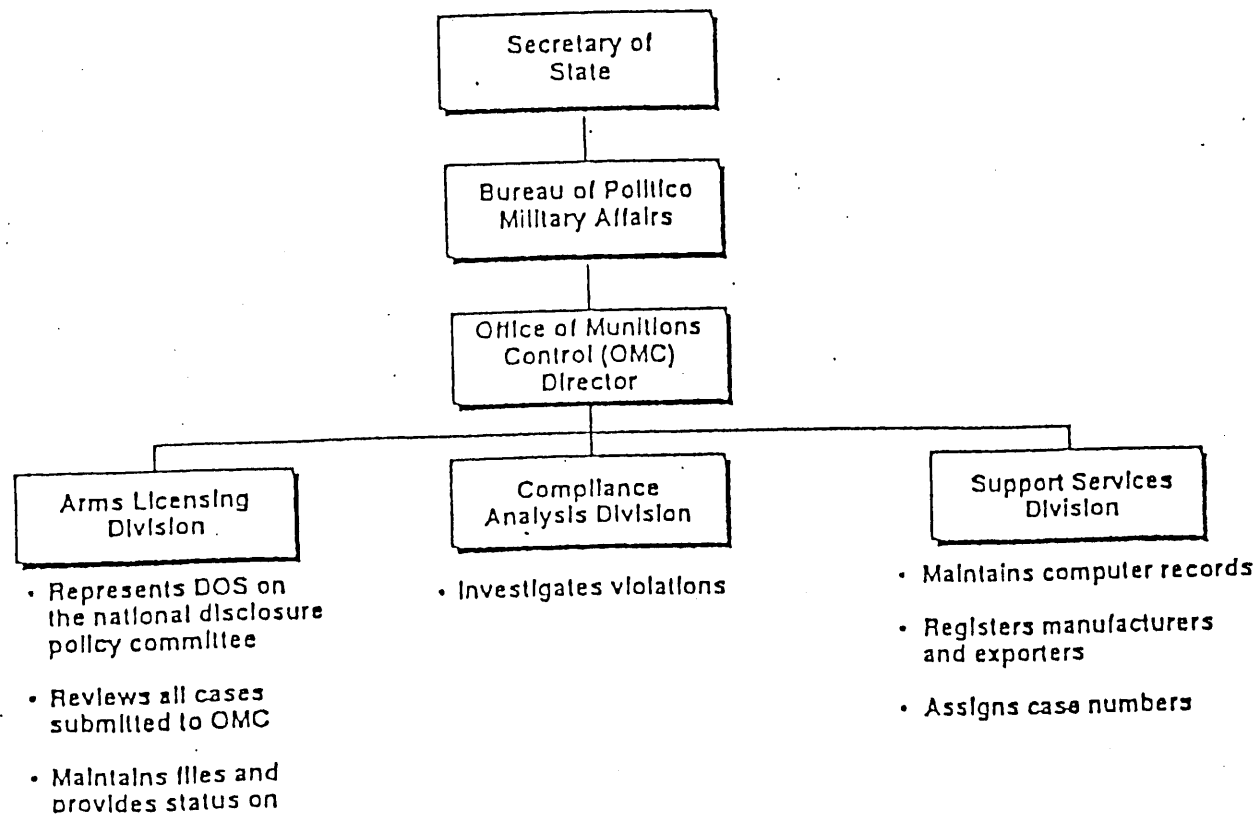
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SECRETARY OF DEFENSE

ORGANIZATIONS FOR SECURITY ASSISTANCE

DEPARTMENT OF STATE

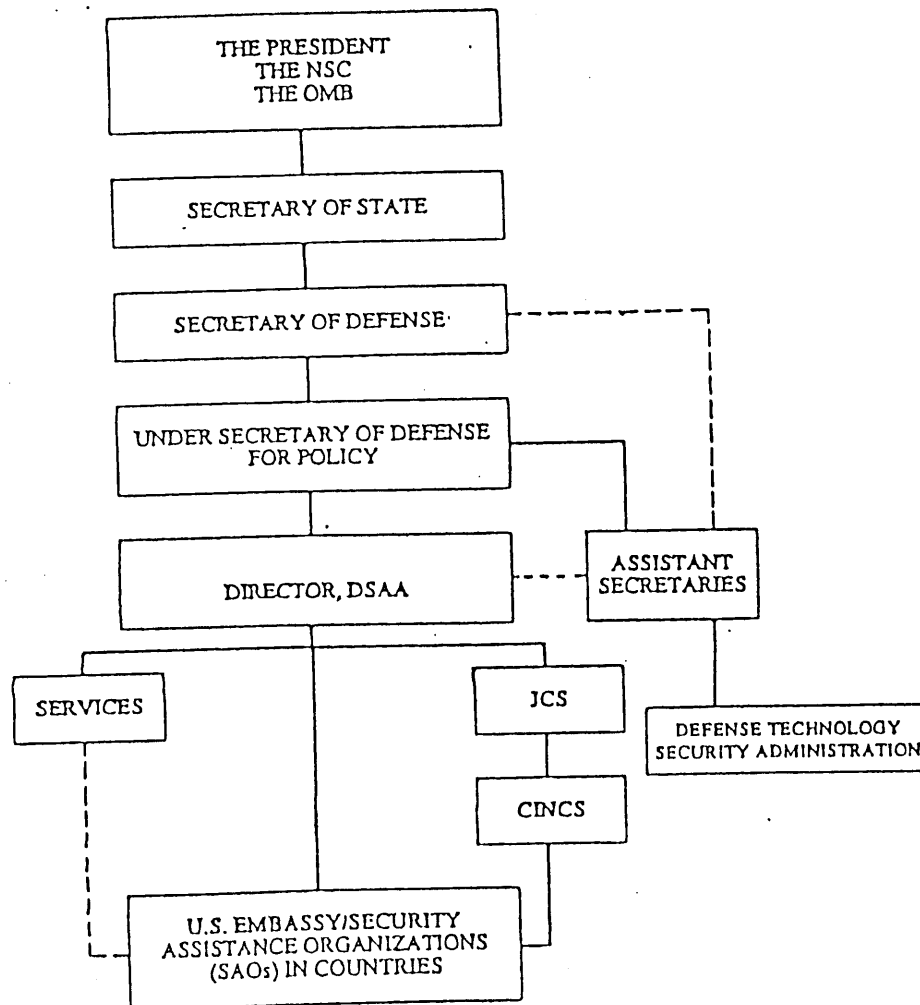
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DECISION CHANNELS FOR SECURITY ASSISTANCE

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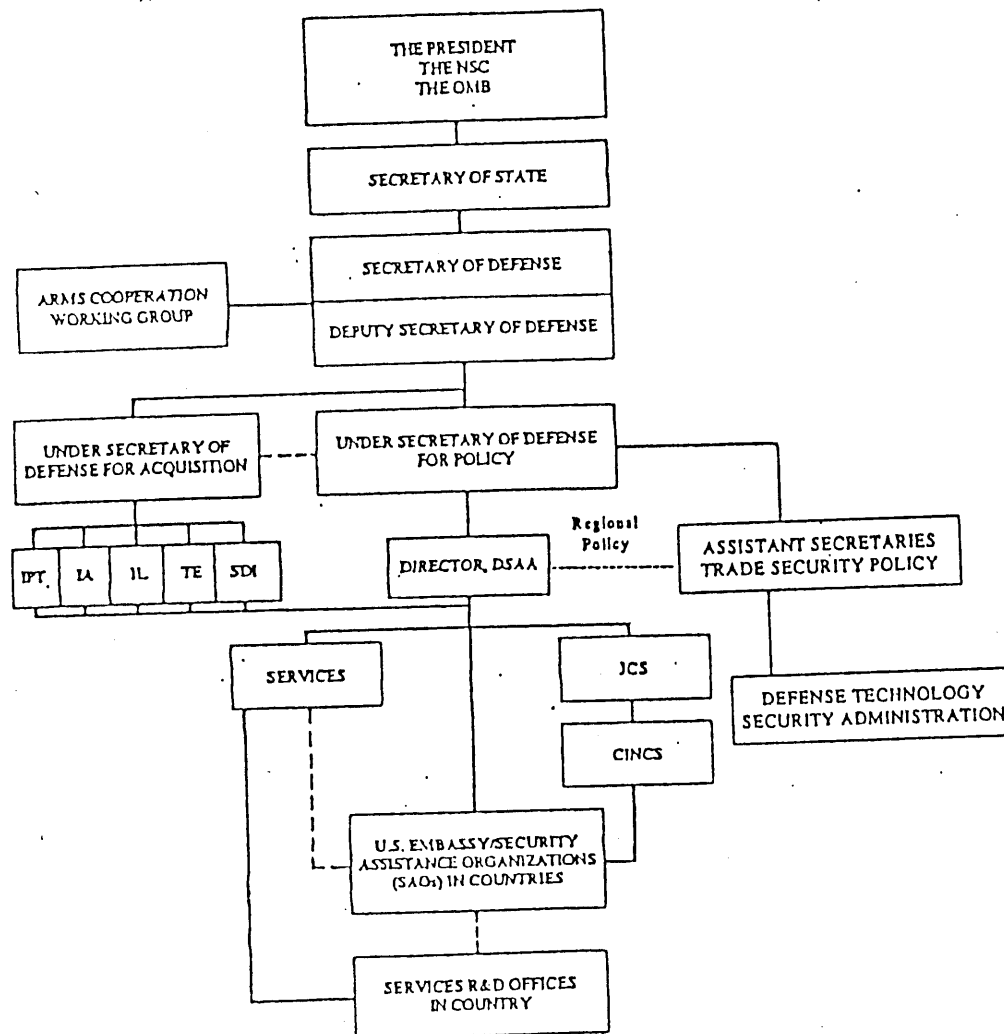


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ARMAMENTS COOPERATION DECISION RELATIONSHIPS FOR ODC/MAAGs

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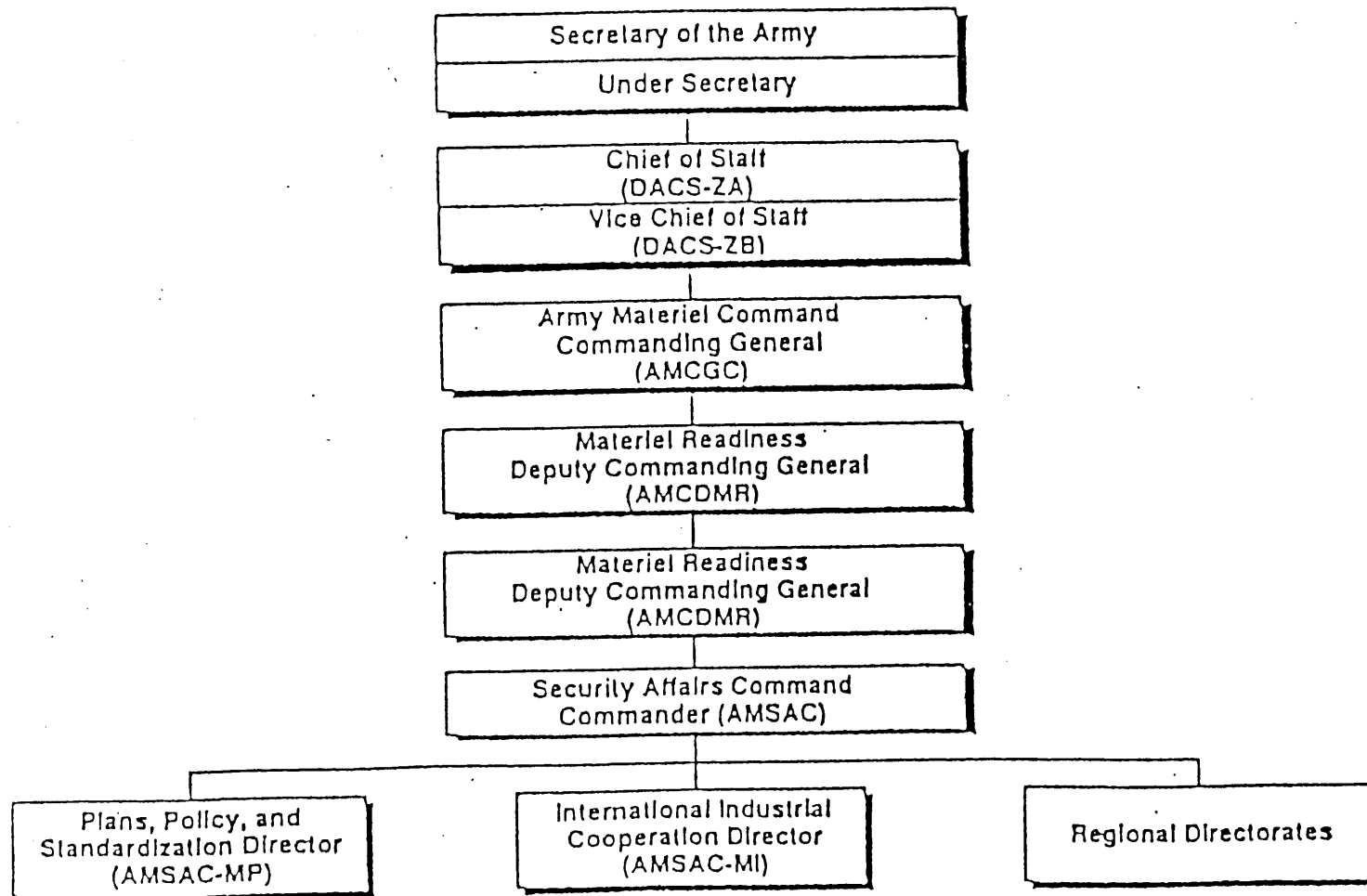
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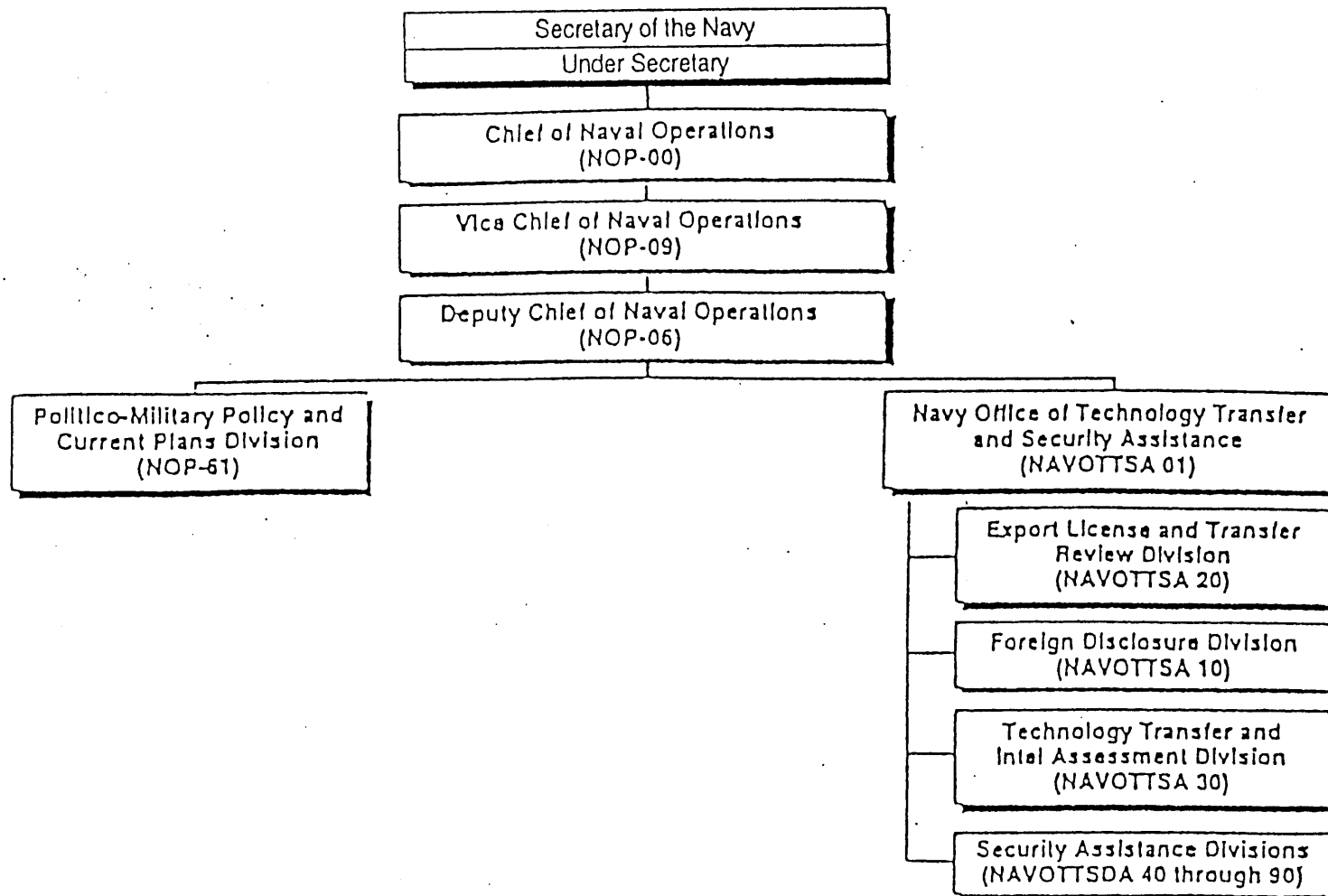


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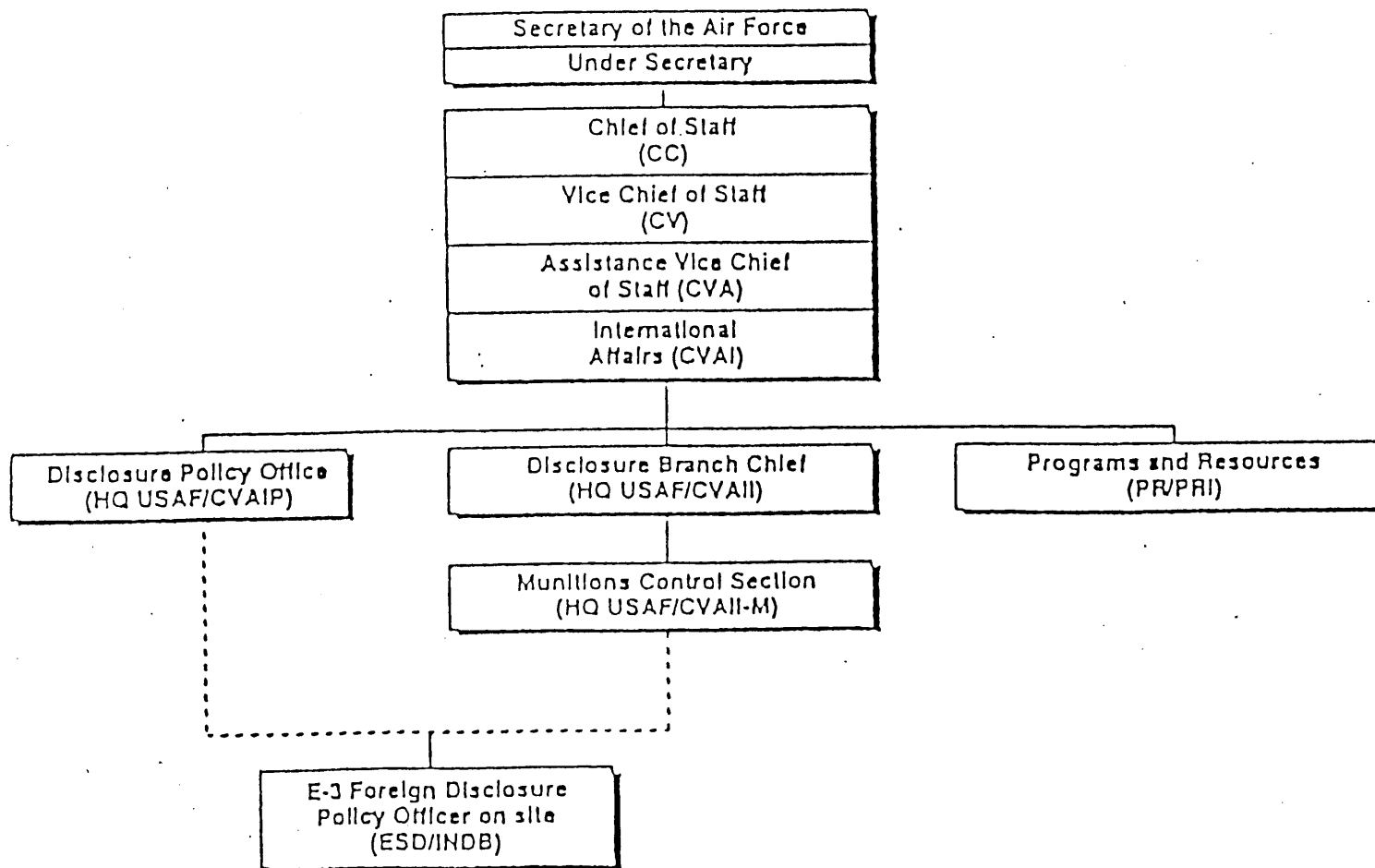


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UNITED STATES AIR FORCE

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APPENDIX VI

GLOSSARY OF TERMS

GLOSSARY OF TERMS

DEFENSE
SCIENCE
BOARD

ARMAMENTS COOPERATION

ASEAN

CINCPAC

CO-ASSEMBLY

CO-DEVELOPMENT

DEFENSE INDUSTRIAL COOPERATION

DoD

DSAA

DSB

DTSA

DUAL-USE ITEMS

NATO-STYLE COOPERATION

NEW-STYLE COOPERATION

OFFSETS

PACRIM

SECDEF

SUPER 301

TASK FORCE

THIRD COUNTRY SALES

USD(A)

Armaments Cooperation -- Joint international research, development or production of defense systems.

ASEAN -- Association of South East Asian Nations, a non-military alliance involving Thailand, Philippines, Indonesia, Malaysia, Brunei, and Singapore which was formed to promote autonomous, equitable economic development.

CINCPAC -- Commander in Chief U.S. Pacific Command.

Co-Assembly -- Assembly in two or more countries of the same system. Usually involves transfer of assembly technology and of subsystems from country of origin to countries assembling the system for their final use. One participant generally has more responsibility for the management and administration of the project.

Co-Development -- System or subsystem cooperatively designed in two or more countries. Shared responsibilities include design and engineering, and may be expanded to include applied research.

Co-Production -- Production of a system in two or more countries. Involves the transfer of production technology and of complex or sensitive subsystems or components from the country of origin to countries producing the system. Recipient may expand production to include subsystems and components.

Defense Industrial Cooperation -- Arrangements between two or more countries for transfer of defense-related technology from the owner country to recipient countries. Cooperation may involve co-assembly, co-production, co-development, and joint logistics and support operations, the complexity depending on the state of industrial development of the recipient.

DoD -- Department of Defense.

DSAA -- Defense Security Assistance Agency (Department of Defense Agency).

DSB -- Defense Science Board.

DTSA -- Defense Technology Security Administration (Department of Defense Agency).

Dual-use Items -- Components or end-use items which have application both in civilian and military markets.

NATO-Style Cooperation -- Bi- or multilateral defense-related cooperation relying on agreed NATO objectives and plans, and shared threat perceptions and defense objectives. Such cooperation aims at building defense industry and technology base capabilities.

New Style Cooperation -- Term coined by Task Force, defined as bilateral cooperation with countries outside NATO, not controlled by a common structure (such as the Alliance). Such cooperation aims at promoting those defense objectives held in common, by building cooperative defense relationships or defense industry and technology base capabilities or recipient countries. It may also include mutual sharing of defense technologies and act to improve defense trade or competitive practices.

Offsets -- Direct or indirect conditions of purchase of foreign defense equipment enacted by a purchaser. Offsets aim to increase economic development benefits and reduce the net balance of payments costs of such a purchase. Purchasers may require as **direct offsets** the purchase or production in their country of subsystems or components of the purchased system. **Indirect offsets** to the purchase would include the purchase of unrelated goods, services or supplies.

PACRIM -- Abbreviated form of Pacific Rim. Pacific Rim countries included in this report include Australia, Japan, Korea, The People's Republic of China, and five ASEAN countries (Excluding Brunei).

SECDEF -- Secretary of Defense.

Super 301 -- Provisions of U.S. trade law added by Congress in August, 1988, amend Section 301 of the Trade Act of 1974 to a) require the U.S. Trade Representative to identify countries that deny or violate U.S. rights under any trade agreement, or that unjustifiably burden or restrict U.S. commerce; b) authorize the Trade Representative to suspend benefits or impose import restrictions on offending countries; c) authorize negotiation of binding agreements to eliminate or phase out offensive trade practices. (See Section 1301 Omnibus Trade and Competitiveness Act of 1988, Public Law 100-418, August 23, 1988).

Task Force-- Collectively, members of the Defense Science Board's Pacific Rim Task Force, listed on page 7.

Third-Country Sales -- Sales of components or systems originally based on or derived from U.S. technology, by a foreign country to a "third" country. Such sales often pose threats to U.S. technology security.

USD(A) -- Under Secretary of Defense for Acquisition.

APPENDIX VII

ORGANIZING

DEFENSE DEPARTMENT

FOR

INTERNATIONAL DEFENSE INDUSTRY COLLABORATION

APPENDIX VII

ORGANIZING THE DEFENSE DEPARTMENT FOR INTERNATIONAL DEFENSE INDUSTRY COLLABORATION

Issue:

There are several reasons this appears to be an appropriate time to review the organization of DoD to deal with international defense industry collaboration. The distinction between arms sales, security assistance, joint and coproduction projects, and technology transfer have become increasingly blurred in the 1980's. The nature of defense exports as a trade issue as well as a foreign policy and national security matter has been highlighted by the FSX negotiations with Japan. DoD has already undergone a series of organizational and procedural changes as the result of the Goldwater-Nichols law and the recommendations of the Packard Commission. And a number of studies, such as the January 14, 1977 Report of the Security Assistance Task Force (known as the Wiley Report) and the June, 1983 Defense Science Board Task Force Report on Industry to Industry International Armaments Cooperation, Phase I - NATO Europe (the Currie Report) have made recommendations for reorganization that have yet to be acted upon.

Recommendation:

The Defense Science Board PACRIM Task Force similarly recommends that the DoD consider the consolidation of the Defense Security Assistance Agency (DSAA), the Defense Technology Security Administration (DTSA), the Office of the Deputy Under Secretary of Defense for Industrial and International Programs, and the Office of the Director of International Acquisition (OASD/Production & Logistics) into a single new agency.

Organizational Histories:

1. DSAA

The providing of arms to our friends and allies since World War II has gone through three distinct but overlapping phases.

The period from the late forties to the early to mid-sixties was characterized by grant aid known as the Military Assistance Program (MAP). However styled, the emphasis was on the no-cost (to the recipient) transfer of equipment directly from U.S. Forces' inventories -- initially surplus stocks developed as a result of modernization of our own forces -- or from additional new production of systems being produced for U.S. Forces.

The MAP was wholly funded by the U.S. Congress. Programs were implemented by the acquisition and logistics elements of DoD, with the workload centered in the procuring service (Army, Navy or Air Force). An office in OASD/ISA, initially Office of Programming and Control, reporting to the Principal Deputy Assistance Secretary-International Security Affairs, and later to a new position in ISA called Director of Military Assistance, was responsible for programming MAP funds. This was appropriate since the MAP had a high international political aspect. However, the ISA programmers did not manage the execution of the programs, leaving those aspects to the acquisition and logistics chain.

These arrangements worked well. Service hardware Program Managers had few if any complaints. The equipment being furnished was standard U.S. The requirements were easily folded into contracts for equipping U.S. forces; the funding was U.S. budget authority; and there were no issues of R&D recoupment, administrative surcharges, asset use charges, agent fees, coproduction, offsets, MOUs, etc., that became commonplace in current programs for providing U.S. arms to friends and allies.

The second phase of our international arms program was a gradual shift from MAP to sales on a government-to-government basis usually referred to as Foreign Military Sales (FMS), and to direct commercial sales. (The term FMS applies exclusively to government-to-government sales). Responsibility for FMS was taken from the Director of Military Assistance and given to a new position of DASD/ISA/International Logistics Negotiations within OASD/ISA.

FMS transactions initially focused on the stronger economies of European NATO, and Secretary MacNamara launched an aggressive FMS campaign with the objective of having allies obviously able to pay their own way assume larger shares of the common defense burden.

MAP procedures continued for most other countries friendly or allied to the U.S. and also for some European NATO allies. To finance the hostilities in southeast Asia, the program was shifted about FY 1966 from MAP to Military Assistance Service Funded (MASF). This latter program funding was managed by ISA and the OSD Comptroller, even though the funds were distributed throughout the several line items of the DoD budget rather than a lump sum item as in the case of MAP.

Responsibility for the MAP and FMS programs, and subsequently MASF program, was reconsolidated in 1971 by the establishment of the Defense Security Assistance Agency. The Director of the Agency reported directly to the Secretary of Defense and had full authority over the execution of the programs. He was "dual-hatted" as the Deputy Assistant Secretary (ISA) for Security Assistance. In this latter role, he reported to the Assistant Secretary of Defense (ISA). The combined organization came to be referred to simply as DSAA although properly it was DSAA/DASD (ISA) SA. The work load of DSAA increasingly shifted to FMS. MAP funding was curtailed by the Congress, and FMS credits became the transitional device for individual countries to progress from MAP to cash sales.

The nature of DSAA operation began to change as customer countries either with cash or FMS credits began to assert the usual prerogatives of a customer. The DASD/ISA/ILN, and later DSAA, no longer was only a fund manager and the interface with ISA and the Department of State on the politico-military aspects of the international arms program. The DASD/ISA/ILN, and later DSAA, became the prime negotiator for FMS arrangements with friends and allies. DSAA became, in effect a "Using Command" in the parlance of the DoD acquisition and logistics system. DSAA represented the foreign governments to the DoD acquisition system and logistics system and vice versa. DSAA was, therefore, by that time, firmly astride and enmeshed in the acquisition and logistics function, but at the same time, DSAA was subject to increasing control of ISA. The direct reporting line of DSAA to the Secretary of Defense became fuzzy in practice. OSD acquisition and logistics staffs, the Military Departments and Logistics Commands demanded and received a greater voice in international arms matters. By 1976 program direction had become diffused and controversies were common.

Accordingly, Secretary of Defense Rumsfeld directed a review of the Security Assistance (read arms sales) relationships and management in OSD. The resulting report rendered by DoD General Counsel, as chairman of a DoD Task Force, recommended DSAA be removed from ISA and report instead to the Acquisition Executive. This report was not rendered until 14 January 1977 and no action was taken by the incoming Carter Administration since its focus was on greatly reducing arms sales.

In the third phase of providing arms to our friends and allies, there has been an overall decline in U.S. arms exports and an increasing percentage of exports going commercial rather than FMS. The current emphasis is on co-production and offsets. Co-development is also a feature of this third phase, but is not within DSAA's responsibilities. Moreover, in a reversal of the historic pattern the grant aid segment has returned mainly under the guise of FMS credits the payment for which are forgiven but also as direct MAP appropriations that themselves are now transferred and merged into the FMS trust fund and are processed under FMS rather than MAP procedures. The recipients of this type grant aid treat their total funds: credits not to be repaid; MAP; and their own cash as one pot, i.e., they are a customer on all arms programs regardless of the source of funding.

Under the Carter Administration, whose aim it was to reduce arms exports rather than increase the efficiency of security assistance operations, the DSAA lost his second hat as DASD/ISA/ISA and lost his direct access to the Secretary of Defense. Instead, as was true of his predecessors in the 1950's he reported to the ASD/ISA.

In the Reagan Administration, for reasons extrinsic to security assistance considerations the ASD/ISA position was divided in two -- ASD/ISA and ASD/ISP -- and the Director DSAA reported to both ASD's depending on the country involved. Subsequently, the reporting channel was changed to direct access to the USD/Policy. With the departure of the incumbent USD/Policy in 1988, DSAA again reported primarily to the ASD/ISA but also to the ASD/P.

2. DTSA

About the same time that ASD/ISA was given the responsibility for administering the MAP some four decades ago, ISA was also vested with the function of being the focal point for DoD review of export license applications to the Departments of Commerce and State. This licensing function was carried out by ISA elements who played no role in administering the MAP or FMS programs.

At the end of the Carter Administration, responsibility for processing munitions licenses was transferred to the Director, Defense Research and Engineering. Commerce Department cases remained with ISA.

In 1985, all the licensing review responsibilities were reconsolidated in a new agency, entitled Defense Technology Security Administration and reporting to the Under Secretary of Defense for Policy. With the department of the incumbent UDS/P in 1988, DTSA now reported to the ASD/P.

3. DUSD/IIP

One of the early components of the MAP was a NATO cooperative research and development program entitled the Mutual Weapons Development Program. Under that program, MAP funds were used to cost share promising technological advanced initiated by our NATO allies pursuant to bilateral project agreements. A complementary effort was the MAP funded MWDP data exchange program. Programming and funding accountability were handled by the ISA staff that administered the MAP. Day-to-day management was by a U.S. MWDP Team located in Paris, which received technical guidance from ODDRE.

The MWDP, and MAP funding therefore, ceased in the early 1960s. The concept of allied research and development cooperation was reaffirmed, however, in 1963, by the issuance of DoD Directive 3000.3, which called for the use of Service RDT&E funds to finance such projects.

Presumably because of the funding change, responsibility at the OSD level for overseeing the program was transferred from ISA to DDRE, and the forerunner of the present DUSD/IIP office was established in ODDRE. It was moved in 1987 to OUSD/A as a consequence of the Goldwater - Nichols reorganization law.

Because of the emphasis placed on NATO RSI by the Carter Administration and during the Reagan Administration by the Nunn-Warner-Roth Amendment, the workload of this office has increased considerably over the past decade. In 1988, it was merged with the office responsible for industrial base issues.

4. Director of International Acquisition, OASD/P&L

One of the elements of the Carter Administration's initiative on NATO RSI was the negotiation of the "two-way street" bilateral reciprocal MOUs on procurement and cooperative research and development. There are now 19 such bilaterals with NATO countries and major non-NATO allies.

Initially, responsibility for formulating and negotiating these agreements and overseeing their implementation was vested in the European Region of what was then ISA and is now ISP. That responsibility was subsequently shifted to the OSD acquisition staff.

Discussion

As indicated by the above historical summary, DoD operates a multifaceted international arms collaboration program. It comprises the export of hardware and technology through commercial channels under export licenses; cooperative research and development; co-production; and two-way street international acquisition. However, there is no one senior OSD official -- other than the Secretary of Defense -- who is responsible for the entirety of the program even though the components of the program are interdependent.

For example, it would be incongruous for DoD to approve an export license for a commercial sale of an item that it would be unwilling on national security grounds to export on an FMS basis, and vice versa. Similarly, there is no neat dividing line between DSAA's responsibility for co-production agreements and DUSD/IIP's responsibility for co-development agreements during the initial phase of a co-development program. It is hardly to be expected that a co-developer would be willing to postpone all discussions of, and decisions on, production until the development has been completed. Further, in the context of the two-way street under the reciprocal MOUs, the DoD role is a buyer as well as a seller, and may play both roles in a single transaction, e.g., Patriot for Germany.

To achieve coherent management of these several components of our international defense collaboration program, the DSB PACRIM Task Force recommends that DoD consider the consolidation into a new agency of the four organizations now having responsibility for those components. The new agency should be the DoD focal point for all international defense collaboration programs, including acting as the DoD point of contact with other Government Departments and Agencies, foreign governments, and U.S. and foreign industry. It should be responsible for negotiating all international arms collaboration agreements, including FMS transactions, co-production, co-development, general reciprocal procurement MOUs, barter like the Patriot and other offset arrangements. To that end, an integral element of the new agency should be a team of individuals experienced in negotiations and in foreign military sales who would provide continuity and be augmented on a case-by-case basis by representatives of Program Managers and other DoD elements.

In addition, the new agency should be given the responsibility of chairing the National Disclosure Policy Committee to assure that technology transfer constraints are reviewed early in the planning and programming process. Further, to safeguard the integrity of the export decision process, the addressee for plant visit requests from foreign embassies on behalf of their governmental representatives or industries should be the new agency rather than the foreign attache offices of the Services.