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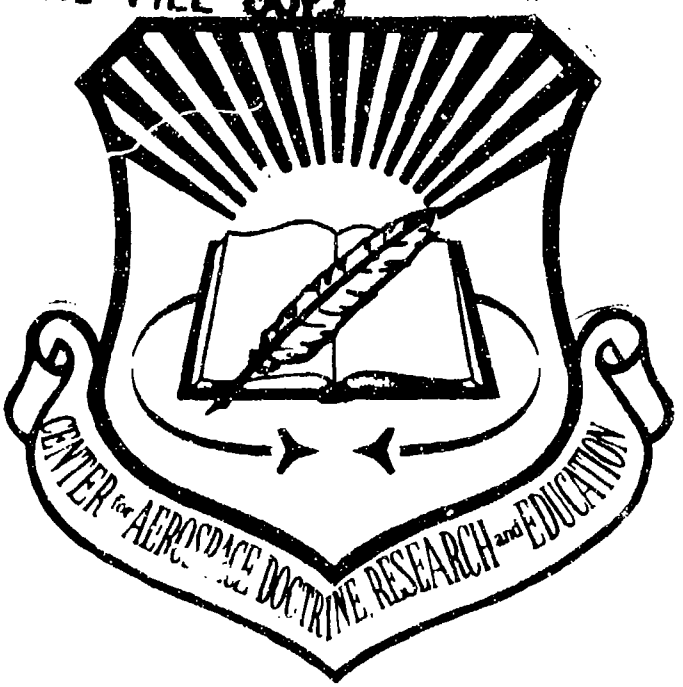

THE DEFENSE INDUSTRIAL BASE: PRESCRIPTION FOR A PSYCHOSOMATIC AILMENT

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THE DEFENSE INDUSTRIAL BASE: PRESCRIPTION FOR A PSYCHOSOMATIC AILMENT

by

Clyde E. Gulick
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Research Fellow, ARI

Air University (AU)
Air University Press
Maxwell Air Force Base, Alabama 36112

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DISCLAIMER

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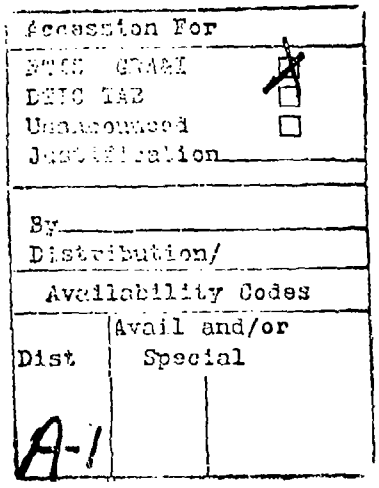

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FOREWORD

Over the past few years the acquisition process for defense department materiel and weapon systems has received intense scrutiny, criticism, modification, and analysis. These investigations have been conducted by several diverse groups such as the General Accounting Office (GAO), Office of Secretary of Defense, professional consulting firms, academia, and research fellows from the military services. As a research fellow at the Center for Aerospace Doctrine, Research, and Education (CADRE), Major Gene Gulick contributed to the analyses.

Major Gulick's project captures the mainline issues for the defense industrial base, as well as for the national peacetime preparedness and the military-industrial complex. His research considers examples from the Revolutionary War through the Iranian hostage incident of 1980. Major Gulick effectively pinpoints the dynamics of preparedness planning and presents a straightforward, commonsense approach for resolution of the issues.

Donald D. Stevens

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THE AUTHOR

Major Clyde E. "Gene" Gulick began his military career as a graduate from Wichita State University. He earned a bachelor of arts degree in accounting and, as a distinguished graduate from AFROTC, was awarded a regular commission. After completing undergraduate pilot training, he has accumulated over 2,600 flying hours as an instructor pilot in T-38A and B-52H aircraft. Upon completion of the AFIT residence program in logistics management, Major Gulick used his master of science expertise while serving in the Directorate of Logistics, B-1 System Program Office. As the principal Air Force logistics negotiator for the Rockwell B-1B contract, he successfully defended support requirements at significantly reduced program costs.

Major Gulick's research publications include an AFIT thesis, which was coauthored by Major Henry E. Laakman, Jr., "Factors Affecting the Retention of Air Force Pilots Between 6-11 Years of Service." He has also written articles for Combat Crew magazine and the AFIT Association of Graduates Newsletter. When he wrote this study on the defense industrial base, he was a research fellow at the Airpower Research Institute and a course officer at the Air Command and Staff College class of 1983.

PREFACE

Throughout the history of the United States of America, the public consensus of peacetime preparedness for mobilization and future conflicts has been less than optimal. That is, the public support of bigger and better fighting forces and industrial production facilities has frequently waned, often because demands for increased defense budgets would have been made possible only by larger federal deficits or increased taxation. In addition, the competing demands for social programs detracted from the contribution of scarce resources to defense issues. One national defense resource that has suffered from a decade of neglect is the defense industrial base. Productivity and sustainability have diminished significantly. Some producers have literally moved to other markets.

The severity of the impact of these actions may not be known until hostilities begin. In fact the requirements for industrial capacity and capability are not yet forecast. Participants in the contemporary military-industrial complex have diverse opinions about possible objectives, alternatives, and implementation strategies. These differing opinions have led to a lack of capital investment, adequate numbers of suppliers in the base, and formal plans for mobilization responsiveness. However, the real ailment affecting the health of the defense industrial base is not primarily physical in nature, but rather is fundamentally psychosomatic. Such psychosomatic ailments cannot be solved by treating physical symptoms--that is, by increasing capital spending, improving mobilization planning, or increasing the number of defense suppliers. Instead, we must find answers to questions that raise issues which seem to reflect underlying currents of national self-doubt. Who is in charge? Do we need to solve short-term or long-range challenges with regard to the urgency of the threat? What is the purpose of an industrial base?

In this study I have tried to deal, in a meaningful way, with these issues. I owe sincere thanks to several people without whom this report could not have been possible. First, I thank General James P. Mullins, commander, Air Force Logistics Command, for selecting me as his representative to the ARI. I also wish to thank the ARI staff and research fellows that edited, processed, and supported this effort.

I want to give special acknowledgment to my wife and children for their unselfish sacrifice and tolerance throughout this busy year.

CLYDE E. GULICK
Major, USAF
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CHAPTER I

INTRODUCTION

Every student of management principles has, at one time or another, thought about and possibly studied in detail the discipline of planning. Planning is very important; it sketches out the plot and actually sets the stage for whatever events shall follow. An anonymous author once said, "If you fail to plan, then you are planning to fail."

The defense of a nation must not be left to happenstance. Rather, in-depth, though flexible, planning must be the foundation for all phases of programs targeting our national security objectives. Recently, Secretary of Defense Caspar Weinberger has revised the planning, programming, and budgeting system (PPBS) to increase the emphasis on planning.[1] This shift in emphasis is in contrast to the policies of several former leaders within DOD who allowed the congressionally mandated budgets to determine which programs would be pursued and, eventually, to modify the plans of force employment and deployment. The General Accounting Office (GAO) has criticized DOD agencies for developing plans to meet invalid, imprecise requirements.[2] Admittedly, however, determining the precise requirements for the next conflict is difficult if not totally impossible. Therefore, the national planning of our defense policy should emphasize flexibility to assure the ability to meet various contingencies.

Contd pg 3

Historical Perspective

Historically speaking, those who plan the defense of the United States have gradually recognized the need for more adequate preparedness during peacetime to enhance our adaptability to fight the war that almost assuredly will occur at sometime in the future. Through an analysis of various wars and conflicts in which the United States has participated, one can see deficiencies in preparedness planning and possibly learn important lessons. These lessons, in context, could be used as indicators for future planning efforts. Surely not even the most adroit prophets of a newly established United States could have predicted the "need" for the large standing military forces that the taxpayers are required to support today.

Requirements and Objectives

Although we have recognized the need for peacetime preparedness, planning for programs and budgets is based on scenario development and definitions of the objectives of national security policy. But valid scenario development is difficult because of the uncertainty as to where, when, how, who, and what level in the spectrum of conflict the next likely war may occur. As one may reasonably assume, the "crystal ball" is further clouded by continual, though uncertain, changes in the

threat (perceived and actual). At times national policy and objectives may even change, further compounding the duties of the defense planners. As potential scenarios are developed, planners offer various solutions to successfully cope with uncertainties. Prepositioning and stockpiling of equipment and materiel are two methods that not only increase readiness but also increase flexibility. A third method of enhancing peacetime preparedness actions is to forge a viable defense industrial base.

The Defense Industrial Base

In case of a declaration of war or a large-scale mobilization of national resources, the country's industrial base must be able to respond with sufficient capacity and capability to insure victory. To safeguard adequately its national security, the United States must carefully plan steps to gear up the public and private sectors of the economy to meet such contingencies. The nation will not accept any other result, nor does it deserve anything less from its leaders. Thus, the Department of Defense includes industrial preparedness planning (IPP) as an integral part of the strategy and tactics process to make certain that we can attain our national security objectives. (IPP is also known as mobilization planning or, more recently and in a broader sense, as industrial responsiveness.)[3]

However, since the Vietnam War our defense-related industrial base has diminished in capacity and capability to a point of grave concern. In fact, many of our national leaders charged with defense of this country and with the responsibility of achieving our national security objectives have referred to this period as the "decade of neglect." This group includes Secretary of Defense Caspar Weinberger, former Deputy Secretary of Defense Frank Carlucci, Vincent Puritano (then executive assistant to the deputy secretary of defense and executive secretary of the Defense Resource Board), and General James P. Mullins, commander of the Air Force Logistics Command (AFLC), to name but a few.[4] The General Accounting Office and the Defense Science Board have also noted this fact. In separate reports they have decried the woeful state of investment in capital improvements in most sectors of the defense industry.[5] In addition, The Analytical Sciences Corporation (TASC) and the Congressional Research Service (CRS) issued reports that indicated a steady decline in the capacity and capability of the defense industrial base.[6] (Industrial capacity and capability are two sides of the same coin. Capacity refers to volume that can be produced over a certain time period. In contrast, capability is a function of the ability of machinery to withstand a surge of continuous operation, the amount of raw materials available for use in the manufacturing process, and the adaptability of a firm to switch to producing "guns" instead of "butter.") If, in fact, the decline of the defense industrial base has been due to a lack of investment, why did this occur and, just as important, how do we overcome the several years of neglect in time and dollars?

Summary (are addressed)

In this research effort, ~~I shall analyze~~ the peacetime preparedness and defense industrial base of the United States of America, ~~First,~~ I shall review the historical perspective of peacetime preparedness actions (inactions). Second, ~~I will address~~ the requirements determination process and the objectives of defense industrial preparedness planning. Third, I shall present a decision-making model that could improve the capacity and capability of the military-industrial complex, thereby increasing the probability of success in future, military conflicts.

CHAPTER I

NOTES

1. Caspar W. Weinberger, Annual Report to the Congress, Fiscal Year 1983 (Washington, D.C.: US Government Printing Office, 8 February 1982), pp. III-198.

2. General Accounting Office, Air Force Maintenance Depots--The Need for More Responsiveness In Mobilization As Well As Peacetime Efficiency (Washington, D.C.: Government Printing Office, 23 November 1977), p. 4.

3. Office of the Under Secretary of Defense for Research and Engineering, Report of the Defense Science Board, 1980 Summer Study Panel on Industrial Responsiveness (Washington, D.C.: Government Printing Office, January 1981).

4. Caspar Weinberger, "Spending and Combat Readiness," Chicago Tribune, 11 November 1982, p. 10; Frank C. Carlucci, "Military Might, Industrial Muscle, and Intellectual Yeast," Defense 81 (October 1981), p. 7; Vincent Puritano, "Getting Ourselves Together on Systems Acquisition," Defense 81 (October 1981), p. 14; and James P. Mullins, General, USAF, "Scarcity and the Challenge," Air Force Journal of Logistics (Winter 1982), p. 5.

5. "Air Force Maintenance Depots," p. 14; and Report of the Defense Science Board, p. 9.

6. Jacques S. Gansler, "Defense Acquisition Initiatives and Their Relationship to the Reagan Defense Budgets," in Report of the Conference on Improving National Security by Strengthening the Defense Industrial Base, 10-12 May 1982, as reported in Current News Special Edition No. 927 (10 November 1982), p. 12; and David E. Lockwood, US Defense Industrial Preparedness, Issue Brief Number IB81109 (Washington, D.C.: The Library of Congress, Congressional Research Service, 5 January 1983).

CHAPTER II

HISTORICAL PERSPECTIVE

Historically the United States has failed to prepare adequately during peacetime for the next war. This approach has generally increased the eventual costs in dollars as well as in loss of lives. Several historians, national and military leaders, and scholars have taken critical note of this oversight. Secretary of Defense Caspar Weinberger has said:

> From the earliest days of our republic we have loved peace and been suspicious of things military. Within six months of the end of the Revolutionary War, the Continental Congress, believing that "standing armies in time of peace are inconsistent with principles of republican Government" and "are dangerous to the liberties of a free people," disbanded the remnant of the continental Army. . . .[1]

Weinberger paraphrased Alexis de Tocqueville's thoughts from the book Democracy in America (1835) in arguing further that "in the early days of our country our democratic values would make us lovers of peace and thus perhaps unwilling to follow the difficult paths that will enable us to keep the peace and our freedom."[2]

Frederic Huidekoper commented on the importance of peacetime preparedness and the consequent costs of unpreparedness. In The Military Unpreparedness of the United States, he stated:

> Adequate preparation for war has never yet in history been made after the beginning of hostilities without unnecessary slaughter, unjustifiable expense, and national peril. It is only in the years of peace that a nation can be made ready to fight.[3]

The father of our nation George Washington also stressed the importance of adequate preparedness when he said, "To be prepared for war is one of the most effectual means of preserving peace."[4] In 1980 Dr J. S. Gansler underscored our neglect of one of the more critical elements in preparedness: "For 200 years, the United States has not treated its defense industrial base as the vital national resource it is."[5]

B. H. Liddell Hart expressed the necessity for learning the lessons of history and the penalty for not being adequately prepared thus: "As has happened so often in history, victory had bred a complacency and fostered an orthodoxy which led to defeat in the next war."[6] After all, as he implies, the cyclical patterns of history seem to suggest numerous lessons that if heeded could make the difference between success and failure in the future. When national security is at stake, the latter outcome is unacceptable to most people.[7]

Although one may question the validity of forecasting methodologies and argue about the uncertainty of predictive algorithms, only a fool would deny that history has a significant value as an aid in planning alternative tomorrows. We can gain a clear historical perspective of industrial preparedness planning by examining a few examples of the lessons we could have learned during the past 200 years.

The Lessons of the Revolutionary War

In 1775, Washington's army suffered not only from the lack of necessities such as clothing, but also was short of gunpowder. The lack of gunpowder, though not well known by the general public, was a considerable nemesis to Washington and his troops.[8] Washington wrote, "Our wont of powder is inconceivable. A daily waste and no supply present a gloomy prospect."[9]

The obvious lesson, forgotten many times since, was the need to plan production of war materiel (gunpowder, bullets, and related war supplies). With adequate planning, the colonies' capacity to produce gunpowder would not have atrophied between the French and Indian War and the Revolutionary War.[10] After the Revolutionary War, the peace-loving nation rode euphorically into the War of 1812. Unfortunately, the euphoria again led to a state of unpreparedness. The lack of preparation severely limited the war-fighting capability of our naval and ground forces in the battles against England.[11]

The Civil War Experience

During the second part of the nineteenth century, the American Civil War had a significant, though temporary, effect on the national will to prepare for war during peace. In fact the Civil War ". . . was of such enormous scope and intensity that it ushered in a new era in wartime mobilization."[12] (Emphasis added.) The southern states followed a rapid, centralized mobilization whereas the North depended on a decentralized, state-by-state mobilization that combined public and private sector outputs. The North approached the war with a "quick victory" illusion that was proven erroneous by the setback at the first Battle of Bull Run.[13] The Union leadership, military, and citizenry finally accepted the prospect of a protracted conflict. Additionally, the North rejected all thought of a withdrawal with dignity and pressed toward unconditional victory. The private sector converted to arsenal-type production and eagerly awaited the large profits for their output. "Examples of inferior quality and exorbitant prices were rampant in items purchased by the government."[14] Yet these merchants should not be criticized too harshly. After all, the basic economic theory of the free enterprise system embodies the principles of supply and demand: the greater and more urgent the demand, the higher will become the price of scarce supplies. This profiteering was only a symptom of the real problem: the unwillingness of the nation to adequately prepare for hostilities during peacetime.

The Lesson of World War I

Although costly, the experiences of the Revolution, the War of 1812, and the Civil War had little impact on convincing us of the wisdom of being prepared for and planning for the next war, World War I, when it came. Many Americans were sure "the war of Europe . . . shall never come. Humanly speaking, it is impossible."[15] The United States was not going to enter the war; and the very idea of planning and preparing to do so, according to some people, would have been an economic and political folly.

Yet, the war did come. The bad news, however, was that Germany's leaders had only prepared for a short war; they had to change to the reality of a protracted war. Germany's lack of preparation to wage a long war was evident to the nations of the Entente. Germany's weak and ineffective industrial capability made that nation an unrealistic candidate for victory.[16] In fact the German forces soon experienced a shortage of ammunition and quickly realized the importance of adequate industrial capacity and capability. Erich Ludendorff, chief of staff to Field Marshall Paul von Hindenburg, said:

> Much could be done by our industries to increase our resources. . . . It was clear that our munitions factories, in spite of their immense output . . . were never in a position to overtake the enemy, so long as the enormous industrial areas of the latter continued to work undisturbed. . . .[17]

By 1917 even Field Marshal von Hindenburg recognized the impact of the inadequate wartime industrial base.

> The difficulties in our munitions industries were not foreseen on the scale on which they actually materialized. . . . I am compelled to raise my voice against this shortage. The output of ammunition is far behind the figures promised and, as I have said repeatedly, is paralyzing operations.[18]

Although von Hindenburg and Ludendorff may have anticipated the eventual addition of the industrial might of America on the side of the Entente, when the United States finally entered the war, American forces used weaponry and equipment that was supplied, to a great extent, by France and Great Britain. The reliance on foreign sources was a direct result of long leadtimes generated by US industrial base constraints.[19] Once US national policymakers resolved to gear up and mobilize for the long pull, the persuasive contribution of our industrial resources was clearly noted by Benedict Crowell, assistant secretary of war. He wrote:

> It was the mobilization of her might, almost as much as the leverage of her immediate force, which helped to convince the German general staff of the futility of further resistance and assisted to bring the war to an early end.[20]

Planning Between the Wars

After the experience of World War I, the Great War, had we as a nation finally learned the lesson of the need for defense preparedness during peacetime? Unfortunately not. There were a few "isolationists" that could not or would not recognize the critical, deterrent value of a complete mobilization plan. Fortunately the proponents of national security wisely supported legislation that became the National Defense Act of 1920. Under this act, the responsibility for industrial mobilization was delegated to the assistant secretary of war.[21] But creating an office of primary responsibility was not enough to insure readiness for another mobilization to wage war again.

During the next several years, Congress failed to follow up this step with the necessary legislation and adequate funding to make a program of industrial planning and mobilization fully effective. In a 1935 tour of government manufacturing facilities, Secretary of War George H. Dern witnessed firsthand the failure of this program. He found that the public sector of the industrial base was badly deteriorated and raised important questions about production capacity and capability. The common response by the management of these government plants was:

> We are not prepared at all. Our machines are antiquated and ought to be replaced by up-to-date equipment. Our shop is poorly arranged. In short, our plant ought to be remodeled and overhauled, if not rebuilt. Why, we cannot even get the money to repair our roofs.[22]

In contrast, the private sector of our industrial base was probably in far better shape. According to an analysis by J. Frederic Dewhurst,

> Our industrial and commercial capacity was greater than ever just before World War II. With a few exceptions, capacity had increased over the [last three] decades as the United States grew and developed its industrial sinews.[23]

The Problem of World War II

Despite this optimistic assessment of the private sector's capacity, fears and doubts about its ability to produce the required materiel remained. Major Laurence S. Kuter had these doubts as a member of the Air War Plans Division (AWPD). In 1939, he had "run into a minefield of opposition when he tried to coordinate a plan for tripling the size of the Air Force to a total of 5,500 planes." But now on 8 August 1941, he had only

> two days left to project the terrific growth of an already much-expanded air force. . . . What sort of response could he expect to a request for a force more than ten times larger

than the 1939 projection? . . . Would anyone gently remind [him of the] practical limits to US manpower and industrial capacity?[24]

The fear of not having adequate capacity to produce sufficient materiel and armaments to meet the demand of the war plan was founded in the lack of preparedness planning.[25] Despite the intense protests of government manufacturing facility managers and the experiences in the Great War 20 years earlier, little industrial preparedness had been accomplished.

> At the outbreak of the war in 1939, Canada and the United States had little plant and capacity engaged in the production of armaments. The output in Canada rapidly increased. Slowly, and half-heartedly at first, the United States entered upon the task of producing military equipment, especially ammunition, guns, and aircraft. Most of this early production came from existing factories which formally made articles for peacetime consumption. Gradually new, large factories were added, and other plants were converted to war industries. By December 7, 1941, the machine of production in the United States was probably in intermediate gear; most certainly it was not in high gear.[26]

Why wasn't the production in high gear? Primarily, because the United States was still a "sleeping giant" in 1941 just as it had been in 1776, 1812, and 1914. As cited earlier in this chapter, Alexis de Tocqueville described the American as peace-loving enough to be unmoved by the potential for hostilities. Only in actual war would Americans accept the challenge of full mobilization, at any price, to insure victory. An anonymous author once pointed out that the last two words in American are "I can."

In 1942, Clarence Jones tested the waters of public opinion and found that the prevailing attitude was quickly reshaping the portrait of the nation into the image of an "awakening giant." He wrote:

> Though Japan has gained significant advantage in the early months of the war in the Pacific, from the point of view of considering all raw materials and industrial capacity, there can be little doubt that when western industry and military power get rolling the result will be decisive . . . even though the date of the final victory cannot now be accurately foretold.[27]

This shift in attitude strengthened over the course of the war. In 1945, Lewis C. Ord was able to describe the courage and spirit of our nation in these words:

> There is a very real national pride in American industrial efficiency. . . . Industry is to Americans what a winning

> cricket or football team is to a British community that is particularly devoted to sports.[28]

In retrospect we can look with pride at the massive production output that was achieved during World War II. Victory was achieved--although at greater costs and over a longer period of time than would have been the case with an adequately planned mobilization. The United States did not achieve peak production until 1944; with realistic preparedness planning, the materiel requirements could have been met sooner and cheaper. As early as 1941, Leo Codd, executive vice president of the Army Ordnance Association, had stated: "If our World War plants were in readiness today, our armament production would be advanced anywhere from 6 to 18 months."[29] The important point to remember for future efforts is: mobilization of industrial resources requires time. Wallace Atwood, president of Clark University, in 1943 commented on time-consuming aspects of mobilization. He noted that although

> radio impulses flash instantaneously from continent to continent and eliminate the factor of time in transmitting messages, . . . science and technology have not eliminated the time factor in the manufacture of the machines of war or in moving military forces and their equipment.[30]

Preparedness in the Post-World War II Period

Did these observations have any impact on our "interest" in industrial preparedness planning in postwar America? Had we finally learned the lesson of the need to prepare in peacetime for the inevitable, though imprecisely predictable, outbreak of the next round of hostilities? After the atomic termination of World War II, were the Americans wise enough to avoid espousing head-in-the-sand views of organizations such as the America First Committee?[31]

Unfortunately, the answer to each of the above questions is "NO." Several factors seem to have blocked the awareness of these lessons. The United States had an atomic monopoly. The high surplus of postwar stockpiles of equipment and ammunition and the nation's desire to return to an efficient peacetime status quo severely restricted the impact of lessons that should have been learned in World War II.[32] Defense-related manufacturing plants were permitted to decay in capacity and capability while we continued to pursue the goal of improving our national standard of living through increased efficiency in the manufacture of nondefense products. Even the planning process emphasized an intensity for higher industrial efficiency.

> There were no differences of opinion as to the plan to be adopted. There were no new plans suggested either for the control or for the operation of industry. No better plan was known than to extend and improve in detail all those principles and methods on which industrial success had been won in the past. Americans set about that task in complete unanimity

> and with characteristic energy and efficiency. The wartime plan, because it was developed to produce maximum industrial efficiency, was also the peacetime plan in principle and in detail to the degree that the two were compatible.[33]

Was the common objective of wartime and peacetime plans strong enough to insure a quick, efficient mobilization during the next entanglement in hostilities? Surely a Korean conflict (not a declared war) was not uppermost in the minds of the public at large nor in the dreams of the soldiery returning from the island warfare in the Pacific. After all, had not the atomic blasts on the Japanese homeland overcome the probable involvement in another global war? Why should we plan and, more importantly, why should we expend peacetime dollars for an unlikely war?

During the postwar years the debate about preparedness continued. For example, Charles Wilson, the vice chairman of the War Production Board at the conclusion of the war, was so impressed by the effectiveness of mobilization that he urged "full [peacetime] preparedness according to a continuing plan. The burden is on all of us to integrate our respective activities--political, military, and industrial--because we are in world politics to stay, whether we like it or not."[34] But attacks from those individuals espousing the more liberal views of that day came frequently in the press. Examples of these individuals are Harold Lasswell (The Garrison State, 1941 and Does the Garrison State Threaten Civil Rights, 1951) and George Orwell (1984, 1948). In 1947 Hanson Baldwin stated, "The military are getting the bit in their teeth. There is considerable evidence that their objective is absolute preparedness in time of peace, an objective which has led all nations which have sought it to the garrison state, bankruptcy, and ruin."[35]

No doubt these arguments had some influence on the sociopolitical and economic thought of the late 1940s. In 1948 the Finletter Commission bemoaned the postwar adjustments to commercial and military aircraft production during 1946 and 1947. It identified 1 January 1953 as the target date for developing an air arm that could defend against a possible atomic attack on this nation. The commission compared the anticipated need against the actual capacity.[36] The urgent need for being prepared came home to roost once again with the outbreak of hostilities in Korea.

The Lessons of Korea

Major General Elbert L. Ford, chief of Army ordnance, testified to industry's beleaguered capabilities to support the Korean conflict. In 1953 in testimony to the Congress, he observed:

> In 1950, there was no ammunition industry for the production of metal components. Our reserve plants for the production of powder and explosives, and for the loading and assembly of finished ammunition were far from being in a state of immediate readiness for production.[37]

Fortunately, the blow of unpreparedness was softened by two "lucky" factors. First, the large amount of materiel and armament that was "prepositioned" on the islands of the Pacific. This prepositioning was actually the result of inefficient and ineffective logistics during World War II.

> During the World War II Pacific campaigns, logistics snafus were quite common. Contents of boxes were not labeled properly, and as American forces island-hopped toward Japan, they left behind on island after island, large quantities of unused, unidentified equipment and supplies. When the Korean War erupted in 1950, these supplies were still there, were broken open, identified, and rushed to Korea to save the Pusan perimeter. While not planned to be pre-positioned, they were, in fact, and saved our toehold on the Korean peninsula.[38]

Second, the leadtime in producing vast numbers of ammunition components was drastically reduced because the World War II production lines were halted in place and the components had literally marked time as work-in-process inventory.[39] This good news was made even better because our forces were still using similar technology and tactics. Prepositioned materiel on the Pacific Islands may not have been such a large plus had the hostilities occurred in a distant geographical setting, e.g., South America. The in-work components would have been of little benefit, however, if the services had revolutionized the technology used in their weapons systems or the tactics of employment.

The lessons that could have been learned from the Korean conflict are similar to those of other historical wars. For example, the best time to prepare for war is during peace. The peacetime thought that places emphasis on the efficient, least-cost methods becomes incoherent within hours of the outbreak of hostilities. After the declaration of war, one looks for effective forces that can be victorious, not necessarily the most efficient. We also should have learned the value of prepositioned materiel. Although this strategy has its problems, such as determining precise geographic locations, obsolescence, and expiration of shelf life, it has significant advantages such as the reduced leadtime to deliver materiels to the theater commander and the reduction in demand on scarce air- and sealift resources. Finally, the Korean conflict highlighted the need for flexible planning. The key element of flexible planning was that decision makers had to react to and cope with situations that were not considered in the initial planning sessions.

In fact, flexible planning demands an analysis of these unlikely exigencies. Another lesson from Korea was the extent of the latent potential of this nation's resources, once stimulated. The debate for "guns or butter" highlighted the lack of consensus about the economic impact of defense preparations and military actions. The major arguments focused on the central issue of mobilization or pacific nonresponse to the Communist Chinese invasion of South Korea. Victor

Perlo commented on the "overreaction" by industry which led to a faulty growth rate and eventually to the realization that we had generated an excess in defense industrial capacity.

> The Korean War was the excuse for a tripling of military outlays and brought about another burst of economic growth but one that was shortlived and as limited in scope as the war itself. Even before the Korean War ended, its economic stimulus had clearly come to an end. And it brought about inflated prices, and overcapacity which has hampered future [economic] growth.[40]

Once again at the end of the fighting, our defense industries shut down; the United States, as it emerged from yet another war, reassumed the guise of a sleeping giant. In 1955, the comments of J. Frederic Dewhurst underscored the industrial capabilities of a determined, resolved nation.

> The tremendous expansion of our productive plant that has occurred since the summer of 1940 would have been a remarkable accomplishment under normal peacetime conditions. The ability of American industry to add so lavishly to its own productive facilities while meeting the urgent necessities of a great world war followed by cold war and renewed hostilities [Korean War] and at the same time to provide the basis for a boom in consumer goods of unprecedented duration and magnitude had to be seen to be believed. It leaves no question that whatever our industrial and commercial capacity may be at any one time, it can be expanded with great rapidity to meet any demands that are likely to be made on it. Our vast productive plant is a flexible man-made resource which, barring atomic devastation, will prove equal to any imaginable need.[41]

> Barring the devastation of World War II, technology will continue to keep the American people supplied with a steady stream of new and improved consumer goods and services and American industry with new and better materials, machines and methods. Technology is our primary and inexhaustible resource.[42]

Next: Vietnam

Optimism such as Dewhurst's with regard to technology and the assured capabilities of industry may have led to the opinion that the next war would be a short war. However, Vietnam was not only the most protracted military involvement in our history, but the business-as-usual approach to defense production that had supported the Korean War was again chosen as the approach during the Vietnam conflict.[43] In

other words, full industrial mobilization did not occur. Rather, the demands of our forces involved in the conflict became just another competing demand for materiel and manufactured goods. The obvious result was longer than required leadtimes and tightly administered procurement regulations.[44] The basis for the decision not to mobilize was founded upon national policy derived from resounding public opinion against our involvement.

During Vietnam, technology in communication played an important role in the shaping of national policy. One may even say that the television reports that "brought the war home" denigrated the national resolve and obscured the objective that initially had led to US involvement.

> In a democracy, the will to fight is lost when the public turns against the cause. Several scholars believe that American public opinion was the crucial "domino" in the war. Although some members of the television profession have denied television's key role in the war, Hanoi has stated it could not have won without the western media. Television was the agent for changing American beliefs on the war.[45]

Alas, the populace of the United States does not like to prepare for, observe, or fight wars. If war should be unavoidable, they will awaken and mobilize to win a quick, decisive victory. On the other hand, if the enemy can keep the United States involved in a protracted conflict and emphasize the duration of the war by exploiting media coverage, then the objectives and even the esprit of its citizens will wilt and gradually take up the cry of the opposite extreme: Withdrawal at any cost!

Perhaps it has been the peace-loving spirit of the people of this nation that has led to the lack of industrial preparedness planning over the last decade. But is there anyone who can or will clearly identify industrial capacity and capability that will be required to meet the threat in the next conflict(s)? And even if these requirements could be specifically identified, could you then convince a peace-loving public of the urgency for preparedness to meet these requirements? Time to mobilize after a first strike has been the characteristic edge that has saved us in the past, but we may not enjoy this saving edge in the future. The next chapter addresses the problem of defining the requirements in planning possible scenarios for the 1980s and discusses the need for clearly defined industrial preparedness planning objectives for a viable defense industrial base.

NOTES

CHAPTER II

1. Caspar W. Weinberger, "Seeking a Consensus for the Common Defense," Defense 82 (December 1982), p. 2.

2. Ibid., p. 8.

3. Frederic L. Huidekoper, The Military Unpreparedness of the United States (New York: The MacMillan Company, 1955), p. 555.

4. George Washington, as quoted in the Montgomery Newsletter of Society of Logistics Engineers, Chapter 1, District 5, Vol. 3, No. 2, November 1982, p. 7.

5. Jacques S. Gansler, The Defense Industry (Cambridge, Mass.: The MIT Press, December 1980), p. 27.

6. B. H. Liddell Hart, Strategy (New York: Frederick A. Praeger, 1967), p. 238.

7. Professor J. D. Bernal expressed the implied, antithetical view in September 1962 as he prepared the preface entitled "Munitions Versus Peace." This preface appeared in Victor Perlo's Militarism and Industry (New York: International Publishers Co., Inc., 1963). Professor Bernal stated that "more and more people are feeling uneasy about a mode of existence which depends on preparing for death. Modern merchants of death are operating on an enormously greater scale. Corporations should divert the interest for war preparation into an interest for disarmament and peace." His pacifistic conclusion is compatible with the oxymoronic [sic] "peace disarmament" movement of the 1980s, i.e., peace does not result with unilateral disarmament. Rather, peace is insured by mutual respect of each other's strength and willingness to use it.

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17. Erich Ludendorff, My War Memories, 1914-1918, Vol. I (London: Hutchinson and Co., 1919), p. 307. For additional discussion on Germany's lack of industrial preparedness for war, see Robert C. Mathis, General, USAF (Retired), Foreword published in Williamson Murray, Strategy for Defeat: The Luftwaffe, 1933-1945 (Maxwell Air Force Base, Ala.: Air University Press, January 1983), p. xii.

18. Frank A. Scott in a lecture to the Army Industrial College, Washington, D.C., on 10 December 1935. The typewritten manuscript is in the holdings of the Center of Military History, U.S. Army, Washington, D.C., cited in Ennis, p. 27.

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21. Kriedberg and Henry, p. 380.

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23. J. Frederic Dewhurst and Associates, America's Needs and Resources (New York: The Twentieth Century Fund, 1955), p. 815.

24. James C. Gaston, Lieutenant Colonel, USAF, Planning the American Air War (Washington, D.C.: National Defense University Press, 1982), pp. 41-42.

25. Haywood S. Hansell, Jr., Major General, USAF (Retired), Strategic Air War Against Japan (Maxwell Air Force Base, Ala.: Airpower Research Institute, 1980), p. 6. The total force requirements provided

by the Materiel Division of the Air Staff to the AWPD-1 were 98,850 aircraft for production. These aircraft requirements included trainers, fighters, and varied bombers.

26. Clarence F. Jones, "Industrial Capacity and Supplies of Raw Materials," in America At War, edited by Samuel van Valkenburg (New York: Prentice-Hall, Inc., 1943), p. 155.

27. Ibid., pp. 198-199.

28. Lewis C. Ord, Secrets of Industry (New York: Emerson Books, Inc., 1945), pp. 113-114.

29. Leo A. Codd, "Shadow Factories," Army Ordnance 21 (January-February 1941), p. 374.

30. Wallace W. Atwood, Foreword in America At War, edited by Samuel van Valkenburg (New York: Prentice-Hall, Inc., 1943), p. vi.

31. Gaston, pp. 43-44. The mood of several vocal groups in the 1939-1941 era was not only pacifistic but in some cases outright isolationistic. Colonel Gaston cites several examples. A survey done in several midwestern states in 1941, showed that only three or four of the hundreds interviewed favored US entry into war. Other individuals asked "Why should we pull Britain's chestnuts out of the fire? I would do everything short of going to Leavenworth to sabotage the war if we entered." Finally, Charles Lindbergh led the America First Committee which believed that 80 percent of the American public opposed the war. Lindbergh "persuaded millions of Americans who were only half-persuaded before that there is no reason for the [United States] to fight or fear Hitler."

32. Ennis, p. 37.

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CHAPTER III

WHY AND HOW OF PEACETIME PREPAREDNESS

Throughout the 200 years of United States history, Americans have reluctantly supported peacetime preparedness. Seemingly, they have not perceived the threats from various sources urgent enough to have encouraged adequate public spending on defense or private investment in a defense industrial base. Yet the odds are that in today's multipolar, economically diverse, communicatively facile world, some nation will become disenchanted with evolutionary changes and begin hostilities against one or more of its global neighbors. Several authors--George Orwell and Sir John Hackett among others--and even the Bible (Book of Matthew) have prophesied of wars and diverse pestilences, and have pronounced the certainty of future wars. The analysts of such issues are usually asked, "What does it cost if we prepare for a war that does not occur?" A much more important question is: "What does it cost if we do not prepare for a war that does occur?"

Why Preparedness Planning?

We as a nation must be prepared to fight a war of unknown duration, spectrum, and technological scope. Naturally, to be as prepared as possible for the next war and likely outbreak of hostilities, we must clearly know our national objectives.

Duration

Although most nations prefer peaceful diplomacy to the destructive forces of war, one should anticipate the needs for tomorrow in order to be adequately prepared. In this light, will the next war be short or protracted, bipolar or multipolar, single front or multiple front, or geographically limited to this globe or also contaminate space? Obviously, the side(s) that answer these questions as accurately as possible will have a tremendous advantage on the eventual opponent. Many articles, periodicals, and books now being published address the concerns, singularly and severally. Naturally, some arbiters feel one way and others have dramatically opposed views. For example, the debate between those who foresee protracted war and those who espouse a short-war philosophy has finally caught the attention of defense planners. According to the 1980 Defense Science Board, "the 'short-war' philosophy has been the basis for a number of Defense Department actions--or inactions."[1] This "short war" thinking has become

> a peculiar habit of thought common among our defense planners. Because of budget stringencies over many years, our military stockpiles today could support a major conventional war for only a couple of months or so. This puts our planners in a

quandary: either they have to assume a short war, or envisage fighting a war without supplies. Understandably, they choose to "plan for a short war."[2]

Likewise, one can say that:

> If there is a predictable quality about conflict, it is its characteristic unpredictability. Few wars have lasted as long or as short, as predicted. Therefore, to bet on the "short war" is inherently risky and likely exceeds "prudent risk."[3]

Similarly the General Accounting Office has criticized our defense planners as having exceeded prudent risks in preparing only for a European conflict scenario of intense though short duration.[4]

Are the defense planners of the United States unique in focusing on the short war scenario? Probably not. Recently, a North Korean pilot defected to South Korea with first-hand testimony and a warning that the North is preparing for war. North Korea has planned the size of its special forces and has planned air raids on major cities and key industries of the South to achieve a quick victory. This scenario would, in the minds of the North Korean planners, preclude reinforcements from nontheater allies.[5]

Spectrum of Conflict

Although the duration of conflict is a very important part of the scenario development process, it is only one part. Another important characteristic to be considered in the planning process is the spectrum of warfare: i.e., will the next conflict be conventional or nuclear? Throughout most of this nation's history, we have engaged in battles with purely conventional weaponry; but in World War II, we used a combination of conventional and nuclear weapons. For several decades our national strategy and doctrine for force employment has emphasized the umbrella of nuclear weapons because we could not afford to deploy both nuclear and conventional forces. The nature of the most recent conflicts in which we have been involved suggests the planning horizon for defense preparations should include not only protracted nuclear and conventional scenarios but also wars of low-intensity conflict and guerrilla activity. This increased scope of responsibility will obviously affect the alternatives and implementation strategies of the national decision makers. Gradually, our national planning, programming, and budgeting process seems to be dealing with these additional responsibilities. For some time, Soviet doctrine has considered not only the duration but also the spectrum of conflict as variables in preparedness planning and economic development.

> The Soviet view on the critical role of the economy in wartime follows from the doctrine that while a nuclear war may be of short duration, the possibility cannot be excluded that the war may become protracted. . . . The waging of a protracted

war and the attainment of military preponderance may not be possible with only the weapons available to the armed forces at its start.[6]

Technology

Another factor in planning for a potential war is the technological maturity of the weapons that may be used. Dr Roger A. Beaumont, professor of history at Texas A&M University, analyzed the use of strategic, conventional weaponry made possible by technological achievements. He does not believe that sophisticated weapons will lead to a conclusive victory after the first battle.[7] Rather, he expects that a protracted conflict involving the use of conventional arms is still probable. Yet, technological improvements are the very foundation for the debate about quality and quantity of US armed forces. Secretary of Defense Caspar Weinberger has addressed this issue of parity with the Soviets: "When President Reagan took office, he inherited a military capability that had been degraded by a decade of neglect while an increasingly belligerent USSR got stronger every day."[8]

What then may we look forward to for the rest of the 1980s? The prospects for the eighties are probably not much different than what Allen R. Ferguson, a Rand Corporation analyst, had foreseen for the sixties. In 1956, he predicted that:

> For the Air Force, the decade will be one of great technical complexity, of military uncertainty and risk, and perhaps of financial stringency. . . . The broad outlines of possible wars in the next decade include a general war involving the homelands of the United States and of Russia. Both will be able to deliver catastrophic blows, and to attack the cities and concentrated military targets of the other. In addition to the threat of general war, there is the possibility of peripheral or limited wars not involving the homelands of the major contestants. As the general wars threaten to become more and more catastrophic, the danger of peripheral wars may increase. There have been two already--Korea and Indochina. Due, in part, to lack of preparation, the West drew dubious ties in both. Certainly then there is a need to be ready to fight peripheral wars successfully lest the West be defeated "in detail."[9]

Had Ferguson written these prophetic words 25 years later, he could have included Vietnam, Iran, Afghanistan, and El Salvador in his analysis of peripheral wars. The challenges he predicted for the 1960s seem just as timely and as relevant today.

Objectives?

The nation's defense and security depends on adequate preparation in peacetime through cogent planning to accomplish our national objectives. However, our national policymakers and defense

planners often must decide among several possible objectives in setting national security and defense policies. But they face the overreaching uncertainty in this process: the inability to forecast the future accurately, which may lead to inefficiency and ineffectiveness. In trying to predict all the possible outcomes of events and policies, our decision makers may well suffer from a debilitating anxiety or from total frustration. Even though the United States has demonstrated its ability to overcome major obstacles after a galvanizing experience, such as the defeat at the first Battle of Bull Run and the Japanese attack on Pearl Harbor, we cannot safely rely on the awakening of our "sleeping giant," the national industrial base, to rescue us again in the future. In today's environment of advanced technology and modern weaponry, the nation must clearly define its peacetime preparedness objectives. Once we as a nation "know why" we are doing something, we will quickly figure out "how" to accomplish it. Yet, we must continually ask: Is there a clear national consensus on these objectives?

As an instructor at the Air Corps Tactical School in 1936, Lieutenant Haywood Hansell spoke of the value to defense planners of clearly defined objectives:

> What is the "end purpose" sought; what is the "end effect" desired at the conclusion of the war? The clear definition of the "end purpose" desired, as distinct from operations and actions to be performed, is the most vital requirement of all war planning and operations. It looks easy; it is perhaps the most difficult task of all. Everything else depends upon it and should be related to it. Yet it is the most difficult to determine and define.[10]

Victory. Although victory is undoubtedly a prime objective of our national security leaders, the political realities of our democratic government permit a range of outcomes to be defined as victories. This continuum moves from right to left beginning with unconditional surrender to territorial quid pro quo to withdrawl with honor to noninvolvement. Over the last 45 years, the results of conflicts have chronologically matched this continuum: atomic devastation, which terminated World War II; compromise at Panmunjon, which terminated the Korean War; rhetoric of "peace with honor" in the early 1970s, which terminated the Vietnam conflict; and lack of national consensus for adequate military involvement in the Iranian crisis where 52 Americans were held hostage for over a year by a militarily inferior country.

Deterrence. Another possible objective was stated by Major General Robert A. Rosenberg, assistant chief of staff, USAF studies and analysis, when he critiqued an article written for The Defense Monitor as follows:

> The article's statements fail to address the "why" of specific US actions. Disregarding the inaccuracy of many of the statements and inferences, the article fails to address the goals and objectives of the United States. The US objective is

deterrence. History has proven that the Soviet Union only responds when countered from a position of strength.[11] (Emphasis added.)

Secretary of Defense Weinberger voiced a similar attitude about the national objective of deterrence: "Nuclear war is so terrible that it must not be allowed to happen. This, however, is not a policy. It is a national objective."[12] General George S. Brown, former chairman of the Joint Chiefs of Staff, noted the significant contribution of a strong industrial base to a potential enemy's perception of the strength of our national resolve.

> While the duration of [a major] conflict is debatable, the risk of not adequately planning for industrial mobilization is unacceptable. A strong industrial base is a key element in our military might. Provisions for its mobilization and survivability will signal a clear indication of our national resolve.[13]

How strong must the industrial base and preparedness planning be? Strength between nations is a relative term. Secretary Weinberger assesses Soviet capabilities for expansionism as follows: "[Soviet] efforts dwarf our own. In fact, since 1970, they have out invested us by about $400 billion in military armaments."[14] In fact, Soviet preparedness is quite extensive. According to analysts of the Central Intelligence Agency, the purpose of Soviet civil defense and massive buildups of other military divisions clearly is to: "(1) protect the resources of economic productivity, (2) assure the continuity of economic activity in wartime, and (3) to permit the restoration of production following nuclear attack."[15] The ultimate objective is the total defeat of capitalism. This is to be accomplished rapidly, in a first strike if possible.[16]

In light of these Soviet objectives, what then are the US national objectives? The bottom line according to Secretary Weinberger is that: "We only want to live in peace with freedom, and that means we must be able to deter any attack on us or our allies."[17] Unfortunately, in 1979, a previous secretary of defense, Harold Brown, suggested that: "Rather than budget for what we really need, the Administration lowers our national expectations and substitutes lesser goals for those which undergird our true interests."[18]

Threat. With the change of administration in 1981, the policy-making process has also changed so as to emphasize the economic considerations of readiness, preparedness, and mobilization. The changes occurred as a result of updated threat analyses and evaluation of our national objectives with regard to the perceived threat. Although the increased budget request from the Department of Defense seems overwhelming, Secretary Weinberger gives several reasons for this expenditure for military forces and preparedness during peacetime. Primarily, we are now paying the bill for the decade of neglect; we must not increase our reliance on the threat of nuclear weapons to evade the

need for restoring our conventional military strength; and we cannot offer the American people a mere "facade of security" by deploying forces that are not adequately supplied and trained. Finally, the forces must be backed up by an adequate mobilization potential.[19]

Despite Secretary Weinberger's arguments for increased defense spending, many critics disagree with the need for an increased defense budget. These individuals vie for a share of the limited government pot in an effort to gain increased expenditures on social programs. Air Marshall Sir John Slessor addressed this issue:

> It is customary in democratic countries to deplore expenditure on armaments as conflicting with the requirements of social service. There is a tendency to forget that the most important social service that a government can do for its people is to keep them alive and free.[20]

In spite of a recent reemphasis on preparedness, we have yet to reach a national consensus to prepare and plan for the next likely conflict. What is the present state of readiness and preparedness of our government? Can the forces get the job done? There seems to be considerable doubt. For example, Roy A. Werner, former deputy assistant secretary of the army for installations, logistics and financial management, candidly summarized the situation when he said, "The 1978 exercise 'Nifty Nugget' confirmed what many logisticians had known: the United States is unprepared to go to war."[21] A similar statement of conclusion was penned by Major John F. H. Schenk of the Air War College faculty: "The United States . . . ability to wage a protracted large-scale war, comparable to World War II, far from home, against a determined, well-equipped opponent is being questioned seriously by many defense experts."[22]

How to Remedy the Problem

Several suggestions have been discussed for remedying the state of unpreparedness, which has resulted due to the decade of neglect. The primary remedies for the present unpreparedness, doubtful readiness, and lack of sustainability are increased prepositioning of materiel forces, enhanced national stockpile of raw material, and improved defense production capabilities.

Prepositioning

Prepositioning of materiel (land-based and maritime) has significant advantages as well as distinct disadvantages. Some major benefits include reduced demands against already critically scarce airlift capacity and the availability of materiel during the early days of the hostilities. This remedy has many drawbacks that diminish its effectiveness. These include the initial dollar value for the projected materiel requirements, possible deterioration and obsolescence of armaments, the need to negotiate bilateral support agreements with the

host countries, and accurate prediction of the geographic theater in which the supplies will be required. The administration's fiscal year 1983 budget included requests for increased prepositioning assets and programs.[23]

Stockpiling

Another suggested remedy is to stockpile raw materials as well as actual inventory. In the case of certain critical materials, such as titanium, cobalt, and petroleum, the United States is heavily, if not totally, dependent on third world suppliers. The Soviet influence on these suppliers through direct intervention or through indirect diplomatic pressures may cause bottlenecks in the capability of the United States and its allies to conduct military operations and, possibly, production of replacement hardware. Again, the DOD budget for fiscal year 1983 requested funds for enhanced national defense stockpile of critical raw materials.[24]

Defense Production

Defense production is merely a subset of industrial output of the nation's economic activities. To enhance the defense industrial base capacity and capability for surge production, or sustainability and productivity during total mobilization, significant capital investment must be made by cooperation between defense and industrial leaders. The justification for such a large increase will be gained through improved industrial preparedness planning.

Surge Production. The concept of surge production has become analogous with the concept of intermediate mobilization. A short war or lower demand than would be required for a complete mobilization would lead to an increase in output from the manufacturing base of defense articles. Unfortunately, improvements in the defense industrial base have not been supported financially by government or private investment; therefore, many question the responsiveness of the industrial base:

> Surge has been defined as the ability of the production base to immediately increase output under peacetime conditions in response to an emergency situation. . . . The serious lack of surge response in the industrial base has been the subject of an extensive DOD review. . . .
>
> Defense industry has limited surge or rapid mobilization capability below the prime contractor level.
>
> In the foreseeable future, the industrial base is unlikely to influence significantly the first six months of war or to compensate for war reserve stockpile shortages.

> Industry generally has been operating well below full capacity, at about 69 percent, defense industries have generally been much busier than that. . . . Might have difficulty responding to increases in defense spending especially after its period of serious decline.[25]

The Air Force Association reached this same conclusion at its September 1982 national convention. In a policy paper, the association stated that:

> A strong defense industrial base that is capable of "surging" rapidly in time of crisis or war is of vital importance yet there is evidence of that base being eroded by dwindling capacity, slipping quality and productivity, severely curtailed access to critical materials, and inadequacies in technical manpower and labor force. This decline must be halted.[26]

The decline must halt for many reasons. After all, if the industrial base cannot meet increased demand in a crisis, then the ability to meet the requirements of a full mobilization is obviously deficient. In some respects, a surge capability supports an eventual mobilization by providing a quicker transition from peacetime to mobilization production rates.[27] General James P. Mullins, commander of the Air Force Logisitics Command, describes the situation in this manner:

> The fundamental challenge . . . is to "maintain the kind of industrial capacity we will need for [surge] production--particularly when as now, you need it early on--either because you can't afford to stockpile too much or you are afraid of obsolescence.[28]

In devising solutions to the problems of industrial mobilization, we must give primary consideration to two key factors: sustainability and productivity. Although closely interrelated, each of these factors must be improved to increase the probability that we can attain our national objectives.

Sustainability. Sustainability has been defined as "the percentage of demand supportable over time."[29] Others perceive sustainability as the ability generated by "war reserve stocks plus post D-day production."[30] Defense Secretary Weinberger has commented that, "sustainability has been the prime target for funding reductions. Our shift in policy to plan for the possibility of a global, extended war with the Soviets requires accelerated improvement in this area."[31]

Productivity. Productivity improvements also need immediate attention. The industrial capacity and capability of the defense base has received several critical reviews over the past decade. "The United States is suffering from a dwindling supply of raw materials, decreased industrial productivity, and a shortage of manpower skilled in the profession of arms."[32]

General Alton Slay, former commander of the Air Force Systems Command, graphically depicted the malaise of industrial productivity when he told the industrial preparedness panel of the House Armed Services Committee, "We do indeed have a national problem--a national industrial productivity disease which must be addressed if we are to maintain our status as the focus of the free world's industrial, economic, and military strength."[33]

The editors of Aviation Week & Space Technology see modernization of industry's technology as the only way to overcome the decline in the nation's industrial productivity.[34] General Slay emphatically concurs that the decline in productivity has been caused by an irresponsibly low rate of investment in new plant, equipment, and technological innovation.[35] In fact, several other agencies have recommended increased investment to achieve productivity improvements.[36] Typically, the increase in productivity of a generic manufacturing facility is allocated in the following ratios:

(a) Labor improvements--14 percent.

(b) Capital expenditures (plant and equipment)--27 percent.

(c) Implementation of new technologies--59 percent.[37]

Clearly, investment in (b) and (c) would have a significant impact on productivity. Secretary Weinberger emphasized the need for technological improvements when he discussed the manufacturing technology program for the fiscal year 1983 budget. He explained:

> The Manufacturing Technology Program is a broad-based program designed to improve the productivity and responsiveness of the US industrial base. Investments made by this predominately procurement funded program have resulted in factory floor applications of productivity enhancing technology and will continue to receive priority emphasis.[38]

Industrial Preparedness Planning

Effective preparedness planning offers still another remedy to this overall problem. Yet, we as a nation are continually faced with the realities and unfortunate necessities that follow from the lack of flexible, adequate peacetime preparedness. The words of General Brehon Somervell, commanding general of Army Service Forces in World War II, remain applicable: "Preparation for the preservation of our freedom must come in peacetime, and we must pay for it in money and inconvenience. The alternative . . . is payment in blood and extinction."[39] Because of the obvious importance of the defense industrial base to support a surge in peacetime to meet an emergency or to support a mobilization after declaration of war, industrial preparedness planning must be improved and taken seriously by government as well as industry leaders.

In the past, several factors contributed to our ineffective industrial preparedness planning. Some analysts blame DOD's episodic procurement practices and trace the lack of sufficient capital investment by owners of the manufacturing plant and facilities in defense production to the instability of defense-related demand. These factors were aptly summarized by Frank Carlucci:

> Our goal is stability, because many years of instability in defense programs has been one of the major reasons our industrial base has seriously eroded. We realize that a dependable industrial base is as important a part of deterrence as it ever was. If we can provide stability and a sound process both in budgeting and contracting, we can revitalize our industrial base to meet the needs ahead.[40]

Although the Association of the United States Army places much of the responsibility for industry's reluctance to trade with defense managers who wield too much "red tape and cloying bureaucracy," the association recognized the real problem as being a lack of realistic planning.[41] In its report published in May of 1979, the association stated:

> Today defense planners, as they have in the past, appear to be approaching the base sizing issue not from the standpoint of what is needed for a balanced production base, but rather how much of the needed base can be funded within predetermined budget limits.[42]

In February 1982 Secretary Weinberger admitted that historically there had been an overemphasis on programming to the exclusion of strategic (long-range) planning. To compensate, he has initiated a comprehensive review of the planning, programming, budgeting system with emphasis on a revitalized planning process.[43]

Why have the national leaders permitted this decline in industrial capability to continue for so long? The investment of other nations in new plants and equipment have far outpaced the investment of the United States. For example, "Japan invests 26 percent of its GNP, Canada and Germany invest about 17 percent, France invests 16 percent, [but] the United States invests 13 8 percent."[44]

I agree with the author who said: "Long-term perspective is not a traditional American management strength."[45] The "sleeping giant" has been lazily reclined under the shade of the outstretched limbs of a giant industrial infrastructure constructed during the 1940s through the 1960s. The past two decades of neglect and slumber have increased the length of an unsightly beard. Let us pray that once the giant is awakened, the burden of the beard will not be too much to overcome.

Who shall we blame for this neglect? This question loses relevance in light of a more serious question: Who shall pay the price for neglect and unpreparedness?

> Primarily due to neglect of the ammunition production base in peacetime, the United States has a history of losing lives unnecessarily because of ammunition shortages. But by the time these problems reach public awareness, the decision-making politicians are no longer in office to take responsibility for their action. An uninformed public must ultimately share the blame and pay the price in bloodshed.[46]

What shall we do about this neglect of our defense industrial base and unpreparedness? We must reverse the trend by admitting our faults and establishing a national objective for this capability. The objective should be supported by an attitude of cooperation from the Congress, the administration, the Department of Defense, and the ultimate critic, a majority of the public. In a democracy, we must accept and preserve the right, privilege, and freedom of the individual to voice his agreement or disagreement on national policy and objectives. Likewise, we must choose to support the means for overcoming the hardships along the road to the national objectives. Once the objectives are clearly stated, most Americans will rise to the challenge. Fortunately, the objective, if appropriately communicated, may be the catalyst to galvanize the support of mass America. This would preclude the necessity of a catastrophe such as Pearl Harbor to mobilize public opinion.[47] Additionally, the national resolve could be graphically portrayed to allies and potential opponents.

A determined national will could be the foundation for increased investment in the defense industrial base. Flexibility in planning for potential wartime scenarios would also be enhanced.

> One encouraging note is that the National Security Council and the Federal Emergency Management Agency are working to . . . develop agreed upon scenarios in order that government agencies will have a common basis on which to base planning and, it is hoped, actions.[48]

Realistic mobilization exercises such as Nifty Nugget, Mobex 1980, and Proud Spirit as well as recent actual (although peacetime) emergencies have underscored the serious shortcomings in federal emergency planning and the lack of national preparedness to respond to crises around the globe. In response to this shortfall, President Reagan has established the Emergency Mobilization Preparedness Board, which will be chaired by his assistant for national security affairs.[49]

The remainder of this report will specifically address the defense industrial base problems and recommended solutions.

NOTES

CHAPTER III

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CHAPTER IV

WEAKNESSES OF THE DEFENSE INDUSTRIAL BASE

Although the exact materiel requirements for the next war cannot be precisely forecast, nonetheless a strong, responsive defense industrial base will contribute to the successful capability of force employment and deployment. "The revolutionary changes in warfare that have taken place since the Civil War have greatly increased the need for logistical support and, in turn, industrial production."[1] Presently, as an integral part of the DOD action plan for improvement of industrial responsiveness, the industrial preparedness program is working toward the following objectives:

- To create an organizational environment conducive to industrial preparedness planning and mobilization.
- To maintain a defense industrial base which is responsive to surge mobilization needs.[2]

The Department of Defense Directive 4005.1 entitled DOD Industrial Preparedness Production Planning "establishes policy and assigns responsibilities governing industrial preparedness planning for production of essential military items in a national emergency."[3]

The planning guidance addressed in the directive covers not only the production and manufacturing facilities to meet the needs of the US and allied forces in a national emergency, but it also requires "adequate commercial maintenance/repair capability to meet readiness requirements for those items . . . not supported by an organic depot maintenance capability." Furthermore, the program includes "maintenance of assigned equipment to effectively and efficiently meet sustained readiness requirements during peacetime and to insure a ready and controlled source of technical competence and resources necessary to meet military contingencies." The directive specifically states that:

> Preference shall be given to privately owned facilities so as to minimize the need for Government-financed facilities. Government-owned production facilities will be included in the industrial base only when (a) private industry is unable or unwilling to provide the facilities necessary to support DOD requirements, or (b) they are determined to be necessary for reasons of national security or to assure a quick response capability to meet fluctuating or job lot demands.[4]

DODD 4005.1 was not revised until November 1982. Although production planning for the past decade had been mandated by the 1972 version of this directive, some present defense officials view the seventies as a "decade of neglect" with regard to the defense industrial base. This chapter describes problems in the defense industry and discusses some possible remedies for ailments afflicting the defense industrial base.

In contrast to the centralized planning, high levels of capital spending, and the national consensus that accompanied the full mobilization during World War II, today's industrial base is characterized by planning under uncertainty, lack of capital investment, and a lack of a national consensus. The nature of industries and products that comprise the industrial base, the impact of coproduction and codevelopment programs with foreign supplies, factors that affect management decisions, and the apparent lack of a clearly defined decision-making process that systematically considers objectives, alternatives, and implementation strategies for the defense industrial base also work to weaken the nation's defense industrial base.

Planning Under Uncertainty

One of the major causes for the apparent deficiencies in the defense industrial base is the necessity to plan for long-range programs under considerable uncertainty. As discussed in the previous chapter, the determination of requirements through the national security process is imprecise. Many factors such as the threat, the existing forces, technological innovations, and timetable of events are so interdependent that the predictions of when and where a conflict will occur and how much of which type of equipment and supplies will be needed become, at best, educated guesses. According to DODD 4005.1, "the foundation of the industrial preparedness program is the realistic determination of the total production requirements necessary to support the approved forces post-M-day."[5]

If, in fact, the foundation of the industrial preparedness program lies in first determining the nation's requirements, then planners must make sure that the country develops a flexible, broad-based program that will support various exigencies. But keeping a myriad of options open to meet alternative scenarios is difficult especially when one considers the wide range of political, military, and economic aspects of each of these options.

The US Air Force has "avoided" some of these difficulties by mandate. According to AFR 28-3 (War Planning, USAF Operation Planning Process), the war and mobilization plan (WMP) serves as the basis for industrial readiness and preparedness planning. AFR 28-3 also directs that:

> Commanders at all levels must integrate operations and logistics planning from the beginning of the planning cycle. Complete integrated staff coordination will permit simultaneous planning to insure logistic readiness of forces and facilities to support operations. Logistics planners will develop and use realistic assumptions.[6] (Emphasis added.)

The requirement for realism may be easier ordained than achieved. For example, the principles of logistics doctrine--such as sustainability,

flexibility, the objective, economy, and readiness--seem reasonable and realistic assumptions for the planning process;[7] however, in actual practice, these principles are not always followed.

The principle of readiness, the ability to fight the way you practice, is discarded by regulation during a general war. AFR 28-3 directs the following:

> If a general war breaks out, peacetime programs become invalid. Increased activity resulting from conflict short of general war does not invalidate peacetime programs. Rather, the programs are amended to support this increased activity.

Similarly, the principle of economy seems to compete with the principle of flexibility. "The need to have excess capacity to expand production rapidly in time of crisis competes with the objective of more efficient production peacetime quantities."[9] Allen Ferguson of Rand Corporation referred to this competition for resources as a dilemma. As a result of this situation, many industries are faced with typical peak-load problems; they have to operate their capital equipment inefficiently in the nonpeak periods in order to have the capacity to meet their peak demands.[10] For example, until 1977 America's industrial production was based on a single shift of 8 hours a day for a five-day week. However, facilities are now sized for cost-effective, peacetime production rates. The surge requirement, if it occurs, can only be satisfied by additional shifts and, eventually, by adding manpower.[11] This philosophy of production planning demonstrates a tendency to delay a decision until political, military, or economic factors make it urgent.

> Historically, industrial preparedness and mobilization planning have not been popular subjects. Aversion to preparations for war when there is no imminent threat tends to make for an attitude of indifference and apathy toward provision for industrial preparedness.[12]

The Association of the US Army characterizes this outlook as an industrial preparedness planning paradox.

> When the danger is imminent or US troops are actually engaged in combat, the industrial base is active and well-funded. but when the threat is gone and the immediate need is perceived to be less, the funding disappears.[13]

Support for industrial preparedness appears to be centered around a psychology of perceived threat and need despite the fact that the defense dollar would have greater utility if it was spent in a noncrisis environment.

Sammuel P. Huntington has written extensively on the liberal mind-set in the United States, which he depicts as considering "the function of state security in vacuo." He says that "only when its neutral rights were violated or when its position as the balancer was

threatened did the United States enter the wars of Europe in 1812, 1917, and 1941."[14] This attitude by the citizenry hampers the military planning process by increasing the uncertainty of mobilization planning. The obvious impact is in the medium of expression--money. Both the civilian and government sectors use currency to affect business affairs, and thereby cast their votes for various programs. Since the private and public sectors compete for investment capital, they must, therefore, strive to achieve proper balance for these scarce resources. A proper balance could enhance the timeliness of preparations and mobilization.

Although in the past the United States could rely on the oceans as a protective barrier that gave us time to embark on for a war-fighting buildup, this may not be the case in a future war.[15] "The common sense approach to defense is to recognize that the future is uncertain, and to develop forces and strategies that give us the greatest possible capacity to adapt to whatever the future brings."[16] To prepare adequately for the uncertain future and to preserve our adaptability, the defense industrial base must be revitalized. A strong defense industry is important for a war of considerable duration. This is especially true when initial levels of stocks are insufficient and when high rates of consumption and combat losses are anticipated.[17] The short war philosophy has been adequately critiqued in the previous chapter and seems to be unacceptable to the scenario developers of 1980s. Rather, cogent planning in today's national defense structure reasonably considers the protracted war as a probable, if not the most likely, requirement to be targeted during peacetime preparedness planning.

Lack of Investment

A second major symptom of the ailing condition of the defense industrial base is the lack of public support for the expenditure of funds necessary to invest in the machinery and technology to increase productivity. According to Dr Jacques Gansler (The Defense Industry), the size of the defense industrial base is heavily dependent upon the Department of Defense budget.[18] Consequently, as the strength of public support for defense spending ebbs and flows, so does the budget and the defense industrial base. The actual components of the defense industrial base are divided into the two categories of public (government-owned) and private (privately-owned) sectors.[19] The private sector depends on the profit incentive for its existence. As a result, if the profits are adequate, management may decide not only to continue in the present market but may opt to expand plant and facilities to strengthen the firm's ability to be competitive and productive. In contrast, the public sector does not have a profit motive per se. This sector depends on the budgetary financing of the federal government. Naturally, these funds are provided through increases to the national debt or by the involuntary distribution of private sector profits, a technique commonly referred to as taxation.[20]

The sole authority for programs specifically directed toward maintaining the national defense industrial base has been the Defense

Production Act of 1950. As Secretary of Defense Weinberger points out, we have relied on this act for 30 years to maintain ongoing defense contracting and to support the objectives of the national security preparedness program. He also emphasizes that the act's provisions under Title I have reduced the adverse impacts that occur during periodic fluctuations in the business cycle and in periods of material shortages.[21] These reduced impacts were realized by the defense priority system. Title III of the Defense Production Act emphasizes the use of financial incentives for companies willing to adopt new approaches to increase productivity, improve quality control, and train skilled manpower pools.[22] In May 1982, HR 5540, the Defense Industrial Base Revitalization Act, was presented as a bipartisan effort by the Subcommittee on Economic Stabilization to the House Committee on Education and Labor as amendments to the Defense Production Act of 1950. The sponsors of this legislation stated that:

> The program initiatives of HR 5540 respond to the challenges that we must revitalize our industrial base. The revitalization program directed by the legislation provides the opportunity for job creation in place of job loss, productivity improvement instead of decline, and a resurgence of the global competitiveness necessary to the nation's security and economic well-being.[23]

These amendments would have increased budget appropriations to Title III, leading to more reliance on government financial support. The proponents of the increased public burden merely state the increased demand for scarce funds. They rarely highlight how to raise these funds or which items in the already too large national budget would be cancelled. The size and scope of the national bureaucracy make the resolution of such issues, which require public support, difficult at best. Hopefully, the final decision will satisfy the majority with a solution toward national security and survival of the rights inherent in a democracy.

Lack of National Consensus

The two major players in industrial preparedness issues are the government and private industry. But these two groups do not share the same sense of urgency about the need for a strong defense industrial base. There is a "growing isolation between America and her armed forces which has to be addressed and solved. Do we need the kind of industrial capacity which can be 'surged?' Will that really work?"[24]

In the government's view, and from a national security perspective, the defense industrial base is obviously important. According to Dr Jacques Gansler:

> The defense industrial base is as much an element of our military deterrence as our array of weapon systems. The base must be able to provide high-quality weapon systems and equipment

> support at minimum cost. It must be able to accelerate production, on demand, in both peacetime and wartime.[25]

Former Deputy Secretary of Defense Frank C. Carlucci has also spoken of the importance of preparedness in defense industries. He urged a rebuilding of the basic industries saying they had "been too long neglected."[26] In the view of the House Armed Services Committee, the "base has deteriorated and is in danger of further deterioration."[27] Major acquisition programs such as the B-1B are extremely dependent upon political support and stability of the supplier and subcontractor base.[28] These comments and concerns are serious indeed. Several mobilization exercises such as Nifty Nugget and Proud Saber/Rex-82 Bravo illustrated the severe shortage of surge capacity and its potential problems.[29] One of the main objectives of the Defense Department is to reverse this recent trend through research, development, and acquisition programs that will strengthen the industrial base and enhance the technological base.

Senior government officials realize that the task of rejuvenating the defense industrial base has to be a joint venture. To improve cooperation between government and industry, the Department of Defense has adopted the defense economic impact modeling system to analyze various budget alternatives.[31] The simulations generated by this model describe output, price, and employment details for over 400 industries.[32] The willingness of the government to consider the ramifications of alternative spending programs should improve relations between government and industry. The result could be a strong partnership for national security tasks.

An improved relationship has been needed for some time. For example, in 1917, the president of Bethlehem Steel was trumpeting the constructs of patriotism and sacrifice to the public, but was telling the War Department in private that the prices and profits for munitions were on a "take it or leave it" basis. In response the federal government sued the steel company. This case (US v. Bethlehem Steel) was finally heard in US District Court in 1933. The suit is one example of an adversarial relationship that has often existed between government and industry.[33] In its 1980 summer study, the Defense Science Board made the same point: "Since DOD doesn't pay for the effort, they are getting just what they pay for."[34] Additionally, industry has been unwilling to support the sealift readiness program (SRP), which is similar in detail to the civilian reserve airlift fleet (CRAF). Officials in the merchant marine industry freely admit that they have committed ships to the program, yet they contend that a mobilization cannot be invoked except in a situation involving a major threat to US security. Industry officials plan to test the validity of the Navy contract in court; this action would effectively delay a call up and may show a lack of national resolve to an enemy.[35]

Lack of Feedback

One possible explanation for industry's minimal support for preparedness programs is the lack of feedback on the industrial preparedness measures that are submitted under contract. The inference is that the "planning is no more than an exercise and that no one really cares."[36] The government's contracting procedures during the Vietnam War offer another possible explanation for private industry's lack of participation in these programs. In many cases, the government's procurement agents bypassed the preplanned source of supply and relied on other suppliers; the government was effectively disregarding its contractual obligations to the originally planned suppliers who had been required to have surge capacity.[37] One final explanation for the lack of industry participation in preparedness planning and implementation may be that defense planners do not effectively communicate national security requirements to industry's management. The concern of defense planners seems to focus on the size of plant and facilities, which may limit industry's responsiveness to surge requirements. In contrast, industry planners, working under the profit motive, choose to use "shift surging" rather than plant expansion.[38]

In fact, "critics of the defense industry point with considerable justification to the massive overcapacity, extremely high overhead, and rather remarkable inefficiency in major segments of the aerospace industry."[39] Industry has alternatives to investment in plant expansion programs that also provide increased capacity. These alternatives include:

1. Using inventories as a demand buffer to insulate the steady operation of production facilities from sporadic or cyclical changes in the market.

2. Expanding the capacity of existing facilities by working overtime or adding personnel to the work force.

3. Subcontracting or buying rather than making components and parts.[40]

Are the views of government and industry planners so diverse that the differences cannot be reconciled? Probably not. Rather we must envision a national objective that will meld the support of both government and industry objectives. C. Bruce Baird of Booz-Allen and Hamilton, Inc., in expressing his concern on this issue said, "I don't think we've yet reached a point of national consensus on this great undertaking to rearm America, or have a common understanding of what that undertaking should be all about."[41] Before we can efficiently and effectively rejuvenate the country's defense industry, we must understand "what an 'industrial base' is supposed to accomplish and in what time sequences."[42] The historic construct of a defense industrial base or maybe even the existence of a military-industrial complex may be invalid in the international environment of the 1980s and beyond. Are we trying to solve yesterday's problems with today's technology? In the thoughts of Thomas Jefferson, are we demanding that a man wear the same

clothing that he wore as a little boy?[43] These are important questions that must be answered on a recurring basis. As times and realities change, we must continually redo the analysis to derive solutions that will be appropriate to the new conditions. The political, military, and economic perceptions reflect the reality of the current planning horizon but may vary drastically in the near future.

Fear of a Military-Industrial Complex

In a fundamental sense, the defense industry is but a subset of America's vast industry and, therefore, reflects similar economic characteristics.[44] The defense sector of the economy is subdivided into government and private enterprise.[45] The defense industrial base is an essential national resource.

However, the defense industry is much more than a national bugaboo that results from an alliance between militarists and self-serving industrialists that produce manufactured goods that consequently may be applied to defense tasks. Concern about this military-industrial complex has appeared in a cyclical fashion in the literature of the 1930s and 1960s and again in the 1980s. Writers recurrently raise points about the capabilities and the intent of the firms that comprise the military-industrial complex. Yet this concern seems empty. An antithetical view in the literature is that the pluralism of American democracy and the underlying diversity of interest groups would work to hold this alliance between military and industry in check unless its purposes were purely innocent and conducted for the good of humankind.[46]

In spite of the warnings about the military-industrial complex, President Eisenhower nonetheless recognized the need for an industrial base to support the national objectives. He specifically warned the nation about the unfavorable consequences of imbalance in budgeting between the private and the public economies.[47] An example, on a grand scale, of this imbalance exists in the Soviet Union. In fact, one can contrast the military-industrial complex of the USA with that in the USSR as follows: "The USA has a military-industrial complex, the USSR is a military-industrial complex."[48] (Emphasis added.) The USSR expenditures for defense production are mandated by the Supreme Soviet. The social programs and commercial industry suffer from neglect and undercapitalization.

In contrast, US national policy draws upon grass roots opinion to establish balanced plans, programs, and budgets among competing sectors of our democracy. From time to time, the balance has changed with emphasis in one sector or another. For example during

> the Vietnam conflict, the policy was to continue civilian production at high levels along with expanded military output. This "guns and butter" approach has led to the widely accepted assumption of a capability to wage a conventional war without appreciable depreciation of the level of living, and it has

contributed to a waning public interest in mobilization planning for conventional war.[49]

Although public interest is at the roots of shifts in national policy, the defense-minded individual must not despair; public opinion with regard to preparedness actions has, afterall, a cyclical nature. As Samuel P. Huntington has observed:

> War is normally followed by a period of disillusionment. Eventually, when these [disarmament conferences and neutrality acts] fail to safeguard the national interests, disillusionment with liberal pacifism sets in, national interests are rationalized in terms of new ideological goals, and enthusiasm mounts for a new crusade.[50]

Throughout 1981, the House Subcommittee on Economic Stabilization conducted extensive hearings that drew attention to the state of the nation's industrial base. The hearings revealed three salient facts.

> First, the industries which produce and supply the parts and components which go into not only items which Americans depend on in their everyday living--from toasters to automobiles--but the materiel and equipment on which the defense of the country depends are shrinking and in some cases disappearing; second, there is a shortage of skilled manpower; and third, there is a shortage of/dependence on strategic and critical materials.[51]

Recognition of these facts seems to be the initial step toward solving the problems of preparedness and, indeed, may even be the genesis of a "new crusade."

These findings are critical primarily because the "private economy is far sicker than it was in the days of Eisenhower, Kennedy, and Johnson." James Fallows prescribes a cure. He argues that more money, and lots of it, must be invested in the country's productive capacity.[52] Both the Defense Science Board and Vincent Puritano, executive assistant to the deputy secretary of defense, have prescribed similar increases in capitalization and investment to improve productivity and reverse the debilitating trend in industry, in general, and in the defense and aerospace sector, in particular.[53]

Imprecise Requirements

Yet, spending more money on defense is not the total solution. As early as 1960, Professor Arthur Smithies (chairman, Department of Economics, Harvard University) called for improved ways to determine how much money to allocate to defense. He said:

> A method for forecasting the size of the budget for the next ten years, as a basis on which the defense industries could make their plans, would be invaluable. It cannot be provided,

> however, because such a forecast is impossible in principle. No government simply allocates a certain amount of money for defense regardless of what is done with it. . . . From an economic point of view, it is reasonable to think of a defense budget amounting to 10 to 15 percent of the GNP. Although political awareness of defense needs might attain the upper limit, political apathy could reduce the budget well below the lower limit.[54]

According to James Fallows, political awareness of defense needs and

> truly urgent military questions have little to do with how much money we spend. Indeed, more money for defense, without a change in the underlying patterns of spending, will not make us more secure, and may even leave the United States in a more vulnerable position than before the increase in spending.[55]

He bases this assertion on the premise that

> the conduct of war, and the preparations to avoid it, are basically different from other things that human beings do, and that the only way to think about them seriously is to understand them on their own terms. Solutions that make sense in other walks of life may lead to disaster when applied wholesale to defense.[56]

For example, one peculiarity of defense planning is the difference between the goal of effectiveness (successful warfighting) vis-a-vis private industry's goal of efficiency (profit motive). Defense leaders see the requirement for surge capacity as effectively achieved by stretched out production buys that keep a "warm base" in case of declared mobilization. However, protracted low-levels of production diverge diametrically from the normal business practice of seeking to attain the economic production rates that are possible in a modern manufacturing facility.[57] In fact, the economic and engineering concepts of capacity discussed before the Subcommittee on Economic Statistics argue for utilization of manufacturing facilities at less than 100 percent rate. As the operating rate rises, the tendency is to use some inefficient capacity and inefficient labor as well as more costly materials.[58]

Nature of Defense Industry

Capacity, capability, and productivity in the defense sector of the US economy has been lagging, in large part, because the levels of capital investment have been low compared to US manufacturing in general.[59] The private sector has not invested in the defense industry because it cannot afford to have a large part of its capacity and facilities sit idle during the periods of slack demand that accompany peacetime defense spending.[60] However, low levels of capital investment and economic support are not the only causes of lag in the defense sector of the economy. Another significant factor has been the shrinking number of defense contractors. Fifteen years ago, they numbered 6,000; today,

their number has declined to approximately 3,500.[61] On the surface, it may seem that there has been a sharp drop in manufacturing capability; but in reality, firms have merely moved away from the defense market.[62] This trend has benefited the domestic commercial as well as the foreign commercial markets.[63]

Although the defense industrial base is shrinking, it has not completely disappeared. The shrinkage of defense industry has not been in the upper tier or at the prime contractor level, but in the lower tier or at the subcontractor level. One example that illustrates some of the problems of the small independent entrepreneurs that comprise the high technology, subcontractor supplier base is Loebe Julie. He developed an automatic calibrator, which could potentially reduce the US Army's budget by $200 million over the next 10 years. The Army has spent several years in studying the benefits but has yet to make a contractual decision. Julie commented that he needs the contract to continue in the high technology field. He feels his alternatives are to sell to the Russians, who have made a commitment to purchase a large quantity of the automatic calibrator, or to leave the high technology defense industry to go into the real estate business. There is obviously a mismatch between the goals and objectives of the Army procurement practices and those of this potential subcontractor. Whereas the bureaucratic planning horizon of the government is "acceptable" to large, diversified prime contractors, the smaller, specialized suppliers cannot afford to wait extended periods of time for a production decision. Also, small producers lack the legal expertise and administrative support to respond to the mountain of red tape that is characteristic of government contracting methods.

This dilemma is not just a personal problem for Julie but is a systemic malaise that affects all small producers of high-tech defense material components.[64] This malaise has led to significant impotence in our nation's industries. In an extensive economic analysis, Gansler has identified several effects of this eroding subcontractor base. He concludes that,

> the result of all of the problems at the lower tier of the defense industry has far more sole-source business, fewer suppliers, rising prices, lengthening leadtimes, and a lack of production surge responsiveness.[65]

Extensive Layering

Due to the nature of the defense industrial market and the type of products manufactured, these problems are difficult to resolve. The market is comprised of several tiers of producers and consumers, and the products require several diverse manufacturing processes. The Department of Commerce recognizes the existence of the massive vertical integration of product and suppliers by stating that its statistical charts for "shipments of complete vehicles and of components, parts, and

related equipment are not combined because of extensive duplication arising from shipments among establishments within the aerospace industry."[66]

The aerospace industry is not the only defense industry affected by extensive layering, nor is this a newly identified problem. As early as 1955, Dewhurst recognized that bottlenecks in steel production could adversely affect the growth potential of other industries. These industries would be hindered in their ability to react to increased demand because of their fixed-capacity plants and facilities.[67] In 1974 the impact of bottlenecks in an intensively layered industry became evident when the demand for tank production peaked during the 1973 Mideast war. Gansler describes how this situation limited the surge capability of Chrysler Corporation.

> The industrial base was unable to respond--not because of a shortage of tank-building capacity by the prime contractor (a government-owned plant operated by Chrysler Corporation), but because of the inability to get steel castings of a certain type from a sole-source supplier that preferred to do civilian business.[68]

This particular situation still had not been corrected as late as June 1982. But according to executive assistant to the deputy secretary of defense Vincent Puritano:

> Steps are being taken to develop a production surge capability where economically feasible. For example, the pacing items for M-1 tank production are various components of the turbine engine and fire control system. By adding $126 million to the FY 82 M-1 tank production program, we can increase the production rate of these pacing components for the FY 82 funded delivery period. . . . There would <u>be no additional facilitization required</u> since the surge could be accomplished with overtime and/or multiple shifts at existing and currently programmed facilities.[69] (Emphasis added.)

In April 1983, the problem worsened to the point that the Army was forced to add a second producer to share in the $2.1 billion production of the M-1 tank engine because the main builder, AVCO Corporation, was unable to deliver engines on time. Major General Duard Ball, the program manager of the M-1 Abrams Tank, testified to the House Defense Appropriations Subcommittee that the second source was needed to give the Army a surge production capability.[70] The ongoing problem of sole-source supply bottlenecks at the lower tiers of the defense industry is not uncommon. In sum, that segment of the defense industry charged with supplying the armed forces with equipment and materiel cannot "expand rapidly enough to make a difference in the outcome of any likely duration conflict. It would take years before significant production increases could be realized from the defense industry.[71]

Dependence on New Programs

Another contributing cause for the erosion of the US prominence as the world's producer is the lack of new programs. The United States' traditional share of the world aerospace market in the 1980s can be retained only with the leadership and funding to develop and launch major new programs.[72] The defense industry's output is statistically more sensitive to new procurement than to the supply of parts and components produced at the lower tiers of the industrial base. "A mild exception occurs in the aerospace sector, a key spares and consumables supplier. In the other high technology sectors, the increased spares under a [predominantly] readiness budget are not suffjcient to counterbalance the lower levels of procurement spending."[73] Data analyses based on simulations using the defense economic impact modeling system give further evidence that this problem is serious. The cure cannot be effected without a strong determined leadership and adequate support for increased funding.

Increasing Dependence on Foreign Suppliers

An alternative would be to find efficient suppliers that are adequately funded and willing to meet the demand for the defense procurements. A panel of business executives, university scholars, and public officials headed by Howard W. Johnson, chairman of MIT, testified before the Senate Finance Committee on the results of their study. The major theme of the study is

> the fear that the American public is unaware of the importance of "high-tech" to the country's future well-being and that other industrialized nations, such as Japan and France, will assume preeminence before the United States wakes up to the problem.[74]

The advances by the Japanese firms in high technology has become a phenomenon worthy of note.

> Despite the small size of the Japanese Self Defense Force, the number of firms producing equipment for, or selling items to, the Defense Agency stands at about 2,200, and the number has recently been increasing at a rate of 50 to 100 firms per year.[75]

Why does a relatively small nation with an even smaller defense force effectively encourage growth and investment in a defense industrial base, while a much larger nation with a much larger defense establishment is faced with a withering defense industry? The answer seems to be that the Japanese government offers direct subsidies and taxation incentives to the Japanese defense industry. These national programs could not be implemented without the resolve and support of the Japanese people. "The Japanese public is well informed, and the public's attitudes weigh heavily in the defense debate. When the public expresses its wishes, the political system responds."[76] Maybe the

United States defense industrial base could be strengthened by adequately educating the public about the issues, then the majority could reach a consensus to determine the "balance" between alternative courses of action: new procurement programs or spare parts and readiness materiel for existing weapon systems? an investment in social programs or in productivity enhancing plant, equipment, and facilities? or expanding the defense industrial base or commercial manufacturing?

Although criticism and anxiety exist about the erosion of the US defense industry and its replacement by foreign sources, the prospects of increased codevelopment and coproduction among allies are not only necessary but inevitable.[77] The multinational F-16 coproduction effort is but one example of international cooperation. Despite the success of this program, many people fear the possible overdependence on foreign sources.[78] As early as 1972, Randolph Myers of the Transportation Equipment Division of the US Department of Commerce recognized the stiff competition from European and United Kingdom consortiums. In the same context, Myers assessed the ability of the aerospace industry to finance major programs as follows:

> The United States' major airframe and engine manufacturers await recoupment of their investments in the new wide-bodied jet transports and lack of sufficient capital to undertake new major risk programs to meet the existing competitive foreign programs. Accordingly, US companies are looking to government-supported foreign industries for financial assistance. These joint programs are attempts to maintain the firm's present share of the world market. The US aerospace industry needs new production programs to utilize existing facilities, maintain employment levels, and to aid earnings. The US Government is attempting to identify new aerospace technological programs deserving federal support. It is probable that no single company alone will again be able to finance a program as large as the wide-bodied jet transports now under construction.[79]

Variable Decision Factors

Within the airframe industry, per se, the underlying factors affecting any development may be analyzed in terms of three independent variables: technology, demand, and economics. In Gansler's view, one of the main impacts of technology has been that

> the increasing complexity of modern weapon systems has introduced high-technology, capital-intensive specialization in the manufacture of parts, and this trend has caused many suppliers to drop out of the defense industry.[80]

Changes in the defense industrial base also occur because changes in the defense budget affect marketplace demands for defense items. For example, demand may depend on the attempts of that firm's lobby group within the halls of Congress.[81] This lobby may convince Congress to include items in the defense budget that were not a part of

the original appropriations and authorizations requests. Alternatively, definitive procurement plans generated by a working-level government acquisition office may not be executed until several layers of review (which usually require several revisions) have been accomplished. The ultimate approval to proceed with the procurement may not be certain until final presidential and congressional approval has been received (that is, the item is included in the president's final budget request and in the final authorizations and appropriations bills passed by Congress). If a defense contractor begins developing or producing an item or system before final approval is forthcoming, the firm might well lose a sizable investment. Nonetheless, even if approval is granted for a certain number of items during a particular fiscal year budget, the funding may be reduced or totally withdrawn in subsequent years' budgets. The B-1A cancellation decision in 1977 by newly elected President Jimmy Carter is a dramatization of the omnipresent uncertainty of defense procurement plans and programs. The start-stop procurement by DOD agencies only serves to compound the "general management decision problem of what mix of inventory, overtime, work force expansion, and subcontracting to use in any situation."[82]

Besides the problematical aspects of high technology and drastic uncertainty in demand, industry planners are faced with a third major decision variable, economics. Usually a firm enters a particular industry to earn a profit that will not only provide an adequate return on investment risks but will also permit growth by providing additional investment capital. However, economics often create a real threat to survival of firms in the defense sector. Economist Joseph A. Schumpeter describes this threat in the following fashion. He defines the very essence of capitalism as a "perennial gale of creative destruction." Schumpeter concludes that competition (other than mere price competition) from a new weapon system, from new technology, or from some new type of organization "strikes not at the margin of the profits and outputs of existing firms but at the very foundations and their very lives."[83] According to Schumpeter, unlike foreign competitors US firms that are established in the defense industrial base cannot protect themselves with illegal cartels or monopolistic agreements from the "perennial gale" of capitalism's "creative destruction," so they look to governmental partnerships, agreements, and alliances for succor and support.[84] Government subsidy programs may, in fact, be a necessity to provide financing to specialized suppliers of defense articles.

Unfortunately, even the best medicines can become poisonous if taken in excess, over too long a time. The analogy of health, sickness, and cures seems to abound in the analytical writings about the industry. For example, in Peck and Scherer's book, The Weapons Acquisition Process, they believe that advertising new programs and thereby educating the taxpayers through successful lobby groups "is symptomatic of a healthy tendency."[85] In contrast in 1948, the Finletter Commission spoke of the "poisonous" beginnings of a process that has led to the atrophy of the economic and managerial sinews of defense contractors. The commission stated: "Whether we like it or not, the health of the

aircraft industry for the next few years, at least, is dependent largely upon financial support from government in the form of orders for military aircraft."[86] The report stressed the aviation industry's economic dependence on government programs. In fact, this industry chose this path after analyzing the low demand and the high risk of loss in commercial business.[87] Another defense-related industry heavily dependent on government support, and in a state of decay, is maritime shipping. Larry Manning, a former legislative affairs officer for the Military Sealift Command (1969-1980), said that the maritime industry must "not merely be kept alive by federal welfare."[88] The shipping industry must develop new sources of revenue.

Gerald A. Busch, director of market research, Lockheed Aircraft Corporation, threw down the gauntlet in 1962 to the defense industries when he said: "Diversify or Die!"[89] Diversification opportunities such as the Litton purchase of International Laser Systems, a subsidiary of Martin Marietta, often require a sizable outlay ($46 million) in cash.[90] The point is simply that profit incentives and an assured, reasonable return on investment have, in the past, motivated US industry to respond with private, not public, capital investment.[91] Maybe the defense industry needs to have a similar innoculation of adrenalin and realism. Such a challenge could strengthen not only the defense industry participants but also could strengthen the national industrial base as a whole. The airfreight industry provides a good example of the benefits that can result when government regulation and subsidies are withdrawn. According to Thomas W. Rooney, marketing vice president, Airborne Freight Corporation, "deregulation forced us to become a much smarter company. . . . We had to become flexible and watch the competition very, very closely."[92]

Unclear Systems Boundaries

Although many national leaders, such as Congressman James J. Blanchard (D-Mich), believe the government must take the calculated risk for the industrial base improvements with financial backing under Title III of the Defense Production Act,[93] these risks and the decision to accept or avoid those risks are clearly within the limits of the private sector. When one observes the defense industry through the eyes of a systems analyst, the responsibility for investment decisions and market participation (defense, commercial, or dissolution) decisions is clearly that of managers within industry.[94] Industry's viewpoint is that the government is overmanaging by excessive surveillance, costly requirements for (what they perceive) excessive technical data, and micromanagement by layered decision-making.[95]

Although defense planners and corporate decision makers seem to have irreconcilable and opposite objectives, the problem is basically a lack of education. First, we must understand that the burden of risks must be borne by the potential recipient of the reward. That is, no free lunch! If a profit would result from increased investment in productivity-enhancing machinery, then the potential profit maker should

decide if the return on investment is adequate to justify the risk. But if the national security truly depends on a distinctive defense industrial base, then the heretofore unthinkable concept of nationalizing the industries that contribute to defense manufacturing should be explored, public budgets increased via taxation or federal deficit, and profit objectives (quotas) established for the organic plant and facility. The extreme case, of course, could duplicate the military-industrial complex of the Soviet Union.

As in every system, boundary limitations define the system's environment and determine which factors are endogenous and which, by choice, will be exogenous. To illustrate, the system that utilizes the decision-making process represented in Figure 4-1 could be defined as either a microorganism (firm) within the defense industry or, at the macrolevel, as an entire industry. Alternatively, the system could be a national coalition which considers national policy (determined by democratic process) or even an international system which includes industries of all allies supporting common objectives as opposed to discrete, national objectives. The latter case would provide a basis for sharing the investment burdens of multinational codevelopment and coproduction; also it would enhance the "profit" of effective deterrence and security assurance on a global basis. The latter approach, if adopted and adequately promoted, would lead not only to a broadening of the potential defense market but would also expand the number of defense industrial suppliers. The increase in the number of customers for the defense articles may generate an improved and more predictable demand.

The recognition of more competitors in the supply of defense items may improve the management and operations expertise of the sluggish firms that, today, are unwilling to "become stronger and smarter" (a tendency that is generated by their dependence on government subsidy).[96] It is obvious that some of the present defense firms would be unable to adapt to an open market and would be forced to exit the defense market. It is likewise obvious that the more efficient off shore suppliers may increase their share of the United States defense market. Although some analysts decry the shift to off-shore suppliers, the trend to international cooperation through mutual treaty alliance seems to be displacing the fears of dependence on foreign suppliers.[97] Secretary of the Air Force Verne Orr warned the US aerospace industry that they may be replaced by foreign competition within the next 40 years if they do not take a hard look at all the things that go into the cost of weapon systems.[98] For example, Secretary Orr points to the high cost of overhead which caused the US automobile industry to decline in prominence due to the increased demands of labor while value and quality declined sharply.[99]

For the defense industrial base to adequately respond to the factors of technology, demand, and economics, cooperation with the government must increase. Frank Carlucci in a statement of the raison d'etre of strong cooperation said:

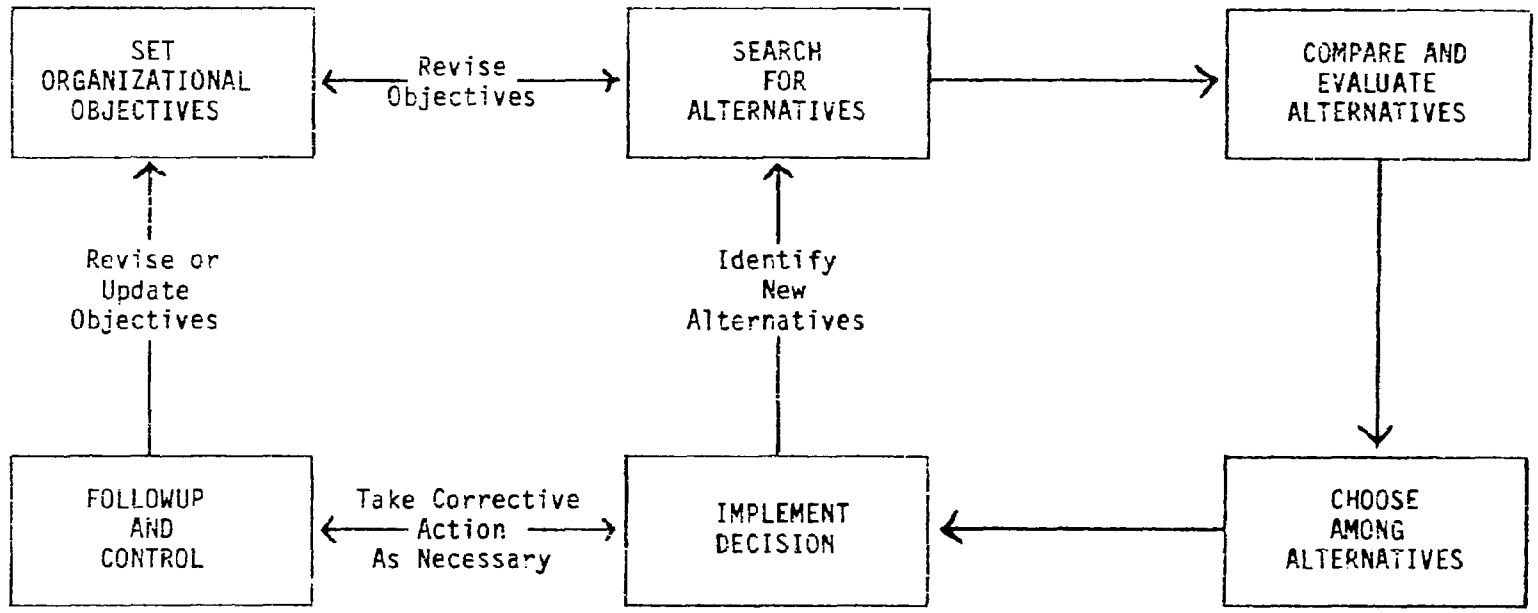

FIGURE 4-1. The Decision-Making Process

> If priorities of the defense budget are to overcome the present decadence, the decisions will have to be wise and will require the best thinking the public, as well as the defense establishment, can bring to them. I include the public, because if these decisions are to really bear fruit, there will have to exist a national consensus to support them.[100]

General Charles A. Gabriel, chief of staff of the US Air Force, voiced a similar view, but added a concern about the fluctuating support and fragile consensus for national defense.

> Progress [is] made possible by the strong commitment of the American people and by the measured investments being made in national defense. . . . Many Americans are beginning to question the need for increased defense spending. These questions, in my judgment, arise from genuine concern with the state of the economy and the size of the federal deficit.[101]

Caspar Weinberger also recognized the need for the government actions to gain and retain the taxpayers' trust and confidence through wise management of the public funds and resources.[102] Significant strides have been made in the government's management processes with regard to industrial preparedness planning and the revitalization of a defense industrial base. According to Weinberger, these improvements have been affected by the following:

- New defense guidance that provided increased funding for industrial preparedness programs.
- Increases in appropriations for the manufacturing technology program (MANTECH).
- Improvements in management of government-owned, contractor-operated facilities.
- Sector analyses to determine import relief for erosion in the industrial base.
- Initiation of a formal program to encourage productivity improvements in the private sector.
- Development of the defense economic impact modeling system to simulate and measure the impact of defense requirements.[103]

These areas of improvement by government management will hopefully induce private investment in machinery and measures that will enhance productivity in order to increase industrial responsiveness to defense needs. In fact, the ultimate goal of the MANTECH and technology modernization (TECHMOD) programs is zero government investment. In each of these programs, the contractor is rewarded with the full value of the savings generated by his capital investment in new facilities up to the point of recovery of his investment; then the government and contractors

will share the savings on future contracts.[104] Two recent examples of the mutual benefits that resulted from close government and industry cooperation are the build-and-charter tanker program between the US Navy and the maritime industry and the USAF Electronics System Division's GET PRICE (Productivity Realized Through Incentivizing Contractor Efficiency) program. In the latter program, Westinghouse Electric Corporation can make a bigger profit while the Air Force estimates cost avoidance of more than $400 million on major programs over the next 10 years.[105]

Cooperation between industry and government is the foundation for potential improvement of the defense industrial base. Several mechanisms are being implemented by DOD to enhance the cooperation. These mechanisms include the following:

(a) Increased competition among suppliers through second sourcing.

(b) Increased stability in government procurement and multiyear programs.

(c) Joint share savings opportunities such as the manufacturing technology and technology modernization programs.

(d) Acquisition improvement incentives and strategies by government.

(e) Direct and indirect financial support through programs such as Title III of the Defense Production Act and modification to Cost Accounting Standard 409.

(f) Full "cooperation" (and control) through increased government-owned, contractor-operated facilities rather than nationalizing the defense industry.

Each of these recommendations has had certain amount of success and setback; however, the base is still ailing.

The remedy for the real problem may be uncovered by a systematic analysis using a model of the decision-making processes of the players (endogenous and exogenous) in the defense industrial base "system." An improved definition of these processes as well as a statement of the system's boundaries could clarify the objectives, feasible alternatives, and the optimal fix which will, no doubt, be temporary due to the dynamics of the system's environment. An adequate feedback and evaluation loop will assure an effective and efficient defense industrial base.

NOTES

CHAPTER IV

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54. Arthur Smithies, "Defense Budgets and the Federal Budgetary Process," published in Stockfisch, pp. 51, 58. For further discussion on the public acceptance of the preparedness output during peace, see Lewis C. Ord, Secrets of Industry (New York: Emerson Books, Inc., 1945), pp. 236-237; and Irving B. Holley, Jr., General John M. Palmer, Citizen Soldiers, and the Army of a Democracy (Westport, Conn.: Greenwood Press, 1982).

55. Fallows, p. xv.

56. Ibid., p. xv.

57. Puritano, p. 15.

58. "Measures of Productive Capacity," Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, 87th Congress (Washington, D.C.: Government Printing Office, 14 May 1962), pp. 4-6. See also J. F. Dewhurst, America's Needs and Resources (New York: Twentieth Century Fund, Inc., 1955).

59. Puritano, p. 14. See also "Flexible Manufacturing: Where the US Lags Behind," High Technology 3 (July 1983), p. 42.

60. Association of US Army, p. 15.

61. James P. Mullins quoted by Edgar Ulsamer, "The Finite Limit of Affordability," Air Force Magazine 66 (January 1983), p. 82.

62. Report of the Defense Science Board, p. 48.

63. Robert E. Rogan, Lieutenant Colonel, USA, Inadequacies in the Defense Industrial Base and Industrial Preparedness Planning: The Impact on Combat Force Readiness, Strategic Studies Institute, ACN 78030 (Carlisle Barracks, Pa.: US Army War College, 10 May 1978), pp. 21-22.

64. Jack Anderson, "GAO Asks Army to Reconsider Tool Developer," Washington Post, 23 April 1983, p. E27. For discussion of Army procurement practices, see Kaitz and Associates, pp. 31-34.

65. Jacques S. Gansler, The Defense Industry (Cambridge, Mass.: The MIT Press, December 1980), p. 161. For an examination of spare parts price increases due to sole sourcing, see "Precious Parts," Time (29 November 1982), p. 18.

66. US Department of Commerce, US Industrial Outlook 1972 (Washington, D.C.: Government Printing Office, April 1972), pp. 330-331.

67. Dewhurst, pp. 626-646.

68. Gansler, Defense Industry, p. 6. See also Rogan, p. 22.

69. Vincent Puritano, "The Weinberger-Carlucci Initiatives: How Are We Doing?", Defense 82 (June 1982), p. 7.

70. "Army Seeks Second Firm to Produce M-1 Tank Engine," Washington Times, 14 April 1983, p. 5B.

71. Jacques S. Gansler, "Defense Acquisition Initiatives."

72. US Department of Commerce, p. 325.

73. Defense Economics Research Report 1, September 1981, p. 7.

74. "Study Urges Top US Effort to Push High-Tech Industries," Baltimore Sun, 15 April 1983, p. 14. (Study released by the National Academy of Sciences.)

75. Mitsuhiko Morimoto, "Violent War Within the Defense Industry," Yomiuri Shimbun, New York edition (translated by Kiyoko Masunaga), 19 February 1981, p. 5. For additional comments on statistics of the Japanese Self-Defense Forces, see Frances J. West, Jr., "Japan and the Future of Pacific Defense," Defense 82 (June 1982), pp. 12-21. For a discussion of the Impact of Technology on Japanese Industry, see Neil W. Davis, "The Space Race: Here Comes Japan," High Technology 3 (May 1983), pp. 27-33.

76. Morimoto, p. 5.

77. For a discussion of the increases in coproduction programs in the 1980s, see Keith A. Dunn, "Things Old, Things New: Security Challenges in the 1980s," Parameters 3 (June 1982), pp. 65-66. Shared defense goals are also discussed in West, pp. 15-17.

78. "Buying America," Aviation Week and Space Technology 118 (9 May 1983), p. 13.

79. Department of Commerce, p. 330. In 1981, Randolph Myers, Jr., still held the position of chief transportation equipment division. His title had changed slightly, but he continues to emphasize the investment burden of large programs such as the wide body transport. For additional details, see US Department of Commerce, 1981 US Industrial Outlook for 200 Industries with Projections for 1985 (Washington, D.C.: Government Printing Office, January 1981), pp. 334-343.

80. Gansler, "Let's Change the Way the Pentagon Does Business," p. 112. For a contemporary analysis and discussion of the impacts of technology on defense industry, see Mary Kaldor et al., "The New Arms Technology and What it Means," The Nation (April 9, 1983), pp. 420-458. For a balance of the liberal views in the previous reference, see P. F. Gorman, General, USA, "What the High Technology Edge Means," Defense 83 (June 1983), pp. 22-27, and Duncan Pierce et al, Destination 1999 (Wright-Patterson AFB, Ohio: HQ Air Force Logistics Command, 1982), pp. 46-50.

81. Perlo, p. 160.

82. Morris, p. 82. For a critique of "micromanagement" in the layered structure for defense decision-making, see Bolen, p. 33.

83. Joseph A. Schumpeter, Capitalism, Socialism, and Democracy (New York: Harper and Brothers Publishers, 1942), pp. 81-86.

84. Walter Adams, "The Military-Industrial Complex and the New Industrial State," as printed in Carroll W. Pursell, Jr., The Military-Industrial Complex (New York: Harper & Row, 1972), pp. 81-94.

85. Merton J. Peck and Frederic M. Scherer, The Weapons Acquisition Process: An Economic Analysis (Boston: Harvard University, 1962).

86. Finletter Commission, "Survival in the Air Age," printed in Pursell, The Military-Industrial Complex, p. 183. A similar view of the government's role in financing industry was stated by the delegates to the Air Force Association, 1982 Convention. See "Toward Adequate Airpower for Tomorrow," Air Force Magazine 65 (November 1982), p. 53.

87. See Perlo, p. 190; US Department of Commerce, US Industrial Outlook, 1972, p. 325; and remarks by Allen R. Ferguson, president of the Public Interest Economic Center, as published in "Should America Continue to Subsidize its Merchant Fleet?", US Naval Institute Proceedings 107, 10/944 (October 1981), pp. 4-5.

88. Manning, p. 43. The government subsidy is usually bottlenecked by the small number of prime contractors who abuse the subcontractors and suppliers to the extent that the latter is driven from the defense industrial base. Baird actually sees the relationship between the few major prime contractors and their subcontractors as the heart of today's defense industrial base dilemma. Baird, p. 26.

89. Gerald A. Busch, "Some Emerging Developments in the Airframe Industry," presented in Stockfisch, p. 176. The decision for diversification became necessary as demand in the defense sector waned. For an extended discussion of diversification for defense industries, see US Arms Control and Disarmament Agency, Defense Industry Diversification, Publication 30 (Washington, D.C.: Government Printing Office, January 1966).

90. "Litton Acquisition," Aviation Week and Space Technology 118 (9 May 1983), p. 22.

91. See Ennis, p. 28, for a historical example of this profit motivation theory of free enterprise, specifically in defense industry. Two examples of publicly funded projects that analyses have not yet shown to be profitable for commercialization are the weather satellites and space shuttle operations. Documented in Aviation Week and Space Technology 118 (9 May 1983), p. 18.

92. "US Air Cargo Market Gears for Growth," Aviation Week and Space Technology 118 (16 May 1983), p. 35.

93. Representative James J. Blanchard (D-Michigan), "Government Must Take the Calculated Risks," Government Executive 14 (March-April 1983), pp. 49-55.

94. E. Frank Harrison, The Managerial Decision-Making Process (Boston: Houghton Mifflin Company, 1975), p. 24.

95. Puritano, "Getting Ourselves Together on Systems Acquisition," p. 12.

96. A primary example of apathy to be efficient and/or to explore productivity enhancements is illustrated by the Soviets. "The military industry has greater funds for acquisition of new equipment and for wages than does civilian industries. The plentiful supply of materials and funds tends to discourage the search for a more rational organization of production and for ways of economizing on capital, equipment, and labor. Cited in Mikhail Agursky and Hannes Adomeit, "The Soviet Military-Industrial Complex," Current News No. 544 (2 April 1980), p. 3.

97. Weinberger, Annual Report to the Congress, FY 1984, pp. 175-276. See also implied agreements between President Reagan and Prime Minister Trudeau. Reference: "President Reagan Visits Canada," Department of State Bulletin (April 1981), as reprinted in CANUSA II, 1982, Readings and Seminars (Maxwell Air Force Base, Ala.: Air Command and Staff College, February 1982), pp. 63-69.

98. Verne Orr, "Heritage, Headaches, and Hopes," Air Force Magazine 65 (November 1982), pp. 78-79.

99. Ibid. An illustration in today's aerospace industry was the reportedly high executive's salaries that drove unreasonable price hikes

on spare parts from Pratt-Whitney to OC-ALC. "Precious Parts," Time (29 November 1982), p. 18.

100. Carlucci, "Military Might, Industrial Muscle, and Intellectual Yeast," p. 5.

101. Charles A. Gabriel, General, USAF, "Of Forces and Flinching," Air Force Magazine 66 (May 1983), p. 72. The impact of defense spending on the economy is discussed by Aaron and Peckman, How Taxes Affect Economic Behavior, and "Defense Spending Would 'Hurt' the Economy?", Government Executive 14 (March-April 1982), p. 11.

102. Weinberger, Annual Report 1984, p. 86.

103. Ibid., pp. 115-118.

104. "Productivity: The Drive to Work Smarter, Not Harder," Aviation Week and Space Technology 117 (20 September 1982), pp. 91-93.

105. Kent J. Carroll, Vice Admiral, USN, "Sealift: The Achilles Heel of American Mobility," Defense 82 (August 1982), p. 11; "Air Force Signs Share-Savings Agreement," Air Force Magazine 66 (May 1983), p. 38.

CHAPTER V

CONCLUSIONS

Planning for the national defense is an ominous task--a task so critical that the participants and decision makers must not only be the best available, but they must not be encumbered by lack of information and criteria with which to measure their effectiveness. Throughout the history of the United States, the peacetime efforts (or the absence thereof) have significantly affected the magnitude of losses in the next war. Even so, as late as World War II, the industrial factories had enough capacity and leadtime in which to increase production to build enough B-17 and B-18 bombers so as to have a balance of quality and quantity that would be instrumental in later winning the war.[1] An important question to be answered by the defense planners of the 1980s is: Do we still possess adequate capacity and leadtimes to overcome our present state of unpreparedness? Without fully answering this question, our national security and even the existence of America could be at stake. To illustrate the serious nature of our inaction for preparedness planning, Schultz and Sabrosky highlighted the Soviet surrogate activities in the third world and the United States response, thus:

> The US response in the post-Vietnam period has been non-existent. . . . Disillusionment with US foreign involvement as a result of Vietnam was a primary reason for this policy of inaction. . . . This unwillingness to involve itself in low intensity conflicts had a significant impact on the US force structure and operational planning.[2]

Whether the next war is of low intensity conflict or nuclear spasm, the essentiality of peacetime preparedness planning is, it seems, undeniable. Although several reports and articles have addressed these subjects of preparedness, readiness, and sustainability, their solutions are less than universally acceptable. For example, President Reagan and his staff have advocated increased defense budgets to meet what they consider to be a significant Soviet threat. Senator Carl Levin (D-Michigan) uses similar expressions of the threat but combines the resources of the United States, NATO allies, and France for comparison to the less than equal numbers of forces controlled by the Soviet Union and the Warsaw Pact Allies.[3] These comparisons were compiled to counter the administration's plans, programs, and budgets.

The Decision-Making Process

To choose among various arguments for and against defense spending by public or private sectors, one must have a clear vision of the objectives and the alternatives. One should also have the authority to implement the alternative(s) that is selected to achieve the objectives. To improve the defense industrial base, we must first define what a defense industrial base is and what it is supposed to provide. The managerial decision-making process as described by the Harrison

model (Figure 4-1) suggests the importance of setting objectives before searching for alternatives and, ostensibly, before implementing alternative strategies. This model, or one of similar virtue, could refocus the issues of the defense industrial base. Actually, this model could assist our national leaders, public and private, to maintain a "balance between cost and hoped for advantage--balance between the clearly necessary and the comfortably desirable; balance between our essential requirements as a nation and the duties imposed by the nation upon the individual; alance between actions of the moment and the national welfare of the future."[4]

Balance is vital to the construct of the defense industrial base. Management of the industrial firms must remain flexible to the various marketplace realities. Fast-paced changes in technology, stochastic demand, and economic uncertainties are principal examples of these realities. To maintain a viable, survivable position as an industrialist, the manager of a firm must balance the amount of participation between the commercial and defense markets. Occasionally, a firm will withdraw completely from one market to provide a greater investment in the other. This decision by a firm may cause a severe bottleneck or critical shortage in the supply to the abandoned market. If the abandoned market was for defense materiel, the original, managerial decision by the autonomous owners could jeopardize the national security. Therefore, the objectives of the defense industrial system must be clearly communicated to all participants, exogenous or endogenous. In the words of E. Frank Harrison:

> Objectives are needed in every area where performance and results directly affect the survival and effectiveness of the organization. . . . Objectives are essential to the successful accomplishment of the managerial leadership function in any formal organization. . . . [Ultimately,] objectives provide a basis for the planning function.[5]

With regard to the defense industrial base, what are its objectives; who performs the managerial leadership function; and, finally, who plans for the future of the base?

The answers to these questions may not have been addressed in previous reports of the "patient's status." For example, congressional hearings report an ailing base due to lack of investment; yet Congress would not or could not shoulder the responsibility of making the cash available for increased plant, facilities, and equipment which would be "mothballed" for future, potential requirements.[6] The burden was placed upon private investors who have, over the last decade, chosen to invest in other markets and products. This decision to diversify from one market to another (primarily <u>from</u> defense <u>to</u> commercial market) is becoming the rule rather than the exception, especially within the second and third tier of suppliers and subcontractors. Admittedly in a democracy, "the responsibility for diversification rests with the management of these firms," not with the national government.[7] Although this conclusion should seem obvious to the most casual observer of a nation founded upon free enterprise, some espouse opposite views. For

larger ammunition stocks in peacetime, the next best option is to refine contingency plans for industrial mobilization to facilitate instantaneous three-shift production of munitions."[8] In contrast, Samuel P. Huntington advocates an approach of laissez faire and "struggle to survive" for the fittest; the firm would become stronger because of the competition.[9] To do so the firm may have to change management personnel, establish different objectives, or even diversify.

An example of a firm that seems to be aware of this principal of survival is Lockheed. According to Roy A. Anderson, chief executive officer, Lockheed is seeking a balance of about 75 percent military and 25 percent commercial by the end of the 1980s. The firm is considering diversification moves that would be comprised by applying technologies learned in the defense business or through acquisitions of high-technology businesses that are complementary of existing efforts by Lockheed. Another possibility would be for Lockheed to act as a subcontractor on commercial jetliner programs.[10] Lockheed is a fine example of the influence of free enterprise. They have experienced ups and downs (normally referred to as the business cycle); but due to managerial decisions, they have "stayed alive." In 1971 Lockheed appeared to be on the brink of total disaster. David Packard, Nixon's deputy secretary of defense, argued that the government had to intervene because letting Lockheed fail would jeopardize national security as well as 60,000 jobs. In May 1983, Packard said, "Looking back on it, I don't think it would have been a disaster if Lockheed had gone under."[11] Indeed what could have happened? Surely the plant, equipment, and facilities would have been acquired by another firm (new or old) that may or may not have continued production of defense materiel. What of the trained manpower? They, too, would not have vanished. They would have worked for the new owners or would have chosen to wear the colors of some other corporations.

The point is that the concern about vanishing firms does not equate to a reduced total output capability of a particular sector of industry. In fact, if the new management were to be aggressive and innovative, the output could be even greater. The concern of a vanishing base of suppliers to the defense industrial base does not necessarily represent a loss in total manufacturing capacity. As long as firms maintain flexible plans to adapt to defense production, then the industrial capability to meet a mobilization for a protracted conflict should be adequate. Adequate for what? The question of what the next war will require was answered by General Robert C. Mathis, former vice chief of staff of the Air Force:

> If history has had one direct lesson for the student of war, it is that nations and their armed forces will not be fully prepared for the war that comes. If this is so, we must acquire, by an extensive study of conflicts, a flexibility of mind and intellectual rigor that will permit us to deal with the unexpected and adapt to changing conditions as they are, not as we forecast them to be.[12]

Flexibility of mind and intellectual rigor seem reminiscent of President Eisenhower's words, "good judgment seeks balance and progress; lack of it eventually finds imbalance and frustration."[13] With regard to the defense preparedness planning for mobilization and industrial responsiveness, we must gain the support, trust, and confidence of the citizen taxpayers through cogent management and good judgment. "We must do our job in a thoughtful, business-like fashion, and we must see to it that the American public becomes aware of what we are doing right."[14] The importance of communicating what is being done right to gain a national consensus and, consequently, financial backing for a modernization of the defense industrial base was expressed by General Charles A. Gabriel, Air Force chief of staff, when he said:

> Can our country afford to support a strong military and vital strategic modernization? Yes! We have to. With continued moderate growth in defense spending, America will have the forces she needs to deter aggression. I can think of no more important an investment for us to make.[15]

This investment will only occur by sacrifice; sacrifice follows commitment; commitment follows education; and education of the public can only occur after the objectives and alternatives have been adequately evaluated by the decision makers of the defense industrial base. Through the use of a decision-making model, such as the one presented in this study, one can see clearly the failings of previous research efforts. While the authors and analysts of these previous efforts have presented conceivable solutions, they did not treat the real problem. For example, to state that the defense industrial base is ailing is merely psychosomatic unless one first describes the requirements for industrial cutput (capability and capacity) and, second, defines the system's boundaries. Then, as a given set of circumstances are analyzed, the decison maker(s) can derive alternatives that may be evaluated and implemented.

Additionally, the faulty insinuation that DOD is in charge of the defense industrial base causes severe consternation and frustration. Actually, Congress controls the absolute size of national budgets and managers of individual firms control the type of production in which they will participate. An adaption of the model could improve the decision-making process of the defense industrial base and, thereby, enhance the accomplishment of our national security objectives. This perspective of the recommended model is not meant to be a panacea for all the ailments of the defense industrial base, rather it "represents an attempt to introduce rationality into a world of interest groups, bureaucratic rigidities, informal organizations, politics, and many uncertainties."[16]

NOTES

CHAPTER V

1. Gene E. Townsend, "Tomorrow's Leader Today," Airman 27 (March 1983), p. 11.

2. Richard H. Schultz, Jr., and Alan Ned Sabrosky, "Policy and Strategy for the 1980s: Preparing for Low Intensity Conflicts," published in Richard A. Hunt and Richard H. Schultz, Jr. (eds.), Lessons From an Unconventional War (Elmsford, NY: Pergammon Press, Inc., 1982), p. 192.

3. "Arms Race Scorecard," Air Force Times 43 (June 13, 1983), p. 26.

4. Dwight D. Eisenhower, "Farewell Address," in Carroll W. Pursell, Jr., The Military Complex (New York: Harper and Row, 1972), p. 206.

5. E. Frank Harrison, The Managerial Decisionmaking Process (Boston: Houghton Mifflin Company, 1975), p. 25.

6. The Ailing Defense Industrial Base: Unready for Crisis, Report of the Defense Industrial Base Panel of the Committee on Armed Services, House of Representatives, US Congress, 96 Congress, 2nd Session (Washington, D.C.: Government Printing Office, 1980), p. 11.

7. US Arms Control and Disarmament Agency, Defense Industry Diversification (Washington, D.C.: Government Printing Office, 1966), p. 73.

8. Richard K. Betts, Surprise Attack: Lessons for Defense Planning (Washington, D.C.: The Brookings Institution, 1982), p. 297.

9. Samuel P. Huntington, The Soldier and the State (Cambridge, Mass.: Harvard University Press, 1957), p. 224.

10. "Reliance on Pentagon Worries Lockheed," Los Angeles Times, 18 May 1983, p. 10, cited in Current News (19 May 1983). Lockheed has been a prominent example of the struggle to survive for over 20 years. For early views of Lockheed on diversification, see US Arms Control and Disarmament Agency, pp. 25-27, 85-106.

11. "Back From the Brink, Lockheed Shows Signs of Prospering Again," Wall Street Journal, 12 May 1983, p. 1.

12. Robert C. Mathis, General, USAF, Retired, in Williamson Murray, Strategy for Defeat: The Luftwaffe, 1933-1945 (Maxwell Air Force Base, Ala.: Air University Press, 1983), p. xxi.

13. Eisenhower, p. 206.

14. Vincent Puritano, "The Weinberger-Carlucci Initiatives: How Are We Doing?", Defense 82 (June 1982), p. 11. Similar views of public trust expressed in Caspar W. Weinberger, Annual Report to the Congress, Fiscal Year 1984 (Washington, D.C.: Government Printing Office, 1983), p. 86.

15. Charles A. Gabriel, General, USAF, "Of Forces and Flinching," Air Force Magazine 66 (May 1983), p. 72. For a discussion of the impact of disillusionment and frustration by the American public, see Schultz and Sabrosky, p. 194.

16. Alfred J. Kahn, Theory and Practice of Social Planning (New York: Russell Sage Foundation, 1969).