Annual Report to the Congress

FISCAL YEAR 1988

Caspar W. Weinberger
Secretary of Defense

Report of the Secretary of Defense Caspar W. Weinberger to the Congress

on the

FY 1988/FY 1989 Budget

and

FY 1988-92 Defense Programs

January 12, 1987

This Report Reflects the FY 1988/FY 1989 Budget as of January 1, 1987

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To the Congress of the United States

This year we will celebrate the 200th anniversary of our Constitution. Since the Philadelphia Convention completed work on this historic document in 1787, it has guided American democracy and become a model for countless other constitutions. It remains the standard by which freedom-seeking peoples the world over judge the legitimacy of their own governments. Our Constitution is a truly remarkable and enduring document, fully worthy of the praise it won from the great English statesman, William Gladstone, as the "most wonderful work ever struck off at a given time by the brain and purpose of man."

Our Constitution, however, is not so esteemed by some. Since it recognizes that ultimate authority resides with the people themselves, our Constitution challenges tyranny and oppression. Indeed, it is considered a constant threat by those who rule without the consent of the governed. It is because of these hostile regimes that our Constitution charges our federal government to provide "for the common defense" of the American people, our free and democratic way of life, and the ideals for which we stand.

Today, carrying out the responsibilities entrusted to me by the President, I submit to the representatives of the American people, who assemble as the Congress of the United States for the 100th time, the President's plan to provide for the common defense of our nation and of our freedom. I do so fully mindful of our shared responsibility for defending the American people. The President's defense budget is nothing more, and nothing less, than a statement of the resources needed to ensure our security, our peace, and our freedom in the years ahead. It provides a sound foundation for the preservation of our ideals for generations yet to come.

The defense budget now before the Congress requests 3 percent real growth for our defense program in fiscal years (FY) 1988 and 1989. This modest increase over the amount enacted by the Congress for FY 1987 will not recover the ground lost by a 7 percent real decrease in defense spending Congress has imposed in the last two years. However, our budget will regain the momentum of our modernization program, and protect the investments we have already made in our future security.

In recent years, some in the Congress and elsewhere have focused so sharply on reducing the federal deficit that they have mistakenly

perceived the defense budget primarily as their most favored target for budget cutting. Such thinking fails to comprehend either the real purposes of our defense spending plan, or the size and scope of the threat to our freedom posed by the Soviets' steadily increasing offensive military power.

In every corner of the globe, America's vital interests are threatened by an ever-growing Soviet military threat. Moscow is maintaining its unprecedented pace of military expansion, and continues using military might to support its ruthless goals. In the past decade, the Soviet Union has outstripped us in almost every meaningful category of military production.

Deterring the Soviet threat, and the present aggression of terrorism and other low-intensity conflicts, requires our firm and unwavering commitment to sufficient defense strength. Our defense budget sends a message to friends and adversaries alike that we have the will and the strength to deter aggression and to deny the Soviet Union a military advantage that can be exploited against our interests and those of our allies and friends.

From this perspective the two-year defense budget submitted by the President to the Congress is a most modest investment in security. But it is designed to secure the steady, long-term strengthening of America's needs. It builds on our past investments by maintaining our strategic modernization program and upgrading our conventional forces. It also acknowledges that the foundation of our defense capabilities is our military and civilian personnel, whose performance remains unsurpassed in the world today. Our budget continues our efforts to provide adequate pay, compensation, and quality of life for our volunteers who perform those difficult and dangerous tasks for all of us.

Our budget also invests in the future security of Americans with a comprehensive and focused research and development program. Most important among our projects is the Strategic Defense Initiative (SDI), which will provide a new opportunity to move beyond deterrence based solely on the threat of retaliation, and to secure a thoroughly reliable defense against Soviet nuclear missiles to protect all our people.

Ours is a prudent defense budget designed to accomplish all these goals and more. It is consistent with the defense priorities set by President Reagan in the beginning of his first term -- and repeatedly endorsed by the Congress and the American people. But, if this defense budget is not supported, the increased risks to the nation will be felt first on the front lines where America's uniformed citizens will have fewer of the high-quality weapons systems they need to deter aggression, or fewer opportunities for essential training, or less of the support needed to sustain operations. It is here that risks to our security, accepted by those who would cut our budget again, could tempt tyrants to begin aggression. This we must, and can, avoid.

Because America has begun to regain the defensive strength we lost in the 1970s, we have seen a resurgence of support for American ideals worldwide and a growing respect for our national interests. The Soviets have returned to negotiations they once spurned; our allies have renewed their commitments to the defense of our shared interests; those people seeking freedom from oppressive regimes have turned to the United States for counsel and support; and all who back or practice terrorism have been unequivocally warned of the terrible consequences and costs of their actions.

Without doubt, congressional support for President Reagan's vision of America as a great nation has underwritten our successes in recent years. We can continue to be successful; we can continue to lead the world toward a more stable, peaceful, and prosperous future; but only if we very clearly demonstrate our intention to maintain the strength required to pursue and achieve these noble American goals.

Or, we can meanly conclude that we cannot or will not afford to do what is necessary to keep our freedom. If we choose that course, we will indeed lose our freedom and our peace.

The defense budget I present today for the President will help us stay strong and free. I urge the Congress to approve our defense program -- to cast its vote firmly in support of a secure future for Americans and for all who love peace and freedom.

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Part I
Defense Policy

A. TO PROVIDE FOR THE COMMON DEFENSE

1. How Much Is Enough?

The perennial question free peoples ask regarding defense is, "How much is enough?" To this there can be no precise answer. A nation's security is a function of the degree of risk a country is willing to accept. It can never be perfectly safe, and increased security requires increased costs, for freedom can so easily be lost.

In the 1930s, in the face of German rearmament, some European nations decided that unilateral restraint and appeasement were enough to keep them safe. The United States also failed to appreciate the necessity for defense preparedness to avoid war. These misjudgments proved catastrophic, and the world still wears the scars of that collective naivete.

Democratic peoples elect leaders to decide major policy issues like "How much is enough?" On occasion, however, the electorate will convey through its votes a clear conviction on defense preparedness. In 1980, with their election of Ronald Reagan, the American people sent just such an unmistakable message: reverse a decade of neglect and increase U.S. military strength. In the years since then, with the bipartisan support of the Congress, the Reagan Administration has made substantial progress in addressing the nation's 1980 mandate for a stronger defense, which was reaffirmed in 1984.

During the past two years, however, the Congress has made deep reductions in President Reagan's defense budget. These reductions jeopardize our military progress to date, delay the achievement of a safer level of security, and increase the eventual cost of this prudent defense posture.

So it is appropriate for this 1988 Annual Report to the Congress to begin by asking -- Why have our last two defense plans been so dramatically under-funded? I think there are two reasons: (1) many feel that we have completed the task, that our military strength is regained and that we can now go on to far more popular pursuits; and (2) too many in Congress feel that the nation's only priority is deficit reduction and that the best way to achieve this is to cut defense spending, regardless of our real security needs.

During the past year some in the Congress also recognized, correctly, that if deficit goals under Gramm-Rudman-Hollings were not met, the resulting defense cuts required by that Act could be even more damaging, because these cuts would be indiscriminate and across the board. Unfortunately, some congressmen translated the specter of these automatic cuts as a mandate for even deeper cuts in defense. In such an atmosphere few either assess the impact of these reductions on our nation's security, or appear to worry about it. This naivete, to give it its kindest interpretation, is sadly reminiscent of U.S. attitudes in the 1930s. Fortunately for the United States and the free world, we are far stronger now than we were in 1980, and there is considerable additional military strength already paid for that will be delivered over the next two or three years.

All of these factors have helped guide this year's decisions as to the proper amount of the overall budget to allocate for defense. It is not physically possible in a peacetime environment for all of our defense needs to be met at the earliest possible time. There are economic production rates, manpower constraints, and many efficiency considerations to weigh in deciding the best pace for strengthening our defenses. The two-year defense budget for FY 1988/FY 1989 that we submit now continues to be a long-range plan. We propose through this budget to keep America strong through continued steady progress toward modernization and other defense improvements. We seek to avoid the stop-and-start defense budgeting that has, too often in the past, promoted inefficiency and instability. But we do not and should not try to fool the country into believing that a politically easy, deeply cut military budget can serve the long-term security or fiscal interests of our country. We can easily afford what we need to do to keep our freedom. The real question is: Do we have the will and the resolution, and even the desire, to keep that freedom?

Most citizens realize that the safeguarding of our nation and our vital interests must be our first priority. Budget deficits and domestic program cuts can be rectified; but security shortfalls carry the risk of irreversible losses. Together, we must look beyond the immediate present. We must understand that America's security begins well beyond our shores, and that our interests are worldwide.

We must realize, too, that we cannot do the task alone, and that we need allies and friends in all parts of the world. We must recognize also the long-term consequences if our allies and friends perceive us waning in military strength and in resolve to protect our shared interests. Many would not notice the subtle erosion of our security as once-friendly nations drifted toward neutralism, or worse, accommodation to the pressures of our adversaries. But both such unfavorable developments are possible consequences of inadequate American strength and leadership. Any neglect of our own security has global consequences.

In sum, American defense budgets should be based on defense needs, not on political expediency or short-term fiscal goals. To this end, this FY 1988 Annual Defense Report to the Congress analyzes America's defense needs and presents a coherent plan for addressing those needs at a prudent and efficient pace. Our goal is to keep America safe and free, not just as safe or as free as short-term fiscal and political goals allow.

Anyone who says we cannot afford to do what we must to keep our freedom is halfway along the road to losing it.

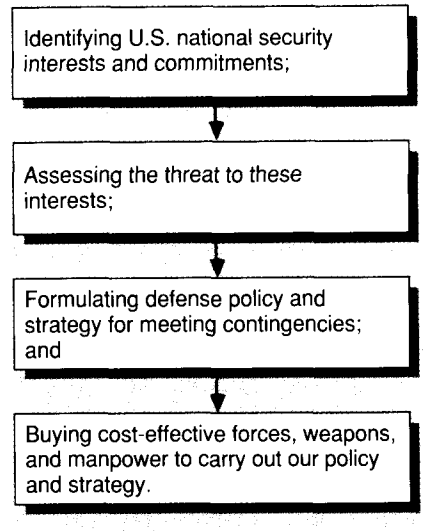
2. Formulating A Defense Budget

The Department of Defense (DoD) uses a sound and reasoned process to determine our nation's military needs, which in turn drives the composition and scope of the defense budget we submit to the Congress. It is a complex endeavor involving thousands of people and, properly done, it takes many months. It requires both a careful analysis of facts and the ability to make informed judgments as we look forward over the next five years.

The major steps of this analytical process are displayed in Chart I.A.1 and are also reflected in the organization of Part I of this report.

Chart I.A.1

Determining Defense Needs



The logic of defense planning is clear. The need for military forces arises from U.S. security interests and commitments. These interests are threatened by adversaries in ways that could create contingencies that U.S. forces must then be able to meet. Defense policy judgments on the best way for the United States to respond are translated into requirements for specific forces designed to provide the necessary capabilities at the lowest cost.

The most complex and demanding step of this process is the last, in which actual defense needs are determined and programs are designed to fill those needs. As described in Chapter I.C., U.S. long-term interests, broad national security objectives, and our basic defense strategy of deterring aggression have remained relatively stable and enjoyed broad bipartisan support throughout most of the post-World War II era. In contrast, the most contentious -- and dynamic -- step in the process remains deciding what military capabilities we need to support our defense strategy, which evolves in anticipation of, or response to, the ever-increasing threat capabilities posed by our adversaries. No exact answers emerge from this process. But one lesson is clear: U.S. weaknesses discourage our allies and encourage our foes. Our analyses are complicated by several factors.

Obviously, all of these budget processes are complex: First, we face inherent uncertainty about the future. The weapons we are buying today will provide the backbone of U.S. military forces well into the 21st century. Against which potential adversaries will these weapons be needed? How strong will our enemies be? What weapons will they use? What capabilities will our allies and friends have? While we attempt to analyze numbers and capabilities of opposing divisions, aircraft, tanks, and ships, such calculations are only

approximations -- not infallible guides to our real needs. In the face of uncertainty, prudence requires that one hedge against the risk of being wrong. This is not a field in which we can afford many mistakes.

Second, we seek to achieve our objectives not by the use of force, but rather by deterring an adversary from using his forces against us. Therefore, our strategy and forces must take into account our adversaries' perceptions and calculations. In a world in which the elements of military power are ever changing, and where the calculus of deterrence remains imprecise, this remains a demanding task.

Third, the United States cannot resolve its defense requirements without considering the possible reaction of our allies and friends, and the possible responses of our adversaries. Our weapons acquisition and force structure decisions also affect our opponents' decisions about their military forces.

Fourth, in acquiring weapons, we do not select from a fixed menu. The extraordinary pace of technology generates new weapons options almost continuously. But their design, testing, and acquisition take from 7 to 12 years. Since new weapons can be developed by our adversaries as well (frequently much more rapidly because there are no funding restraints imposed by public opinion), prudence requires that we invest across the spectrum of research and development. Thus we regularly face the difficult problem of tradeoffs between investing in today's capabilities or in tomorrow's possibilities, with all its attendant uncertainties, risks, and costs; but with the certain knowledge that the USSR never ceases its massive research, development, and deployment of ever-more modern weapons systems.

3. What Level of Security?

In formulating a defense program, what level of security should we seek? We realize that it is impossible to achieve absolute security. Yet, given our nation's wealth, quality of life, and values, we can -- and must -- strive to reduce the risk of aggression against our nation, our allies, and our friends. Our military strength must not be, nor appear to be, inferior to that of the Soviet Union, which represents by far the greatest threat to our security. Such an inferiority would prove disastrous for us and all we represent. Nor must we appear to be, or be lacking in either the means or the resolve to deter more subtle forms of aggression.

Obviously, we should not buy more defense than necessary. But of all that we Americans buy, we can least afford to shortchange defense. It provides an essential shield for our freedom, our prosperity and, ultimately, our very survival. To shortchange our security is to place all that we value at risk. All Americans need to recognize the unavoidable tradeoff between defense and risk. The less defense we provide, the more risk we must accept.

How should we determine the affordability of a defense budget? Some would do it on the basis of the federal government's annual balance sheet of expenditures and revenues: if a large deficit looms, say because a sluggish economy is reducing revenues and increasing outlays, then the full defense budget is seen as less affordable by those whose principal emphasis is on minimizing the deficit. A more appropriate starting point than the predicted

deficit (predictions which, incidentally, are always wrong) is our nation's wealth, as measured by our gross national product (GNP). The best measure of affordability -- the defense share of the budget -- is the fraction of the GNP devoted to defense.

In 1961, U.S. defense spending accounted for 8.3 percent of the GNP. When President Reagan took office in 1981, the share had fallen to 5.2 percent. At the end of President Reagan's first term, defense expenditures accounted for 6.2 percent of the GNP. By the end of the current five-year plan, even if fully funded, that figure would still be less than 6 percent of the GNP.

As Chart I.A.2 shows, the Soviet Union now devotes two-and-a-half times the percentage of GNP to military purposes as the United States does. If the United States were to devote the same percentage of its GNP to its military as the Soviets do, we would be submitting a defense budget for 1988, not of $303 billion, but more than $700 billion! Fortunately, our economy is approximately twice as productive as that of the Soviet Union. Even so, the additional strength the Soviets gain from their military spending far exceeds our own every year.

Chart I.A.2

A Comparison of the Defense Fraction of U.S. GNP with the Estimated Defense Fraction of Soviet GNP

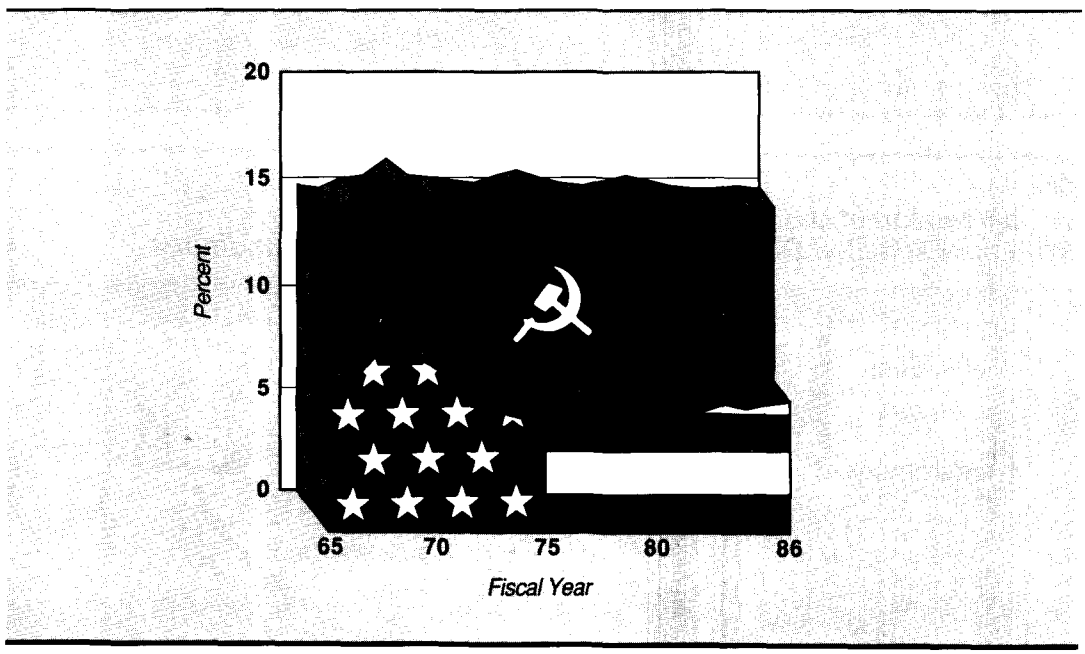
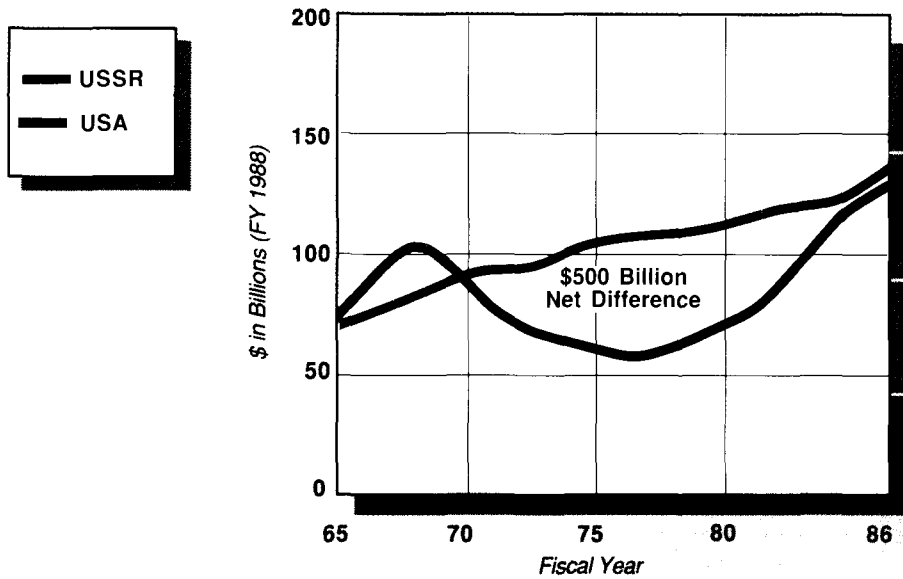


Chart I.A.3 compares U.S. and estimated Soviet costs over the past 20 years for military investment programs -- the procurement, construction, and research and development activities that build a long-lasting stock of military assets. Chart I.A.4 shows Soviet and U.S. procurement alone. These charts clearly show the enormous gap that has emerged since 1970 between the level of Soviet defense activities and our own. With the President's leadership and Congress' support until 1985 we have managed to close much of this gap,

but much remains to be done before we feel we can deter any attack by the Soviets against ourselves and our allies.

Chart I.A.3

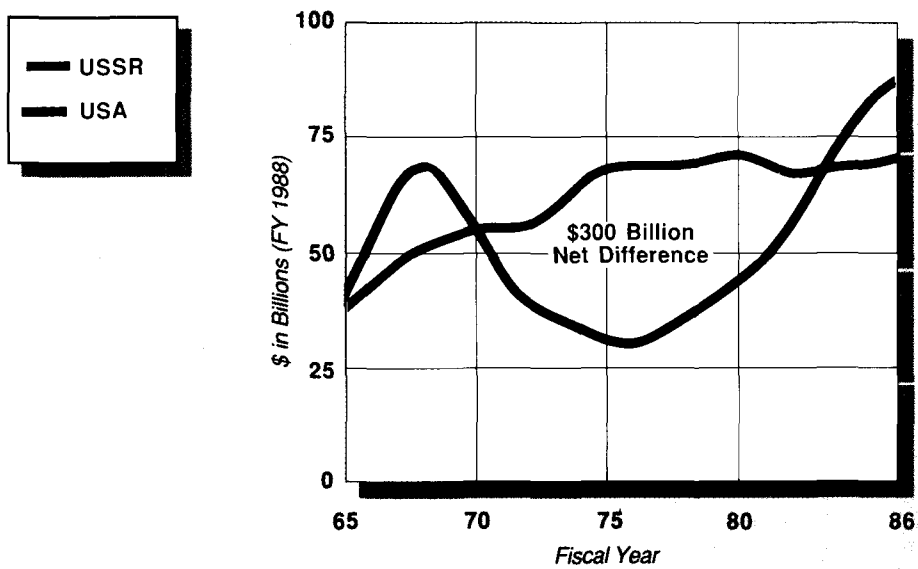
A Comparison of U.S. Defense Investment Expenditures With the Estimated Dollar Cost of Soviet Investment Expenditures



*Includes RDT&E, Procurement and Military Construction, and Non-DoD-Funded Programs.

Chart I.A.4

A Comparison of U.S. Defense Procurement Expenditures With the Estimated Dollar Cost of Soviet Procurement Expenditures

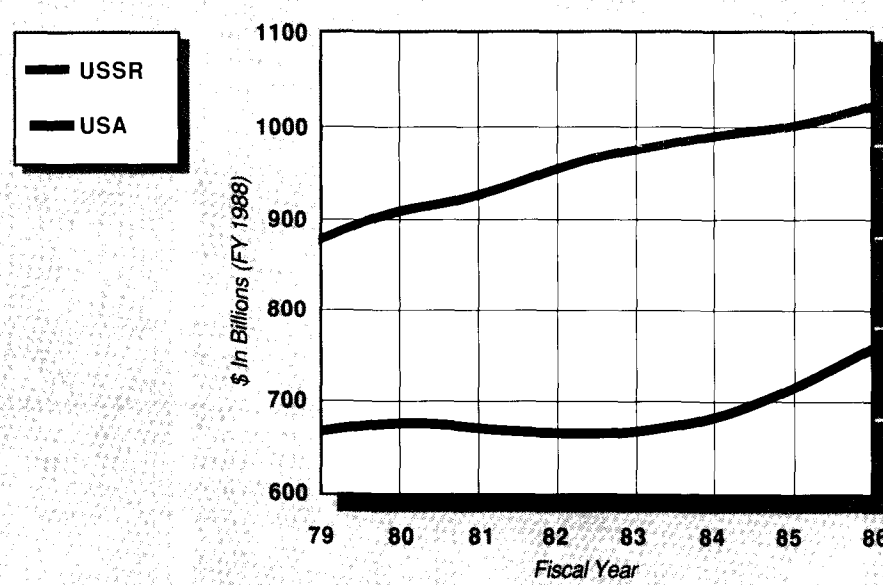


Current military capabilities of the United States and Soviet Union are a product not only of current investments, but also of the accumulated acquisitions of previous years. For a proper understanding of our relative capabilities, we must compare the stock of capital assets -- airplanes, ships, tanks, etc. -- in the U.S. and Soviet arsenals. The fact that the dollar value of Soviet military investment during the 1970s was 70 percent greater than our investment shapes the reality we confront today.

The growth of Soviet military procurement seems to have leveled off somewhat over the last decade. It must be noted, however, that this leveling off has occurred at a high rate of procurement, thus allowing for continued growth to the already large stock of Soviet military assets (see Chart I.A.4). In 1984, for the first time since 1969, U.S. military procurement appears to have exceeded Soviet military procurement, an important achievement. Our efforts to regain full deterrence are paying off. But as Chart I.A.5 indicates, the job is not finished. As shown, the weapons the Soviets have bought during the last 15 years have an estimated dollar cost of roughly one trillion dollars -- over 30 percent more than the cost of the weapons the United States bought in the period. Thus, rebuilding our stock of military assets to levels that can assure deterrence of attack by the Soviets will require our continued efforts.

Chart I.A.5

A Comparison of Accumulated U.S. Procurement With the Estimated Dollar Costs of Accumulated Soviet Procurement



*For each year, graph shows total procurement of the previous 15 years

There are, of course, many complications in these aggregated cost comparisons of U.S. and Soviet military programs. This report will focus primarily on more concrete indicators of the results of those programs: the Soviet-bloc forces in being that pose an unmistakable

threat to U.S. interests; and the U.S. military forces needed to counter this threat.

4. Is Our Defense Budget Wisely Spent?

The answer to this question is, yes. Unfortunately, in recent years a number of myths about our spending have emerged, contributing to an erosion of our national consensus to rebuild America's military strength. One purpose of this Annual Report is to replace these myths with facts.

One such myth is that we have not made substantial progress in rebuilding military strength. The reality is that we have had remarkable success in improving virtually every facet of our military forces. We have made major improvements in the quality and morale of our people, weapons modernization, readiness, training, and sustainability. Our progress is highlighted in Chapter I.E., and further described throughout the report.

Various other myths can be addressed by asking whether we are spending efficiently, managing well, and minimizing fraud and waste. The answers to these questions are summarized below and discussed in detail in Chapter II.B.

One of my top priorities as Secretary of Defense is to ensure that the defense budget is being efficiently and effectively managed. To accomplish this we have, since 1981, taken numerous initiatives with the goal of getting the maximum value from our defense dollars.

When people read about some alleged "horror story" regarding defense purchases, many tend to assume that this is just the "tip of the iceberg." Almost all overlook the fact that we very likely found the problem and corrected it.

To judge the quality of DoD's management, one must appreciate the size and complexity of our department's activities. Consider our people, over eight million in all: 2.2 million active duty military, another 1.9 million in the Reserve Components, and more than 1.0 million civilians. There are another 2.9 million people working on DoD contracts. Furthermore, DoD organizations and facilities span the globe. We manage over 5,400 properties and installations. The department operates over 400,000 housing units -- more than twice the number of public housing units in New York City. We deal with over 300,000 contractor establishments. We initiate 15 million contract actions each year, valued at about $160 billion. DoD currently supports over one-half of the ship construction and repair industry employment in U.S. private shipyards. We have both the largest school system, and the largest health and medical system in the world.

Still, even one real DoD management deficiency is one too many. That is why we continue our intense efforts to discover and correct every shortcoming. We welcome outside assistance in uncovering problems, although many such outside "discoveries" are termed "investigative reporting" and are based on findings we made and corrected. But, regardless of how discovered, the rooting out of problems has been a top priority of this Administration, as has the instituting of reforms to ensure that our various management systems reduce the likelihood of waste.

Many of our initiatives have been directed toward improving the DoD acquisition system. We have introduced scores of changes to increase competition, improve cost estimating, streamline production, and more. These reforms have paid off. Cost growth in our major programs was reduced from about 14 percent annual growth in 1980 to less than 1 percent in 1983 and 1984. We actually achieved an estimated cost reduction of 0.8 percent in 1985, the last year for which information is available. This reduction came in spite of congressionally mandated procurement changes, changes that often resulted in higher per unit costs.

As part of our reforms, we have vigorously attacked waste and fraud through aggressive management and through the work of our Inspector General (IG) and the Defense Contract Audit Agency (DCAA). Since the creation of the DoD IG in 1982, over 600 audit reports have identified nearly $5 billion in potential monetary benefits. Potential monetary benefits from all other DoD audits/reviews since 1982 totaled $11.1 billion. In addition, DCAA audits are responsible for a total reduction in procurement spending of over $9 billion since FY 1982.

Recently, the Packard Commission made several recommendations to help improve DoD management further. We had already implemented many of these recommendations (see Chapter II.B.) and support others. We are making every effort to implement the remaining recommendations, which are built on the progress we have made since 1981. Many of them require congressional enactment.

We are determined to achieve our management improvement goals. While we have accomplished much in this area, more needs to be done. For example, we need to eliminate unnecessary or duplicative reporting and oversight, both within the DoD and the Congress, if we are to reduce the cost of doing business.

The stage has already been set for stabilizing the acquisition process. We have just submitted our first biennial budget with increased emphasis on multiyear procurement. As recommended by the Packard Commission, legislation to baseline selected major programs has been enacted. This will permit these programs to be authorized for up to five years and budgeted for two years. We look forward to carrying out our responsibilities in this regard. Now we hope that the Congress will fulfill its commitments as well.

Furthermore, we will continue to establish annual management priorities in our DoD Management Improvement Plan and focus increased attention on those areas with the greatest potential savings.

Over the past two years, severe constraints have been placed on essential defense spending. We are doing our part to ensure that our scarce defense resources are managed as efficiently as possible, and ask the Congress to continue working with us to reach this goal.

B. THREATS, MILITARY BALANCES, AND NET ASSESSMENT

Of the threats to our national security that our defense programs are designed to meet, that posed by the Soviet Union is by far the most serious and the most immediate. Of course, the United States has citizens, allies, friends, military forces, and interests abroad that can be threatened by nations and groups much less powerful than the Soviet Union, and our defense policies account for those threats as well. But the largest, and most expensive, part of our defense effort is driven by the power and policy of the Soviet Union.

1. The Nature of the Soviet Union

Scholars continue to debate the question of Soviet motives and objectives. There is controversy about whether the Soviet rulers are truly ideologically determined to spread communism; or pretend to be so to justify their own authority; or wish to extend their own power and that of the Russian state; or merely have an exaggerated sense of insecurity, so that the accumulation of military hardware and the projection of military power to neighboring and distant countries is intended as insurance (however unnecessary) against external threats.

A prudent American defense policy cannot rest on theories of Soviet motivation, but must respond to the facts of Soviet policy and military capability. The most salient facts are these:

-- The Soviets have built, and are continuing to build, an enormous military capability at great cost to their society. The Soviets have more than 200 ground force divisions, roughly 1,400 intercontinental ballistic missiles, over 50,000 tanks, approximately 260 operational attack submarines, and more than 8,400 tactical aircraft -- far more than any other nation on earth; far more than could possibly be needed for self-defense. They maintain elaborate plans and preparations for large-scale Soviet invasions far beyond their borders. They modernize constantly and never complete deployment of one system without beginning at once the development of a follow-on next generation system. If we knew nothing else about the Soviet Union, <u>these facts alone</u> would require that we take prudent measures to offset Soviet military capabilities.

But we do know other facts about the USSR:

-- The avowed Soviet policy is to promote communist revolution throughout the world. Lenin described the goal as a "single, worldwide Soviet Republic." Current Soviet pronouncements support so-called "national liberation" movements, i.e., efforts by armed minorities to achieve absolute power to remake their societies without the consent of the governed. In addition to promoting such movements, Soviet military assistance and advisors, and Soviet and Cuban troops have been deployed

to preserve them in power. Some observers see in this activity something less ambitious than a methodical quest for world domination, as reflecting only a Soviet "opportunism" that seeks to expand Soviet power where opportunities present themselves. But that view means that Soviet expansionism is inhibited only when other nations' resolve denies them opportunities to practice it.

-- The Soviets have shown their willingness to use military force to invade and coerce other countries. The same reasoning that justifies the intimidation of Poland and the invasion of Afghanistan can be applied elsewhere as well -- except when the balance of military forces makes such policies impractical.

-- Certain internal characteristics of the Soviet state pose enduring challenges to other countries. For example, its secrecy, which makes it difficult for the United States to predict policy reversals; or its totalitarian character, which means there is no public opinion to impose any restraints on the small number of all-powerful rulers in the Kremlin. Moscow can and does concentrate enormous resources on offensive military power.

These facts mandate that our military forces be sufficient to deter Soviet aggression and resist Soviet coercion against ourselves, our allies, and our friends.

2. Other Threats to U.S. National Interests

Through the rest of this century, low-intensity conflict (LIC) will be the next most likely challenge to U.S. national interests. The dimensions of the threat are tragically apparent. Since the communist takeover in Cuba, 17 other totalitarian regimes have come to power through externally supported insurgency and subversion. Indeed, there are at least nine current active insurgencies in our own hemisphere.

Terrorism and the flow of illegal drugs are also integral components of LIC. We have come to recognize that these threats are not merely isolated occurrences. Terrorism is increasingly transnational and state-supported. Drug trafficking is increasingly sophisticated and politically motivated. In both cases, there is an element of exploitation by the Soviets and their surrogates.

Our opponents use terrorism primarily as a tool of political coercion. It is used by governments, groups, or individuals to impose their will on target populations. It has proven effective as a means to destabilize established governments or institutions. The Soviet Union, Libya, Iran, and Syria use terrorism as a means to further their foreign policy objectives.

The growing threat that these forms of ambiguous aggression pose to the United States, our allies, and our friends mandates that we maintain sufficient military forces to deter such aggression, and to defeat it should deterrence fail. For a more extensive discussion of LIC, see Chapter I.D.2.

3. Military Balance Assessment

Assessment of the military balance is not an exact science. It requires considering a very large number of factors that are difficult to measure. Comparing numbers of units, weapons, or soldiers is a start; but qualitative differences must also be taken into account, as well as their peacetime deployments, mobility, operational planning, and command, control, communications, and intelligence capabilities. The quality of leadership and training, the state of morale, and the ability to achieve surprise are also important factors. Indeed, in a number of historical cases they have proven decisive.

Although great superiority in numbers is always a major factor, it is also vital to know whether the military balance is consistent with U.S. security objectives. The following sections briefly describe the strategic balance, the military balance in each major region of potential U.S./Soviet conflict, and the maritime balance and power-projection forces that bear upon all of those regions.

4. The Strategic Balance

U.S. strategic nuclear forces are designed to deter nuclear attack and to help deter conventional attack on ourselves and our allies. Deterrence depends on the Soviet leadership's assessment of our forces and policies, not on our own assessment. The Soviet leadership must be convinced that our response to their aggression would inflict an unacceptable cost for any possible benefit. The sheer destructiveness of nuclear forces does not by itself guarantee deterrence. Our forces must be survivable (so that an enemy nuclear strike cannot disarm us of our ability to respond), capable (so as to attack the military and command assets we believe the Soviet leadership value most highly), flexible (so that they can deter aggression in a variety of contingencies), and discriminative (so we can respond in a manner appropriate to the particular attack).

Soviet force development reflects a set of objectives for strategic and related forces that is far more ambitious than our own. The Soviets attempt not simply to deter any attack against themselves, but to erode the deterrent character of U.S. nuclear forces. By modernizing their offensive forces in ways that threaten our deterrent capabilities, and engaging in a variety of defensive preparations, the Soviets are attempting to make our strategic offensive forces less secure against attack and less effective in response.

Soviet offensive forces modernization includes continued deployment of the road-mobile SS-25 ICBM and preparation for deployment of a rail-based multiple-warhead SS-X-24. In addition, three new Soviet ICBMs are being developed: a silo-based follow-on to the SS-18 heavy ICBM, a follow-on to the SS-X-24, and a new, possibly MIRVed, version of the SS-25. These land-based missiles, with their relatively high accuracy and short flight times, constitute the most destabilizing offensive systems.

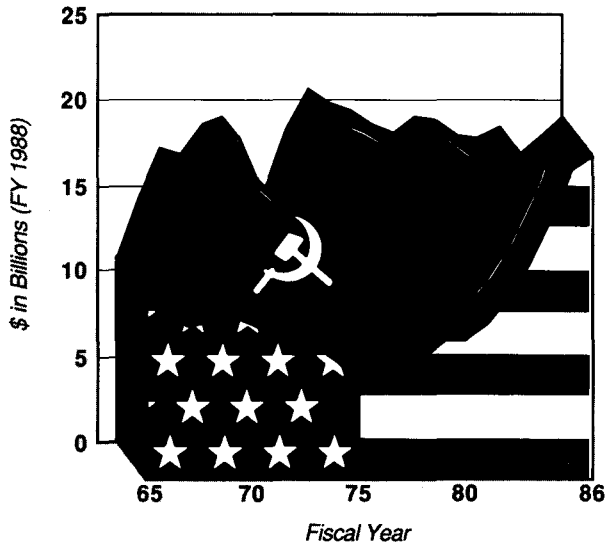
The Soviet ballistic missile submarine (SSBN) fleet is being enhanced by deployment of the long-range, more accurate SS-N-20 and SS-N-23 sea-launched ballistic missiles (SLBM), as well as the more advanced, quieter Delta IV and Typhoon-class submarines. The Soviets

are near deployment of the long-range SS-NX-21 submarine-launched cruise missile (SLCM) and are testing another new long-range cruise missile, the SS-NX-24. The Soviets are developing replacements for the SS-N-20 and SS-N-23 SLBMs for their next round of modernization.

The Soviets continue to deploy the new Bear-H bomber, armed with modern, long-range, air-launched cruise missiles (ALCMs), and are developing another intercontinental bomber, the Blackjack. These systems will complicate the tasks of U.S. air defense forces and enhance the flexibility of Soviet offensive forces.

Chart I.B.1

A Comparison of U.S. Strategic Force Procurement with the Estimated Dollar Cost of Soviet Strategic Force Procurement

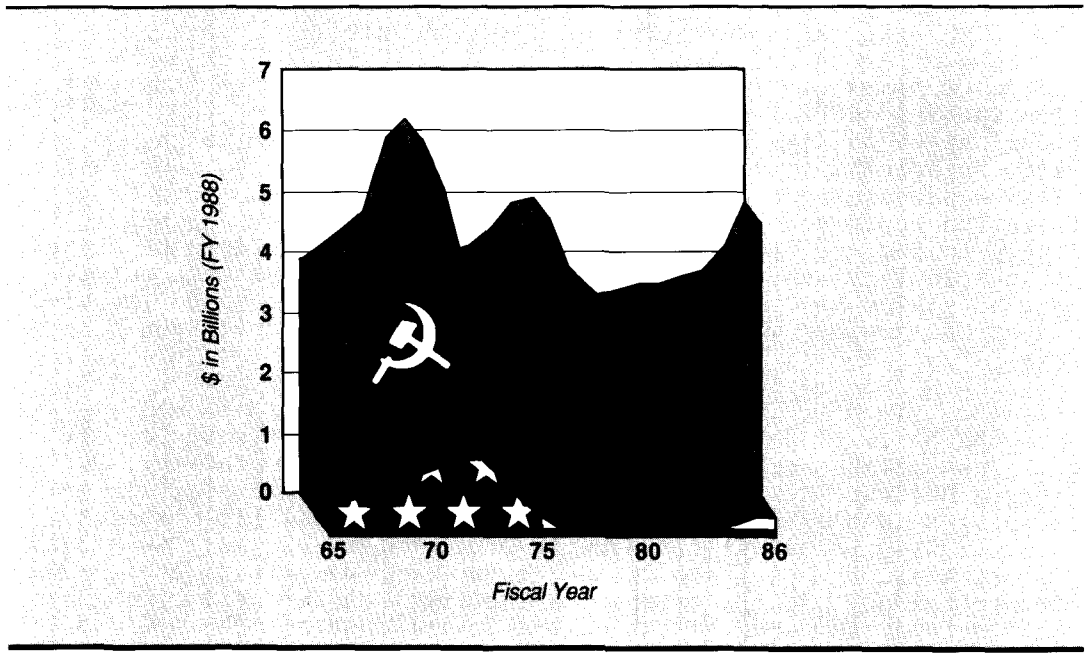


In addition, the Soviets continue to pursue vigorously both passive and active strategic defense programs. Soviet passive defense measures include the hardening of ICBM silos and launch control facilities (far above the strength of our Minuteman silos); the proliferation of a vast network of hardened leadership and command, control, and communications (C^3) bunkers; and an extensive civil defense effort. Soviet advantages in active strategic defense are substantial and increasing. While we maintain only limited homeland defenses, the Soviets boast a vast force of interceptors and surface-to-air missiles (SAMs). The Soviet Union has the world's only operational antisatellite (ASAT) weapon capable of destroying satellites in low-earth orbit. It is also modernizing its 100 launcher anti-ballistic missile (ABM) system around Moscow, the only operational ABM system in the world. Other advances include construction of a new large phased-array radar network, including a radar at Krasnoyarsk, Siberia that is in clear violation of the ABM treaty. These Soviet defensive measures have no U.S. counterpart, which means that while our offensive forces may appear to be "equivalent" to theirs, they are not equivalent in their actual capabilities.

Measured by their dollar cost, Soviet strategic force procurement programs as a whole are considerably larger than ours, with an even greater disparity in strategic defense procurement programs (see Charts I.B.1 and I.B.2). These estimates exclude wartime mobilization and civil defense programs, which are far more extensive on the Soviet side.

Chart I.B.2

A Comparison of U.S. Strategic Defense Procurement Expenditures with the Estimated Dollar Cost of Soviet Strategic Defense Procurement Expenditures



The U.S. strategic modernization program is replacing and augmenting our older systems, the majority of which have served for well over two decades. The B-1B bomber is now operational, providing an enhanced capability to penetrate steadily improving Soviet air defenses, a capability the B-52 is rapidly losing. Together with the air-launched cruise missiles deployed on selected B-52 bombers, the air-breathing leg of the Triad provides us with an effective and flexible deterrent capability, to be further augmented in the future with the introduction of the advanced cruise missile (ACM) and the advanced technology bomber (ATB).

We are continuing to build one Trident SSBN a year. The development of the improved Trident II SLBM, the D-5, remains on schedule for its 1987 flight test. The quietness, and other advanced features, of the Trident submarine increase the already very high survivability potential of our SSBN forces. With the introduction of the more accurate Trident II, our SSBN forces will acquire new, survivable capabilities that will discourage the Soviets from contemplating an attack against our land-based forces. We are also continuing to deploy submarine-launched cruise missiles aboard selected surface ships and submarines to make it more difficult, perhaps impossible, for the Soviets to design an attack that effectively compromises our retaliatory capability.

The deployment of 50 of the Peacekeeper ICBMs, with the 10 very accurate warheads on each, will reduce the current disturbing asymmetry in U.S.-Soviet prompt, hard-target-kill capability. The 100 Peacekeepers, including the remaining 50 we seek this year, are not sufficient to threaten the entire Soviet ICBM force, but will strengthen our deterrent. We have also accepted the congressional desire for us to acquire the small, single-warhead missile.

A less publicized, but perhaps even more important part of our strategic modernization program serves to improve the survivability of our command, control, communications, and intelligence (C^3I) systems. The improved survivability of these systems helps to deter a nuclear attack designed to incapacitate the U.S. National Command Authorities (NCA) and their control over U.S. nuclear forces.

For the immediate future, our planned offensive force modernization appears sufficient to maintain a robust deterrent to a Soviet nuclear attack on the United States and our allies. While the Soviets apparently seek a capability to combine offensive strikes and defensive preparations designed to limit greatly the damage a U.S. retaliation could do, they do not have that capability, and are unlikely to believe that they do. In deterring other forms of attack -- in particular, more limited nuclear attacks overseas or a conventional attack on NATO -- we rely on a broad array of forces, including tactical nuclear weapons and, of course, strong conventional forces.

By the late 1990s, more advanced defenses may substantially change the basis of deterrence and the nature of the strategic balance. The Soviets continue to work to secure active defenses. Our Strategic Defense Initiative (SDI) has made substantial progress in developing technologies to make defense against ballistic missiles feasible. When these efforts come to fruition, we can move away from an almost exclusive reliance on, and attention to, offensive strategic forces. To the extent that defenses render offensive forces ineffective, any temptation the Soviet rulers might feel to use their offensive forces would be overcome, not simply by their calculations about the prospect and effects of our retaliation, but by an assessment that their attack would be unsuccessful to begin with.

The Soviets have been pursuing advanced defenses, including many of the technologies being examined in our SDI. Their effort is both larger than our own and has a longer history. Some parts of it have been under way for more than two decades. The Soviets now have prototype ground-based lasers that could interfere with U.S. satellites. Prototype space-based antisatellite laser weapons and prototype ground-based lasers for defense against ballistic missiles are possible by the end of the 1980s. The Soviets, unhampered by any "scientists" who oppose their SDI, or any other unpermitted unfavorable reaction, are also continuing full-scale strategic defense research in particle beam, radio frequency, and kinetic energy weapons, and could field selected prototypes of these weapons by the mid-to-late 1990s. Nonetheless, the importance of precision manufacturing, microelectronics, and other advanced technologies for advanced defenses make this an area where the United States can draw on fundamental advantages if we are permitted to continue our needed work with reasonable funding.

5. Major Regional Balances

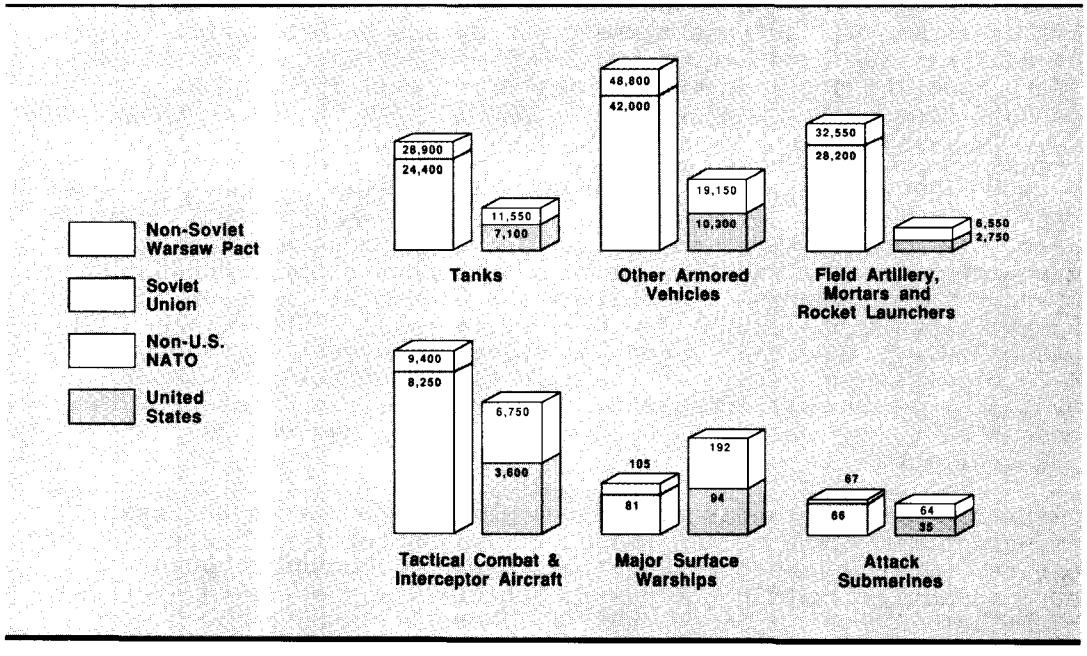
U.S. conventional forces are designed to help deter attacks on ourselves, our allies, and our friends. The discussion that follows focuses on those regions that are most directly threatened by Soviet aggressive behavior: Europe, East Asia, the Middle East, and Southwest Asia. A principal focus of the regional analysis is on land power and air power, since these two elements of U.S. and allied forces will likely play a major role in defeating Soviet aggression in these regions. Crucial to their success, however, will be the contribution of naval power in maintaining control of the seas, and our power-projection forces in deploying units rapidly to these critical regions. Given their unique roles, both naval and power-projection forces are discussed separately.

a. *The NATO-Warsaw Pact Balance*

The conventional forces balance in Europe has historically favored, and still favors, the Warsaw Pact by very sizeable margins. For example, in terms of forces within the NATO guidelines area, the Pact has maintained an advantage of over 2-to-1 in main battle tanks and around 2-to-1 in combat aircraft for the past 20 years. Over the same period they have increased their advantage in artillery from less than 2-to-1 to over 3-to-1. Since 1965, NATO has lost its advantage in surface-to-air missiles (SAMs) and combat helicopters.

Chart I.B.3

Production of Selected Weapons for NATO and Warsaw Pact Forces
(1977 - 1986)



The Pact currently holds an advantage in both of those categories of around 2-to-1. The Pact has consistently deployed infantry fighting

vehicles faster than NATO. Today they hold roughly a 3-to-1 advantage in those types of systems.

These increases in Pact in-place ground forces reflect weapons production rates that have exceeded those of NATO for at least the last ten years (see Chart I.B.3). These rates have allowed the Pact simultaneously to expand and modernize the maneuver elements of their ground forces.

Those modernization efforts, in conjunction with the Pact's quantitative advantages, have resulted in a continuation of the trends adverse to us in ground force combat power. By one measure, which accounts for both quantity and quality of forces, the Pact's advantage in in-place ground force combat power has increased from around 1.5-to-1 in 1965 to more than 2.2-to-1 today.

Collectors of esoteric isolated statistics are fond of seizing upon single indicators, such as the fact that NATO has a greater GNP than the Warsaw Pact, to give them comfort to further their thesis that we do not need to spend very much on defense. But the annual weapon output of the Warsaw Pact, and the quality of those weapons, remain the most vital statistics of all, and they should be the most energizing for the West.

While we have done substantially better in terms of keeping the Pact from improving their tactical air power advantage, we have not been able to reduce that advantage. By one measure of tactical air power, which again incorporates both qualitative and quantitative aspects of the air balance, the Pact in-place air force advantage in their Western TVD has gone from less than 1.5-to-1 in 1965 to around 1.7-to-1 today. This situation is of additional concern since it complicates our effort to use tactical air forces to compensate for insufficient in-place ground forces.

Increases in the number of Pact long-range, dual-capable surface-to-surface missiles (SSMs) pose a new and serious threat to NATO's air forces and air defense systems. Opposite NATO's Central Front the Pact has deployed around 600 SSM launchers with as many as four refire missiles per launcher. This threat will increase further as the Pact continues to modernize its SSM force with longer range, more accurate systems.

NATO can no longer rely as heavily as it once did on its nuclear forces in Europe to compensate for the Pact's conventional advantages. In recent years, the Soviet Union has made substantial improvements across the full range of its nonstrategic nuclear forces. These improvements include a substantial increase in nuclear-capable howitzers, fielding of improved shorter-range INF systems (e.g., the SS-23), and worldwide deployment of at least 441 SS-20 missile launchers. At the same time, the Soviet Union is developing an overall force structure and military strategy which would seek to neutralize NATO's capability for nuclear response early in a conflict.

Despite these adverse conditions and trends in conventional ground and air force combat power, as well as in the theater nuclear balance, we view it as unlikely that the Soviets would judge their force advantages sufficient now to achieve their political-military objectives in the time they require. Moreover, while the Soviets desire a capability to prevent NATO from employing nuclear weapons, we believe they have not attained that capability, and therefore that they must remain concerned with the risks of escalation.

Nonetheless, NATO recognizes that it must make greater efforts to enhance its conventional capabilities if it is to continue to deter the Soviets from calculating that they can fight and win a war in Europe. The Conventional Defense Improvements (CDI) within NATO is intended, in part, to identify emerging technologies that will enable us to improve the conventional balance. This is an example of how we are focusing our efforts, when possible, on Soviet weaknesses and enduring Western strengths. The CDI enables us to apply our technological strengths to gain the most benefit from them. This is the essence of the competitive strategy approach I have initiated within the Department of Defense (see Section I.D.4). It has additional applicability within the framework of the NATO alliance. I intend to continue supporting this initiative in discussions with our NATO allies and urging them to do the same.

One aspect of conventional defense enhancements deserving immediate attention is defense against the increasing threat posed by Pact surface-to-surface missiles. Both our department and the NATO alliance are actively addressing this problem and we hope to develop shortly some specific near- and long-term solutions.

Additionally, we and our allies are undertaking efforts to increase the level of arms-production cooperation to get more from our collective defense dollar. We have made considerable progress in this critically important field, and I intend to continue emphasizing this approach during the remainder of my tenure as Secretary of Defense. We need to recognize that this can result in more arms purchases for foreign manufacturers, and more joint ventures. But since the result can be more and better weapons at lower cost, it is most important to make this effort succeed.

In sum, although the trends in the military balance in Europe are adverse, we see opportunities for reversing these trends if we focus our efforts on key areas, maintain a consensus within the alliance on improving our conventional defense capabilities, and ensure the maintenance of a credible, modernized nuclear deterrent.

b. The East Asian Balance

The Soviets continue expanding and modernizing their forces in East Asia. They are upgrading the equipment of their more than 50 divisions deployed in the Far East. Their more than 40 tactical air regiments stationed there are receiving newer aircraft. The latest generation of interceptor aircraft are also entering the regional inventory. Backfire aircraft continue to augment the older inventories of Badgers, and the Soviets are deploying modified Bear aircraft in areas from which they can support Far East operations. The Soviet Pacific Ocean fleet is the largest in the Soviet navy. It contains two of the Soviet Union's three vertical/short-takeoff and landing (V/STOL) aircraft carriers, over 80 principal surface combatants, and more than 80 submarines. These conventional forces are supplemented by a substantial number of short- and intermediate-range nuclear forces, including the land-mobile SS-20.

Outside the Northeast Pacific, the Soviet naval and air presence in the South China Sea now comprises approximately 30 ships and submarines, and 40 aircraft. Operating from Cam Ranh Bay, Vietnam, these and other support forces pose a significant threat to Southeast Asian sea lines of communications, and highlight close and continuing Soviet support for the Vietnamese regime in its aggressive action in Cambodia.

The Sino-Soviet military balance continues to favor the Soviet Union. It will continue to do so as Chinese emphasis on economic growth which reduces funds available for immediate defense improvements in its long-term modernization programs. Although China continues to make incremental improvements in reorganizing and streamlining its military, Beijing still relies on its large population and resource base, and geographical size as the heart of its conventional deterrent.

Even though the Soviets maintain an enormous strategic nuclear superiority over the Chinese, China's extensive use of camouflage, concealment, and mobility is likely to preclude a disarming Soviet first strike against China's relatively small nuclear force. Slow growth over the next five years will likely include the introduction of a small number of SLBMs. The effectiveness of China's strategic forces will be reduced by ongoing Soviet upgrades to its missile defense systems.

The second significant regional balance, between North and South Korea, is of critical interest and concern to the United States. The military preparedness of the Republic of Korea, coupled with North Korea's perception of America's resolve, have been instrumental in keeping the peace for nearly 34 years. North Korea persists in its efforts to modernize its large armed forces, despite the devastating effects on its notoriously weak economy. It is also deploying these forces forward that reduces the warning time for South Korea. Current estimates indicate that North Korea carries a defense burden exceeding 20 percent of its gross national product. North Korean modernization programs include continued reorganization and forward deployment of its army, and development of the second largest special operations forces in the world. All these forces are postured to attack in ways that maximize the opportunity of surprise.

The Republic of Korea, with U.S. assistance, has also been modernizing its forces, balancing these efforts within a strong, growing economy that is roughly four times the size of North Korea's. This economic asymmetry makes the long-term prospect for the Korean balance favorable. Nevertheless, in the face of Pyongyang's aggressive actions, and in view of the potential for Soviet intervention that would quickly upset the balance, our current efforts to assist South Korea in redressing specific military problem areas must continue.

Southeast Asia is the locus of the remaining significant regional balance. Vietnam fields the world's third largest army. With direct financing from the Soviets, it continues to occupy Cambodia, threatens Thailand and the overall stability of ASEAN, and poses a constant menace to China by deploying some 700,000 troops along the Chinese border. In exchange for base rights, the Soviets provide military equipment and continue to support the failed Vietnamese economy. Containing this threat requires our continued attention.

Although some aspects of the regional balance favor the Soviets, there are many important theater-wide considerations that favor the United States and its allies. Japan plays a significant role in bolstering democratic defenses in the region. By virtue of its key location, improving capabilities, modernizing self-defense forces, and its assumption of new missions, Japan provides a major part of its own defense and offers essential infrastructure support to U.S. forward-deployed forces. The Soviet deployment of SSBNs in bastions close to the Soviet Union magnifies the strategic importance of islands that dominate the entrances to the Sea of Japan and the Sea

of Okhotsk. The inclusion of Japan in this Soviet "sea-control" area underscores the Soviet threat to Japan.

The rapid economic development of Japan and the newly industrialized countries of the East Asian rim, together with the growth of the Chinese economy, continue to broaden the basis for developing the self-defense capabilities of friendly regional countries. The United States is pursuing economic and security policies that tie our countries more closely together, while assuring that technology transfer does not redound to the West's disadvantage.

In view of these positive economic trends in East Asia, with the notable exception of Soviet allies or clients, the long-term regional trends appear favorable from our perspective.

c. *The Middle East / Southwest Asia Balance*

The Middle East/Southwest Asia region's critical geostrategic location, its considerable petroleum resources, and its proximity to the Soviet Union combine to make it an inviting target for Soviet expansionism. The Soviets maintain significant ground and tactical air forces in their military districts contiguous to the region and have been active in developing support bases for Soviet navy presence in the Indian Ocean. Since 1979, the Soviets have been using military force in their attempt to subjugate the Afghan people.

The immediate Soviet threat to the region in a global conflict consists of 30 active ground divisions, including some 5,450 tanks, over 1,400 fixed and rotary wing tactical aircraft, and numerous mobile missile launchers. Long-range bombers from air and naval units stationed outside the Southern Theater of Military Operations could also be directed to interrupt our projection of forces to the region. Soviet proximity to Southwest Asia provides them with a significant advantage in the balance, but the determination of the regional states to maintain their independence and the extremely difficult terrain partially offset these advantages. Furthermore, we estimate that the long lines of communications the Soviets would have to maintain to control the region's oil-producing facilities would be vulnerable to both air and unconventional ground interdiction, and would require a substantial investment in personnel to ensure local security.

As with other regions, our national security objectives in the Middle East and Southwest Asia include: deterring and, if necessary, defending against Soviet aggression; countering Soviet moves to gain power and influence; and protecting free world access to resources. Since 1981, we have improved our capability for projecting military forces to the region. We have built our potential force allocation to more than six ground divisions and over 600 tactical aircraft, and we now have the capability to deploy rapidly about four divisions (largely through our acquisition of U.S.-based fast sealift and maritime prepositioning in the Indian Ocean). To test these forces and our rapid-deployment concepts, we have conducted a number of successful exercises with friendly regional states. Part of our continuing plan to assist regional states defend more effectively against Soviet aggression calls for the forward deployment, in peacetime, of certain Central Command forces. To date, political problems and access limitations have limited our success. Regional states' awareness of the range of threats to their security, however, has

made them receptive to our military assistance programs, foreign military sales, and military exercises.

Our improved capability to project significant forces quickly into the region helps to deter Soviet attack. Should deterrence fail, we could successfully defend the region with substantially fewer ground forces than the Soviets would need to seize and occupy it, provided our forces are heavily supported by tactical air. We would need to be supported against a common foe by our friends and allies in the region and elsewhere by nations whose very existence depends on the West's continuing access to the oil fields. We would need to come to rapid accord with them regarding access and host nation support, and the continued flow of defensive military strength for our defensive military operations.

6. The Maritime Balance

The Navy's capability to protect our sea lines of communications and to project power remains crucial to Western security. Almost any type and level of conflict involving U.S. interests will require movement of forces by sea. Although the Soviets seem intent upon improving their naval forces and capabilities, our substantial shipbuilding program and use of effective strategies to exploit Soviet operational concepts result in an overall maritime balance favorable to the United States.

The Soviet navy concentrates on protecting its SSBN forces and destroying opposition nuclear-capable forces, such as U.S. SLCM-equipped submarines and surface ships, and aircraft carriers. As Western platforms are becoming more numerous, capable, and dispersed, the Soviet capability to find and attack U.S. and Western SSBNs and SLCM-platforms will likely decline.

The Soviets continue to modernize their SSBN force and upgrade the quality of their attack and cruise missile submarines. By the mid-1990s, these improved submarines and the more capable surface combatants now being built will represent a significant percentage of the Soviet navy. The land-based contingent of Soviet naval aviation (SNA) continues to receive new Backfire missile-carrying aircraft, and Soviet air force Backfire and Bear-G aircraft continue to augment the SNA's antiship capability. It is likely that Fencer and follow-on tactical ground attack aircraft will enhance Soviet antiship forces in areas closer to land. The sea-based leg of naval aviation is pursuing V/STOL aircraft development, both with Kiev-class carriers operational now, and probably with a follow-on carrier that may be operational in the early 1990s. The new carrier may eventually support the introduction of conventional take-off and landing aircraft into the Soviet navy. The continuing development of Soviet high-performance antiship cruise missiles on their submarines, surface ships, and aircraft will stress our fleet defenses, but similar Western systems will severely complicate Soviet defensive problems as well.

Maritime superiority is critical to the United States because of our need to deploy and support forces by sea in almost any contingency. It is at least as critical for the Western alliance as a result of the role of reinforcement from the United States in the NATO plans. U.S. programs enhance our maritime capabilities in several key areas. The 600-ship Navy program as currently structured will provide 15 deployable aircraft carriers; substantial numbers of Aegis air-defense cruisers and destroyers; more, and more capable,

Los Angeles-class submarines, with the Seawolf-class in the mid 1990s; more amphibious lift in newer and more capable ships; new mine warfare ships; and new ocean surveillance platforms. The modernization of land- and sea-based naval aircraft continues, as does the effort to enhance cooperation between the Services to improve the effectiveness of maritime operations, notably by providing aerial tanking and surveillance support. The addition of these carefully balanced forces will greatly improve our ability to deal with the evolving Soviet threat.

The Soviet navy's major roles and missions are to assure that Soviet SSBN forces will be able to launch their missiles, and to deny the West access to sea areas from which forces can be projected into the periphery of the Soviet Union. These "sea-denial areas" have been expanding as the Soviet navy has grown, and now include the southern Norwegian Sea and northwest Pacific. The force-projection missions of the United States and its allies, and the sea-denial missions of the Soviets and Warsaw Pact are therefore quite asymmetrical, and our apparent force structure differences more readily explained.

The Soviet navy's predominant character as a navy designed to support submarine warfare in a sea-denial role is one result of this mission asymmetry. This emphasis will continue, though the size of the Soviet submarine force will decline slightly. The new platforms and support forces will actually improve the overall capabilities of the submarine force at the same time the Soviets are enhancing surface and air/mission forces.

Though the overall balance is favorable today, thanks to our naval expansion and the significant maritime contributions of our NATO allies, it is becoming more complex. The antisubmarine warfare picture will be complicated by the improved platforms on both sides, with a declining U.S. ASW advantage. Fleet air defenses will be increasingly challenged by improved antiship missiles entering both inventories. The United States, however, will retain significant advantages. The Soviet emphasis on the mission of SSBN protection limits forces available for other tasks. Despite improvements in the Soviet submarine force, the United States currently maintains an ASW edge. The U.S. Navy will continue to hold considerable advantages in tactical air and sustainability at sea, and in its ability to operate the new and more sophisticated ships entering the inventory. Continued pursuit of these competitive advantages and attention to changes in Soviet naval forces and strategy are necessary to preserve a favorable maritime balance in the future.

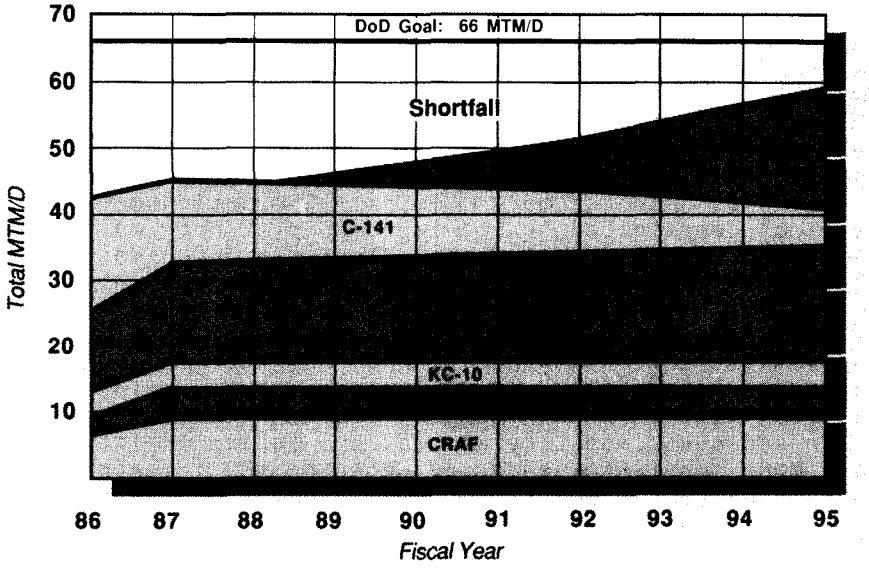
7. The Power-Projection Balance

Deterring war across the conflict spectrum, assuring war outcomes that do not compromise our interests, and improving, or at least maintaining, alliance cohesion are all goals that depend upon our ability to project force. With respect to areas outside the periphery of the Soviet homeland, our capability to project forces remains superior to the Soviet capability. However, the Soviets' continental location and large military establishment give them an advantage in applying force in Western Europe and along the Soviet periphery, while U.S. forces, in almost any type and level of conflict, would have to "project" from the continental United States (CONUS).

We have significantly improved our power-projection capabilities in the 1980s. Airlift capacity has been expanded with the acquisition of the C-5B, the KC-10, the procurement of increased stocks of spare parts, and the stretching of the C-141 fleet. Additional power-projection enhancements are programmed with the advent of the C-17 and improvements to the Civil Reserve Air Fleet (CRAF) (see Chart I.B.4). Sealift is a mixed picture, as the decline of the U.S.-flag merchant marine has continued, and the mix of ships remaining in that dwindling force is not ideally suited to military purposes. The majority of our sealift shortfalls have been addressed by increasing the size of the Ready Reserve Force (RRF). Eight large and fast (SL-7-class) container ships have been converted to roll-on/roll-off (RO/RO) configurations, and the Army and Navy are jointly working the problem of unloading and moving cargo once it arrives. The third contributor to mobility, in addition to airlift and sealift, is prepositioning. Three squadrons of maritime prepositioning ships with unit equipment and stores have been procured to support Marine Corps deployments in the Atlantic, Pacific, and Indian Oceans.

Chart I.B.4

U.S. Intertheater Cargo Airlift Capability



In addition to these mobility improvements, forces are being reconfigured to support rapid deployment more readily. The Army, for example, is fielding rapidly deployable light divisions. Amphibious lift will be increased with the advent of the new LSD-41 and LHD-1-class ships, and the Navy is accepting delivery of their first air cushion vehicles which will greatly enhance ship-to-shore movement of Marine Air-Ground Task Forces.

Soviet power-projection forces are also improving, although some programs are moving more slowly than we had anticipated. Two aspects of the power-projection balance provide reason for concern. First,

new Soviet force developments significantly enhance their ability to compete with the United States for influence in areas far from its borders; second, the Soviets are employing a variety of other means (such as ambiguous aggression) to gain access to, and make inroads in, Third World areas where there is little danger that they will encounter United States or competent local forces.

Important Soviet power-projection developments include: new and, in some cases, unique systems to move or support forces; continued upgrading of their merchant marine with militarily capable shipping; modest improvements and near-term additions to sea-based air forces; their continued role as a major arms supplier to the Third World; and expansion of Soviet facilities and bases overseas to support deployments.

The Soviets have developed and will be deploying the C-5A-size CONDOR heavy airlifter. Coupled with the C-141-size CANDID that has been replacing AN-12 CUBs in Military Transport Aviation, this will considerably expand the capacity and extend the range of those forces. The CANDID is also being deployed in a tanker version. The Soviets are also in the early stages of operationally deploying the first of a new class of vehicles, "wing-in-ground-effect" or WIG craft, that apparently will enter the force as amphibious transports. The speed and range of these units could provide the means for a relatively small (regimental perhaps) but significant intervention of naval infantry beyond the immediate Soviet periphery. The Soviets continue to lead the world in the deployment of air cushion vehicles in their amphibious forces. These capabilities allow them to use merchant lift to augment organic naval assault shipping in deploying naval infantry or army units.

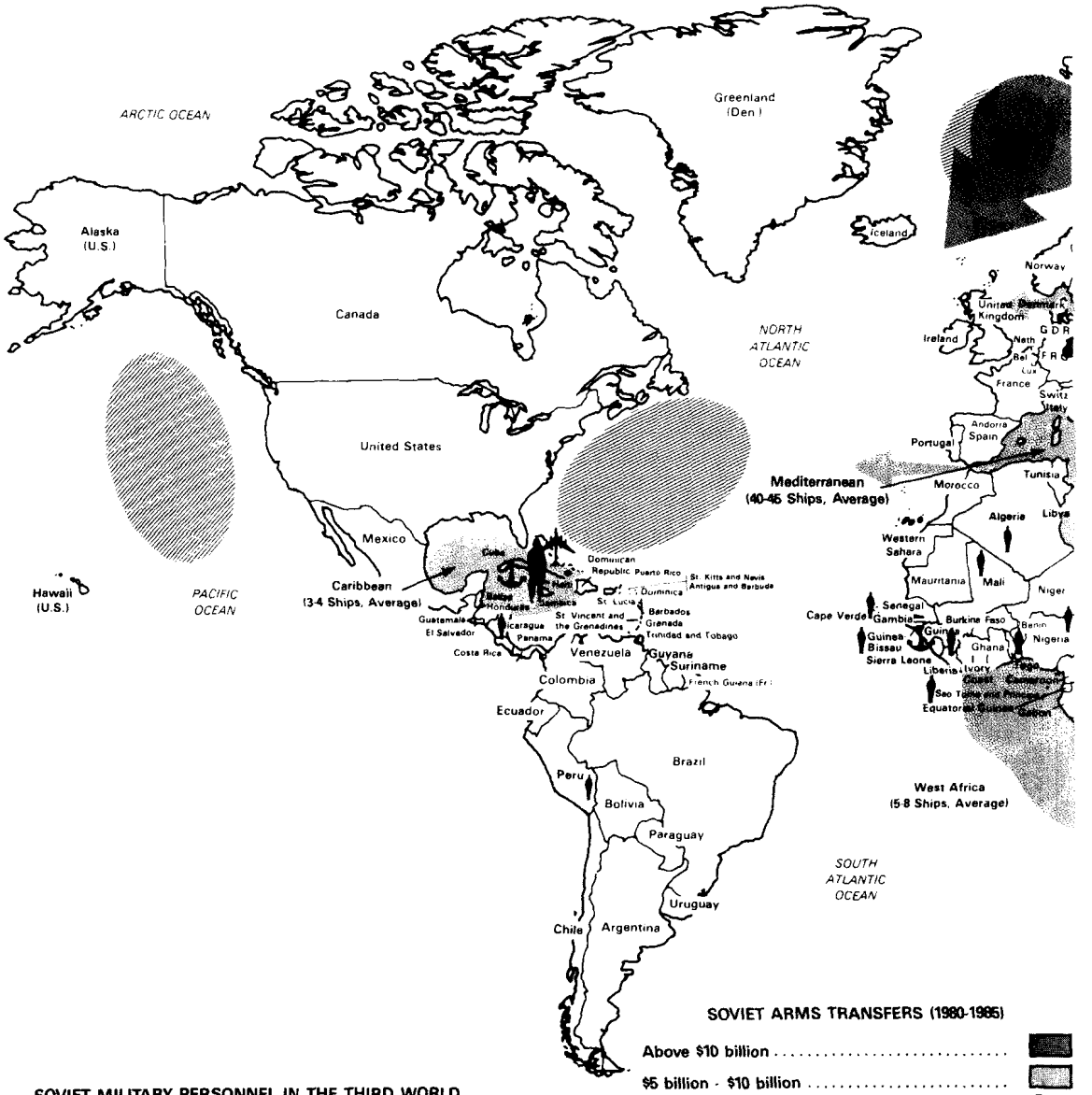
The Soviet merchant marine continues to expand and modernize, in stark contrast to that of the United States (see Chapter III.E.). For example, the current Soviet inventory of roll-on/roll-off and roll-on/float-off ships comprises over 100 units. This represents an addition of eight to nine ships per year since they first entered the inventory in 1974. The average RO/RO in the Soviet merchant marine can carry 125 medium tanks. The RO/RO ships alone can move up to five Soviet Motorized Rifle Divisions in a one-time lift. This would be in addition to the large remaining pool of merchant ships in the Soviet inventory, most configured with military use in mind.

Additionally, while Soviet sea-based aviation is still in its infancy, over the long term it could provide a significant complement to Soviet power-projection forces. Work continues on the new, possibly nuclear-powered aircraft carrier, which we anticipate will be the vanguard of a follow-on generation of larger, more capable carriers. The Soviets also continue to explore the possibilities of using V/STOL aircraft on rapidly reconfigured RO/RO ships. Currently, the Soviet power-projection forces cannot realistically operate outside of land-based air protection, or where our sea-based air might intervene. With the integration of Soviet sea-based air support, power-projection forces will operate with increased confidence at greater distances from the Soviet homeland.

The Soviets have been very active in indirect forms of power projection. Using their merchant marine the Soviets have become a leading supplier of arms to the Third World. These arms transfers are but one element in a concerted effort that includes propaganda, aid, trade, covert and overt (Afghanistan, Ethiopia, and Angola) activities, security advisers, and proxy troops. That the Soviets are engaged in a determined effort to project power worldwide is aptly illustrated by Chart I.B.5.

Chart I.B.5

Soviet Global Power Projection



SOVIET MILITARY PERSONNEL IN THE THIRD WORLD

	(Est.)
Latin American (including Cuba)	7,900
Sub-Saharan Africa	3,600/4,000
Mideast and North Africa	8,000-9,000
Asia (including Vietnam)	3,500
Afghanistan	116,000

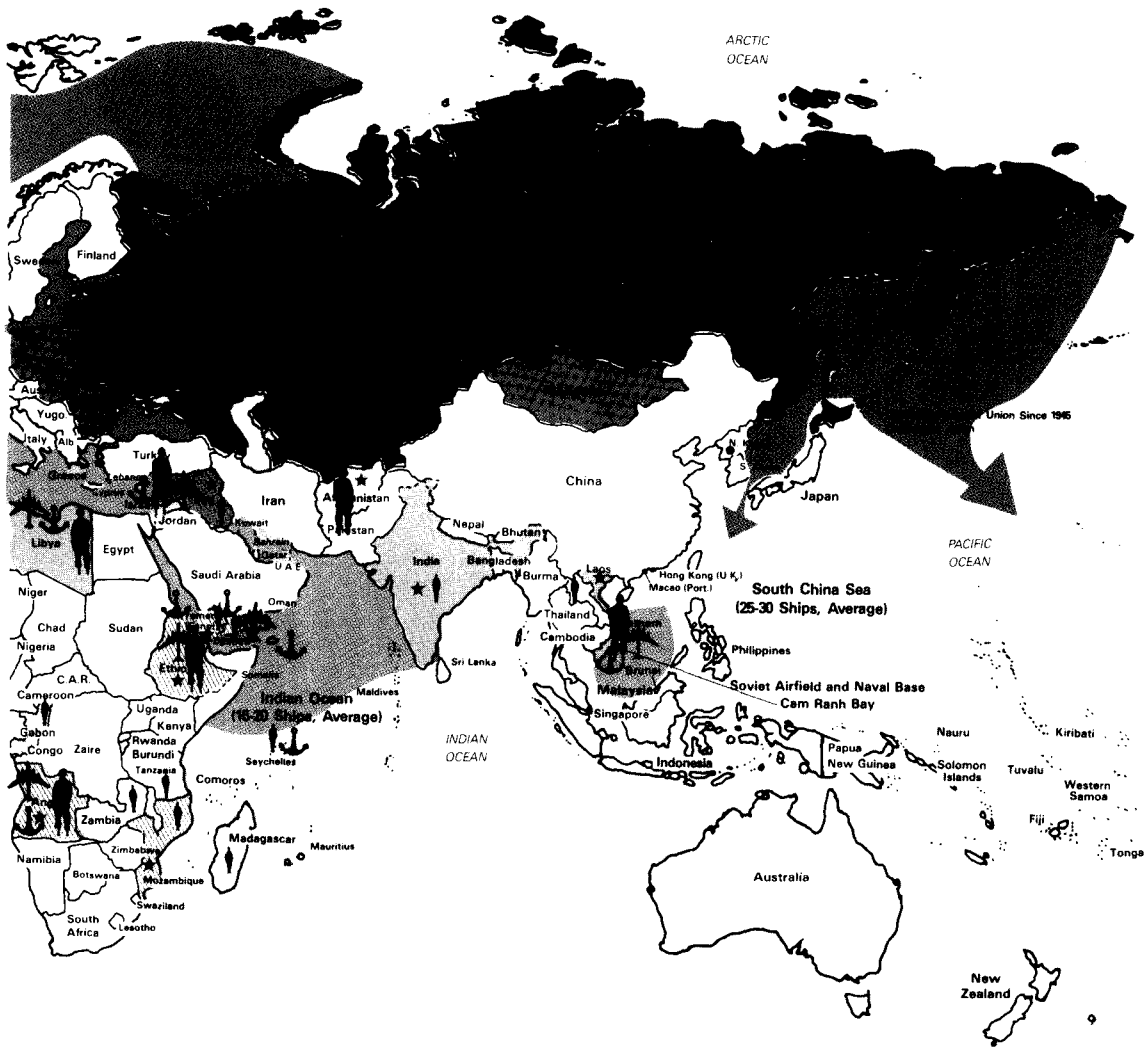
CUBAN MILITARY PERSONNEL IN THE THIRD WORLD

Latin America	2,000-2,500
Sub-Saharan Africa	38,000-41,000
Mideast and North Africa	300-400

SOVIET ARMS TRANSFERS (1980-1985)

- Above $10 billion
- $5 billion - $10 billion
- $1 billion - $5 billion
- $100 million - $1 billion
- Soviet Treaties of Friendship
- Soviet Military/Technical Personnel (less than 1,000) (Excluding Military Attaches)
- Soviet Military Personnel (more than 1,000)
- Mutual Defense Treaties

Boundary representation is not necessarily authoritative



Major Cuban Presence .....

Major Soviet Naval Operating Areas....

Deployed Soviet Naval Forces .....

SSB/SSBN Operating Areas .....

Soviet Naval Access .....

Airfield Access .....

Boundary representation is not necessarily authoritative

The Soviets have also expanded their presence in Vietnam, and continue to have access to facilities in Southeast and Southwest Africa as well as in the Horn of Africa, all areas of significant Western concern due to the resources in these areas and the sea lines around them.

In summary, while U.S. programs in place will enhance our ability to move and support significant forces, as in the reinforcement of Europe, the Soviets emphasize more subtle, indirect forms of power projection. Moreover, the military capabilities of the Soviet merchant marine, the expansion of the Soviet airlift force, the advent of new and unique platforms, like WIGs, and the expansion of Soviet sea-based air capability could allow the Soviets to compete more realistically in areas of U.S. concern in the absence of continued U.S. attention to power projection.

Most importantly, our power-projection effectiveness depends not only on our own capabilities and programs but also on close cooperation with regional allies and friends. Successful power projection requires allied assistance in the areas of basing and staging facilities, overflight rights, prepositioning sites ashore, and host nation support.

C. U.S. INTERESTS, NATIONAL SECURITY OBJECTIVES, AND STRATEGY

1. U.S. Interests, Commitments, and Goals

U.S. national interests encompass both broad ideals and specific security assets. America's paramount national interests are peace, freedom, and prosperity for ourselves and for our allies and our friends, and for others around the world. We seek an international order that encourages self-determination, democratic institutions, economic development, and human rights. We endorse the open exchange of ideas and other measures to encourage understanding between peoples.

More specifically, we maintain our steadfast concern for the security and well being of our allies and other nations friendly to our interests. We oppose the expansion of influence, control, or territory by nations opposed to freedom and other fundamental ideals shared by America and its allies.

The peaceful existence and prosperity of democracies is the core U.S. interest. Our agenda is a modest one and threatens no one. But the mere existence and prospering of democracies is also the greatest long-term danger to the world's most powerful foe of freedom, the Soviet Union. The danger to Moscow is not from the democracies' obviously defensive military forces, nor from the democracies' desire for peace and freedom. The danger is the contagiousness of freedom, the inherent superiority of free enterprise, and the universal appeal of basic human rights.

Democracies are anathema to the Soviet world view. The most recent example is Poland, where the first glimmerings of freedom brought down the iron heel of Soviet oppression in the form of a puppet Polish general, as head of the government, who might as well wear a Soviet uniform. Therefore, to survive democracies must remain militarily strong in order to deter and defend against the Soviet Union, whose bankrupt political and economic systems leave it with only its military might to perpetuate and promulgate its communist system.

The protection of U.S. interests has, over the years, led America to enter into joint commitments with other nations in the form of international treaties and agreements that reflect those interests. Alliances like NATO, and bilateral agreements such as those we have entered into with Japan and the Republic of Korea, serve to defend those common values that we share. By defending ourselves in this collective manner, we not only improve our own security, but we do so at a reduced cost, since the defense burden, which benefits all, is borne by many nations, and not the United States alone. Our adversaries seek to undermine these values and interests, thereby generating our need for military strength to uphold our commitments.

2. National Security Objectives

The threats to U.S. interests described in Chapter I.B. require us to formulate national security objectives to counter those threats. Major U.S. national security objectives are to:

-- Safeguard the United States and its forces, allies, and interests by deterring aggression and coercion; and should deterrence fail, by defeating the armed aggression and ending the conflict on terms favorable to the United States, our allies, and our interests at the lowest possible level of hostilities.

-- Encourage and assist our allies and friends in defending themselves against aggression, coercion, subversion, insurgencies, and terrorism.

-- Ensure U.S. access to critical resources, markets, the oceans, and space.

-- Where possible, reduce Soviet presence throughout the world; increase the costs of Moscow's use of subversive forces; and foster changes within the Soviet bloc that will lead to a more peaceful world order.

-- Prevent the transfer of militarily critical technology to the Soviet bloc.

-- Pursue equitable and verifiable arms reduction agreements. Because compliance is key to the value of any international agreement, and in view of the Soviet record of violations, fully effective verification is the most vital part of any agreement.

3. U.S. Defense Strategy

a. Deterrence

America's basic defense strategy, as it has been for the entire postwar period, is to deter aggression. Our strategy seeks to safeguard U.S. interests by convincing adversaries not to commit aggression against those interests. It precludes an attack from happening in the first place through clear alliance commitments and ready forces that provide us with an effective and credible response to any level of aggression.

Deterrence works by persuading potential adversaries that by their perceptions, the probable costs of their aggression will exceed the probable gains. Deterrence is the U.S. strategy against conventional as well as nuclear aggression. Among nuclear powers, any conflict carries the risk of irreversible escalation; therefore, our goal is to dissuade aggression of any kind.

We seek not only to deter actual aggression but also to prevent coercion of the United States, its allies, and friends through the

threat of aggression. Successful coercion could give a hostile power the fruits of war without actual conflict. In Europe and Japan, for example, the Soviet threat consists of not only the danger of an actual attack, but also a long-term campaign of propaganda and coercion. The Soviets seek to dominate Western Europe and Japan without having to fire a shot. To this end, Moscow attempts to persuade our allies to distance themselves from the United States, neglect their military capabilities, adopt passive policies like nuclear-free zones and similar measures for unilateral disarmament, and ultimately end the 16-nation North Atlantic Alliance and our mutual defense treaty with Japan, which together embody our collective resolve to resist Soviet domination. As Churchill presciently observed in 1946, "I do not believe that Soviet Russia desires war. What they desire are the fruits of war and the indefinite expansion of their power and doctrine."

To deter effectively, U.S. defense strategy must meet four tests:

-- ***Survivability***: Our forces must be able to survive a preemptive attack with sufficient strength to be able to inflict on an aggressor losses that the aggressor perceives will outweigh any gains to itself. Example: Our strategic nuclear retaliatory capability is assured through our Triad of nuclear forces -- intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and strategic bombers. This prevents Soviet war planners from concentrating on the destruction of any single leg of the Triad.

-- ***Credibility***: Our threatened response to an attack must be credible; that is, the potential aggressor must believe we have both the capability and the political will to carry out our threatened response. Example: In the early 1960s, the United States abandoned its earlier strategy of "massive retaliation" because it lacked credibility; we concluded that potential aggressors would doubt our resolve to unleash nuclear devastation in response to any attack, however limited.

-- ***Clarity***: The action to be deterred must be sufficiently clear to our adversaries that they know what is prohibited. Example: To be effective in deterring Soviet aggression in Southwest Asia, the United States must clearly communicate its resolve to support friendly nations in the region and safeguard all our other specific vital interests.

-- ***Safety***: The risk of conflict through accident, unauthorized use, or miscalculation must be minimized. Example: Although the United States has a flawless record of preventing accidental or unauthorized launch procedures, we continue to explore methods to minimize further the risk of unintentional missile launch. As a direct result of these efforts during this Administration, the Hotline between Washington and Moscow has been upgraded.

Thus, the U.S. strategy to deter aggression does not just depend on our actual military capabilities. It also involves our adversaries' perceptions about those capabilities as well as the other elements of our strategy. The effectiveness of our deterrent will be determined in our opponents' minds, not in ours.

Incorporation of this insight in operational defense planning presents a formidable intellectual and institutional challenge. Since our knowledge of Soviet perceptions is limited by their curtain

of secrecy, there is a tendency among some to assume that Soviet concerns and motivations mirror our own. But preparing to deter an attack only by assembling forces adequate to deter us under similar conditions could prove insufficient to deter the Soviets. For example, some analysts have opposed this Administration's modernization of strategic nuclear forces with the argument that the resulting gain in attack and retaliatory capability is relatively small for the level of investment. The issue for a deterrent strategy that incorporates perception seriously, however, is whether the Soviet leadership shares the judgment that additional capability is pointless. The fact that for the past decade Soviet investment in strategic forces (as measured in dollars), has been two to three times the size of our own investment, strongly suggests that they do not.

By making additional investments in our intelligence capabilities, the Reagan Administration is improving our ability to understand how the Soviets assess the military balance. One of the most useful threads in our research, development, and deployment decisions has been the increasing emphasis given to analyzing and understanding perceptions of the Soviet leadership.

To deter the Soviet Union, we must make clear to Moscow that we have the means and the will to respond powerfully to aggression against our interests. We emphasize our resolve to respond, but our strategy is to avoid specifying exactly what our response will be. This is the essence of our strategic doctrine of "flexible response," which has been U.S. strategy since 1961 and NATO strategy since 1967. Our forces deter a potential aggressor by confronting him with three types of possible responses:

-- ***Effective Defense***: To confront an adversary with the possibility that his aggression will be stopped without us resorting to actions escalating the conflict. This is sometimes referred to as "deterrence through denial." Example: Defeating a nonnuclear attack with conventional forces only.

-- ***The Threat of Escalation***: To warn an adversary that his aggression could start hostilities that might not be confined in the manner he envisions -- that escalation could exact far greater costs than he anticipates, or could bear. Example: NATO's deterrence of a Soviet conventional attack is enhanced by our ability and resolve to use nuclear weapons, if necessary, to halt aggression.

-- ***The Threat of Retaliation***: To raise the prospect that an attack will trigger a retaliatory attack on the aggressor's homeland, causing his losses to exceed any possible gains. Example: Our deterrence of a Soviet nuclear attack today is based on our resolve to retaliate against the Soviet Union using our nuclear weapons.

Chart I.C.1 summarizes how the above three types of responses help deter nuclear and nonnuclear attack.

Chart I.C.1

Military Responses Supporting Deterrence

	To Deter Nonnuclear Attack	To Deter Nuclear Attack
Effective Defense	E.g., Defeat the attack with conventional forces	Strategic Defense
Threat of Escalation	E.g., Use nuclear weapons to force the enemy to reconsider his aggression	Part of Current Nuclear Strategy
Threat of Retaliation	E.g., Nuclear strike on assets of value to the enemy	Part of Current Nuclear Strategy

The responses summarized above are part of the overall U.S. defense strategy for safeguarding our interests worldwide. Our global strategy for deterrence can be summarized as follows:

-- To deter nuclear attack, the United States relies on a credible warning capability and our offensive nuclear forces. Should deterrence fail, the United States must be able to limit, to the extent possible, damage to the United States and its allies, and to force the earliest termination of hostilities on terms that best protect U.S. and allied interests. Sufficient U.S. nuclear capabilities must endure under all circumstances to deny another nuclear power the ability to coerce the United States. In the future, we expect that strategic defenses will make an increasing contribution to the prevention of (and hence add to the deterrence of) a successful nuclear attack against us.

-- To deter nonnuclear aggression, we rely on a military posture comprising U.S. conventional and nuclear forces, and allied forces. This combination of forces deters by making the outcome of Soviet aggression uncertain in their minds and by making the probable costs exceed the probable gains in the minds of any potential aggressors.

Compared to the threat of escalation and retaliation, effective defense has several important advantages as a basis for deterrence:

-- ***High Credibility***: A potential aggressor would have no reason to doubt that a nation under attack would use its defenses to protect itself.

-- ***Protection:*** Should deterrence fail, effective defense provides protection against attacking forces, reducing the damage we would suffer.

-- ***Stability:*** Effective defense is not inherently escalatory, nor likely to be misinterpreted in a way that would lead to a worsening of the conflict.

-- ***Resistance to Coercion:*** Because of the above advantages, effective defense is more successful in preventing coercion and in helping a nation resist intimidation. Possession of an effective defense builds more confidence and resolve than the prospect of escalation or retaliation after attack. For example, if in Western Europe, NATO relied only on possible nuclear responses to deter a Warsaw Pact attack, citizens there might find such a possibility so unthinkable that they would be very vulnerable to Soviet peacetime intimidation. Thus, strong conventional forces can help NATO's European nations resist Soviet intimidation.

-- ***Reassurance:*** All these advantages make effective defense the most reassuring basis for deterrence. They engender both peace, and peace of mind. People are most reassured when they are actually shielded from attack.

The unique advantages of effective defense explain the attractiveness we see in having thoroughly reliable strategic defenses, which is the objective of our Strategic Defense Initiative (SDI) research. If effective strategic defenses prove feasible, they could bolster deterrence, provide protection should deterrence ever fail, and reassure peoples now living unprotected from nuclear attack. As President Reagan has said, "Isn't it better to save lives, than to avenge them?"

The advantages of defense also explain why the United States and its allies must have strong conventional forces, and the capability to project them and support them, in order to protect our global interests. We cannot rely forever solely on a nuclear crutch and maintaining the balance of terror to deter and defeat nonnuclear aggression. But, of course, as long as our adversaries possess nuclear weapons, we must continue to maintain modern, effective nuclear forces, as we are doing.

b. Should Deterrence Fail

Our purpose is to prepare for war so well that we successfully deter aggression. But should deterrence fail, our strategy is to secure all U.S. and allied interests, and deny the aggressor any of his war aims. We would seek to terminate any war at the earliest practical time and restore peace on terms favorable to the United States that secure all our aims and those of our allies and friends.

In seeking the earliest termination of war, the United States not only would act to defeat the aggression, but would also try to convince the attacker that his continued aggression would entail grave risks to his own interests. Still, because of the enormous military strength of the Soviet Union, the United States cannot prepare only for a "short war," which could merely tempt Moscow to believe it could outlast us in combat.

U.S. strategy seeks to limit the scope and intensity of any war, and confine it to conventional means. Our goal is to end hostilities on favorable terms to us by employing conventional forces that do not engender or risk escalation. Should our attempts to limit the scope or intensity of war fail, however, U.S. strategy provides for the flexible and sufficient application of force to ensure that no area of vital interest is lost by default.

The Soviet Union, together with Soviet-backed forces, is fully capable of simultaneous aggression in multiple regions of the world, and U.S. strategy must take account of that fact. We and our allies seek to deter aggression by maintaining forces that are capable of responding effectively to the most serious threats to our interests. We also want these forces to be flexible enough to give us credible responses to other threats to our interests. Should aggression occur in several regions simultaneously, U.S. military responses would be governed by existing commitments, general strategic priorities, the specific circumstances at hand, and the availability of forces. Unfortunately, Soviet military power and Soviet intentions, as best we can read them, dictate the contingencies for which we must be ready -- neither budget deficits nor wishful thinking can change that.

4. Supporting Defense Policies

a. Balance of Forces

To protect our mutual interests, the United States and its allies must maintain military capabilities sufficient to make our defense strategy effective. This does not necessarily require that we and our allies match our adversaries in every category of weapons systems; e.g., numbers of tanks, aircraft, ships, etc. The calculus of deterrence and defense is far more complicated than just static numbers. At least as important are the performance characteristics of the weapons, the quality of people operating them, and the tactics used. Moreover, geography and the unique features of a specific security mission decisively affect the military forces needed. These variables, plus others, are weighed against the threat to our security in determining our concrete military needs for protecting U.S. interests and meeting our commitments. From these defense needs, we derive our defense programs and budget.

Under our flexible response doctrine, nuclear weapons make a crucial contribution to our deterrence of nonnuclear attack. However, since the Soviet Union has acquired nuclear capabilities at least as strong as ours, the credibility of nuclear responses to deter conventional attack has weakened. Therefore, our nuclear forces do not relieve the United States or its allies from the need to maintain adequate conventional forces.

In 1981, the largest problem we inherited arose from a 20-year Soviet arms buildup, which was accompanied in the decade of the 1970s by a 20 percent real reduction in the U.S. defense effort. The global military balance -- in Soviet terms, the "correlation of forces" -- was shifting in favor of the Soviet Union, in their view as well as ours. Through an investment nearly 50 percent larger than our own, the Soviets were buying advantages in virtually every area

of comparison -- in nuclear forces, in the NATO-Warsaw Pact balance, and in Southwest Asia.

The most important truth about our recent strengthening is that we have been buying and fielding forces to implement policies and strategies over which there was little public disagreement between our Administration and all of its predecessors back to World War II. Our principal difference arose from our judgment that we must actively move toward a more adequate balance of forces, and as quickly as possible, reflecting our view of the dangers of U.S. military inferiority we saw in 1980.

b. *Alliances for Collective Security*

For free peoples, cooperation and collective security are essential to the preservation of our nations and our values. We cannot afford to return to the pre-World World II myopia of isolationism and undefended neutralism, or wishful thinking and the construction of a strategy based on unfounded hope and the desire to avoid unpopular budget decisions. As witnesses to wartime horrors retire, and turn over political and economic power to younger leaders around the world, our free peoples must not be allowed to forget the perils of ill-preparedness and the short-lived intoxication of wishful thinking.

A strong system of alliances and regional cooperation helps the United States and nations friendly to our interests preserve peace and freedom. This alliance system enables us to share our common security burdens and achieve a division of labor capitalizing on the relative strengths of each state. Our alliances with the nations of Europe, Asia, and our own hemisphere, together with other important security relationships in those regions and in the Middle East and Southwest Asia, are critical strands in U.S. strategy.

Efficient alliance security requires that national forces be able to fight together effectively in combined operations. It also requires a coherent program of security assistance and a sharing of key technologies so that each alliance partner can increase its capabilities for the military role it accepts for itself.

Because of our alliances, we all are able to achieve a level of deterrence and defense that otherwise would be unattainable for any one of us. Furthermore, cooperation in defense matters can reinforce political cohesion and improve diplomatic and economic relationships. A more detailed discussion of these issues can be found in Section III.H.1.

c. *Security Assistance*

Security assistance is an indispensable tool of American foreign policy and an essential element in strengthening our defense posture around the world (see Section III.H.2). It is in our national security interest to keep old alliances strong and form new ones, and to assist allies and friends in strengthening their defenses against external aggression and internal conflict. Our security assistance program is the principal instrument for accomplishing this goal. The program also helps us gain access to bases and overflight rights,

improves our power projection and forward-defense capabilities, and can augment the U.S. industrial base.

d. Forward-Deployed Forces

Because American values and interests are shared by many nations that literally span the entire globe, and because of our insular geographic position, we cannot adequately defend those interests with U.S.-based forces only. The proximity of Soviet forces to our allies and overseas interests imposes severe demands on the timeliness of our response, since territory or interests once lost would be difficult to regain. Thus our strategy requires forward-deployed forces, whose purposes are to:

-- Deter aggression and coercion more convincingly than could be done without a visible U.S. presence;

-- Increase our ability to respond effectively and quickly in the event of a conflict and to bring it to a favorable end;

-- Reassure our allies of our commitment to our common security, assist them in resisting intimidation, and encourage them to sustain their full contribution to our collective security;

-- Facilitate in peacetime the integration of U.S. and allied forces in wartime;

-- Discourage regional instabilities and ambiguous aggression; and

-- Provide a more stable international environment for constructive diplomacy.

For the above purposes, the United States maintains ground and air forces in Europe, Japan, Korea, and the Philippines, plus naval carrier battle groups and Marine amphibious forces in the Atlantic, the Western Pacific, and the Indian Oceans, and the Mediterranean Sea. We also forward deploy nonstrategic nuclear forces for these same purposes. It is sometimes suggested that we should "bring the troops home" to save money. Every study of this issue, however, has found that it is more expensive to bring our forces home and keep them here -- with the requisite deployment capabilities -- than it is to maintain them abroad.

We must also have the capability to augment and expand rapidly our forward-deployed units through reinforcement by U.S.-based Active and Reserve Component units. These forces will provide additional combat capability in the event of an extended confrontation. They will depend on airlift and sealift to get them to the combat theater in time to be effective. We will continue to complement our rapid-deployment capabilities by expanding our stocks of prepositioned material overseas. Furthermore, we will continue to make every effort to secure host nation support; overflight, landing, and bunkering rights; and access to essential overseas bases and facilities in advance of potential crises or contingencies.

e. Flexibility

To a marked extent, U.S. forward deployments and our contingency plans for U.S. forces represent our judgment about the seriousness and likelihood of aggression against our interests. Yet we know we can never be certain about the location, time, and nature of future aggression against our interests. Therefore, our forces, our plans, and our way of thinking must be flexible to enable us to respond to unexpected contingencies.

Our flexibility increases the importance of strategic mobility -- our ability to deploy and sustain our forces over great distances. New Soviet outposts in many regions of the world make it possible for Moscow to threaten friendly nations, directly and through surrogates, in places where we have no shield of land-based forward deployments. The spread of these military outposts is made more serious by the expansion of Soviet capabilities for projecting power, particularly in regions close to the Soviet Union.

D. PILLARS OF U.S. DEFENSE POLICY

There are four pillars of our defense policy that guide us in our efforts to achieve a more robust and stable deterrence for the 1990s and beyond. The sections on nuclear and nonnuclear deterrence below supplement the strategy overview of the preceding chapter. The sections on arms reductions and competitive strategies introduce important concepts for ensuring our security, especially over the long term.

1. Nuclear Deterrence and the Strategic Defense Initiative

a. The Unique Importance of Strategic Defense

Nuclear weapons have consistently posed a paradox for American defense policy. In the hands of the United States and in the service of our alliances, nuclear weapons have been a powerful force for deterring aggression. In the hands of potential enemies, nuclear weapons pose a threat to the survival of our nation, our allies, and our interests.

Since the beginning of the nuclear era, American strategic thought has stressed the imperative of deterring nuclear war -- dissuading our adversaries by the threat of retaliation from ever using nuclear weapons against the United States, our allies, or our friends. At the same time, since the end of World War II, our defense policy has continued to rely on U.S. nuclear weapons to help deter conventional attack as well, primarily because larger conventional forces are far more expensive than nuclear forces, and neither we nor our allies are able to spend larger sums on defense.

While the threat of nuclear retaliation has long played an important role in American post-war strategy, so have efforts to defend against nuclear attack -- except for some 15 years between the late 1960s and 1983. In 1960, the DoD spent as much on active defenses against Soviet strategic bombers as on our own offensive nuclear forces. But ten years later, this balance was tilted completely in favor of offensive forces. The idea that the United States should remain defenseless against any nuclear attack gained ground because of the growth in Soviet missile forces and the difficulties, with technologies of the 1960s and 1970s, of defending against missile attack. Although there had been earlier concern over Soviet ABM developments, it was not until 1983 that our effort on strategic defense began to reassume a high priority. At that time President Reagan launched the Strategic Defense Initiative (SDI), a research program to determine the feasibility of deploying a thoroughly reliable defense against nuclear ballistic missiles for the United States and our allies.

The rationale for strategic defense is really quite simple: the United States and its allies would be far better off if we could destroy incoming nuclear missiles rather than destroying people. An effective strategic defense would help deter attacks against us and, if it is as effective as we hope, virtually eliminate the terrible damage that would occur if deterrence fails, or in the case of an accidental launch.

Critics of strategic defense are often proponents of a concept called mutual assured destruction (MAD). This concept describes a condition in which, after suffering an all-out nuclear first-strike attack by an adversary, either superpower would retain the nuclear capability to destroy its opponent as a modern society. This is the concept the President correctly calls a "mutual suicide pact." Currently, both the United States and the Soviet Union have such capabilities. According to advocates of MAD, this mutual suicide pact is the bedrock of strategic stability. Because each side can destroy the other, it is argued, neither can contemplate war, and war is therefore deterred. Indeed, some MAD proponents advocate actions to make nuclear war as horrible as possible, since that makes it as unthinkable as possible. Many oppose all defense, from civil defense to strategic defense. Some even attempt to rewrite the history of our policy to claim that the United States embraced MAD and based its deterrent in the 1960s and early 1970s solely on retaliating against Soviet cities. This, of course, was never the case.

President Reagan's SDI vision seeks to move all mankind away from our unsettling state of total vulnerability. Some critics of the SDI have condemned the program as abandoning deterrence in favor of defense. Yet, even the Soviets understand that it is wrong to posit a choice between defense and deterrence. In their professional military writings, the Soviets reject the distinction between deterrence on the one hand and military capabilities -- offensive and defensive -- on the other. Defense also deters.

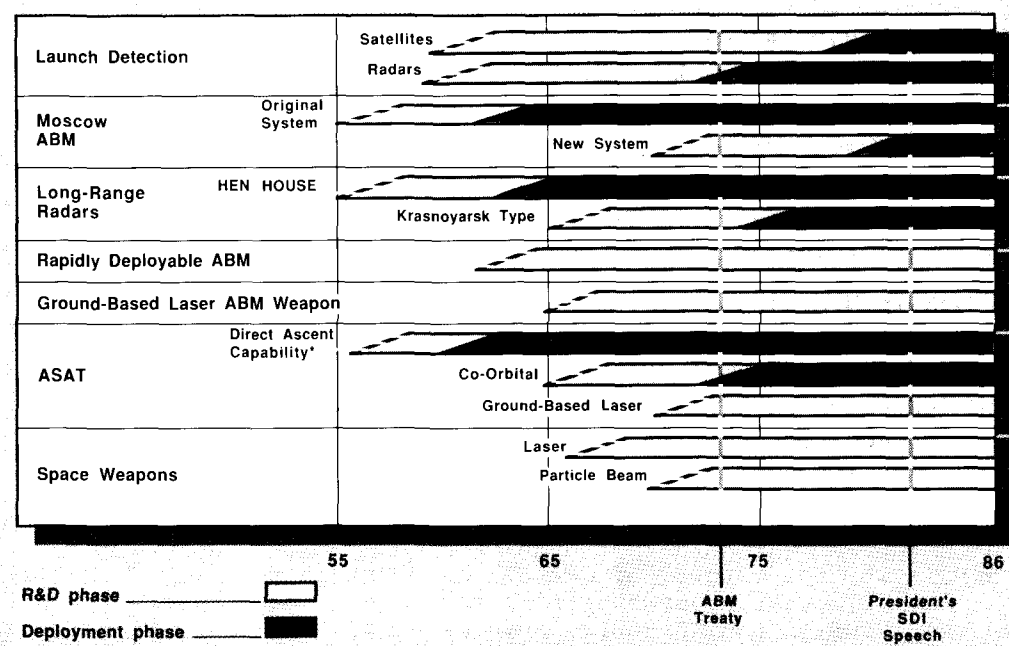
The SDI program signals not the abandonment of deterrence, but a desire to fortify it in a way that would actually reduce the risks of war -- a way that can win support from democratic publics who crave a nonoffensive, nonnuclear way of helping maintain the peace.

The deterrent value of a strategic defense derives from the effect it would have on Soviet calculations of the costs and benefits of launching an attack. This type of defense would enable us to influence the calculus by reducing an attacker's military benefits, rather than by increasing his costs through retaliation. A strategic defense need not be "leak-proof" to achieve this objective. Furthermore, such a defense would protect us should deterrence fail or in case of an accidental attack.

It is revealing to note that the Soviet Union has never accepted the MAD notion as part of its strategic plans and programs. Since the late 1960s, they have greatly expanded and modernized their offensive nuclear forces and invested more in strategic and other defenses. The Soviet Union has an extensive, multifaceted, operational strategic defense network, as well as an active research and development program in both traditional and advanced antiballistic missile (ABM) defenses. The aggregate of current Soviet ABM-related activities suggests that they may be preparing an ABM defense of their national territory -- precisely what the 1972 ABM treaty was designed to prevent (see Chart I.D.1).

Chart I.D.1

Soviet Antiballistic Missile/Space Defense Programs



Soviet programs for ABM and Space Defense, which include advanced technologies and space-based weapons, were in place prior to the 1972 ABM Treaty and have continued to expand in scope and size. During the same time period, US ABM/Space Defense research has been limited in scope as well as the level of effort in terms of resources invested.

***Potential capability of the Moscow ABM system.**

Soviet offensive and defensive force developments pose a serious challenge to the United States. If left unchecked and unanswered, they will undermine our ability to retaliate effectively in case of Soviet attack. The situation will be even more dangerous if the Soviet Union obtains a monopoly on advanced defenses against ballistic missiles. In that case, the Soviets might come to believe that they could launch a nuclear attack against the United States or our allies without fear of effective retaliation. At the very least, they might see a realistic chance of successful nuclear blackmail.

The case for a strong U.S. defense against missiles becomes more stronger still in conjunction with President Reagan's recent offer to General Secretary Gorbachev at Reykjavik for the mutual elimination of all offensive nuclear ballistic missiles. The United States' offer destroys the Soviet Union's argument that we, through the SDI, aim to achieve a first-strike capability by depriving the Soviet Union of its retaliatory deterrent. If, as the President proposes, both sides eliminate all offensive ballistic missiles, the SDI could not affect any Soviet second-strike deterrent.

Moreover, whatever one's views on the feasibility of U.S. strategic defense, the prospects for its effectiveness obviously would brighten greatly if the nearly ten thousand Soviet strategic missile warheads were reduced dramatically. Yet many who say that the SDI should be killed because it cannot work, also argue that if

the opportunity exists to reduce offensive arms (making the strategic defense mission much easier), then we should agree to kill the SDI in order to realize that opportunity.

Regrettably, the SDI's opponents apparently fail to recognize the critical function and role of missile defense in securing major reductions in U.S. and Soviet missile forces, and the problem of safeguarding such reductions if the United States abandoned the SDI. With the Soviets' long record of treaty violations, SDI offers one of the few ways to keep the Soviets honest, if they ever should agree to deep reductions in arms.

Abandoning the SDI (or accepting severe limitations on research, development, and testing, which would amount to the same thing) would render it more difficult to attain the major offensive-arms reductions that the SDI's opponents say they favor. Since the Carter Administration in 1977 put forward the first proposal for major reductions in U.S. and Soviet offensive nuclear weapons, the Soviets have opposed such reductions. Though their rhetoric obscures the fact, they remain resistant. Why? In large part because they want both their offensive missiles and, thus, the monopoly they had until 1983 in strategic defense. Our SDI promises to diminish the military (and the concomitant political) utility of those Soviet offensive missiles, and it should thereby encourage Moscow to accept their elimination. For that as well as for a myriad of other reasons, we should never give up SDI.

This is why the concept of the SDI as a "bargaining chip" has no merit. The SDI creates opportunities for bargaining because it lowers the value of the offensive arms we want the Soviets to reduce. And it provides insurance against cheating if we agree to rely on mutual reductions. We lose both of these critical benefits if we trade the SDI itself away.

But most important of all is that it would be a far better world for all if nuclear missiles could be destroyed as they left their silos.

In sum, the SDI seeks to move us toward a safer world: one with reduced levels of arms and deterrence based on defending against an attack, rather than retaliating after an attack. We will continue to try to convince the Soviet Union to join us in working out a stable transition toward this sane and achievable goal. We will never give it up.

b. Keeping Our Nuclear Deterrent Strong

Neither the promise of strategic defense nor the prospects for deep arms reductions obviate the need to keep our nuclear deterrent and our conventional forces strong and ready. For the foreseeable future, we must maintain a modern and credible nuclear deterrent -- a requirement that mandates not only adequate forces and effective plans for their use, but also effective command, control, communications, and intelligence (C^3I), and reliable, safe warheads, and we will always need strong, ready conventional forces.

In structuring our nuclear deterrent, we recognize evidence of Moscow's efforts to build a nuclear warfighting machine, reflecting a Soviet belief that nuclear war may, under certain conditions, be

fought and won. The Soviet buildup of nuclear forces over the past two decades is all the more ominous when it is coupled with:

-- Increases in Soviet air defenses;

-- Modernization of the Moscow ABM system;

-- Continued growth of a nationwide series of over 1,500 buried command bunkers for the Party and military leadership;

-- The ability to refire many of their missiles (ICBMs);

-- Reloading exercises and procurement of spares to support them;

-- Numerous combat exercises involving Soviet nuclear forces; and

-- USSR military writings which continue to reflect their belief that the USSR could prevail in a nuclear war.

We may not agree with the assumptions upon which the Soviet strategy is founded, but we must design a deterrent strategy that takes these factors into account if we are to remove any temptation for the Soviets to think they can fight and win a nuclear war. Failing to respond vigorously to this threat simply because we do not believe in such concepts is to misapply the entire notion of deterrence.

In October 1981, President Reagan initiated a sweeping program to modernize each of the three elements of our aging nuclear Triad and, just as important, the command, control, and communications (C^3) systems that support them. The nature and scope of this vitally needed effort resembles the Kennedy Administration's across-the-board modernization of American strategic nuclear capabilities two decades earlier. President Kennedy's program largely provided the "capital investment" that has preserved deterrence for 20 years. As in any enterprise, however, the investment eventually must be replaced as it ages and obsolesces. When this Administration took office in 1981, every element of our deterrent forces required modernization. Five years later, I am pleased to report that our efforts are paying handsome dividends in terms of greatly increased deterrent capability.

The military effectiveness of our deterrent against the full range of Soviet targets -- including those hardened to reduce the effects of a potential U.S. response -- has been strengthened considerably within the past year by the addition of the first squadron of B-1B aircraft, along with our first ten Peacekeeper missiles. Furthermore, the Trident II submarine-launched ballistic missile, whose survivable hard-target-kill capability is so vital to flexible response, will soon begin flight testing, marking another milestone on the path to its deployment in December 1989. The past year also saw further successful development work on the advanced cruise missile and advanced technology bomber; both programs continue on track toward deployment, and both will add very substantially to our deterrent capabilities.

Over the next several years, our strategic modernization program will enhance our deterrent's dynamic, multidimensional capability, giving the United States deterrence-in-depth -- if the program is seen through to completion. Deterrence-in-depth greatly expands the flexibility of our deterrent, and adds ever-increasing levels of

survivability and endurability to each element of our deterrent. Most important, it adds to the Soviets' doubts that their attack could succeed.

In addition to making hardware improvements, we have devoted a great deal of thought and effort to the development of more selective, discriminating, and controlled responses to the wide and varied nature of potential Soviet acts of aggression. This flexibility -- which follows directly from the requirements of flexible response as initially set forth in the early 1960s -- increases our ability to deter both nuclear and nonnuclear attacks against us or our allies.

Now and until we deploy an effective SDI, the security of the United States and our interests depends on nuclear deterrence and our maintaining the nuclear umbrella over our allies -- something we are doing and are prepared to continue. Meanwhile, we are investigating technologies under the SDI that could one day make us less dependent on offensive nuclear arms to deter Soviet aggression. But, clearly, as long as we remain dependent on nuclear weapons for our security, we must continue to test them for safety and reliability, and to ensure the credibility, effectiveness, and survivability of our deterrent. We test neither more frequently nor at levels higher than absolutely necessary to meet our security requirements. At the same time, we must retain the flexibility to adjust our testing to respond to changes in the Soviet threat. Certainly we should not be beguiled by Soviet offers to give up the necessary testing we must do -- especially in view of past Soviet cheating on so many other agreements.

2. Conventional Deterrence and Low-Intensity Conflict

a. Conventional Deterrence

As was discussed in detail in Chapter I.C., to help deter nonnuclear aggression, U.S. strategy emphasizes the role of conventional forces. This emphasis is in preference to reliance on nuclear weapons, whose deterrent value eroded as the Soviet Union matched or exceeded U.S. capabilities in key areas of our nuclear posture. A robust conventional posture provides us with the safest, most reassuring deterrent at the lowest feasible risk of nuclear war, indeed of any major war. The defense program presented in Part III of this Annual Report reflects our commitment to conventional deterrence.

America's conventional forces are structured and deployed primarily to counter our most serious global threat: Soviet military power. However, they also must be designed to operate with our special operations forces to counter less ominous threats at the lower end of the conflict spectrum, and when our national interests overwhelmingly require us to commit our troops to combat.

b. Low-Intensity Conflict

Today, the United States confronts several forms of ambiguous aggression in what is popularly referred to as Low-Intensity Conflict (LIC). While terrorism, subversion, and insurgency are as ancient as

conflict itself, the growing intensity with which they are pursued by our adversaries in the post-World War II era requires a commensurate increase in the attention we devote to them. Indeed, these forms of ambiguous aggression have become so widespread that they have become the "warfare of choice" over the last 40 years. They represent a long-term challenge to our security, a permanent aspect of the "long twilight struggle" between democracy and its enemies.

The increased prominence of terrorism, insurgency, and subversion has several causes. One is that, for better or worse, nuclear weapons have made great power confrontations highly dangerous. The implicit recognition that even if, by their thinking, a nuclear war could be "won," it would exact incalculable costs, has made the Soviet Union look for other means to advance its aggressive designs. Coupled with our nuclear deterrent has also been our conventional deterrent, which has yet to be challenged in Europe and which, with the South Koreans, successfully blocked communist attempts to subjugate South Korea. Thus the very success of our efforts in deterring nuclear and major conventional aggression has driven Soviet efforts, and those of other hostile states, toward more ambiguous forms of aggression.

These efforts have been aided, and the challenge we face expanded, by the comparatively recent proliferation of Third World states that coincided with the decline of the great European empires following World War II. These new states, in many cases, have encountered economic, political, and social problems that make them ripe for internal upheaval or external exploitation and subversion. The rampant growth in the international arms trade, coupled with the increased lethality of weapons, have combined to reduce the costs to countries planning to use LIC. All this occurred as the United States' world role increased, both as a consequence of our emergence as the de facto leader of the free world after World War II, and because of our rapidly expanding network of political, economic, and social relationships within an environment of increased global interdependence. This, of course, has made us more vulnerable to these forms of aggression. Indeed, today there seems to be no shortage of adversaries who seek to undermine our security by persistently nibbling away at our interests through these shadow wars carried on by guerrillas, assassins, terrorists, and subversives in the hope that they have found a weak point in our defenses. For them, low-intensity warfare, be it terrorism, insurgency, or subversion, represents a cost-effective means of aggression for advancing their interests, while minimizing the prospect of a forceful response by the United States and our allies.

In a sense, we face a dual threat. First, there are the political, social, and economic instabilities endemic to many Third World nations that make them ripe for exploitation by radical or disenfranchised internal elements. Often these elements foment hostility focused on the so-called "neocolonialist" West, particularly the United States. Secondly, the Soviet Union is eager to exploit this instability directly or through its proxies, to promote terrorism, subversion (as in Grenada, Ethiopia, Afghanistan in 1978, and South Yemen) and insurgency, thereby undermining U.S. security interests through this "indirect approach."

Essentially, we are also faced with another conflict potential, different from either nuclear war or more traditional, conventional military operations. We must combat this threat to our security by assisting those friendly states that rely on our help at a time when our defense resources are already stretched to their limit. But we all should recognize that here, as elsewhere, the most cost-effective

defense for the United States is to help others. Thus, an "economy of force" strategy is mandated. Furthermore, we are working to integrate our military strategy, to an unprecedented degree, within an overall interagency and intergovernmental approach to address the problem in its political, economic, and social dimensions, as well as its military form. Finally, each major kind of low-intensity warfare requires its own strategic approach, since more traditional forms of deterrence are not likely to dissuade those who practice these subtle, ambiguous methods of aggression.

(1) Combatting Insurgencies

The problems of decolonization and nation building associated with the emergence of Third World states from colonial rule has led in many cases to political, social, and economic instabilities that threaten the survival of legitimate governments, and compromise U.S. security interests. These conditions also exist in older independent nations of the Third World. Generally, these instabilities, combined with popular dissatisfaction and the target government's inability to respond effectively, lay the groundwork for exploitation by internal elements who seek to effect through violence what they cannot change through peaceful, orderly means. Frequently in these instances we find the Soviet Union and its surrogates capitalizing on a nation's misfortunes by supporting these insurgents in their attempts to overthrow the existing order. When they have succeeded, as we have seen, the result is the imposition of a far more odious form of government, as occurred in Vietnam, Cuba, and Nicaragua.

In other examples, insurgencies secure support by promising freedom from repression, and then impose far more repressive governments than any the world has seen since the Middle Ages. Iran is the prime example in this category, and the lesson for the United States is that we should be reluctant indeed to join an apparently popular revolution against a government friendly to the United States, as was the Shah's government in Iran, and only after asking ourselves whether the people involved actually will benefit by any change in rulers. In the Philippines, we satisfied this test and the results now more than justify our actions.

Our response to all these challenges generally has been, and should be, to assist friendly governments threatened by externally supported insurgents in alleviating those legitimate grievances levied against them. At the same time, we are helping the host country regime combat those insurgent groups whose aim is not reasoned reform, but rather the seizing of power to impose their own agenda by force. Since the root problems of insurgency are primarily political, social, and economic, assisting the host country combat the military threat is but one element in a comprehensive strategy that must address the conflict's multiple dimensions. The key to success in this kind of war is the host country's willingness to make those changes and reforms required to preempt the insurgents' cause thereby frustrating their attempts to intimidate the people and cripple the economic infrastructure.

This approach requires a long-term effort on our part. Insurgencies are typically protracted conflicts, and therefore our strategy must be designed for the long haul. It is not so much our objective to help these nations win battles against insurgent military forces as it is to assist their military in buying the time necessary for needed reforms to take root and flourish under govern-

ments friendly to the United States. Unless the host government succeeds in eliminating the underlying causes of insurgency, any military successes won in the field will prove fleeting.

Our specific role is to work with the other appropriate U.S. government agencies and host country organizations, as necessary, to integrate our effort into a comprehensive strategy to combat the insurgency when that is indicated, and, where possible, identify at an early stage those conditions that foster insurgency. Our support typically involves training indigenous host country forces, providing assistance in technical areas like communications and intelligence, and ensuring that the armed forces have the equipment needed to exploit the training they receive.

In discussing the proper "Uses of Military Power" in last year's Annual Report and in earlier speeches, I noted that the United States should not treat lightly the prospect of employing American combat forces. From the point of view of one who bears a large part of the responsibility for the lives of American troops, I do not believe the country is ill-served by the requirement that, before we commit military personnel, our national interests be so heavily involved that the only way left to serve those interests is by the commitment to combat of our troops. This caution is especially relevant when contemplating their use to assist regimes threatened by insurgency. For one thing, the deterioration of the host country's situation that could result in a call for U.S. troops is, in itself, an indication that the regime is not making progress in enacting needed reforms. Without this kind of commitment on their part, any military effort on our part will ultimately prove fruitless. Nor will the American people or their elected representatives in the Congress sustain support for regimes that refuse to do what is needed while the lives of American servicemen are at risk. For this reason we must also have a clear grasp of how the regime targeted by insurgents represents a long-term and absolutely vital interest to our security. Without this condition, we stand little chance of prevailing in a protracted conflict. This also ensures that we will commit the requisite resources to sustain our strategy over the long haul.

Also, we must have a clear understanding with the country we seek to assist, and within our own councils, of how our forces will work to achieve clearly defined strategic objectives. The assisted nation must seek to assume the full burden for its defense at the earliest possible moment. Indeed, this is the ultimate measure of our strategy's success. In the past six years we have done much to enhance our special operations forces and general purpose forces to operate effectively in this unique conflict environment. Yet this effort does not eliminate the need to constantly reassess the relationship between our objectives and the forces we have committed. If the host regime will not address itself to the task at hand, U.S. combat forces cannot be expected to remain indefinitely. Finally, we should commit combat forces only as a last resort, after diplomatic, economic, and other political options have been exhausted.

The history of the past 40 years indicates that, whether it goes by the name of insurgency, a war of national liberation, or revolutionary warfare, this kind of ambiguous aggression poses a major threat to U.S. security interests. This threat defies a strictly military solution, although there is a clear military dimension to the conflict. Given its ambiguous and protracted nature, and the decisive role played by the regime targeted by insurgents, we must have a unique strategy and force capability to counter it.

Of course, we oppose those who seek to impose totalitarianism in the Third World, but we must recognize that there are many who fight to restore the liberty and independence they have lost to communist aggression. These peoples, be they from Afghanistan, Angola, Nicaragua, Cambodia, or other countries suffering the effects of totalitarian oppression, deserve our support; not only because it is right, but because as President Kennedy observed, "If men and women are in chains anywhere in the world, then freedom is endangered." Thus, as President Reagan has stated, our policy is not "just the prevention of war, but the extension of freedom as well." We are prepared to support those who fight for freedom, not only because it is morally right, but because it is one of the best ways to safeguard the security of the world's democracies.

(2) Combatting Subversion

While insurgency involves protracted warfare to achieve its ultimate goal of toppling a government, subversion involves actions taken by an external power to recruit and assist indigenous political and military forces to overthrow their government through a coup d'etat. The Soviet Union has utilized subversion as a means of ambiguous aggression since Lenin's time. Some of their more recent successes include Ethiopia and Afghanistan. Had we not responded promptly and forcefully, Grenada would have been added to the list. This form of low-intensity aggression is not limited to the Soviet Union; it has also been embraced by others, among them Qaddafi's Libya and Castro's Cuba, in attempting to advance their aims.

The key to combatting this subtle form of aggression, which manifests itself in open conflict only at the last possible moment, is the quality and reliability of a nation's indigenous military forces, along with its legitimate political institutions. Although we in this country take for granted the supremacy of civilian authority, this is frequently not the case in many Third World states. Nevertheless, a cornerstone of our strategy to combat subversion concerns our efforts to enhance the capabilities of friendly nation military forces, and to assist them in effecting those reforms that augment their professionalism and emphasize the importance of an apolitical military leadership supportive of free institutions. Countering subversion requires a long-term commitment to creating shared values through exchange programs, training and education, civic action, and related activities. This kind of preventive medicine wards off penetration and subversion of the military by hostile powers bent on effecting a violent change in the established order. In so doing, it reduces the likelihood that our combat forces will ever be requested by a legitimate government under attack by indigenous forces influenced by malevolent external powers. Although we seek to counter subversion through the methods noted above, the United States has, in the past, responded effectively with force to blunt this kind of aggression in Lebanon (1958), the Dominican Republic (1965), and Grenada (1983), and retains the capability and the will to do so again should it be deemed necessary. Surely, no one can contend that it is to our advantage to allow communist-supported subversion to convert a friendly government into a communist enemy, and particularly not in our own hemisphere.

(3) Combatting Terrorism

It is safe to say that nothing has so outraged the world's civilized peoples in recent years as the senseless acts of violence carried out by terrorist groups representing radical political and religious views. In its domestic form, terrorism is properly the province of the police forces of a nation. When terrorism becomes international in scope or is aided and abetted by state sponsors, however, the threat posed to U.S. citizens and security interests may require an American military response. This response may occur at two levels. At a lower level, it involves our actions to deter acts of terrorism and, if deterrence fails, to deny the terrorists their objectives. Deterrence, in this case, frequently requires that we not only convey our ability and willingness to punish the perpetrator, but that we convince the terrorist that his objective cannot be achieved; that is, deterrence through denial as well as through the threat of retaliation. Unfortunately, in free societies it is difficult, if not impossible, to impose the kinds of restrictions that might guarantee the denial of all potential targets to terrorists. Nevertheless, we have undertaken numerous active and passive defensive measures to make our military forces, especially those overseas, less attractive targets for terrorist groups. At the same time we have developed highly trained units that are capable of assisting friendly governments defeat terrorist acts that are already under way, as in the case of hostage seizures.

When terrorism is sponsored by the leaders of sovereign states as a tool of aggression, however, it moves beyond the realm of an internal police matter to a higher level -- that of international conflict involving state-to-state confrontation. Here the situation differs from individual acts of terrorism, as we saw this past April when we identified Libya as clearly responsible for an act of terrorism against our military personnel in West Berlin. The military operations executed by U.S. forces in response to this act of aggression were conventional in nature. They were carried out with exceptional skill, daring, and effectiveness, in the best traditions of all our forces. The action demonstrated many things, one being that we are ready, on very short notice, for very difficult actions involving the solution of particularly complex logistical problems. The Libyan action was not carried out by the kind of special operations forces that are involved in combatting specific terrorist acts while they are in progress and, in a sense, this is even a greater tribute to our conventional forces. It also involves the closest coordination at the interdepartmental level and with our allies. The objective of the Libyan operation was both to strike at terrorist support bases, and to teach the state of Libya that providing terrorist groups with the support necessary to conduct their international campaign of aggression against the United States carries with it a terrible cost. Thus, our strategy for precluding and combatting terrorist acts involves a range of general purpose forces as well as special operations forces.

(4) Summary

Unlike nuclear war or a major conventional war, we must concern ourselves not only with deterring ambiguous aggression, but with actively combatting it, for it is going on all around us. To some extent, it is the product of our success in preventing wars at higher

levels of intensity that has forced our adversaries to pursue these wars in the shadows. With their high mixture of political, economic, and social elements blended into a military threat, these forms of ambiguous aggression demand the closest coordination between the United States and its allies, and within our government itself. A multidimensional threat demands a comprehensive response. Other sections of this report consider, in detail, how the Defense Department is improving special operations forces and general purpose forces to contribute to the Administration's national strategy for combatting low-intensity aggression. If the Congress provides us the resources and the unswerving support to execute this strategy over the long haul, the "long twilight struggle" will favor the cause of democracy and freedom. If we fail, these forms of aggression will remain the most likely and the most enduring threats to our security.

3. Reducing and Controlling Arms: A New Realism

The United States seeks to negotiate arms reduction agreements with the Soviet Union that will enhance deterrence and stability at lower force levels. Beginning in 1969, the United States attempted to constrain the growth of the Soviet strategic threat through the Strategic Arms Limitations Treaty (SALT) process. Unfortunately, this attempt failed because the flawed nature of those agreements permitted huge Soviet increases. The Soviets continued their massive military modernization and unrelenting buildup of their nuclear arsenal, intentionally exploiting the arms control process to achieve military advantages. Purported "arms control agreements" actually legitimized the buildup in Soviet capabilities. The Soviets counted on exploiting America's faith in the arms control process, and our deep desire to reduce the risk of war, to inhibit a U.S. response to the shift in the balance of power. In addition, the Soviets were able to forestall a U.S. response to their treaty noncompliance by veiling their activities in secrecy, then counting on our domestic politics and our public opinion to keep the issues clouded in ambiguity for years.

The Reagan Administration's approach to arms control is a direct result of the failures of the SALT process. During the 1970s, the substitution of unwarranted optimism for responsible analysis resulted in the negotiation of two agreements that were arms control in name only. As President Reagan has recently observed: It is clear that SALT II and I both "legalized" and offered our agreement to a very major arms increase including a quadrupling of Soviet strategic weapons (warheads and bombs) since SALT I was signed in 1972 and a near doubling of Soviet ballistic missile warheads from about 5,000 to more than 9,000 since SALT II was signed in 1979.

a. Real Reductions

From our first arms control proposal in November 1981 to the present, this Administration has insisted that arms control agreements involve real reductions of a substantial nature. We have also insisted that the reductions lead to increased strategic stability. Our immediate goal has been, and continues to be, significant reductions in those nuclear systems most suitable for a first strike -- ballistic missiles -- in particular, large, multiple-warhead, land-based intercontinental ballistic missiles. We have also proposed the

elimination of the entire inventory of U.S. and Soviet longer-range intermediate-range nuclear forces (LRINF). Moreover, we have proposed the ultimate elimination of all offensive ballistic missiles.

We have been criticized for not signing any agreement with the Soviets. We have no doubt whatever that it is far better to wait patiently for real reductions rather than to seek easy political acclaim by signing arms agreements that permit more increases.

Our persistence has paid off. Our progress did not happen by accident. It came about because we learned from the mistakes of the 1970s. We learned that we cannot induce the Soviets to agree to arms reductions by first unilaterally limiting U.S. forces. In 1981, the Reagan Administration adopted a strategic modernization program that gave the United States back its deterrent capability as well as negotiating leverage. We did not attempt to use alleged arms control as a substitute for a defense strategy, nor did we use arms control negotiations as an excuse for allowing our deterrent capability to erode. Then, in 1983, we announced the Strategic Defense Initiative (SDI), which also was instrumental in bringing the Soviets back to the bargaining table they had said they would not rejoin.

b. Verification and Soviet Noncompliance

The Reagan Administration has recognized that we must be able to verify complete Soviet treaty compliance to detect both Soviet cheating and use of ambiguities that, in the past, have allowed Moscow to use the "arms control process" for its own ends. The importance of effective verification is crucial, given the Soviets' record of noncompliance with existing arms control agreements.

In his December 1985 report on this issue, President Reagan confirmed that the pattern of Soviet noncompliance continued largely uncorrected. Moscow has violated its legal obligations under, or political commitments to, the SALT II agreement, the SALT I interim agreement, the ABM treaty, the Limited Test Ban treaty, the Biological Weapons Convention, the Geneva Protocol on Chemical Weapons, and the Helsinki Final Act, and has likely violated the Threshold Test Ban treaty. In his report, the President noted how the Kremlin has made military gains through its noncompliance with arms control agreements in the area of strategic offensive arms as well as chemical, biological, and toxin weapons.

The President also highlighted the extent of Moscow's military gain by virtue of noncompliance with the ABM treaty. The illegal construction of the ballistic missile detection and tracking radar at Krasnoyarsk, combined with other Soviet ABM-related activities, suggests that the Soviets might be preparing an ABM defense of their national territory. This is prohibited by the ABM treaty. Soviet unilateral deployment of a territorial defense system would have profound adverse consequences for the strategic balance that has preserved the peace.

The clear pattern of Soviet noncompliance with the legal obligations and political commitments of their arms control agreements signals an intent to achieve strategic superiority. Moreover, Soviet noncompliance, as the President has stated, "has raised fundamental doubts about the integrity of the arms control process itself. A country simply cannot be serious about effective arms control unless it is equally serious about compliance."

While the United States has scrupulously complied with its arms control obligations, Moscow has continued towards its military and political objectives unconstrained by its arms control obligations.

c. *A New Course*

On May 27, 1986, President Reagan made an important decision on arms control and strategic policy. Because of Moscow's continuing arms control violations and refusal to reciprocate our restraint, the President announced that the United States will henceforth base our decisions regarding our strategic offensive force structure on the nature and magnitude of the threat posed by Soviet strategic forces, and not on the flawed standards contained in the SALT II agreement of 1979 or the SALT I Interim Agreement of 1972. In addition, the President committed the United States to a policy of restraint consistent with protecting strategic deterrence. The President said that, assuming no significant change occurs in the threat, we would not deploy more strategic nuclear vehicles or ballistic missile warheads than does the Soviet Union.

Critics of this decision fail to recognize that the President has no prudent alternative to putting our policies toward Moscow on a more realistic footing. In addition, critics fail to acknowledge that the Soviets have had ample opportunity to redress the situation. Since 1983, we have repeatedly made clear to Moscow our grave concerns regarding Soviet noncompliance. Nevertheless, in 1985 the President ordered the dismantling of a Poseidon submarine to remain within SALT II limits, thereby giving the Soviets even more time to comply with their obligations. At that time, he made it clear that the United States could no longer tolerate a double standard of compliance, whereby we were bound by an agreement that Moscow was violating. Regrettably, the Soviets have neither corrected the situation nor chosen to join the United States in a framework of mutual restraint.

d. *Continuing the Search for a Stable and Secure Future*

In his May 1986 announcement, the President reaffirmed our commitment to strive for an agreement on deep and equitable reductions in offensive nuclear arms provided that we can be confident of Soviet compliance with it. The United States has not given up on the arms control process. We have only become more realistic in our approach to negotiating with Moscow, and we have made it clear we want arms reductions, not more agreements that allow enormous Soviet expansion.

In the October meeting at Reykjavik between the President and Soviet General Secretary Gorbachev, further progress was made in the preliminary discussions on both START and INF (intermediate-range nuclear forces). The Soviet Union again apparently agreed to specific 50 percent reductions in strategic nuclear forces, including significant reductions in their destabilizing SS-18 force. There seemed also to be agreement that strategic forces should be reduced to 1,600 delivery vehicles and 6,000 warheads for each side. Substantial progress was made on the issue of counting bomber weapons. Unfortunately, progress was not made on some important outstanding issues, such as various categories of sublimits that would serve to enhance stability. An INF agreement in principle was reached on the

complete elimination of U.S. and Soviet longer-range INF missiles in Europe and a global limit of 100 warheads on such missiles. The two sides also agreed (1) to constrain shorter-range INF missiles pending negotiation of their reduction and (2) to a basic approach for verification. Disagreement, however, remains on other key issues including an equal right for the United States to match Soviet shorter-range INF missile deployments at constrained levels.

However, on the second day at Reykjavik, the Soviets made it clear they would not agree to anything unless we give up SDI. In short, the Soviets are still trying to hold progress in all areas of arms control hostage to acceptance of their proposals on the SDI. Although the President demonstrated flexibility regarding the timing of any strategic defensive systems' deployment, the Soviets learned that he will not forsake U.S. national security by crippling the SDI in pursuit of an arms agreement. The SDI is a key element of the U.S. approach to a more secure world. It remains essential even with an agreement on reductions and the ultimate elimination of ballistic missiles.

Although further work is required to reconcile fundamental U.S./USSR differences, the Iceland discussions created very important opportunities for more productive arms control negotiations. Any successful negotiations, however, will be founded on the three elements discussed below.

e. *Three Formidable Tasks*

First and foremost, we must maintain a strong deterrent posture to guarantee a stable future, while providing the Soviets with incentives to reduce their nuclear arsenal and ensuring that violations of their solemn treaty agreements will entail real costs. This calls for sustaining our strategic modernization program and vigorous pursuit of the SDI.

Second, we must be able to verify Soviet treaty compliance without the ambiguities that have allowed Moscow to exploit the arms control process in the past. The issues of mobile missiles, constraints on both quantitative and qualitative characteristics of ballistic missiles, and problems inherent to cruise missiles, all will present difficult challenges for the verification of future treaties. We must, throughout the negotiation process, insist on greater cooperation and openness in future agreements -- including on-site inspection -- and not settle for anything less than effective verification of our arms agreements.

Finally, in making decisions affecting U.S. national security, we must not assume that the Soviet Union will faithfully comply with its treaty obligations. Nor can we allow any future arms control agreement to be a substitute for the maintenance of a strong U.S. defense posture.

4. Competitive Strategies for Long-Term Security

In last year's report I discussed competitive strategies and my intention to make them a major DoD theme for the remainder of this Administration. The central idea of competitive strategies is simple

enough: aligning enduring American strengths against enduring Soviet weaknesses. Even within their strengths we should seek weaknesses -- chinks in their armor -- that we can exploit, thereby rendering Soviet military power less potent over time.

By adopting competitive strategies we force the Soviets to perform less efficiently or effectively. Our competitive strategies thereby enhance deterrence by making significant components of the Soviet force structure or their operational plans obsolete. This forces them to make difficult choices. Those choices might include shifting more resources to defensive systems and operations, rather than continuing to structure forces for offensive operations; or they might decide to forego certain offensive forces because of their inability to overcome our defensive posture.

Our current program includes a number of outstanding examples of competitive strategies. For example, America's antisubmarine warfare (ASW) capability has proven to be a very successful competitive strategy. U.S. SSBNs and SSNs are typically quieter than Soviet submarines, making them more difficult for the Soviets to detect. Capitalizing on this advantage, the United States deploys its SSBNs over wide areas of the world's oceans, making the Soviet search and detection effort much more difficult. In ASW the West also enjoys a geographic advantage, since we can deploy sensors on the periphery of the major oceans and project our ASW forces from forward-based locations around the Soviet periphery. The Soviets, on the other hand, must project their ASW forces over extended distances. Because we hold the lead in the technologies involved in ASW, such as precision manufacturing, signals processing, and passive acoustics, the United States has been able to cause the Soviets to expend a disproportionate amount of scarce defense resources on means of coping with the potential U.S. threat to their submarine force, including their ballistic missiles submarines. The combination of U.S.-deployed technology and appropriate submarine doctrine has done much to shape the Soviet naval response. Thus, much of the Soviet conventional navy has been designed to defend waters adjacent to the Soviet Union, rather than to fight at long distances. But it is clear that our lead in this area <u>can</u> be lost, and requires both resources and vigilance to maintain it. In this connection, it is significant the Soviet naval activity recently has been to acquire assets that could help them project their power at great distances. Their first two heavy aircraft carriers are already well advanced.

Similarly, we continue to work to ensure the ability of our air forces, as part of our deterrent capability, to penetrate the Soviet homeland. The Soviet Union deploys the world's largest air defense network, one which has cost them many rubles -- roughly the equivalent of $120 billion -- to construct. A number of factors make our penetrating bomber force an area of comparative advantage for the United States. First, geography favors us, since the United States and its allies can launch or support penetration bombing missions from a number of locations around the Soviet periphery. Second, the West holds a general advantage over the Soviet Union in aircraft production. We can produce better aircraft more efficiently. Third, for a number of sociological and cultural reasons, Western aircrews typically display a degree of initiative, innovation, and self-reliance not thus far found in Soviet aircrews. And finally, we lead the Soviets in a number of the important technologies involved, such as radar, navigational aids, and communications. Low-observable technologies promise to increase further the competitive advantages of our air-breathing bomber force, to such a degree as to make obsolete much of the Soviets' air defense infrastructure.

Introducing competitive strategies into our weapons development and operational thinking is new in the department only to the extent that we wish to do so explicitly, systematically, and where it makes sense to do so. An example of this is the Advanced Technology Bomber (ATB) program. Our objective is to exploit the historic Soviet concern with homeland defense by utilizing the superior low-observable technology we can now embody in our aircraft and missiles. To cope with the ATB, the Soviets will be forced to make an enormous investment in new defensive systems over a span of many years, while their existing enormous investment becomes rapidly obsolete. The ATB will not only dramatically degrade existing Soviet air defenses, but also those of Moscow's Warsaw Pact allies and Third World client states. At the same time, Moscow will not be able to scrap its existing air defense systems because the B-1B, and the advanced cruise missile (ACM) launched from our B-52s, will maintain the effectiveness of our conventional penetrating bomber force well into the 1990s.

Our application of competitive strategies to the acquisition of new aircraft systems is progressing nicely. Achieving low-observable signatures has become an important design standard. Late in 1986, the Air Force chose finalists to develop and fly prototypes of a new generation fighter aircraft, the Advanced Tactical Fighter (ATF). Rather than engaging the huge Soviet air armies primarily over West European territory, the ATF will permit our air forces to fly deep into enemy territory in the face of extensive Warsaw Pact air defenses, and attack Soviet strike- and fighter-aircraft near their main operating bases. Thus the ATF will significantly strengthen NATO deterrent forces. When combined with the skills and initiative of our airmen, the ATF will render obsolete much of the Warsaw Pact's tactical air defenses, thereby increasing the pressure on the Soviets to build new defensive systems at considerable cost in rubles and time. These defensive systems will likely come at the expense of new investments in offensive systems.

At the same time, the United States Navy is developing an Advanced Tactical Aircraft (ATA). It is being designed to negate the Soviets' enormous investment in their fleet and coastal area air defenses, and the air defenses of military installations in their Third World proxy states. Again, should the Soviets attempt to restore these defenses, considerable resources will have to be diverted from other programs. The ATA will provide the Navy of the future the ability to attack an enemy's territory with greatly enhanced survivability, permitting the Navy to provide better support for U.S. and allied forces, and adding greatly to our ability to deter attack and thus prevent war.

The kind of thinking that competitive strategies engenders is also apparent in the Army's new operational concept. Recognizing the Warsaw Pact's operational reliance on second-echelon forces, the Army's AirLand Battle and NATO's Follow-On Force Attack doctrines were developed to leapfrog the disadvantages we face at the front line. By putting at risk the Pact's follow-on forces, these doctrines threaten the success of its entire theater-strategic operation. With our recent progress in new weapons technologies, modern sensors, and information processing, our potential to apply smart weapons with precision on an extended battlefield is impressive. The Soviets well understand the combined effect of these doctrines and weapons technologies, as evidenced by the concerned writings of some of their senior officers. Faced with a combination of these new systems and their attendant doctrine, the Soviets will increasingly be forced to doubt the potential effectiveness of their ground combat forces and efficacy of their doctrine for war in Europe. For instance, any attacking Soviet ground forces would be met immediately

by an array of smart weapon systems employed in a doctrine tailored to new technologies and Soviet vulnerabilities; in many ways it is the Soviet attacker, rather than the NATO defender, who will be surprised. Further, follow-on Soviet echelons would feel the impact of NATO defenses immediately and directly. These new doctrines and weapons, properly funded and supported, will combine to make NATO's conventional deterrent even stronger over time.

The President's Strategic Defense Initiative (SDI) also holds great promise as a competitive strategy. In the face of a massive Soviet nuclear threat, the SDI can provide the capability to neutralize that threat; indeed, it can transform the strategic relationship from an offensive orientation to a defensive one. In addition, the SDI provides a vehicle for developing a number of new conventional technologies that can fuel other competitive strategies. We and our allies will continue to conduct research and develop the relevant technologies, but sufficient funding is required if this competitive strategy is to succeed.

As productive as these competitive strategies appear, we undoubtedly can do more. We must continue to adopt the competitive strategy approach in our weapons development, in our operational planning, and in our military doctrine. This is really the only way we can overcome Soviet numerical advantages and deal with the other military advantages their political system gives them.

It is relatively easy to apply the concept of competitive strategies in developing new technologies. To achieve the maximum leverage from these technologies, however, we must also develop operational concepts. Indeed, in many instances, we should be able to gain an advantage by developing a new concept of operations that employs existing systems. I intend to have the Chairman of the Joint Chiefs of Staff and the Commanders in Chief of the Unified and Specified Commands determine ways to exploit Soviet vulnerabilities using current systems, and to begin work on developing operational concepts that fully exploit the capabilities of our new technologies.

A formidable challenge in making our defense program more competitive is intellectual, since it requires, in some cases, a rethinking of established practices. Determining which combination of technologies, weapons systems, and operational plans will allow us best to capitalize on our strengths in ways that exploit Soviet weaknesses requires difficult judgments. Nevertheless, this is our goal, and I am confident that we can meet it.

An even more formidable challenge is institutionalizing this approach. We have developed competitive strategies conceptually and are working at identifying an initial set of those strategies. But we must also ensure that we set in motion a lasting effort to include these strategies in our defense strategy and policy formulation over the long term.

As a first step in this effort, I directed that a number of initial studies be made. The Chairman of the Joint Chiefs of Staff, supported by the commanders in chiefs (CINCs), has reviewed our military strategy and programs and identified areas and military missions that seem most promising for the implementation of competitive strategies.

The Secretary and Chief of each Service also have provided their views on areas and technologies that seem to hold the most promise for competitive strategies. They will review ongoing weapons programs and develop recommendations on how those weapons programs,

where appropriate, might be integrated into a competitive strategy. They will build competitive strategies into their proposals for new weapons systems, and those aspects will be reviewed as part of the new Joint Requirements and Management Board (JRMB) process.

I have directed the Deputy Secretary to oversee the institutionalization of competitive strategies throughout the Defense Department and to assume responsibility for the daily progress of the programs involved. Because of their importance, I will chair regular reviews of Service progress in implementing these programs. There are also policy areas, such as the U.S. Security Assistance program, where we may be able to modify our policies to improve our deterrence of Soviet and Soviet proxy adventurism. The Under Secretary of Defense for Policy has been directed to develop policies that support our competitive strategy initiatives.

Finally, we will not be able to do any of this without the continued support of the Congress. Throughout the last six years, key members of the Senate and the House have reviewed our most sensitive programs. These members have helped us nurture these very special systems at each step along the way. Applying the concept of competitive strategies has been supported in the Congress by deed as well as by word. Working together, we can help the United States and our allies develop and field a truly robust deterrent that relies on advanced design, manufacture, and fighting doctrine, rather than on matching the Soviets tank for tank, ship for ship, or aircraft for aircraft.

E. U.S. MILITARY CAPABILITIES: PROGRESS AND PROGRAMS

1. The Programming Process

The final phase of the defense budget process (see Chart I.A.1) is the determination of the forces, weapons, and manpower needed to execute our defense strategy.

The decisions made in this programming phase are consistent with the strategies, policies, and fiscal guidance set forth in the planning process, which precedes it. Our goal is to put together the defense programs that are most responsive to U.S. defense needs and the President's guidance, both in content and adherence to fiscal constraints.

Our initial efforts in the programming phase are undertaken within the Military Departments, each of which has its own system of mission area appraisals, program development, and subsequent review by senior officials. At this stage, intensive interaction between the Services and components of the operational commands occurs. Under the Reagan Administration the linkage with our operational commanders early in the Service program development process has been enhanced. Each Unified and Specified Commander in Chief (CINC) is given the opportunity to describe his special defense needs. Completed Service program proposals, known as Program Objective Memoranda or "POMs," are submitted for DoD review in mid-May. These POMs explain Service program proposals for the next five-year period so that compliance with policy and strategy guidance, including CINC needs, may be judged.

Between mid-May and the end of June, the OJCS, operational commanders, and OSD examine the Service POMs in detail. The results of this review are incorporated in a series of appraisals and issue papers for consideration by the Defense Resources Board (DRB). Deliberations of this body begin with policy and strategy overviews by the Under Secretary of Defense for Policy and the Chairman of the Joint Chiefs of Staff, followed by presentations from each of the CINCs. In succeeding sessions stretching into early August, the DRB takes up specific issues -- some 100 this past summer -- to determine compliance with policy and strategy guidance, degree of support for CINC requests, cross-Service consistency, mission-area priorities, balance among the four components of military strength (readiness, sustainability, modernization, and force structure), efficiency of production, adequacy of testing, accuracy of costing, and general management.

Based on the issue papers and the discussions they engender within the DRB, and in close consultation with the Chairman of the JCS, the Secretary and Deputy Secretary of Defense make program adjustments, which are recorded in Program Decision Memoranda (PDMs) issued in late August. PDM-adjusted Service budget proposals are then presented for DoD and OMB review in the fall, followed by submission of the President's budget to the Congress early the next year.

This process for determining our programs and budget is comprehensive and rigorous, with full opportunity for presentation and consideration of various points of view. Reagan Administration initiatives -- especially the increased, and highly successful, involvement and influence of the CINCs -- have improved the input from our field commanders, but at no degradation to our central policy direction.

While our transition to a two-year budgetary cycle will decrease the frequency of the program development process outlined above, its essential components will likely remain the same.

2. Defense Progress and Programs

Parts II and III of this report discuss our defense program in detail. For major components of our program, a summary of our progress to date and the rationale for continued strengthening is provided below.

a. People

Our defense strategy is only as effective as the people who execute it. During the past six years, this Administration has made great strides in improving the quality of the men and women of America's armed forces.

The military Services continue to achieve their overall recruiting objectives in the Active Components, while also maintaining excellent quality in new recruits and retaining our best people for longer careers. Some 95 percent of our new recruits scored average or above on the Armed Forces Qualification Test, compared to 65 percent in FY 1980. The rate of first-term reenlistments is 48 percent, up from 39 percent in FY 1980.

Careful allocation of our Active Component military people to requirements that are inherently military has helped us make the most of scarce manpower resources. We have also made significant improvements in our reserve manpower, in both quantity and quality. Moreover, civilians are playing a vital role in our support structure; and without the encumbrances of congressionally imposed numerical ceilings, we have improved our efficiency in utilizing civilian manpower. Additionally, our careful determination of those functions that can be best handled by the private sector has continued to provide savings to the department, as well as increased employment for the U.S. labor force.

Our goals for the future are to maintain our recent successes and improve the leadership and management of our manpower. We are optimistic that adequate quantities of high quality people will continue to enter and remain in the armed forces. We can sustain programmed end strength and skill levels by providing pay increases comparable with those in the civilian sector, prudent management of bonuses, sufficient recruiting resources, and imaginative productivity improvements. We are working to establish alternative personnel systems for our civilians to enhance the quality of our scientific, engineering, and acquisition work force through an improved accession and retention policy.

Our success in achieving these goals is dependent on congressional support for the department's carefully crafted manpower budget. Only with the requisite funds to attract, train, and keep our military people can our manpower spaces stay filled and our sophisticated equipment be properly operated. Without adequate funds, we will be forced to make less efficient manpower decisions. We will have to use military people in duties that can be done more economically by civilians and shift the carefully balanced distribution of missions among the Active and Reserve Components.

The quality and morale of our voluntary military manpower is the best measure of our success. It is one of the Administration's achievements of which I am most proud. The worst "economy" I can imagine would be to fail to appropriate the sums we need to keep our military strong, healthy, effective, and ready.

In sum, without congressional cooperation we will put at risk our greatest success of the past six years: maintaining and sustaining the high quality of the men and women in America's armed forces.

b. Land Forces

U.S. land forces, our Army and Marine Corps, contribute to deterrence and defense through their presence abroad and by our capability to deploy them from the continental United States (CONUS) to crisis areas worldwide. Our forces are more complex and widely deployed than those of any other nation. They reflect our global commitments and the variety of missions to which they may be assigned. The increased capability of our land forces bolsters deterrence by helping to convince adversaries that they cannot capture and hold terrain whose loss would be counter to American interests. Our force objective is to attain a fully modernized, sustainable, deployable, and ready 28-division Army, and a four-division ground combat element Marine Corps manned with quality people.

Procuring new systems in adequate numbers to modernize our active and reserve land forces, at the same time that we are developing new ones, is an expensive but necessary undertaking. A rapidly modernizing threat and our own limited resources dictate a prudent and well-balanced approach toward our own modernization. We must be ready to fight today plus invest in our future capability. Moreover, new systems must add to our capabilities in proportion to their cost; to ensure balanced modernization, no one system can consume a disproportionate share of our total resources.

The M1A1 tank, M2/3 Bradley Fighting Vehicle, and AH-64 Apache antitank helicopter are examples of mature and modern systems that are now entering the Army in significant numbers. At the same time, the Army is continuing research on a future family of armored vehicles, improved air defense systems, antiarmor missiles, helicopters, and command, control, communications, and intelligence systems. The Forward Area Air Defense (FAAD) initiative and Light-Helicopter Family (LHX) are examples of systems at the forefront of research and development that are needed for the future battlefield.

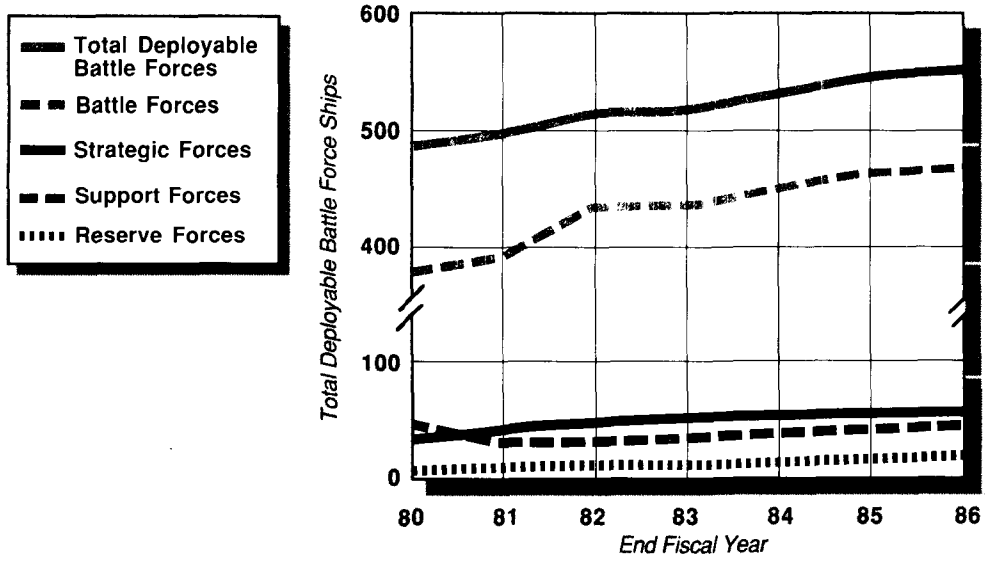
The Marine Corps also has modernized in the face of the worldwide proliferation of modern weapons. It has enhanced its tactical mobility with the light-armored vehicle and the assault amphibian

vehicle improvement program. It has fielded the CH-53E Super Stallion to provide heavy tactical lift and is upgrading the AH-1T attack helicopter fleet to the more capable AH-1W Super Cobra. The MV-22 Osprey, currently under development, holds promise as an advanced tilt-rotor aircraft to perform assault transport missions at much greater speed and range than is currently available with conventional helicopters.

c. *Naval Forces*

Over the past six years, impressive progress has been made in restoring the maritime strength required to maintain our global defense responsibilities. We have substantially increased both the size and quality of our forces. Since 1980, the fleet has grown from 479 to 555 deployable battle force ships (see Chart I.E.1). If our program is fully funded, the Navy will achieve its goal of 600 ships by the end of the FY 1988/FY 1989 budget period. This growth in numbers reflects corresponding increases in naval capabilities in all major mission areas. All our naval improvements bolster deterrence by showing our adversary that he cannot control the sea, nor prevent our maritime support of U.S. forces and interests worldwide.

Chart I.E.1
Total Deployable Battle Force Ships



We have especially improved our power-projection forces. Our 14th deployable aircraft carrier, the USS THEODORE ROOSEVELT, has joined the fleet, to be followed by the 15th carrier at the end of the decade. Three reactivated battleships have already augmented our carrier force. A fourth will join the fleet in FY 1989. Large numbers of Harpoon cruise missiles have been deployed, and we are introducing new Tomahawk missiles aboard our surface ships and submarines, giving our forces a vastly improved capability to strike

targets at sea and on land over long distances. To modernize and expand our amphibious forces, we have begun construction of three new types of assault ships and procurement of air-cushioned landing craft able to project Marine landing forces and their equipment from ship to shore from over the horizon. However, we have had to slow the pace of our amphibious expansion program by several years because of deep congressional cuts in our budget.

Our antiair warfare capabilities have also grown considerably. Six CG-47 AEGIS cruisers have now joined the fleet, providing a major leap forward in the surveillance range and defensive firepower of our battle groups. The AEGIS weapons-control system has already demonstrated its effectiveness under combat conditions during deployments to the Mediterranean in support of our antiterrorism operations. Our five-year program provides the fleet with more AEGIS-equipped ships through continued procurement of CG-47 cruisers and DDG-51 destroyers, though fiscal constraints again have forced a less prudent pace of construction.

Our antisubmarine warfare forces have grown in number and extended their effective range. The attack submarine force has been modernized through the addition of SSN-688 submarines, up from 10 in 1980 to 36 today. The number of nuclear-powered attack submarines has grown from 73 in 1980 to almost 100 today. To maintain our qualitative superiority into the next century, we are developing a new attack submarine, the SSN-21, which will offer quieter operation, increased speed, better under-ice capability, and more weapons. The range of antisubmarine systems deployed aboard surface ships is being greatly extended by new sonars and antisubmarine helicopters. Four squadrons of the new SH-60B LAMPS (light-airborne multi-purpose system) helicopter are now operational, enabling our surface ships to engage submarines detected dozens of miles from our forces. With new MK-48 ADCAP (advanced capability (torpedo)) and MK-50 torpedoes, our forces can attack and destroy Soviet submarines that are quieter, faster, deeper diving, and harder to damage than their predecessors.

The major elements of our naval expansion program are now in place or will soon reach fruition. The task is to sustain our recent gains. We must maintain a shipbuilding program of approximately 20 ships per year to replace aging vessels and keep pace with the growing Soviet threat. We must preserve our technical edge by pursuing development programs that will provide the modern ships, aircraft, and weapons needed to counter the significant qualitative improvements in the Soviet navy, especially its submarine arm.

d. Tactical Air Forces

Over the last six years, we have greatly improved our tactical aviation capabilities. With continued fielding of F-15, F-16, and F/A-18 aircraft, we are well on the way to replacing completely our less capable F-4s. In the vital area of tactical command, control, and communications (C^3), we have several ongoing programs, such as the Joint Tactical Information Distribution System (JTIDS). Sophisticated tactical weapons like the IIR Maverick are now in full production, and revolutionary missiles like the AIM-120A (AMRAAM) are currently being tested. These modernization programs have enabled us to increase the quality of equipment in our tactical aviation forces relative to that of our principal adversary.

We continue to exploit our technological advantages by adding to our target acquisition, surveillance, and warning capabilities. Improvements are being made to our E-3 Airborne Warning and Control System (AWACS) aircraft, while at the same time we are developing more advanced systems such as the Joint Surveillance and Target Attack Radar System (JSTARS) to keep us technologically ahead in this vital area.

Improvements are also being made in the area of electronic warfare with specialized aircraft such as the F-4G, EA-6B, and EF-111 being updated. Our high-speed antiradiation missile (HARM) is also being improved to keep pace with the threat.

It is important to remember that our planned modernization programs include our reserve forces, which are a significant portion of our tactical aviation assets. National Guard as well as Air Force, Navy, and Marine Reserve units are programmed to be equipped with the latest aircraft and weapons.

Since equipment alone does not guarantee military success, we have devoted considerable efforts toward better training and raising the morale and retention rates of our aircrews and maintenance personnel, with dramatic success. Active and Reserve Component tactical aircrews continue to train using current state-of-the-art technology in-flight simulations. Computer regeneration of air-to-ground and air-to-air training flights are made possible by the use of the Tactical Aircrew Combat Training System. Our crews are also conducting more large-scale exercises that thoroughly test their equipment, tactics, and doctrine. This excellent training has contributed to the high state of morale and readiness that our tactical air forces now enjoy.

Our tactical aviation programs are well balanced and represent the minimum requirement for steady, efficient modernization of these forces. Cuts in our tactical aviation programs will degrade this balanced force, and increase our security risks, given the critical role of tactical aviation.

e. Nuclear Forces

Improvements to our nuclear forces since 1980 have increased their capability to survive a Soviet attack and to retaliate effectively and flexibly against the full array of Soviet targets, including hardened targets. Over the past six years we have:

-- Deployed 10 of the 50 Peacekeeper intercontinental ballistic missiles (ICBMs) to be placed in Minuteman missile silos.

-- Deployed seven new Trident ballistic missile-carrying submarines (SSBNs), each armed with 24 Trident I (C-4) submarine-launched ballistic missiles (SLBMs).

-- Deployed one squadron of B-1B bombers (15 aircraft), the world's most advanced operational bomber.

-- Equipped 98 B-52G bombers to carry air-launched cruise missiles (ALCMs), and begun outfitting all 96 B-52H bombers to carry ALCMs (over 32 B-52H bombers have already been so modified).

-- Deployed almost 100 nuclear-armed submarine-launched cruise missiles (SLCMs) aboard surface ships and attack submarines.

-- Improved the accuracy of Minuteman ICBMs.

-- Deployed all 108 Pershing II missiles and 208 of the 464 ground-launched cruise missiles planned for European bases.

-- Deployed modernized bombs and artillery-fired atomic projectiles. These new systems provide significant operational improvements as well as greater survivability and security.

The impact modernization has made on our surviving strategic nuclear capability is significant. In FY 1986, primarily as a result of the deployment of C-4 missiles on Trident submarines, we have about 20 percent more weapons able to retaliate after a Soviet attack than in FY 1980. Over the same period, and resulting largely from the deployment of ALCMs on B-52s, we have achieved, since FY 1980, roughly a 120 percent increase in "hard-target-kill" capability that could survive a Soviet attack -- a capability we must have to hold at risk highly valued Soviet assets.

The payoff from the early investments in our strategic modernization program will be even greater in our FY 1988-92 program, highlights of which include our plans to:

-- Complete the deployment of 100 B-1B bombers.

-- Procure five more Trident SSBNs, all carrying the far more capable and effective Trident II (D-5) SLBMs.

-- Complete deployment of the first 50 Peacekeeper ICBMs in Minuteman silos, and begin full-scale development of a new, more survivable basing mode for the second 50.

-- Begin full-scale development of the Small ICBM.

-- Continue work on the Advanced Technology Bomber.

-- Continue development and initial deployment of replacement short-range attack missiles for our modernized bomber force.

Significant budget cuts to our FY 1988-92 program for our nuclear forces would slow our modernization, which is needed to bolster our deterrence of a Soviet nuclear attack. Lack of congressional support will also reduce Soviet incentives to agree to deep, mutual arms reductions, by indicating a waning U.S. resolve to remain strong.

f. Force Projection

Our national strategy of deterrence and forward defense requires that we be able to deploy our forces quickly and sustain them in combat, wherever our interests are threatened. To do this, we rely on a combination of prepositioning, airlift, and sealift programs.

Since the early 1960s, we have prepositioned both unit equipment and war reserve materiel in potential theaters of conflict. These stores permit us to reinforce our forward-deployed forces by airlifting troops with a minimum of equipment, and to sustain operations during the period it would take sealift to bring

additional supplies and forces to the theater. We rely on airlift to carry the forces to link up with their prepositioned equipment, and to deploy our lighter combat units for added reinforcement. Airlift can also provide the vanguard for operations in smaller contingencies. We rely on sealift to carry our heavier deploying units and to carry the bulk of the resupply and almost all of the petroleum, oil, and lubricants required for sustained operations.

In the last six years, we have enhanced our force-projection capabilities in every regard. Today, we are more ready to mobilize our forces, have better stocks of prepositioned materiel in key locations worldwide, and are better able to transport forces to potential theaters of conflict than we were in 1980. More specifically, we have:

-- Increased our prepositioned unit equipment in Europe.

-- Prepositioned Army equipment in SWA for opening ports, and sufficient equipment afloat in that region to support one Marine Amphibious Brigade.

-- Prepositioned equipment afloat for two more Marine Amphibious Brigades for use in contingencies worldwide.

-- Increased our airlift capabilities from 26.9 to 39.6 million-ton-miles per day (MTM/D).

-- Increased our Military Sealift Command (MSC) active fleet from 44 to 57 ships, our Ready Reserve Force (RRF) from 27 to 82 ships.

-- Structured and formed four Active and one Reserve Component light infantry divisions to enhance the Army's capability to deploy rapidly.

-- Begun procurement of equipment that will permit conversion of commercial containerships to carry military equipment following mobilization.

These initiatives have brought us to 60 percent of our 66 MTM/D airlift capability goal and to 85 percent of our one million ton first-voyage sealift capability goal. Our programs for the next five years will continue this improvement. If carried to conclusion, they will provide:

-- An additional 8.9 MTM/D of airlift;

-- A further increase of 38 ships in the RRF;

-- Procurement of conversion sets for 25 containerships;

-- Additional prepositioned equipment in Europe to support several reinforcing divisions.

Failure to complete these programs as planned will compromise our ability to deploy and support forces as required by the strategic concepts of forward defense, and hinder our ability to meet our commitments to our allies, thereby diminishing the effectiveness of our forces as a deterrent to aggression.

g. Command, Control, Communications, and Intelligence (C^3I)

Over the past several years, the ability of our C^3I systems to support our forces has increased significantly through the deployment of key new systems such as: the Ground Wave Emergency Network (GWEN); the Extremely Low Frequency (ELF) communication system; Jam Resistant Secure Communications (JRSC) and other satellite communications terminals; and TR-1 aircraft equipped with the Advanced Synthetic Aperture Radar System (ASARS). Added to this is the procurement of Mobile Subscriber Equipment (MSE), using a cost-savings, nondevelopment acquisition strategy. Furthermore, we are pursuing a comprehensive modernization of systems that warn of, and assess, the characteristics of an attack by ballistic missiles, bombers, and cruise missiles. Similar initiatives are also modernizing tactical intelligence activities across the Services and in support of our commanders in chief (CINCs).

Major C^3I improvements will continue as recent research and development (R&D) efforts begin to pay off with the fielding of more secure equipment and systems. Of particular importance are: the Navstar Global Positioning System (GPS), with its revolutionary navigation and position-fixing capabilities; additional Defense Satellite Communications System (DSCS) III satellites; the Milstar satellite communication system; and the Worldwide Military Command and Control System Information System (WIS).

In view of their crucial role, current and future C^3I systems must have the connectivity, survivability, security, and interoperability necessary for effective joint military operations. Accordingly, our C^3I programs are guided by the following mandates. First, the capabilities and survivability of C^3I systems must match those of the forces they support; second, the development and acquisition of C^3I capabilities must have equal priority with the weapons and other systems they support; and third, C^3I systems must be secured to prevent the compromise or exploitation of classified information.

Our FY 1988-92 C^3I program is carefully designed to achieve these objectives. But it requires a sufficient investment if we are to provide our military commanders with the sensors, intelligence, and communications networks necessary to control their forces efficiently and effectively.

h. Reserve Forces

During this Administration, Reserve Components have become increasingly important under the Total Force Policy. Since 1980, we have upgraded significantly the combat capabilities of the Reserve Components of all four Services. Selected Reserve strength has increased by 30 percent, and the Individual Ready Reserve (IRR) by 25.9 percent.

Following the "first to fight, first to be equipped" policy, early deploying Army National Guard and Reserve units are receiving modern weapons systems before later deploying active duty units. During FY 1988, we plan to issue to Army Reserve Components approximately $2.1 billion in new equipment, including the M60A3 tank, AH-1S and UH-60 helicopters, and the Bradley Fighting Vehicle. Increased participation in field exercises and overseas training is

improving unit and individual capability. The number of Army Guard and Reserve units participating in such training will increase from 117 units in 1980 to 1,869 units involving over 26,000 personnel in FY 1987. We expect this number to increase further during FY 1988.

Modernization of our Naval Reserve Surface Force continues with the acceptance of three more FFG-7 Perry-class frigates and one FF-1052 frigate being transferred during FY 1987. The Naval Reserve will receive all 14 of the new construction MCM-1, Mine Countermeasures (MCM) ships, and all 17 of the new MHC-1 Class Coastal Minesweeper Hunter ships after each ship spends 12 months in the active fleet. By the early 1990s, more than 50 ships of the emerging 600-ship Navy will be in the Naval Reserve. Modernization of Naval Reserve aviation continues with the transfer of F-14 fighters to Reserve Carrier Air Wings. In addition, the Squadron Augmentation Unit concept has been successful in enhancing the training of Naval Reserve augmentation crews in the same A-6, F-14, P-3C, SH-3H, S-3, and E-2C aircraft employed by their gaining squadrons.

The Marine Corps Reserve has made great progress in both its ground and aviation modernization programs. This effort will continue in FY 1988, as the Marine Corps Reserve activates an additional AH-1J (Cobra) Attack Helicopter Squadron and a new KC-130 Refueling Squadron. Plans for FY 1989 include transitioning to an all F/A-18 reserve fighter/attack force, providing commonality and interoperability with the active wings.

The combat capability of our Air National Guard and Air Force Reserve units continues to improve with the transfer of F-16, F-15, and the more capable "E" model F-4 replacing older F-4C/D fighters. As part of our modernization efforts, we are equipping our fighters with advanced avionics and weapons systems and providing more rigorous training needed to employ these weapons effectively.

Reserve airlift forces are also being modernized with the transfer of C-141 and C-5 aircraft, and the procurement of new C-130 aircraft. Additional C-5 aircraft may be transferred to the Reserve Components during FY 1988 through FY 1992 in keeping with the objective of transferring to the reserves those missions that are cost-effective and do not decrease the combat capability of the Total Force.

In the event that program funding is reduced, we will experience significant problems both with personnel and equipment modernization. Our goal in the Army Reserve Components is to attain manning at 90 percent of our wartime requirement. If funding is cut back, this goal will not be achieved. In the Naval Reserve, budget cuts will hurt our ability to man the modern ships now being transferred to the Reserves. For Air Reserve Forces, budget reductions will restrict our additions of modern aircraft and increased mission responsibilities. These and other reductions in capabilities would weaken our deterrent by leaving us far less capable of carrying out our defense plans, which necessarily rely heavily on our Reserve Components.

i. Special Operations Forces

Fully capable Special Operations Forces (SOF) are essential to our national security both in peacetime and at all levels of conflict. In 1981, we undertook a long overdue revitalization of these

forces, with the objective of completing the process before FY 1991. We now have a solid six-year record of achievement, and remain committed to our objective.

Our FY 1988/FY 1989 budget request is essential to this revitalization effort, while the FY 1988-92 program completes the development of forces needed today, and provides for their evolution into our force of the future. The focus of our SOF programs is as follows:

-- ***Army:*** Activation of a fifth Special Forces Group, a second aviation battalion, and the Special Operations Command's first communications and support battalions.

-- ***Navy:*** Activation of an additional SEAL team to meet the goal of three teams per fleet as well as a Naval Special Warfare Unit in the Mediterranean. Naval Special Warfare Group and Unit staffs will be expanded to provide necessary command and control, and the Naval Special Warfare training organization will be expanded.

-- ***Air Force:*** Our program corrects major special operations airlift shortfalls by procuring or modernizing aircraft needed to support contingency and wartime SOF taskings. This includes procuring additional MC-130 Combat Talon II aircraft and MH-53 Pave Low helicopters to support infiltration, exfiltration, and resupply missions; AC-130 Spectre gunships to provide precise, day/night, adverse weather fire support; and navigation and avionics upgrades for the AC-130H and MC-130E aircraft in the present inventory.

Each Service initiative corrects a significant deficiency in our ability to conduct successful special operations. Cuts in the SOF program would perpetuate these shortfalls and imbalances, undercut our carefully structured evolutionary approach to rebuilding, and preclude our achieving the global capability we need. For a more complete discussion of recent SOF developments, see Section III.I.4.

Part II
Defense Resources

A. THE DEFENSE BUDGET

1. Introduction

Our determination to detect and deter the threats to our security must be more than a policy goal; it must be sustained by a concomitant determination to commit the necessary resources to build and support military forces to achieve that goal. President Reagan recognized this duality when he presented his program for upgrading our nation's defenses in 1981. The American public and the Congress initially provided overwhelming support for this program. The results of that support are in evidence throughout our military forces and, indeed, throughout the world. The quality of the men and women in the military today has never been higher; our national pride in, and international respect for, the United States has been restored; our alliance partnerships are stronger, and the Soviet Union is back at the arms negotiating table.

Achieving our policy goals requires an unwaivering commitment -- not one sustained only through a time of crisis or impending crisis. Today many in the Congress seem to believe that we can relax our guard. Some contend that our current forces, now strengthened, are sufficient to achieve our policy goals with minimal support and little improvement. Others feel that regardless of everything else, we must reduce our deficit and that cutting defense requests is the only way to do it. Still others feel that the absence of a major military confrontation implies there is less risk and, thus, our strength can be reduced. These are dangerous errors. Our commitment to achieve and to maintain peace must be as strong during peacetime as our commitment to achieve peace is in war. To be sure, our forces are strong and they are maintaining the necessary vigilance to keep us free. But we cannot allow them to deteriorate. To do so would be to return to the inefficient and wasteful practice of allocating minimal national resources for defense followed by periods of crash spending to regain our military and deterrent strength -- assuming we have the time, next time, to regain our military strength.

We cannot afford to misread the current worldwide situation when providing resources for defense. While the near- and mid-term risks to our security have changed since 1981, the need to continue rebuilding, modernizing, and maintaining our forces has not: we cannot allow the hard-won gains of the past six years to be undermined by compromising our commitment to a strong defense.

2. Two-Year Budgeting

This year, at the direction of the Congress, and with my strong support, we are submitting a two-year budget request. Section 1405 of the FY 1986 DoD Authorization Act (P.L. 99-145) requires submission of a two-year budget for the Department of Defense and related agencies for FY 1988 and FY 1989, a change for which we strongly argued. We have in the past submitted estimates for the budget year and the subsequent fiscal year. This budget, however, is the first

to request formal authorization and appropriations for all DoD programs and activities for two distinct years.

This shift to a biennial budget for national defense has very positive implications for budget review and execution. A two-year budget permits greater stability in providing resources for defense efforts, provides for a more effective ordering and production of military equipment, and enhances program planning and execution. It will provide more stability at the operational level where installation and activity commanders and program managers turn budget decisions into action. It will also allow more time to evaluate the results of current and prior-year execution of the defense budget. A biennial budget will free program managers to spend more time and effort ensuring that funds are spent effectively and efficiently.

The two-year budget could forge a new and stronger commitment to the nation's defense effort. It should replace a lengthy, time-consuming, and detailed annual review process with a two-year cycle that allows a period for useful policy review and oversight. In these days of increasing fiscal constraint, it is all the more critical that we weigh the requirements for national security programs within the overall context of national priorities, rather than allowing them to become obscured in the line item review of funding levels.

3. Components of the FY 1988/FY 1989 DoD Budget

a. *Overview*

The President's defense budget, shown in Table II.A.1, proposes budget authority (BA) of $303.3 billion for FY 1988, an increase of $21.6 billion over FY 1987, and $323.3 billion for FY 1989. The

Table II.A.1
Department of Defense Budget
(Dollars in Billions)

	FY 1986	FY 1987	FY 1988	FY 1989
Current-Year Dollars				
Total Obligational Authority (TOA)[a]	280.5	282.9	304.1	324.1
Budget Authority (BA)[b]	281.4	281.7	303.3	323.3
Oulays[c]	265.6	274.2	289.3	303.7
FY 1988 Dollars				
Total Obligational Authority (TOA)[a]	301.1	295.6	304.1	313.1
Budget Authority (BA)[b]	302.1	294.4	303.3	312.4
Oulays[c]	285.1	286.9	289.3	292.9

[a] Total Obligational Authority (TOA) represents the value of direct defense program for each fiscal year, regardless of financing.

[b] Budget Authority (BA) permits the obligation of funds for immediate and future disbursement and is associated with the year the authority takes effect. Generally the difference between TOA and BA stems from the application of receipts that offset total budget authority.

[c] Outlays represent actual expenditures. Less than 60 percent of FY 1988 outlays will result from FY 1988 budget authority; the remainder will come from budget authority provided in earlier years.

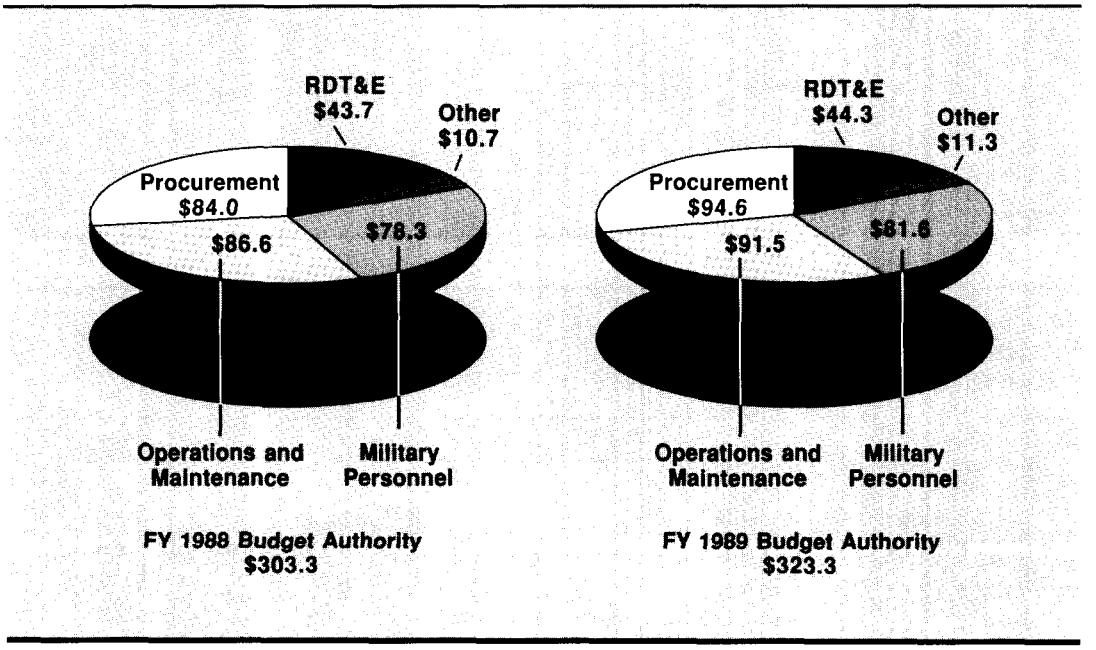
tables in Appendix A provide budget data by appropriation title and by component.

The distribution of FY 1988 and FY 1989 budget authority by major appropriation title is shown in Chart II.A.1. Military Personnel and Operations and Maintenance (O&M) represent about 54 percent of the DoD budget authority. These appropriations include payments to military and civilian personnel and the accrued retirement cost of the current military force; allocations for maintenance and repair of equipment and for utilities; medical costs; training; petroleum, oil, and lubricants; and spare parts. The remainder of the budget contains funds for investment in research and development (R&D), procurement of weapon systems, and military construction and family housing.

Chart II.A.1

Department of Defense Budget Authority

(Dollars in Billions)



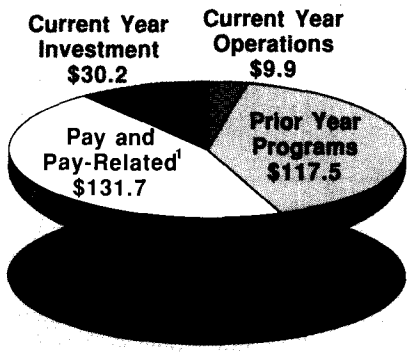
Outlays in FY 1988 and FY 1989 (Chart II.A.2) will again go primarily for current year operations (3.5 and 4.0 percent, respectively), pay and pay-related costs (45.5 and 45.3 percent, respectively), and prior year investment requirements (40.6 and 39.4 percent, respectively). Current year operations relate to the base structure and support costs. Outlays from prior year programs represent amounts already on contract and are largely a function of procurement and R&D investments made in previous years. Only 10.4 percent will be spent on new investment programs in FY 1988 and 11.3 percent in FY 1989.

The FY 1988/FY 1989 budget seeks to strengthen these forces and activities, which counter the most serious risks to our security. We continue to emphasize the modernization of our strategic and conventional forces, improvement of readiness and sustainability, expansion

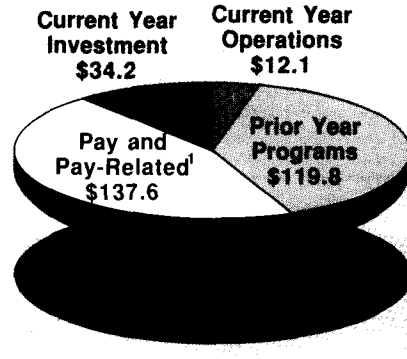
Chart II.A.2

Department of Defense Outlays

(Dollars in Billions)



FY 1988 Outlays $289.3



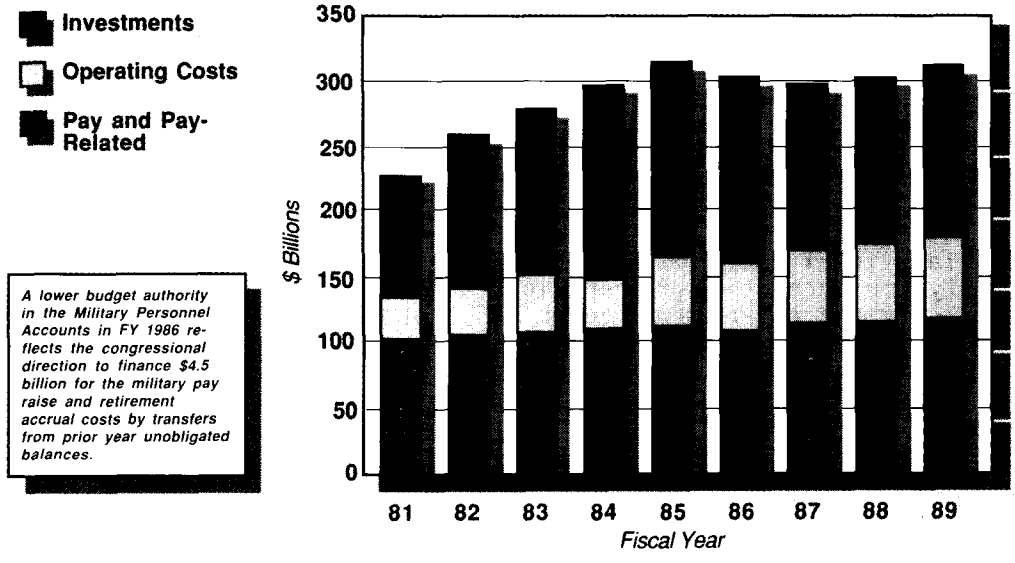
FY 1989 Outlays $303.7

[1]Includes Retired Pay Accrual Costs

Chart II.A.3

Balance of DoD Budget Allocations

(Budget Authority in FY 1988 Dollars)



of airlift and sealift capability, and improvement of our capabilities in space. Although significant reductions in our requests for FY 1986 and FY 1987 have made achievement of our goals more difficult, we have continued to maintain a balanced approach to funding personnel, operations, and investment (Chart II.A.3).

b. Personnel

The FY 1988 budget includes $114.1 billion to pay our military and civilian personnel and $118.8 billion is requested for FY 1989. Active Component strength decreases by 1,850 in FY 1988 and then increases by 12,000 in in FY 1989. The FY 1988/FY 1989 end strength levels will enable us to meet the manning requirements of an expanded naval fleet as well as support our land and tactical air force structures. National Guard and Reserve Component Selected Reserve strength will increase by 33,000 in FY 1988 and 23,000 in FY 1989, enabling them to support more fully the increasing responsibilities they have under the total force policy. Civilian end strength will remain essentially unchanged in FY 1988 and FY 1989.

Maintaining a military force of quality personnel and continuing a strong commitment to their welfare and that of their families has been our overriding concern. That is why we have proposed military pay raises since 1981 that would achieve pay comparability for the men and women serving in our armed forces. However, recent defense budgets have contained pay raises insufficient to maintain that comparability. It is very important, both from a force structure as well as an equity point of view, that we do not let this "comparability gap" widen. I am, therefore, requesting military pay raises of 4.0 percent in FY 1988 and 4.3 percent in FY 1989.

c. Operating Costs

The combat capability of our land, air, and sea forces depends, to a large degree, on the funded support of those forces. This support includes the training of our people; fuel and supplies; communications for strategic and tactical command and control; depot maintenance on weapon systems and their components; and maintenance of our facilities. The financial requirements of these support activities are driven primarily by the number and type of aircraft and missiles; the number of aircraft missions and flying hours; the nature and size of our naval forces and ship operating tempo; readiness objectives; personnel strengths; the number of installations; and the quantity and complexity of equipment to be maintained. Once the force and activity levels have been set, support requirements cannot be reduced without decreasing the effectiveness of those forces.

The FY 1988/FY 1989 budget includes programs designed to enhance the near-term readiness of our existing force and maintain the capability to expand the force through mobilization. In many cases we have been able to overcome funding constraints by eliminating unnecessary costs through management innovations and economies of operation. Fleet support will increase as the Navy achieves the 600-ship goal in FY 1989. Communications and facility security support will increase, as will support for expanding special operating forces and

enhancing our medical readiness. On the other hand, ship overhauls will decrease, and flying hours and ship steaming hours will increase slightly from the FY 1987 levels. In addition, minimum improvement is expected in the level of real property maintenance backlogs.

Improving the reliability and maintainability of new and existing systems is the pivotal path to improving combat capability and reducing the support structure -- manpower, material, and facilities -- necessary to sustain combat operations. We are emphasizing these vital areas throughout the acquisition process, from requirements identification through concept development, design, production, and acceptance. The result will be systems that fail less frequently; are easier to fix; less susceptible to combat damage; require fewer personnel and equipment; and need only minimum servicing or reconfiguring before each mission.

d. Investment

A major goal of the FY 1988/FY 1989 budget is to ensure the long-term completion of the force modernization program we established in 1981. Our overall program objectives are to increase the survivability and endurance of our strategic forces, and to make our conventional forces more responsive and flexible by improving their striking power and mobility. The FY 1988/FY 1989 budget will:

- -- Continue the President's program to upgrade the land, air, and sea components of our strategic forces, including command, control, communications, and intelligence systems;
- -- Continue the highly successful Army program to upgrade the firepower, tactical mobility, and protection of our ground forces;
- -- Ensure that our tactical air forces can achieve air superiority, delay and disrupt the enemy's military potential, and protect and support our forces' surface operations;
- -- Achieve, by the end of FY 1989, a 600-ship total deployable Battle Force;
- -- Continue our airlift and sealift force programs which can provide flexible and rapid movement of our combat troops;
- -- Continue the revitalization of our Special Operations Forces to ensure that a full range of specialized capabilities are available on a global basis.
- -- Provide a research, development, testing, and evaluation (RDT&E) program that continues investment in advanced technologies vital for tomorrow's readiness;
- -- Continue our very successful program of upgrading our Reserve Components to support the increasing responsibilities they have under the Total Force concept;
- -- Provide for the construction, maintenance, and operation of our physical plant, including programs to improve the living and working environment of our Service personnel and their families.

4. Fiscal Constraints and Defense Spending

a. *Budget Deficits*

During the past few years, the Congress has been preoccupied with budget deficits and how to reduce them. This Administration has also been concerned with deficits and has stated repeatedly that the best way to control them is to reduce improper or unnecessary federal spending. We have supported this goal by seeking to eliminate unnecessary defense costs through good management and contracting. In addition, defense spending has borne more than its fair share of cuts to lower the federal deficit. From FY 1982 through FY 1987, defense outlays were reduced by $176.5 billion from the requested amounts. In most cases, good management and the President's success in controlling inflation have enabled us to preserve force modernization despite these reductions.

Unfortunately, our success in absorbing many of these cuts while maintaining momentum toward our modernization goals has impressed our adversaries more than some members of the Congress, who have used our success to support their arguments for even deeper defense cuts. Others have tried to use it as proof of defense waste and overbudgeting. The defense budget has been debated in the Congress primarily from an economic and fiscal point of view, and adjustments to defense requests have been made accordingly. As a result, by 1986, we reached the point where continued absorption of cuts was no longer possible without undermining our security. Prior to the application of the Gramm-Rudman-Hollings cuts, the defense budget enacted for FY 1986 represented a $24 billion reduction from the President's request. After absorbing the Gramm-Rudman-Hollings reductions of $11 billion, the FY 1986 defense budget had suffered a 6.2 percent reduction from the FY 1985 Enactment, after inflation. It marked the first time in 15 years that the actual appropriation level was below that of the previous year. The FY 1987 budget fared even worse. From the time it was presented, the President's request of $311.6 billion was never considered on its own merits, but simply as a level from which reductions were made by those who were content to ignore all threats to our own security. Indeed, the nation's security was apparently not considered a relevant consideration, for when final congressional action was completed, the FY 1987 DoD budget had been reduced by $30.2 billion, or almost 10 percent from the President's carefully considered request.

The short-term damage to readiness and sustainability caused by these two cuts is self-evident. But, of even greater concern is the disruption these reductions have made to the stability of our long-term program for rebuilding and sustaining the U.S. defense posture. When we began our program in 1981, we set as a primary goal the establishment of a long-term, well-balanced approach to defense funding. We recognized that neglect of our defense requirements in the 1970s was the main reason such large short-term resources were required in the 1980s. Therefore, we sought to avoid the future inefficiencies and high costs that are caused by the "surge and starve" approach to defense funding.

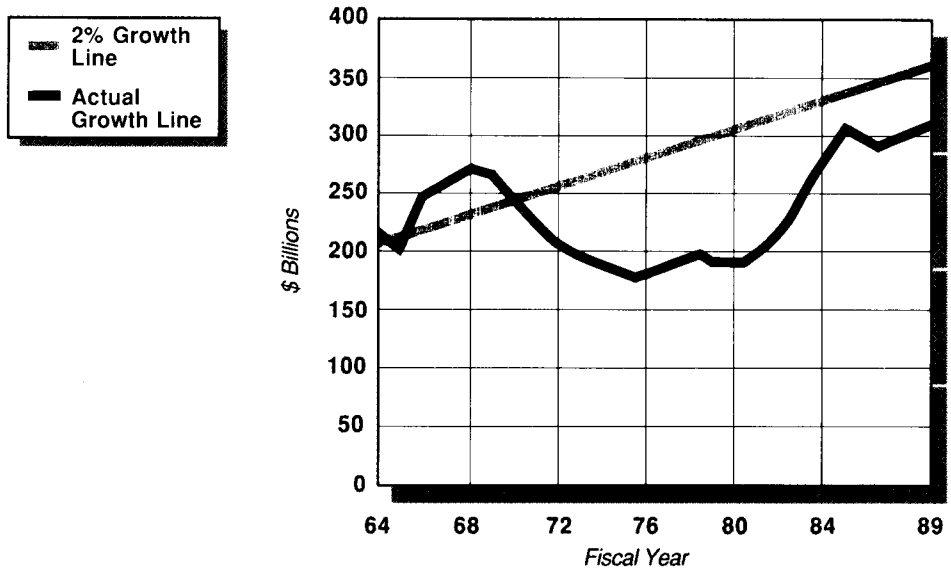
Between 1981 and 1985 we made steady and consistent progress towards redressing the inadequacies of the 1970s and establishing a gradual, well-balanced approach to defense funding; but it was not, in any sense, excessive funding. By 1985 we had nearly, but not

quite, returned to a funding level that would have been required if we had made and stuck to a commitment in 1964 (prior to Vietnam) to a modest 2 percent annual real growth rate (see Chart II.A.4.).

Chart II.A.4

Variation in DoD Budget Authority

(FY 1988 Dollars in Billions)



However, the severe reductions made to the FY 1986 and FY 1987 defense requests mark a sharp turnaround in these efforts and could very well be the beginning of an extended trend of real declines in defense funding. As a result, the problems we had hoped to avoid are now becoming evident. It has become more difficult to finance support for the expanding force and at the same time meet the requirements of our modernization program. We have had to delay some modernization objectives while the cost of our short- and long-term programs continues to increase, leading to further delays.

b. Gramm-Rudman-Hollings

It is important to understand the impact of the Gramm-Rudman-Hollings (G-R-H) legislation for the U.S. defense program. Under provisions of G-R-H, indiscriminate across-the-board cuts in federal expenditures were triggered beginning in FY 1986. The only priorities permitted were the exemptions stated in the legislation itself. Thus, for example, we were forbidden to make any required G-R-H savings by closing bases, as if keeping unnecessary military bases open were our highest priority. Furthermore, defense was required to absorb one-half of all the required cuts, even though defense accounts for less than 30 percent of total federal spending.

For the FY 1986 budget, the additional 5 percent defense reduction imposed by Gramm-Rudman-Hollings reduced funding for all appropriations except research, development, test and evaluation, to

levels below those in FY 1985. Readiness was affected as flying hours were cut back, planned depot maintenance and real property maintenance efforts were deferred, and the availability of spare parts, ammunition, and other important support items was reduced to effect the required reductions. Necessary reductions in procurement and R&D programs will result in production delays and/or lower support requirements. For programs like the F-15 and F-16, the decision was made to reduce support equipment funding rather than reduce production quantities. In other cases production has had to be deferred to a succeeding fiscal year. In many modification programs, configuration changes necessary to increase mission capability, improve reliability and maintainability, or increase safety have been delayed. Because such delays result in increased costs, the possibility exists that necessary requirements will never be fully completed. Should the President's budget plan not be adopted by the Congress, the prospect of additional, even deeper future cuts will aggravate the adverse effects caused by the 1986 cuts.

The President has submitted a budget plan consistent with the FY 1988 Gramm-Rudman-Hollings deficit target, as he did for FY 1987. If the Congress enacts the President's budget or produces a budget consistent with the President's request, it can avoid triggering a sequestering process required by G-R-H that could literally reverse the achievements of the past six years, and throw defense planning into chaos. Failure to enact the President's budget, combined with the triggering of Gramm-Rudman-Hollings in some of its more extreme scenarios, will not only weaken our national security but also induce long-term inefficiencies into our budgets. I urge the Congress carefully and thoughtfully to weigh these considerations, and to enact a prudent budget which supports our national security objectives.

5. Affordability of the Defense Program

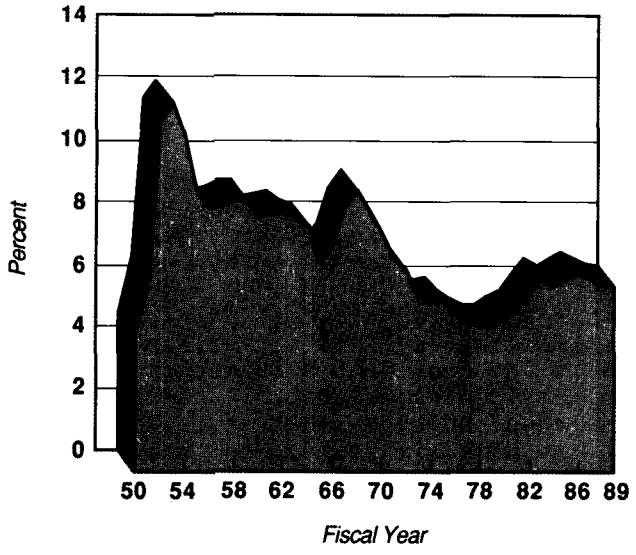
a. *Economic Security and a Strong Defense*

The risks we face today are not diminishing. Soviet military capability worldwide grows unabated and risks to regional stability abound -- even here in our own hemisphere. While the strategic and conventional challenge to our security continues, low-intensity conflicts are increasing and have emerged as significant threats with which we must contend. Yet, in the face of this situation, some maintain that our defense efforts must now be relaxed because, they say, the United States cannot afford the necessary levels of defense resources.

It has always been my belief that the United States can afford what is needed to keep our freedom and our peace. A review of history shows that limiting the resources we provide for our national defense has serious consequences. During those extended periods when defense has consumed a relatively low percent of the gross national product (GNP), serious shortcomings in our defense posture resulted. In the past 45 years, there have been only two sustained periods when the allocation of the nation's resources to national security were below 6 percent (Chart II.A.5) -- following World War II and after the Vietnam conflict. The reduced defense spending after World

Chart II.A.5

Defense Outlays as a Share of the Gross National Product



War II left us unprepared for the Korean War, and the decade of neglect that followed Vietnam saw a serious deterioration in the nation's defense capabilities and a shift in the global military balance. It was this situation that we inherited in January 1981.

In 1970, we devoted 7.8 percent of our GNP to defense, down sharply from the Vietnam peak of 9.1 percent. The percentage continued to fall to a low of 4.7 percent in FY 1978 and FY 1979. Small increases in FY 1980 and FY 1981 were not enough to keep up with inflation in the prices of defense goods and services. From FY 1982 through FY 1985, we devoted about 6 percent of our GNP to defense. These defense allocations financed the vast improvements in our defenses. However, based on national security requirements and the current projection of economic growth, an average of 6 percent of the GNP will be required for defense over the next five years, a level that is both economically affordable and strategically sound. Any lower level of defense spending, particularly with the adverse effect it would have on military manpower, will likely produce a deterioration in our forces similar to that experienced in the late 1940s and the 1970s.

Just as one cannot say that our defense program has absorbed a disproportionate share of the nation's wealth, it cannot be said that the defense buildup was funded at the expense of nondefense programs. Certainly, defense spending's share of total federal spending has risen since 1981. However, it is still less than it was from 1951 to 1972 (Chart II.A.6).

Chart II.A.6

DoD Percentage of Federal Budget

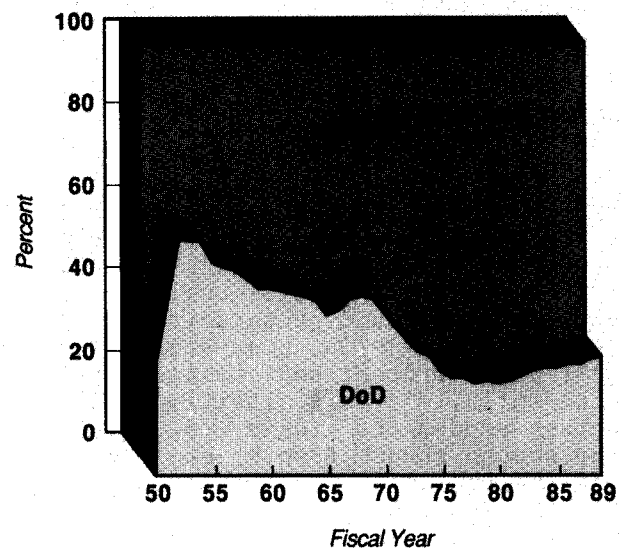
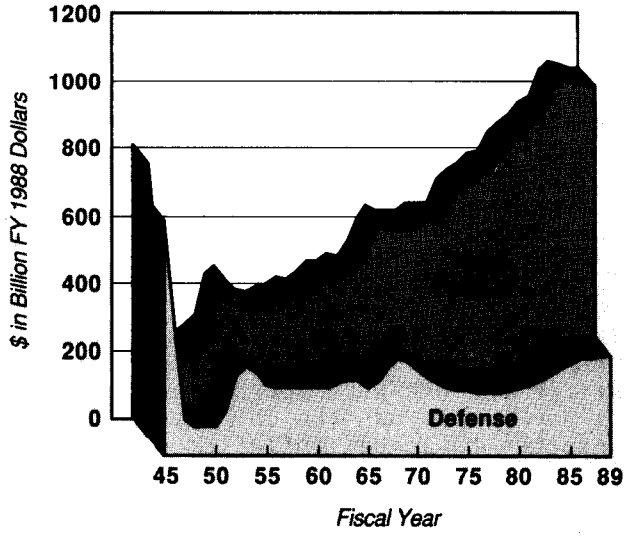


Chart II.A.7

Federal Spending Profiles



A look at real defense and nondefense outlays (Chart II.A.7) over the past 15 years shows that defense spending declined during the 1970s and only experienced a period of sustained growth between 1981 and 1985. Nondefense spending has been rising steadily since the end of World War II. There can be no doubt that we can afford the military strength necessary to ensure peace, particularly if we have the courage to reduce even some of the unneeded non-defense expenditures.

b. Inflation Reestimates

A major factor in making the defense program affordable has been the success of the President's economic program in reducing the rate of inflation. In 1982, this Administration, along with many in the Congress and a host of private analysts, was very concerned that inadequate inflation funding would jeopardize the President's defense program. In the early to mid-1970s, when energy-led annual inflation rates reached double-digit proportions, actual rates were generally higher than budgeted rates. As this situation occurred year after year, this gap further eroded the already low levels of defense spending. With the second round of petroleum price increases during the 1979-81 period, the situation had become intolerable. Not only were we not getting the defense resources needed to maintain an adequate defense posture, we were not even getting the defense program the Congress had approved.

Even though President Reagan steadfastly predicted that his economic program would lower inflation, many thought that we would continue to experience 8 to 10 percent inflation for quite some time, and regularly asserted that the defense program was underpriced and would not buy the weapons needed. Therefore, we were enthusiastically supported in our plans to budget our weapon systems to most likely cost. The objective, which was supported by private analysts as well as many in the Congress, was to protect our programs against the ravages of what was believed to be a continuing trend of high inflation.

Beginning with the FY 1983 budget, the DoD was allowed to budget more accurately for inflation through the use of higher rates for those accounts, namely major weapon systems, that had shown historically greater price increases than had been experienced in the general economy. The idea was to provide additional inflation funding for major procurement items when actual experience demonstrated that it was needed. Under this approach, the estimated GNP rate, adjusted according to the relationship of actual defense inflation to the actual GNP rate, would be used to budget for inflation in major procurement. If actual inflation for weapon systems showed a continuing trend higher than the GNP, we would use a rate higher than the GNP rate. If actual data showed that weapon system inflation and that for the GNP were approximately the same, we would make no adjustment and simply use the GNP rate. But in all cases we would budget in response to actual inflation of defense items.

Today, inflation rates are at levels even lower than was projected in 1981, and those who criticized us for underbudgeting now criticize us for overbudgeting for inflation. Current procedures have not led to "windfalls" for defense due to overfunding as inflation falls. What they have produced is a more efficient and effective use of the defense dollar. We have been able to buy more defense program without spending more. In addition, the department

has substantially reduced its budget year after year as inflation continues to fall (Table II.A.2). We have made mid-course corrections consistent with the Administration's annual Mid-Session Review of the total budget. These funds have been either returned to the Treasury or reapplied to higher priority programs, often at the Congress' behest. Thus, we have been able to fund fully our programs and identify funds made available as a result of reestimating inflation. This is sound management of defense resources.

Table II.A.2
Inflation Adjustments in DoD -- FY 1982-86
(Dollars in Billions)

	FY 1982-85	FY 1986	Total
Reprogramming actions (Reapplied savings with approval of the Congress)	13.1	2.2	15.3
Lapses (BA returned to Treasury)	9.1	-	9.1
Congressional financing of FY 1985 Supplemental	-	0.8	0.8
Congressional cuts for inflation fairness	-	1.1	1.1
Congressional cuts for inflation premium	-	1.7	1.7
Estimated Congressional cuts for inflation	6.2	1.7	7.9
TOTAL	**28.4**	**7.5**	**35.9**

The recent declines in the rate of inflation notwithstanding, our primary inflation concern remains the same; to budget neither on the low side nor on the high side, but to have budgeting procedures that ensure the full funding of programs. We develop forecasts of defense inflation based on trends actually experienced. This procedure provides the flexibility to respond to changes in that trend; however, some would have us replace this proven system with quick-fix proposals more concerned with lowering budget deficits than providing a better managed defense program. This would be a major step backward. Even though current inflation rates are low compared to the high rates of recent memory, we would not want to revert to a method of budgeting for inflation that could increase the risk of substantially underfunding our programs if inflation were to increase significantly.

6. Conclusion

The President's FY 1988-92 defense program (Table II.A.3) is based on solid and consistent planning for national security resources in the face of increasing risks and continuing fiscal constraints. It is important that we keep defense funding on an even keel, rather than allowing it to experience periods of peaks and troughs that historically have plagued our military investments. We cannot continue to experience negative growth in funding levels as we have for the past two years without placing at risk the military improvements accomplished with prior year investments. Therefore, we must take the steps necessary to insure the stability of the defense program. This includes implementation of two-year budgeting and enacting sustained, consistent budgets sufficient to maintain the defense rebuilding effort now under way. If we are able to restore the commitment to annual modest, but essential, levels of growth in

defense resources, we will find these resources better utilized and our forces better equipped and supported to meet the current and future challenges to our security.

Table II.A.3
FY 1987 Department of Defense Budget
Long-Range Forecasts (Dollars in Billions)

	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992
Budget Authority					
Total, Current Dollars	303.3	323.3	343.9	364.9	386.5
Total, Constant (FY 1988) Dollars	303.3	312.4	321.7	331.1	340.9

Some may say that we cannot afford the defense we require today. We believe that we can and must afford the defense we need. What we cannot afford is to provide continually inadequate resources for our security. To do so raises the risks to our security to unacceptable levels by inviting deterioration of our existing forces; raising the cost of future modernization efforts; eroding our industrial base; and ensuring that we will be confronted with a situation, most likely far more serious than that in 1981, in which we must drastically increase our financial commitment to defense. The defense budgets we are proposing will help us to avoid these problems. I look forward to working with the Congress to make these long-term policy goals a reality.

B. MANAGEMENT REFORMS

1. Introduction

We are now confronting head-on the challenge of efficient management in an environment of constrained resources. To ensure that key decisions are soundly based on the considered recommendations of many, and are made quickly and involve our most senior people, we are placing increased emphasis on the Defense Council on Integrity and Management Improvement (DCIMI) -- which is similar in structure to the executive committees found in many major corporations.

Our management efforts are getting results:

-- Cost benefits and other savings from spare parts reforms total $3.8 billion for FY 1984 to FY 1986.

-- Multiyear procurement savings from FY 1982 through FY 1988/FY 1989 are estimated to be $8.1 billion.

-- Our Internal Management Control Program has corrected 81 percent of the problems identified between FY 1983 and FY 1985.

-- The DoD Inspector General has identified nearly $4.8 billion in savings and cost avoidances in audit reports since FY 1982.

-- A buy-out of uneconomical operational and maintenance financed Automated Data Processing (ADP) leases will achieve net cost avoidances of $1.27 billion over the remaining life cycle of the items being purchased.

2. The Department of Defense's Program for Management Improvement

The Department of Defense (DoD) has a comprehensive program to improve management which includes pressing for improvement on many fronts by:

-- Developing and implementing a Management Improvement Plan;

-- Overseeing management accomplishments through the DCIMI;

-- Aggressively auditing contracts to reduce acquisition costs;

-- Reducing waste, fraud, and mismanagement through Inspector General efforts; and

-- Implementing recommendations made by external sources that are found to be useful and productive.

a. DoD Management Improvement Plan

The FY 1987/1988 DoD Management Improvement Plan focuses on achieving effective oversight of defense management initiatives. The plan contains 27 management improvement initiatives with emphasis on four areas: procurement reform, financial management, productivity improvement, and internal management controls.

(1) Procurement Reform

(a) Spare Parts Management

Three years ago the Department of Defense announced a program to make fundamental changes in the way we purchase and manage spare parts. At that time we made a commitment to the President and the American people that these reforms would produce real and lasting improvements -- not just cosmetic changes that would allow the department and defense industries to revert to "business as usual" once the glare of publicity subsided. Since then we have made massive and profound changes to achieve our goals. Most notable has been the return of a common sense approach to buying spares, paying prices that offer the greatest value for our defense dollars. Some of the major actions we have taken are:

-- The implementation of over 500 spare parts initiatives which are now a permanent part of the way we do business. For example, the Defense General Supply Center (DGSC) developed a Paperless Ordering Placement System (POPS) which electronically transmits orders between DGSC and the vendor. It also has the vendor ship directly to the user rather than have DGSC warehouse the product and then ship to the user. The POPS cost $62,158 to implement and saved $11,500,000 in the first year of the test program alone.

-- The promotion of increased competition and the challenging of prices that appear to be unrealistically high. A good example is the Marine who challenged the price of $1,266 for a hand-held device used for ship-to-ship, ship-to-shore, and cross-terrain signaling. Research identified another signal device that would perform the same function and which cost only $310. This resulted in an immediate savings of $20,000.

-- The review of 771,000 items as part of a comprehensive "breakout" program to find parts sources other than the prime contractor; 168,000 were identified for competitive procurement and 170,000 were identified for purchase from the actual manufacturer. The potential savings possible through breakout is illustrated by the Army's Tank Automotive Command. The final drive unit for the M1 tank cost $11,560 when procured sole source; when it was fully and openly competed, the cost was reduced to a unit price of $5,649, for a 1986 savings of over $10 million.

Cost savings and other benefits from the spares reforms have been impressive. Savings from FY 1984 to FY 1986 total $3.8 billion. In addition to the monetary savings, increased competition from the spares initiatives has provided other benefits, such as bringing additional suppliers into the system. This has broadened the industrial base and improved the overall responsiveness of the department's suppliers.

(b) Program Stability

Program stability encompasses several important factors affecting the successful acquisition of a major system. These include schedule, quantity, funding level, and production rates. The achievement of program stability means that these factors are balanced and steady instead of fluctuating. Program stability is vital to the long-term success of defense acquisition. It contributes to the reduction of total program costs and facilitates long-range planning. We have long recognized program stability as a key factor in making the defense acquisition process more efficient and effective. Most importantly, it frees program managers to devote more time to actually managing their programs. Two initiatives which support increased program stability are baselining and multiyear procurement.

1. Baselining

Baselining enhances stability and controls the cost growth of selected major programs by formally establishing a set of agreed upon goals and objectives. These objectives describe the functional specifications, cost, schedule, and other critical factors at the initiation of a major new program. The Packard Commission emphasized the importance of baselining to program stability and recommended its increased application. The Congress recently passed legislation to permit authorization of selected acquisition programs for up to five years, which will remain in effect unless baseline values for the program are exceeded. We are reviewing Service systems to identify appropriate candidates to come under this program-stabilizing procedure. Our other major programs are also being baselined within the department as future candidates for selection as defense enterprise programs. We hope the Congress will follow through this year and authorize full funding for these defense enterprise programs. Only by such action will we be on the road to removing the costly and disruptive practices of changing programs annually.

2. Multiyear Procurement

The principal objective of our Multiyear Procurement (MYP) initiative is to achieve savings through economical lot buys. When the Congress approves a MYP contract for a major system, it means that we can make a commitment to the contractor that the program will continue, thereby minimizing the contractor's financial risk. Since the inception of our program to improve the acquisition process in 1981, the MYP has accounted for the majority of its savings. The Packard Commission recognized our success with the MYP and recommended its

increased use, particularly for systems that have demonstrated stable funding and requirements. Once initiated, the MYP further enhances the stability of a system, resulting in even greater savings.

In the FY 1988/FY 1989 budget, we have proposed adding nine systems to those already being purchased under multiyear contracts. These systems are:

-- Army -- The High-Mobility Multipurpose Wheeled Vehicle (HMMWV); AN/ALQ-136(V) radar jammer; CH-47D helicopter; HAWK missile; and TOW II missile.

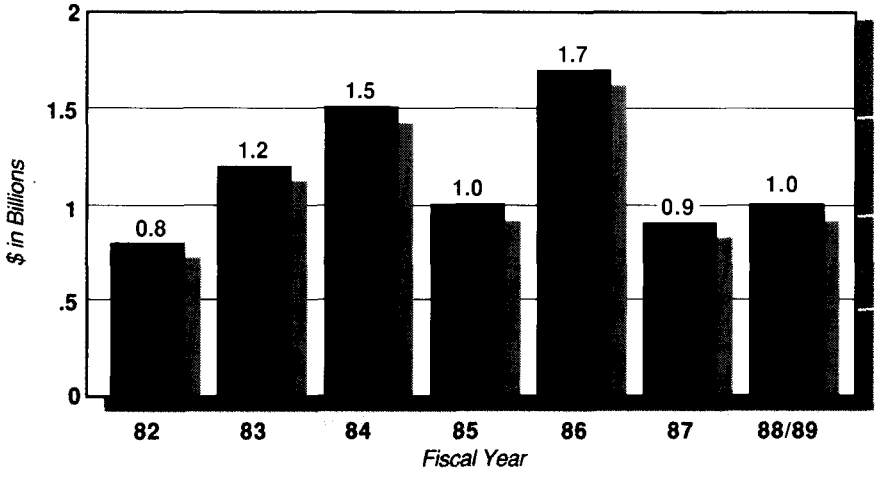
-- Navy -- The Harpoon missile.

-- Air Force -- The Defense Meteorological Support Program (DMSP); Infrared Maverick missile; and F-16 aircraft.

The estimated savings from these nine additions in FY 1988 and FY 1989 total over $1 billion. Chart II.B.1 shows our savings from multiyear contracts. Savings from MYP are directly related to the number of programs approved by the Congress.

Chart II.B.1

Multiyear Procurement Savings



FY 82-87 Programs Requested: 67 ***Programs Approved: 45*** ***Estimated Savings: $7.1B***
FY 88/89 Programs Requested: 9 ***Estimated Savings: $1.0B***

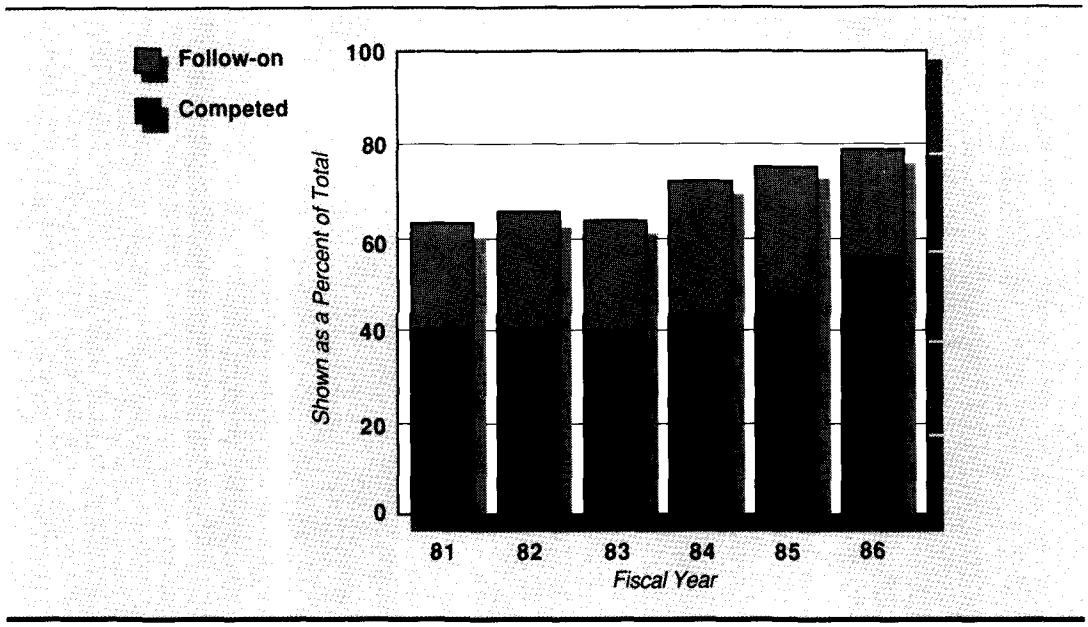
(c) Competition

Our efforts to improve competition have produced dramatic results. The departmentwide rate of competed procurement dollars in FY 1986 was $78.7 billion, or 57.2 percent of the total, with another $29.7 billion, or 21.6 percent, of contract dollars being follow-on actions to initially competed contracts. As shown in Chart II.B.2, our rate of competed procurement dollars is 9 percentage points

higher than last year and more than 17 percentage points higher than FY 1983.

Chart II.B.2

Procurement Dollars
(Competed and Follow-On)



As recommended by the Packard Commission, we are focusing on the quality of the sources competing as well as the quantity of competition. A myriad of laws and regulations prevent buying in the same manner as the private sector, but we are reviewing our policies where possible to encourage more stable long-term contractual relationships with responsible sources. This in no way compromises our attempts to generate more competition and eliminate noncompetitive contracts wherever possible. Rather, it will complement our efforts to acquire more commercial or nondevelopmental products.

We are also continuing to promote higher levels of subcontract competition in contracts which are noncompetitive at the prime contract level. Dual-sourcing initiatives (allowing for two producers), advance planning, and market research are just a few of the other efforts that have helped shape the dramatic increases in competition over the past few years.

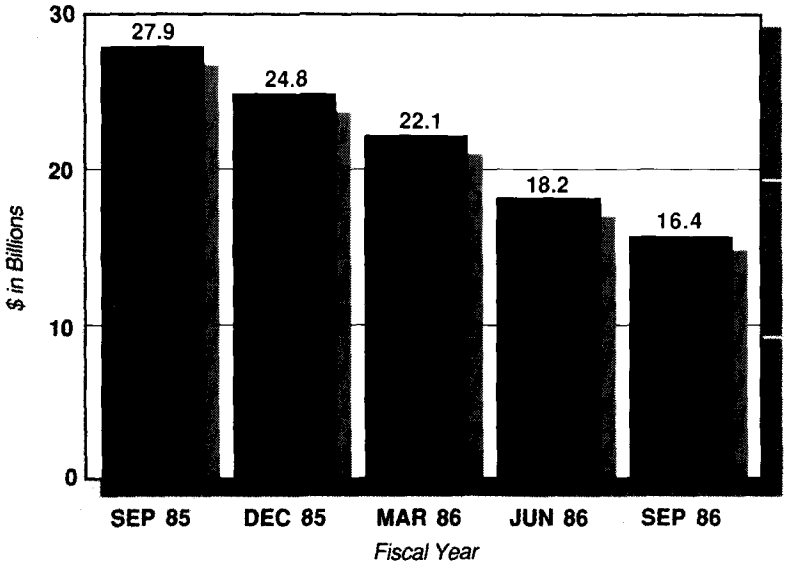
(d) Undefinitized Contractual Actions

The Department of Defense has made great progress on controlling the use of undefinitized contractual actions (UCAs). An UCA is a contract in which terms, specifications, or prices are not definite before performance begins. A typical example of when to use UCAs would be for engine repair contracts. In many cases the extent of the repair necessary is not known until the engine is broken down and examined by a mechanic. A misuse of an UCA would be its use for a routine purchase where time was available to price the contract. Since September 1985, we have reduced the backlog of UCAs by 41.2

percent. As Chart II.B.3 indicates, UCAs have gone from $27.9 billion in September 1985, to $16.4 billion in September 1986. We will continue our efforts to ensure that UCAs are used properly.

Chart II.B.3

Use of Undefinitized Contractual Actions is Decreasing



(e) Non-Government Standards and Increased Use of Commercial Products

Many of the items we purchase are commercial products, usable as is or with only slight modification. To bring our buying practices more in line with those of the private sector, DoD engineers, scientists, and equipment users and buyers are working closely with non-government standards associations (i.e., industry and trade organizations and professional and technical societies) to develop standards which are acceptable both to us and the private sector. When non-government standards are available that meet our needs, it is our policy to adopt and use them. By doing this, our resources can be concentrated on military-type -- noncommercial -- products. Our efforts in this area during the past few years have been quite successful with over 3,900 nongovernment standards adopted. This represents over 8 percent of the entire index of specifications and standards used in DoD acquisition. The use of nongovernment standards increases the potential for buying commercial products and reduces the chances of using documents containing over-specified requirements.

To further our ability to use the commercial marketplace, we asked a task force to study the issue. Their recommendations include some policy modifications which we can make, as well as some changes which will require congressional support. We are already making

changes in areas where we have control; where we do not control changes, proposals are being drafted which will be submitted to the Congress for approval. Changing our acquisition policies and training our people on the advantages of using commercial products will optimize use of both products and practices and yield significant benefits.

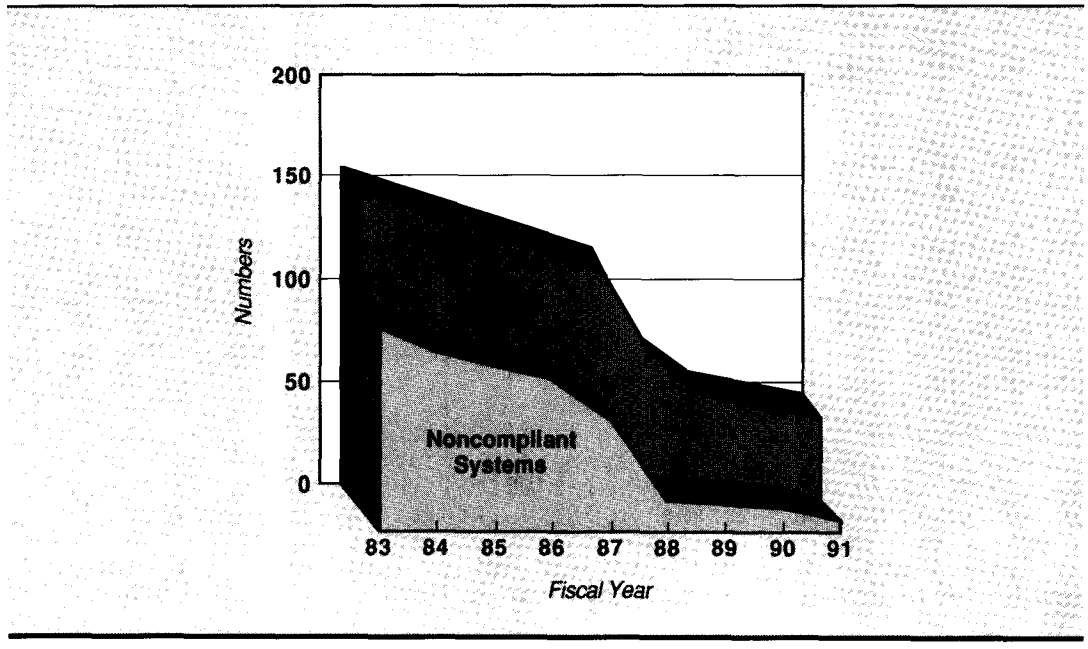
(2) Financial Management

(a) Financial Management Systems

In 1986, we concentrated on furthering accounting system improvements by monitoring system development projects on a quarterly basis, performing field visits to ensure compliance with requirements, and holding several meetings and a conference to bring requirements to the attention of senior management. In addition, we emphasized the need to reach the goal of a single financial management system for each military department and one financial management system for the defense agencies, as well as reducing noncompliant accounting systems (systems which do not comply with General Accounting Office (GAO) accounting principles and standards). The benefits derived from reducing noncompliant systems and the overall number of accounting systems include increased accuracy, efficiency, and better financial management information. Current plans call for a 72 percent reduction in total systems and a 93 percent reduction in noncompliant systems by FY 1991, as shown in Chart II.B.4. The reductions in total systems are obtainable by consolidating subsystems and linking systems by a common general ledger.

Chart II.B.4

Decreases in Operating Accounting Systems



Another financial management initiative focuses on attaining one civilian payroll system and one civilian personnel system per military department, and one integrated civilian personnel/payroll system for the Defense Logistics Agency by FY 1988. This initiative will achieve efficiencies and economies not available from operating multiple systems. In support of this goal, we are improving the management of personnel and payroll resources, increasing the degree of automation, and enhancing the efficiency of the civilian payroll and personnel administrative functions.

(b) Payment Practices

We have pursued better payment practices with our industry partners and are beginning to see the fruits of our efforts. During FY 1986, over 99 percent of 15 million payments valued at $122 billion were made by the DoD without interest penalty. On an annual basis, early payments have been reduced by approximately $14 billion since FY 1984.

Interest savings to the Department of the Treasury of $178 million were generated by the DoD during FY 1986 as a result of cash management initiatives to accelerate collections and defer disbursements. Our cash management improvements have accounted for over $403 million in reduced borrowing costs to the Treasury since inception of the program. Savings of $195 million per year will likely continue accumulating during FY 1987 and FY 1988, for a total savings to the Treasury of $793 million through FY 1988.

Over 100 defense cash flows were reviewed for improvement in FY 1986, and DoD cash management techniques implemented since inception of the program have improved control over the timeliness of our collections and disbursements. These include: lockboxes, direct deposit/electronic funds transfer (DD/EFT), automated teller machines (ATMs), travelers checks, and charge cards. Pilot testing plans are being developed with the Treasury Department and the Federal Reserve System for expanded use of EFT into vendor (contractor) payments.

(c) Credit Management

Total DoD accounts receivable, which excludes foreign receivables, is approximately $925 million. Our portion of the total federal debt is minor -- only 0.3 percent. However, normal operations do result in debts from such things as payroll overpayments, contractors in default, and dishonored checks. We have established plans to reduce the level of delinquent accounts receivable, through the use of collection agencies, credit bureau referrals, salary offsets, penalties and administrative charges, and Internal Revenue Service (IRS) tax refund offsets.

The department has referred over 46,000 accounts, valued at $45 million, to private collection agencies through FY 1986. Approximately 117,000 accounts, valued at $107 million, will be referred to the IRS for tax refund offset in 1987. Additionally, almost 75,000 accounts, over $82 million, have been reported to credit bureaus. We are actively assisting the Department of Education and other federal agencies in efforts to recover delinquent student loans and other

debts from DoD employees. Since April 1985, we have collected nearly $6 million for other federal agencies through salary offset of DoD employees. We have also been credited by the Department of Education for assisting them in collecting an additional $9 million through the threat of offset.

(3) Productivity

A fundamental objective of DoD management is to improve mission capabilities through more efficient use of available resources. To achieve this, the DoD Productivity Program focuses on quality, technology, and the creative management of people in the work place. As part of this program, we have sponsored a series of manpower management initiatives including the identification of mission objectives and resources required to attain them, judicious investment in technology, safe use of available resources, and emphasizing creative skills of our people.

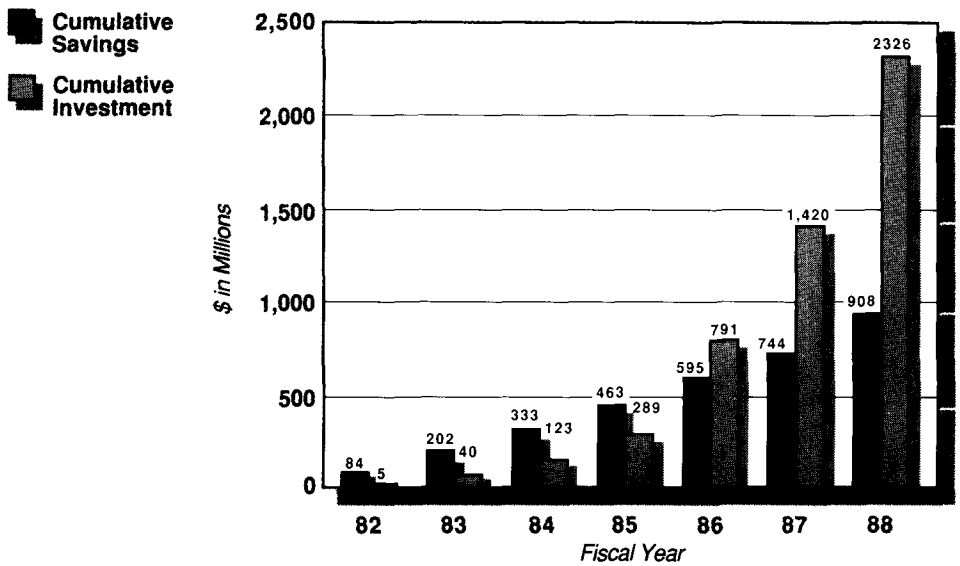
My senior managers strongly support these productivity improvement initiatives and are committed to meeting or exceeding President Reagan's goal of a 20 percent productivity improvement by 1992. The recent issuance of the DoD Productivity Goals Statement reflects this commitment. Also, in order to refine DoD's current initiatives and to develop a stronger productivity improvement program, we formed a task force in July 1985. This task force, composed of senior government, industry, and academic members, completed its study in June 1986. Their recommendations provided the framework for departmental initiatives to strengthen and accelerate productivity improvement.

One of our prime manpower management initiatives is the Efficiency Review Program. It uses industrial engineering techniques to improve work methods and achieve a better internal allocation of personnel. Resources released by this program are then available to meet increasing workloads elsewhere. During FY 1985, 112,000 manpower spaces were reviewed. Reallocation of 843 manpower spaces resulted from these reviews. Dollar savings of almost $32 million have been documented for FY 1985. In FY 1986 over 370,000 manpower spaces were reviewed. Over 200,000 spaces are scheduled for review in FY 1987.

With the selective investment of funds in technology, we can improve the methods of operation of our work force, increase individual output, and achieve a higher level of productivity throughout the department. The DoD's Productivity Enhancing Capital Investment (PECI) program specifically targets funds for quick return and long-range, high payoff investment initiatives. For instance, investments of $874 million from FY 1977 through FY 1986 are expected to average lifetime savings of approximately $16 for each $1 invested. Investments planned for FY 1987 and FY 1988 are $239 million and $254 million, respectively. A major element of the PECI program is Productivity Investment Funding. Costs and savings for FY 1982 through FY 1988 are shown in Chart II.B.5.

Chart II.B.5

Productivity Investment Funding



A recent PECI investment involved testing the performance of electronic systems exposed to electromagnetic pulses (EMP), which occur in nuclear environments. Investment funds were made available to allow the design and acquisition of a highly automated data acquisition and analysis testing system. As a result, test time is down 40 percent; data quality is up by almost 200 percent; and, a once labor-intensive, error-prone task is now routinely accomplished using only 25 percent of the previous labor force. This has allowed us to redirect some of our highly skilled staff to other priority programs, while doubling the department's EMP testing capacity. Our investment of $1.3 million will yield estimated lifetime savings of $6.4 million.

The Safety and Occupational Health Program also contributes to the improved productivity of our work force by providing for employee safety through preventive measures and safety training. We estimate that this program saves about $1 billion in direct costs annually by avoiding accidents, injuries, and illness.

We have achieved additional savings, and enhanced individual and organizational productivity, by promoting participative management techniques. We encourage our employees to exercise their expertise and imagination in designing new and more efficient ways to get the job done. These personnel are then rewarded for their contributions. Four current programs are the Suggestion Program, Productivity Excellence Award Program, Quality Circles Program (where DoD employees identify and resolve problems affecting their work), and the Productivity Gain Sharing Program (where employees get to share in any gains or savings). We estimate these programs will realize cost-avoidance savings of $1.6 billion from FY 1982 through FY 1988.

(4) Internal Management Control Program

The Internal Management Control (IMC) program requires managers to identify weaknesses that might lead to waste, fraud, or mismanagement and to develop strategies for their correction. We have made a special effort to tie together other management initiatives with the IMC program as a way of monitoring progress and growth. This program is a top management priority in the department.

We have made steady progress in correcting reported weaknesses since passage of the Federal Managers' Financial Integrity Act (FMFIA) in 1982. By the end of FY 1986, the DoD had corrected 199, or 81 percent, of the 247 problems identified between FY 1983 and 1985; as compared to a 62 percent correction rate at the beginning of FY 1986. An additional 51 uncorrected weaknesses were discovered this year, so 99 problems remain. We project that 59 will be fixed during FY 1987, while the remaining 40 problems are scheduled for correction during a later fiscal year. Some examples of corrected weaknesses are improved procedures for credentialing DoD physicians, strengthened procurement procedures for recompeting contracts, improved facility construction reliability, and reduction in design costs.

We have taken several steps during FY 1986 to enhance the IMC program. For example, we issued guidance on documentation requirements. This will provide a better basis for arriving at reasonable assurances that the FMFIA objectives are being met. We increased participation by senior managers across a broad spectrum of functional areas to enhance opportunities for more timely discovery and correction of management problems. Further, we are revising our policies to balance the IMC program's effectiveness with efficiency.

b. DoD Council on Integrity and Management Improvement

The DoD Council on Integrity and Management Improvement (DCIMI) was established in September 1981, to pursue aggressively management improvements throughout the department. During FY 1986 the council met 10 times and considered 25 issues. The council made decisions which included completing additional "should cost" reviews of contracts, studying the costs for increased stockage of spare parts and extended lead times in procurement, approving the DoD Management Improvement Plan (MIP), reducing the number of payroll and personnel systems, correcting material weaknesses reported under the Internal Management Control Program, and investigating the impact of procurement procedures on fleet readiness. To ensure the accomplishment of directed actions resulting from the DCIMI meetings, a follow-up system was developed to track and monitor these actions. During the past fiscal year, there have been 47 directed actions from DCIMI meetings. By the end of FY 1986, 35 of these actions had been completed.

One of the major benefits of the DCIMI is consensus building concerning actions needed to strengthen management. The council also provides focus and momentum for the management improvement initiatives contained in the MIP, and forces issues upward and decisions downward in the department. The formal follow-up and tracking system rounds out the DCIMI's comprehensive program.

c. Contract Auditing

Our worldwide contract audit activities are conducted by the Defense Contract Audit Agency (DCAA). The DCAA performs contract audits for the DoD and provides accounting and financial advisory services on contracts and subcontracts. DCAA audits result in over 60,000 audit reports annually covering areas such as: proposal evaluations; audits of incurred costs; compliance with the Truth in Negotiations Act; operations audits; compliance with Cost Accounting Standards; termination claims; financial condition reviews; and participation in legal proceedings.

As a result of increased emphasis on training and streamlining our referral reporting procedures, the DCAA has gone from 26 reported cases of suspected irregularities in FY 1981 to 345 cases in FY 1986. These irregularities include any practice or wrongdoing that adversely affects the government's interests, such as labor and material mischarging, and the submission of false claims. The additional cases represent over a tenfold increase since 1981. Effective management of the DoD's worldwide contract audit operations achieved the reductions shown in Chart II.B.6.

Chart II.B.6

Reductions Resulting from Contract Audits
(Dollars in Millions)

Type of Audit	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
Review of Contract Proposals	$7,282.3	$8,809.7	$9,670.7	$9,705.0	$8,224.9
Audit of Incurred Contract Cost	650.6	634.6	648.0	565.7	630.4
Cost Accounting Standard Issues	26.1	25.1	34.8	114.2	29.7
Defective Pricing Adjustments	27.9	47.3	55.3	139.4	136.5
Total Reductions	**$7,986.9**	**$9,516.7**	**$10,408.8**	**$10,524.3**	**$9,021.5**

The following describes two significant findings on individual contract audits:

-- A review of a contractor's $319.8 million fixed-price proposal resulted in government savings of $13.9 million. Employee idleness had been noted previously and auditors had conducted a work sampling review to determine the extent of

excessive idleness. As a result, in evaluating proposed labor costs, the auditor took exception to excessive employee nonproductivity.

-- Another review of a contractor's $38 million fixed-price proposal resulted in government savings of $11 million. The DCAA auditors found that the contractor's proposed price consisted mainly of additives in addition to the basic item which was being procured complete from a subcontractor. We now purchase these items directly from the supplier and eliminate the unnecessary costs.

d. The Inspector General

In 1982, when I established the Office of the Inspector General (IG), I gave it a concise but far-reaching charter to ferret out and expose waste, fraud, and mismanagement. I did this with the full realization that this exposure might generate a "boomerang effect," which can lead to the perception that current management is the cause of the problems being identified. However, I believe that the elimination of waste, fraud, and mismanagement is so critical to our mission that any perceived "boomerang effect" is a small price to pay. Therefore, I have directed the IG to continue our efforts to identify problems of waste, fraud, and mismanagement and change or eliminate existing conditions, policies, or procedures that cause them. In order to fulfill this responsibility the IG has established the Assistant Inspectors General for Auditing, Investigations, and Inspections. Furthermore, to provide policy and oversight for the department's audit and criminal investigative organizations and to ensure follow-up on audit activities of both the GAO and the IG, the Assistant Inspectors General for Audit Policy and Oversight, Criminal Investigations Policy and Oversight, and Audit Follow-up were created.

(1) Audit Operations

The IG performs audits within the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, the unified commands, the defense agencies, and the military departments. Since FY 1982, the IG has issued over 700 audit reports identifying nearly $4.8 billion in savings and cost avoidances. Potential monetary benefits from all other DoD audits/reviews since FY 1982 total $10.3 billion. The IG will continue its focus on procurement, where a large portion of DoD dollars are expended. Particular attention is paid to waste in overhead charged to DoD contracts, defective pricing, subcontractor pricing practices, and contractor estimating systems. For example, as a result of an initial DoD-wide audit on the procurement of spare parts, the IG, in cooperation with the DCAA, started contract pricing reviews of 95 contractors who had sold us parts at unreasonable prices. With about two-thirds of the audits completed, the tentative audit conclusions are that over 5 percent ($89.2 million) of the contract prices were defective.

In addition to shifting audit emphasis to the DoD acquisition programs, the IG has explored new approaches to auditing, like the DoD-wide Audit Program, which provides broad audit coverage of major issues affecting the entire department. The scope of these issues

requires a cooperative effort by DoD audit organizations to conduct audits that can not be accomplished by any one organization alone. The DoD-wide audit on spare parts and the resulting follow up contract pricing audit referred to above are prime examples of our program's success.

Our auditors' efforts would be of little value without an aggressive program to ensure that their findings and recommendations are carefully considered, and that agreed-upon audit advice is implemented. Prior to 1981, we lacked procedures for ensuring that disputed audit reports were promptly and fairly resolved, and for tracking actions through to completion. This situation was remedied with the establishment of the DoD audit follow-up resolution program. This program has documented the completion of corrective action on over 280,000 DoD and GAO audit recommendations, resulting in $14.2 billion in savings and cost avoidances. Also, the IG performs an active liaison role with the GAO and monitors the performance of DoD contracting personnel using DCAA advice.

The IG provides policy and oversight for 14 audit organizations which assist various DoD management levels on financial matters, internal controls, economy and efficiency, contract pricing, and program results. Significant policy initiatives undertaken to support these organizations include: establishing the most comprehensive auditing standards in the Federal Government; preparing pamphlets to assist auditors in identifying labor and material fraud schemes; and implementing quality control programs for internal audit, internal review, and Military Service exchange audit organizations.

(2) Investigative Operations

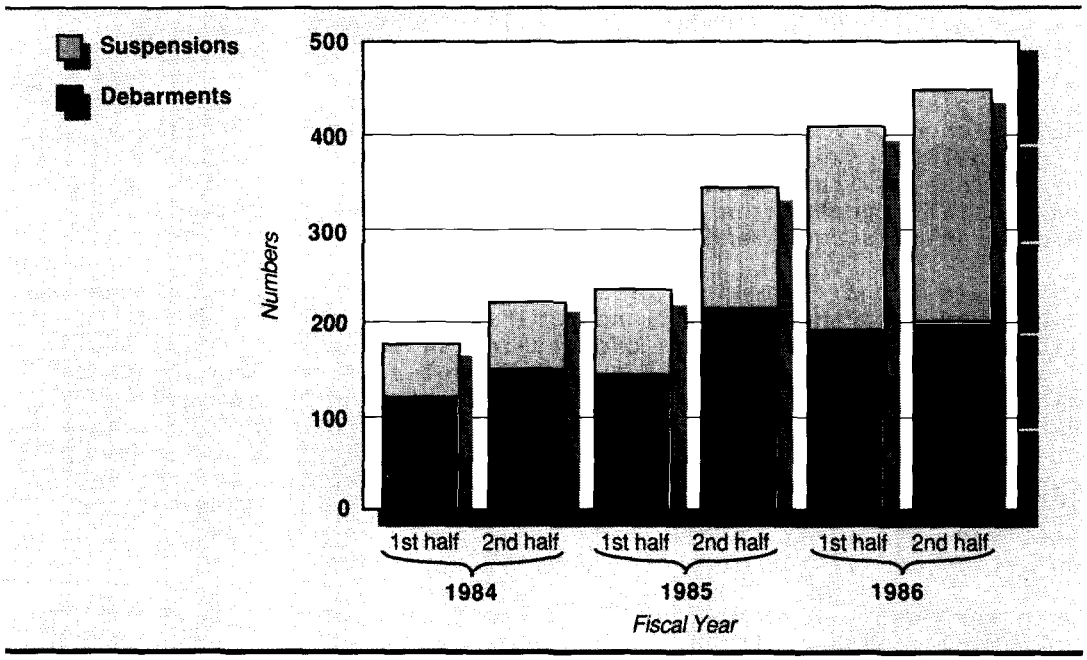
The Defense Criminal Investigative Service was established in October 1981 with the primary objective of investigating major theft, fraud, and corruption in the procurement process. Since its establishment IG investigative activities have compiled an impressive seventy percent conviction rate and generated over $100 million in recoveries, fines, penalties, and restitutions. All other DoD investigative organizations have compiled over $185 million in recoveries, fines, penalties, and restitutions during the same time period. In addition, last year the IG began an aggressive proactive program of covert operations to uncover fraud and theft against the DoD. This program is starting to pay dividends by uncovering instances of bribery, kickbacks, mail fraud, wire fraud, as well as an attempt to secure an illegal transfer of weapons.

DoD employees and the public help us uncover fraud and theft by reporting suspicious or illegal activity through the DoD hotline. Revitalized in 1981 by increased publicity and guaranteed confidentiality to callers, the DoD hotline has become an effective tool in the fight against waste, fraud, and mismanagement. From June 1981 through September 1986 some 45,000 contacts were processed with over $53 million in recoveries and savings reported. One hotline investigation involving a defense contractor resulted in an initial administrative settlement valued at $13 million. In addition, a Special Inquiries Unit provides timely and coordinated responses to non-criminal allegations involving high-ranking DoD officials, congressional inquiries, and complex contract issues.

In addition to criminal remedies, we also emphasize civil, administrative, and contractual remedies including improving the use of suspensions and debarments. Our record on suspensions and debarments of contractors, shown in Chart II.B.7, has improved from 70 suspensions and debarments in 1981 to 885 in 1986.

Chart II.B.7

Number of Suspensions and Debarments



(3) Inspection Activities

The Assistant Inspector General for Inspections performs organizational and functional reviews of DoD agencies worldwide. These inspections are broad in scope and seek to identify systemic problems. Functional elements are selected for inspection using statistical sampling techniques. This method efficiently provides senior management with a balanced look at the effectiveness of an entire organization. For example, an inspection of the Office of Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS) resulted in the implementation of a debt collection program which recouped $15.9 million.

e. Implementation of Packard Commission Recommendations and DoD Reorganization

The recommendations of the President's Commission on Defense Management under the experienced leadership of former Deputy Secretary of Defense David Packard provide us with an opportunity to make even greater strides in management improvement throughout the DoD.

In many respects the commission supported and built upon our initiatives of the past five years. Its recommendations provide us with a useful guide for continuing our progress. Indeed, the commission's work has been extremely helpful, not only in identifying possible management improvements, but in galvanizing executive branch, congressional, and public support for the improvements we had made, and for further progress.

The commission completed its activities with publication of a final report entitled "A Quest for Excellence," which was submitted to the President on June 30, 1986. This report summarizes the findings and recommendations of a series of interim commission reports and focuses on four areas of defense management: national security planning and budgeting; military organization and command; acquisition organization and procedures; and government-industry accountability. We carefully examined the commission's reports and worked closely with the National Security Council in developing Presidential direction on implementation of the major features of the commission's recommendations.

We have identified 18 major action items, and are moving ahead on all of them. Of these 18 actions, 15 have been completed to date, while the remaining three are progressing satisfactorily and should be completed within the near future. Examples of completed actions include: establishment of a Joint Requirements and Management Board (JRMB), which will play a major decision-making role in the management of major acquisition programs; establishment of an Under Secretary of Defense for Acquisition to oversee all acquisition matters within the department; and the establishment of Senior Acquisition Executives in each of the Military Departments to oversee the major acquisition activities of their respective Services.

In most cases, implementation of the commission's recommendations is being carried out within the department. In others, authorizing legislation is required. Some of the required legislation has already passed, such as establishing an Under Secretary of Defense for Acquisition, establishing a Vice Chairman of the Joint Chiefs of Staff, and removing the prohibition against establishment of a Unified Transportation Command. A few cases remain where legislative action is still pending. These include the development of a simplified, consolidated federal procurement statute that provides increased use of commercial-style competition and emphasizes quality and performance, as well as price. We are working closely with the Office of Management and Budget (OMB) to develop such a statute.

The recent passage of the Goldwater-Nichols DoD Reorganization Act complements the recommendations of the Packard Commission. We are working with equal diligence to ensure that its provisions are incorporated into the department's structure, policies, and procedures as rapidly and effectively as possible. Implementation actions have been assigned to lead officials, who are responsible to the Deputy Secretary and me for their accomplishment. Their progress is monitored through periodic reports and oversight meetings.

The Act contains a provision which will reduce the administrative burden placed on the DoD by statutory requirements for continuing reports, notifications and studies through the elimination of outdated, redundant or otherwise unnecessary reporting requirements. It is recognized that the workload costs associated with the preparation of reports imposed by provision of law have become exorbitant. To achieve further savings, it is critical that the reduction initiative be expanded to include congressionally imposed reporting requirements not mandated by law and those requirements submitted on

a one-time basis. In an associated effort, a comprehensive review of all DoD internal and interagency recurring reporting requirements is being conducted with a target reduction of 15 percent. In report reviews to date, the DoD has achieved a 28 percent reduction.

3. Other Management Improvements

Other management efforts in DoD include comprehensive Automated Data Processing (ADP) management and joint program management.

a. ADP Management

The department's general purpose ADP systems are essential in supporting our everyday mission and business functions in such areas as logistics, finance and accounting, personnel management and payroll, and resource management. General purpose ADP systems are used to assign trained manpower to the correct locations, to allocate supplies in a timely fashion, to pay contractor bills for supplies, to provide management information for use in decision making, and many other business-type applications.

Major improvements in ADP management have resulted from strengthening and streamlining our management and oversight process. Application of life cycle management demands early planning, executive oversight at key milestones, early determination and refinement of costs, and accountability of key persons in developing and implementing a sound and effective automated system. To streamline the process, policy oversight for all general purpose ADP has been consolidated. We have also strengthened and streamlined ADP management through expanded use of executive review boards in the screening of proposals for new systems. The executive level review process includes full involvement of senior ADP, telecommunications, and functional management.

We have also instituted a program to improve the performance of program managers and their staffs. We are establishing an Independent Assistance Group of highly talented and independent people to provide direct support and assistance to program managers to help them to identify problem areas, risks, or new options. In addition, we provide for specialized and independent assessments of cost-benefit analyses and test planning/execution plans submitted by program managers.

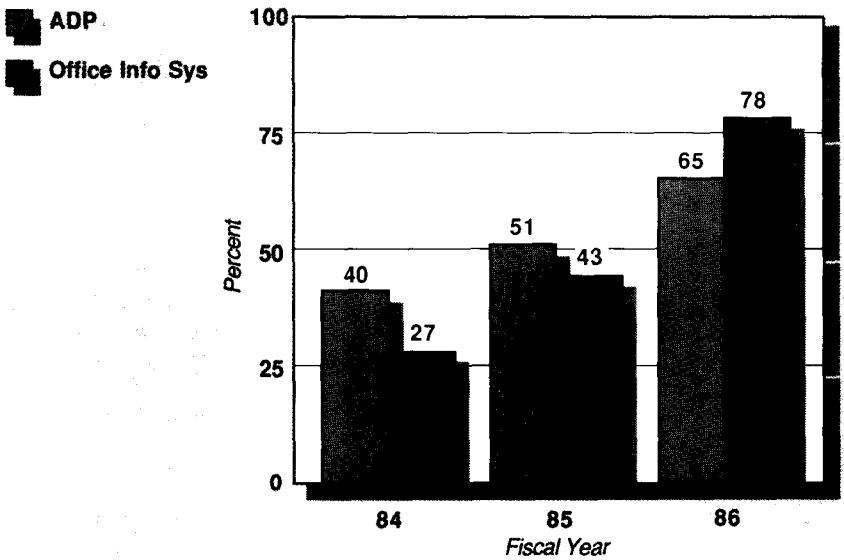
We established a joint Program Managers' Forum where program managers can share and exchange information, new ideas, and possible solutions to their problems, and form networks that can be mutually supportive when advice is needed. Two such fora, organized by the program managers themselves, were held in FY 1986, and were attended by more than 30 senior DoD ADP program managers. Also, the National Defense University is developing a short-term, intensive course on ADP system management, specifically targeted to ADP system program managers and their staffs.

Since we are committed to competition in the market place as an effective way to achieve lower overall costs, emphasis has been placed on the procurement of automation equipment. Competitive procurement of ADP equipment for FY 1986 increased by over 27 percent

when compared with FY 1985. We competed over 65 percent of our ADP equipment procurements in FY 1986, up from 51 percent in FY 1985, and 40 percent in FY 1984. Competitive procurement of office information systems for FY 1986 increased by over 81 percent when compared with FY 1985. As shown in Chart II.B.8, we competed over 78 percent of these procurements in FY 1986, up from 43 percent in FY 1985 and 27 percent in FY 1984. This progress is a direct result of our efforts to encourage more accurate requirements definitions, improved procurement planning, the proper use of the Commerce Business Daily announcements, and close adherence to the letter and spirit of the Competition in Contracting Act.

Chart II.B.8

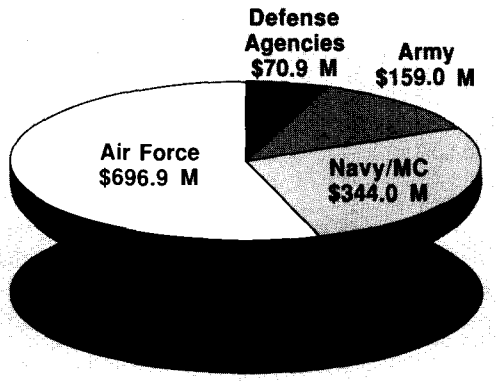
Increase in Competitive Procurement of ADP and Office Information Systems



To ensure that our ADP procurements are financed by the most appropriate method, we are continuing our program of buying ADP equipment when purchasing is more economical than leasing. Our initial goal was to complete the buy-out of all uneconomically leased ADP equipment by the end of FY 1988. We currently plan to complete almost all the buy-out of uneconomical operational and maintenance financed leases by the end of FY 1987, a full year ahead of schedule. We have also taken the necessary steps to expand the buy-out of leased equipment to include all appropriations and funds. This action will accrue an additional $70 million net cost avoidance in life cycle costs. The buy-out will achieve net cost avoidances of approximately $1.27 billion over the remaining life cycle of the items being purchased, as shown by the DoD component on Chart II.B.9.

Chart II.B.9

Net Cost Avoidances in ADP Equipment Leases By Component



Decreasing requests for lease monies and increased purchase funding requests demonstrate our success in buying out uneconomical leases and in avoiding new leases. Our FY 1987 budget request for leased ADP systems has declined by approximately 60 percent from the corresponding FY 1984 request, when the buy-out program was initiated. With continued emphasis on purchasing ADP equipment, we have seen a corresponding rise in our request for procurement funds between FY 1984 and FY 1987 of $766 million.

b. Joint Program Management

(1) Determining Joint Requirements

One of our priorities is to enhance the effectiveness, economy, and efficiency in program and management activities common to more than one service. Improving joint program stability and management are vital to meeting the affordability requirements which we face now and in the future. We use the Joint Requirements Oversight Council (JROC), a vehicle of the Joint Chiefs of Staff, to identify joint military requirements and candidates for joint research and development, and resolve Service requirement issues that may arise after such programs are initiated.

Currently, there are more than 150 joint programs in various stages of development and procurement. Advantages of joint acquisitions and examples of success stories are highlighted below:

-- Joint DoD/Department of Energy (DoE) Munitions Technology: This program is a cooperative effort of research and development with the DoE to bring about major improvements in nonnuclear munitions technology across all Services' mission areas. The nuclear weapons design and engineering laboratories of the DoE represent unique capabilities that can provide an important and necessary supplement to the DoD laboratories.

-- Ada: The DoD standard High Order Computer Programming Language (Ada) program has been most successful at transitioning technology into the weapons and systems that will be the tools of our future forces. Among the achievements has been the validation of over 50 compilers to develop computer software, acceptance as an American national standard, acceptance by NATO and establishment as a NATO international (Nunn Amendment) program. The widespread use of the Ada standard language will significantly reduce the cost and improve reusability of military software.

-- SIDEWINDER/SPARROW: Large development costs savings have been realized for these air-to-air missiles by adopting one system in lieu of two. The result is a longer production run that reduces unit costs.

-- Air-Launched/Ground-Launched/Sea-Launched Cruise Missiles (ALCM/GLCM/SLCM): Economy of effort is the primary advantage in these highly successful joint ventures which provide common components for different versions of the basic weapons systems. All variants contain the same basic engine and navigation/guidance subsystems.

4. Conclusion

Looking ahead, our main management priority will be to finish the job we started six years ago. This includes:

-- Continuing to make acquisition improvements by increasing competition for spare parts, using multiyear procurement and baselining to improve program stability, and increasing reliance on nongovernment standards.

-- Strengthening financial management by reducing the number of accounting systems and developing a single, integrated, and efficient financial management system.

-- Implementing the President's Productivity Initiative by developing appropriate new initiatives, using efficiency reviews to develop the most productive organizations, and expanding the use of gain sharing and quality circles throughout the DoD.

-- Strengthening internal controls by continuing to press for discovery and timely correction of problems.

The Department of Defense commitment to improving management structures and practices remains strong. We welcome constructive assistance and look forward to continuing our close relationship with the Congress to achieve our common management goal -- getting the most from every defense dollar.

C. MANPOWER

1. Introduction

Our manpower program is one of the most notable success stories of the Reagan Administration. I am pleased to report that during the past six years, we have overcome serious deficiencies in the quality and quantity of personnel in the Active and Reserve Components. We now have a strong, high-quality force that both provides for our immediate defense and serves as a solid foundation for our future defense needs. Our commitment to the "Total Force" concept ensures judicious and economical use of not only the Active and Reserve Components, but also our civilian employees and the contractors who work for the department.

2. The Manpower Program

We derive our manpower requirements directly from our force structure, which is developed to respond to our perception of the diverse threats to our national security. Consistent with force structure requirements, we strive to maintain the minimum active force necessary to meet our immediate requirements, while relying on our Reserve Component forces and civilian manpower to support and augment the active forces. We continue to develop and enhance the processes we use to measure, review, and validate our requirements for each category of the defense work force. The following sections discuss the role of each of these categories. The Defense Manpower Requirements Report discusses this subject in more detail.

a. The Volunteer Concept Versus Conscription

Despite 13 years of success with the volunteer force, the desirability of returning to conscription continues to receive a great deal of attention. Typically, criticism of the volunteer force stems from the mistaken belief that conscription will produce a higher quality force and be less expensive. Also at issue is the notion that the decline in the youth population and reduced youth unemployment will make it impossible to recruit sufficient numbers of quality young people. None of these concerns is supported by fact. The quality of the force is better today than at any previous time. There also is no evidence that a return to the draft will save money; indeed, recent research indicates that conscription would increase costs up to $2.5 billion yearly. Finally, changing demographics and the improved economy make recruiting more difficult, but certainly not impossible. Even with the declining youth population and improving economic conditions, the Services have achieved their recruiting objectives with higher quality each year since 1981.

A return to conscription would also result in an unwanted social problem. Today, the military is filled with individuals who have

volunteered to serve their country; under conscription, many young people who might not desire to serve would be compelled to do so, while other qualified volunteers might be turned away. This would be perceived as unfair by the nation's youth, and would lead to unnecessary resentment toward the Services.

The volunteer force has been an unqualified success -- we can sustain that success by maintaining a sense of honor and dignity toward service to country, ensuring adequate military compensation, and providing the Services with necessary recruiting resources. There is no need to return to conscription to satisfy military manpower requirements.

b. Active Component Military Manpower

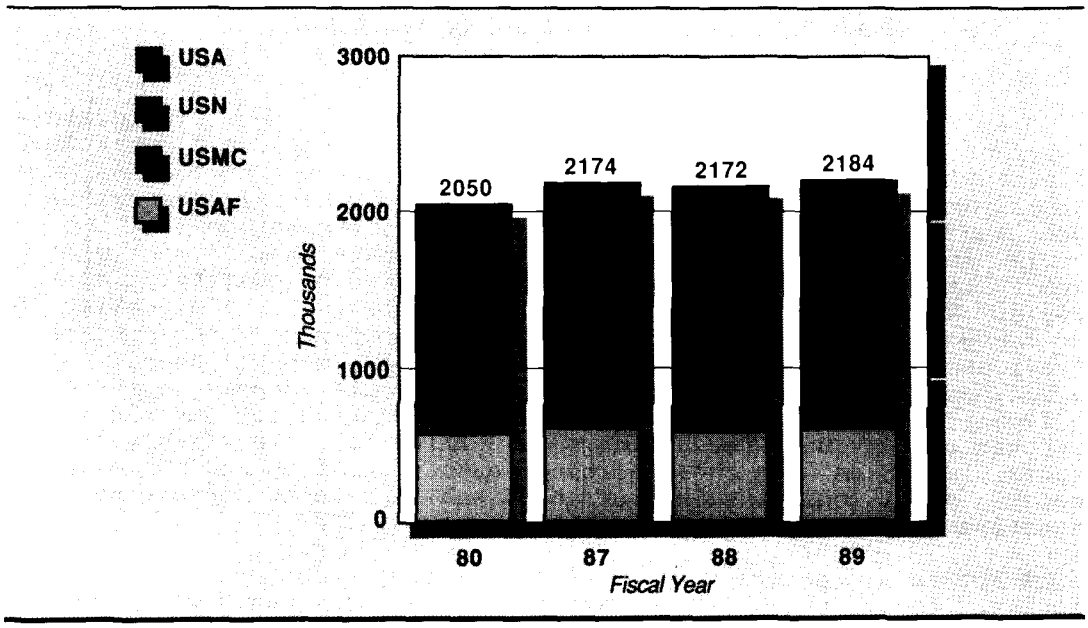
The Active Component of the Total Force provides a military presence overseas, responds to crises, and serves as the vanguard of our response to large-scale aggression. Major deficiencies in the Active Component that prevailed in the late 1970s have been corrected in the last six years. Growth in active strength, improvement in the quality of recruits, improvement in the experience level of the force, and reduction of critical skill shortages have characterized our success.

(1) Active Component End Strength

After several years of the sustained growth required to flesh-out and improve the force structure, active duty end strength drops 1,850

Chart II.C.1

Active Component End Strength
(Thousands)



authorizations from FY 1987 to FY 1988 (2,174,250 to 2,172,400). This slight reduction (less than 1/10 of 1 percent) in total end strength will be taken from support and training areas, not from positions that directly support new ships and aircraft. Unit manning supporting front-line weapons systems will continue to receive priority funding. In addition, some existing force structure has been placed in the Reserve Component. Total active end strength will increase from 2,172,400 to 2,184,400 in FY 1989, as many of the ships and aircraft bought in previous years are activated (see Chart II.C.1).

(2) Recruiting

Comprehensive programs introduced by this Administration have largely overcome the severe recruiting and retention problems of the late 1970s and have restored the Services' ability to attract and retain quality people. Included were programs to improve military pay and benefits to levels competitive with the private sector, to provide the Services with adequate recruiting resources, and to improve the quality of life for military members and their families. The results of these programs have been gratifying. Education levels and enlistment test scores of our recruits are the standards by which we measure quality. By FY 1984, recruit quality, measured by these standards, had reached record-high levels and was significantly higher than the average of the eligible youth population.

We continued our success in recruiting high-quality young men and women in FY 1986. All four Services met or exceeded their enlistment objectives. Table II.C.1 shows actual enlisted accessions for FY 1986 and planned recruiting levels through FY 1988.

Table II.C.1

Enlisted Active Duty Accessions[a]

(Numbers in Thousands)

	Actual		Planned	
	FY 1986 Objective	Percent Achieved	FY 1987 Objective	FY 1988 Objective
Army	135.3	100	135.4	131.3
Navy	94.8	100	96.7	96.5
Marine Corps	36.7	100	33.6	36.3
Air Force	66.4	100	67.3	67.0
Total	**333.2**	**100**	**333.0**	**333.1**

[a]Includes prior service and nonprior service accessions.

We are confident that we can continue to meet our manpower needs with volunteers. However, the continuing decline in the military age youth population, the recent gap between military and private-sector pay increases, and a declining trend in enlistment propensity pose difficult recruiting challenges for the future. To respond to increasingly difficult conditions, we must provide adequate recruiting resources and enlistment incentives to the Services and ensure Servicemembers and their families a reasonable standard of living.

(3) Personnel Management

(a) Enlisted

Enlisted retention continues to be excellent. Since 1980, the enlisted continuation rate -- the percentage of the force that remains in service from one fiscal year to the next -- increased from 80.7 percent to 84.3 percent in FY 1986. The average number of years of service for enlisted personnel has risen from 5.55 years in 1980 to 6.09 years at the end of FY 1986. In addition, we have made excellent progress in enhancing unit experience and effectiveness by reducing internal personnel turbulence. Since 1980, unit stability -- the percentage of enlisted personnel who remain in the same unit from one fiscal year to the next -- has increased from 42.6 percent to 48.1 percent.

Despite overall high retention, shortages persist in certain skills, particularly those requiring highly trained technicians who are in demand in the civilian economy. We depend heavily upon the Enlistment and Selective Reenlistment Bonus programs to attract and retain high-quality people for mission-critical, shortage skills. These programs are particularly valuable during times when annual pay raises fail to keep pace with increases in the private sector. Substantial reductions from the President's budget request in these areas for FY 1987 will reduce our capability to attract enlistees to arduous combat specialties and to retain experienced personnel who possess highly marketable skills.

Statutory authority for Enlistment and Reenlistment Bonuses (Sections 308 and 308a. of Title 37, U.S. Code) will expire September 30, 1987. Bonuses are very cost-effective in attracting quality personnel to designated skills, promoting more reenlistments in those skills, and increasing average terms of commitment. In FY 1987, the DoD will submit legislation to make the bonus authorities permanent.

Since the present bonus programs were first authorized in 1974, the laws have been extended seven times, for periods ranging from two and one-half months to three years. Twice we have been temporarily without payment authority as a result of delays in enactment of annual Authorization Acts. These short-term extensions and suspensions seriously hamper our ability to plan recruitment and retention programs, and they undermine the incentive value for prospective recipients. Granting the DoD permanent authority for these valuable programs will improve management efficiency and ensure the preservation of their full incentive value. The Congress can continue to exercise effective control over these programs through the authorization and appropriation process.

We have demonstrated that military manpower requirements can be met on a voluntary basis, provided we offer fair compensation, adequate family support, reasonable living and working conditions, and assistance programs for post-secondary education. Our success in improving recruiting and retention has been achieved primarily through the Congress' willingness to provide these necessary incentives. They need to be continued to maintain our momentum.

(b) Officers

The officer force is generally stable, talented, and fully capable of performing its vital mission; however, significant retention problems continue in two officer communities. Our most serious problem is a 22 percent shortage of experienced nuclear-trained naval officers in the grades of lieutenant commander through captain. Because of the positive effects of enhancements to Nuclear Officer Incentive Pay enacted in FY 1986 and the result of larger year groups maturing because of improved retention, we project that this current shortage will decrease to about 12 percent by the end of FY 1992. The long-term nature of the shortage requires that we seek permanent authority to temporarily promote some exceptional lieutenants to fill designated key lieutenant commander billets. These promotions are a no-cost management tool -- all promotions must, by law, be effected within field grade ceilings -- that is, used only when needed and when authorizations are available.

A shortage of aviators is also a significant concern. The demand for pilots to fly commercial airlines remains a threat to our experience levels. High pilot losses jeopardize combat readiness and substantially increase replacement training costs. To remain competitive and retain these critical officer manpower resources, the existing monetary incentives, Aviation Career Incentive Pay (ACIP) and Aviation Officer Continuation Pay (AOCP) must be maintained. The AOCP, which specifically targets tactical aviators who provide the nation's carrier-based aviation, and other initiatives should have a positive impact on the current 1,100 pilot shortfall in the Navy.

(c) Revised Procedures to Determine General Officer / Flag Officer Requirements

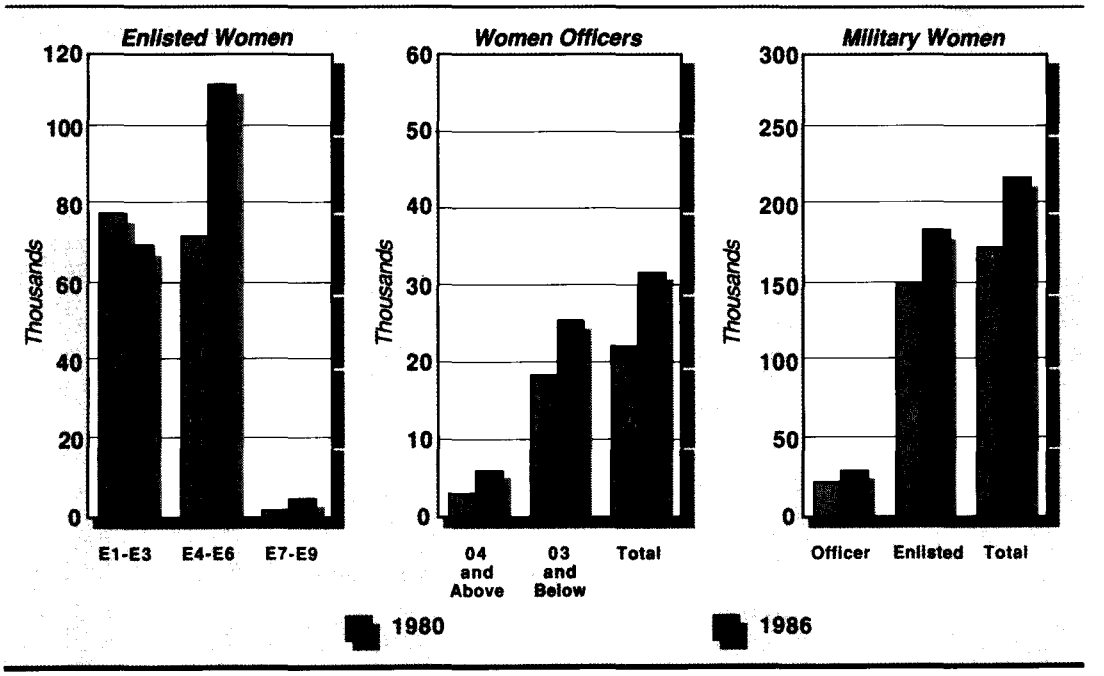
A legislative proposal to establish a new framework for the management of flag and general officers was submitted to the 97th, 98th, and 99th Congresses but has not been enacted. Consequently, it has been necessary for us to request annually specific ceiling relief at the three- and four-star grades to meet our essential senior flag and general officer requirements. Our legislative proposal will provide the necessary oversight, flexibility, and responsiveness required to administer changing flag and general officer requirements. Thus, it responds both to our manpower needs and congressional desires. Recognizing the Congress' continuing concern that the number of general and flag officers should be based on substantiated requirements, we are commissioning an outside organization with extensive experience in validating executive management requirements to examine the method by which our flag and general officer and Senior Executive Service positions are determined. In the interim, we urge the Congress to remove the general/flag officer

ceiling mandated by the FY 1978 Defense Authorization Act and return to the strength level that existed prior to October 1, 1981; i.e., 1,119.

(d) Women in the Military

Since the end of FY 1980, the total number of military women has grown by more than 45,000, an increase of over 26 percent. The number of women officers has increased by more than 10,000 or 46.9 percent. The role of women extends throughout the grade structure as that part of the military population continues to gain seniority. More than 216,000 officer and enlisted women now comprise approximately 10.1 percent of the Active Component.

Chart II.C.2
Women in the Military



(4) Military Training

Developing and maintaining combat-ready forces requires rigorous, demanding training of individuals, crews, and units that make up the operating forces. To support the management of this training effort, the DoD published two major policy directives in 1986. The first codifies overall policy for the management and conduct of military training. The second lays out policy for the development, acquisition, and use of training simulators and devices.

In FY 1988 and FY 1989, we will continue providing high-quality individual training in our military schools and training centers. As in the past, most of the average student/trainee population of 250,000 will be new enlisted accessions. We will also continue, through the application of training technology and other initiatives,

to enhance the quality of the collective training of crews and operating units. Since 1980, we have made significant progress in improving crew and unit training, especially through creating or improving instrumented ranges such as the Army's National Training Center in California and the Air Force's and Navy's tactical air training centers at Nellis Air Force Base and Fallon Naval Air Station, Nevada, respectively.

(5) Quality-of-Life and Family Matters

Our quality-of-life and family programs directly affect our ability to man the force and maintain a high degree of readiness. We believe that they are entitled to the same quality of life as is generally afforded the society they are pledged to protect. With the Congress' support, we have in recent years achieved marked improvements in areas like community and family service. We provide our military families with limited legal assistance and referrals in prescribed circumstances; medical care; education for children in families overseas and in certain locations in the United States through DoD schools; military chaplaincy programs; and clubs which make special commitments to, and take pride in, serving the needs of families of deployed Servicemembers. Congressional budget cuts in recent years, however, have limited the quality and extent to which these services can be provided, particularly last fiscal year with the enactment of the Gramm-Rudman-Hollings Act.

Community support facilities and activities are vital to morale, retention, and readiness. We provide a wide variety of sports and athletic opportunities, military exchanges, and commissaries; libraries, clubs, child care centers, arts and crafts; troop entertainment and recreation; youth activities, family tour, and travel opportunities; and other activities on most of our nearly 900 installations in the United States and 335 bases in foreign countries. We hope to expand our partnership with private industry to provide commercial travel agents, fast-food franchises, and commercial recreation facilities on military installations. Additionally, educational opportunities for adult family members are an important part of the quality-of-life program; we are developing plans to provide academic and vocational counseling to this segment of the DoD population. Of the $615 million planned for major construction of community facilities in 1987, nearly $450 million will be nonappropriated funds.

(6) Military Compensation

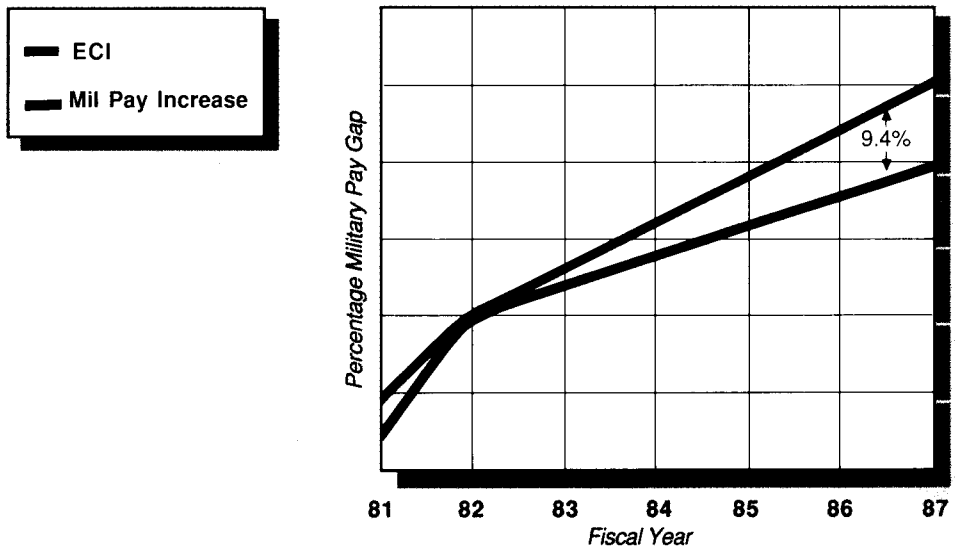
It is imperative that we provide the men and women in uniform a compensation package which allows us to attract and retain the skilled and dedicated individuals we require to perform our national defense mission successfully. The substantial improvements in military compensation made in the early 1980s contributed greatly to our improved recruitment and retention in the past six years, but recent pay cap actions have eroded our position in relation to private sector wages.

Since FY 1982, military pay raises have been capped each year, resulting in a cumulative gap of over 9 percent between military and private sector pay, as measured against the Employment Cost Index

(ECI). Military members received an across-the-board 3 percent pay increase in FY 1986. This increase was somewhat less than the average 4 percent increase in the private sector. Our objective in requesting the 4 percent raise in FY 1987 was to provide military members a pay raise which would essentially match private sector wage growth and prevent military pay from falling further behind. Unfortunately, the Congress was unwilling to provide the full amount we sought.

Chart II.C.3

Military and Private Sector Wage Growth



In addition to the reduction in our military pay raise request, the Congress took a number of other actions in FY 1987 that reduced the attractiveness of the military compensation package, making it more difficult for us to attract and retain the skilled personnel we need. These actions included a freeze on Variable Housing Allowance (VHA) rates, reduced funding of Selective Reenlistment Bonuses (SRBs), prohibition on pay of temporary lodging expenses except for military personnel in grades E-4 and below with dependents, and denial of our requested increase in household goods weight allowances.

Although reducing military compensation is an inviting target to some when recruiting and retention are holding up, we urge a historical perspective, which shows that maintenance of healthy levels of compensation leads to efficiency and lower costs in the long run. The military manpower crisis of the last half of the 1970s was directly caused by disregarding this perspective. Compensation -- along with patriotism, training, and morale -- are vital elements in readiness. Every weapons system, every operational unit, and every supporting activity worldwide is manned primarily by military men and women whose readiness and dedication make the essential difference between U.S. forces and those of our potential adversaries. We have a moral obligation to provide these men and women with a fair benefits package.

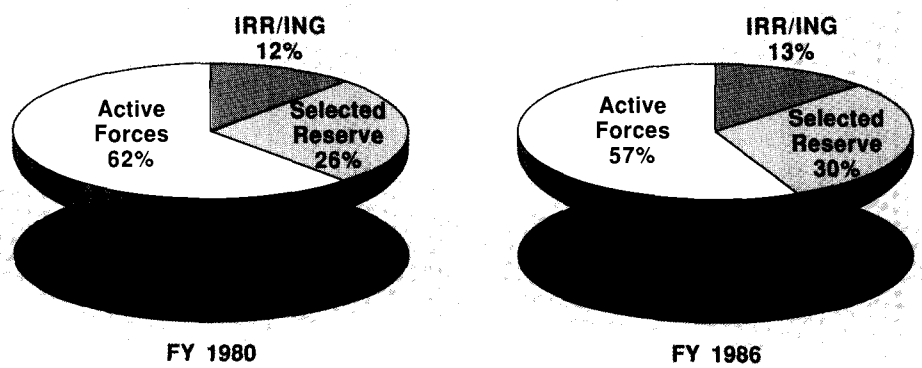
c. *Reserve Military Manpower*

The primary purpose of the Reserve Components is to provide for rapid expansion of our military forces in time of national emergency. Since FY 1980, the number of units and trained individuals available for rapid augmentation and reinforcement of the Active Forces during crises has increased significantly. As a result of the extraordinary support of the Reserve Components provided by this Administration, the Selected Reserve has grown by 30.0 percent and the Individual Ready Reserve (IRR) by 25.9 percent, for a total growth in the Ready Reserve of 28.7 percent. In addition, the distribution of manpower within the total military force has significantly changed, with the Ready Reserve now accounting for 43 percent of the total manpower as opposed to 38 percent in FY 1980.

The increasing Reserve Component contribution to active military manpower is reflected in Charts II.C.4 and II.C.5.

Chart II.C.4

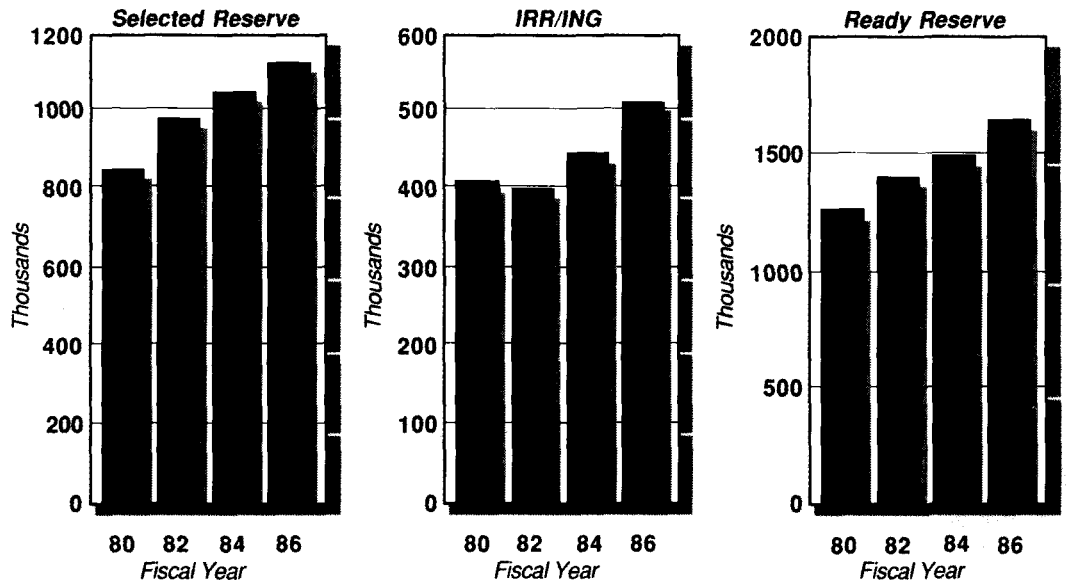
Distribution of Total Military Manpower



Total reserve manpower consists of the Ready Reserve, the Standby Reserve, and the Retired Reserve. The Ready Reserve comprises reserve units, individual reservists assigned to active-duty units, and individuals subject to recall to active duty to augment the active force in time of war or national emergency. The Ready Reserve has two categories: the Selected Reserve, which consists of those units and individuals required to perform the most intensive training, and the Individual Ready Reserve (IRR)/Inactive National Guard (ING). Both the Selected Reserve and the IRR/ING are essential to initial wartime missions. The IRR/ING consists of individual

Chart II.C.5

Growth in Reserve Component Manpower



reservists who are not in the Selected Reserve, but are subject to recall on an individual basis to provide initial augmentation of active or reserve units. The Standby Reserve comprises those individual reservists who wish to remain affiliated with the reserves but are unable to participate in the Ready Reserve. Finally, the Retired Reserve contains reservists who have been transferred to a retired status in accordance with law or directive. As is true with all reservists, they are subject to mobilization in time of war or national emergency, with different categories available under different levels of emergency authority.

(1) Selected Reserve Manpower Strength

The Selected Reserve reached another all-time high strength level of 1,130,100 in FY 1986. Prior to FY 1984's strength of 1,045,800, the previous high was in 1959, at 1,006,600. Today's record high levels have been achieved without the draft-induced membership of 1959, when reserve membership could be substituted for conscript service in the Active Component. FY 1988 Selected Reserve end strength is programmed at 1,190,300. This will bring the overall Selected Reserve strength increase since FY 1980 to 321,000, or more than 37 percent (see Table II.C.2).

Table II.C.2

Selected Reserve Manpower

(End Strength in Thousands)

	Actual			Planned	
	FY 1980	FY 1986	FY 1987	FY 1988	FY 1989
Army National Guard	367	446	453	459	465
Army Reserve	213	310	319	330	346
Naval Reserve[a]	97	142	149	157	162
Marine Corps Reserve	36	42	43	44	45
Air National Guard	96	113	113	117	118
Air Force Reserve	60	79	80	83	86
Total[b]	**869**	**1,130**	**1,157**	**1,190**	**1,222**

[a]Data for all years include Navy Training and Administration of Reserves (TARs) and Category D Individual Mobilization Augmentees (IMAs).

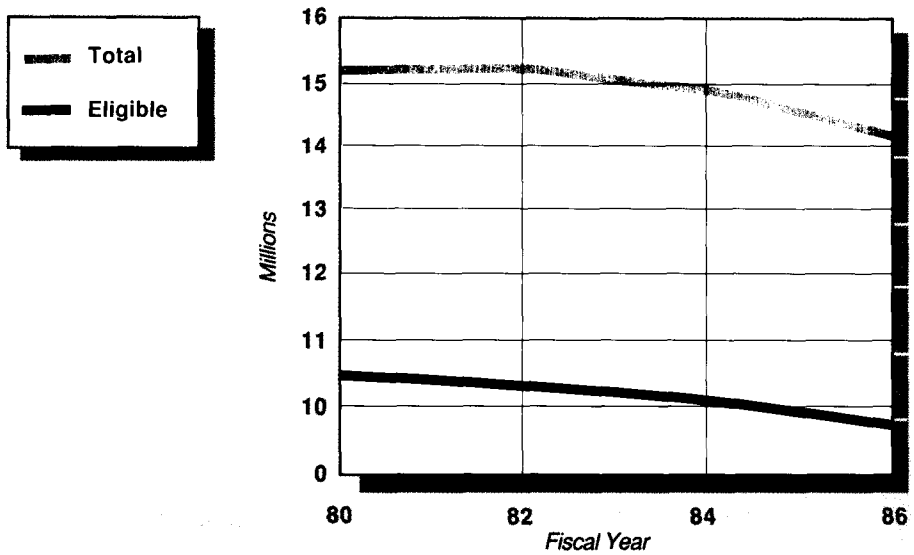
[b]*Numbers may not add due to rounding.*

(2) Selected Reserve Personnel

In FY 1986, 42 percent of enlisted accessions into the Selected Reserve were without prior military service. These new recruits are needed to fill structure requirements for entry-level positions in units. The decrease in 18 to 24 year-old males and those considered physically and mentally qualified for military service during the period of 1980 through 1986 is shown in Chart II.C.6. Even considering this more arduous recruiting environment, accession trends for the Selected Reserve, both from nonprior and prior services, have been generally positive, as shown in Table II.C.3.

Chart II.C.6

Decrease in Total 18 to 24 Year-Olds and Those Eligible for Military Service [a, b]



a) Males Age 18-24
b) Eligible Members: Physically, Mentally and Morally Qualified

Table II.C.3

Selected Reserve Enlistments
(Nonprior/Prior Service in Thousands)

	Actual			Planned	
	FY 1980	FY 1986	FY 1987	FY 1988	FY 1989
Army National Guard	50/47	44/39	69/36	69/36	69/36
Army Reserve	26/34	34/54	37/40	37/40	37/40
Naval Reserve[a]	3/25	7/29	12/28	12/28	12/28
Marine Corps Reserve	5/4	9/6	8/6	7/6	7/6
Air National Guard	7/10	6/9	7/1	7/1	7/1
Air Force Reserve	3/10	3/11	4/11	4/11	4/11
Total[b]	**94/130**	**103/148**	**136/121**	**136/121**	**136/122**

[a]All data include Navy Training and Administration of Reserves (TARs) and Category D Individual Mobilization Augmentees (IMAs). Includes Navy Sea Air Mariner (SAM) recruiting program for FY 1985 and after.
[b]Numbers may not add due to rounding.

The quantity and quality of enlistees continues to improve. In FY 1980 only 65 percent of nonprior accessions were high school

graduates. By FY 1986, high school graduate accessions had increased to 89 percent. Additionally, aptitude test scores in Category I-III improved dramatically, from 73 percent in FY 1980 to nearly 91 percent in FY 1986 (see Table II.C.4).

Table II.C.4

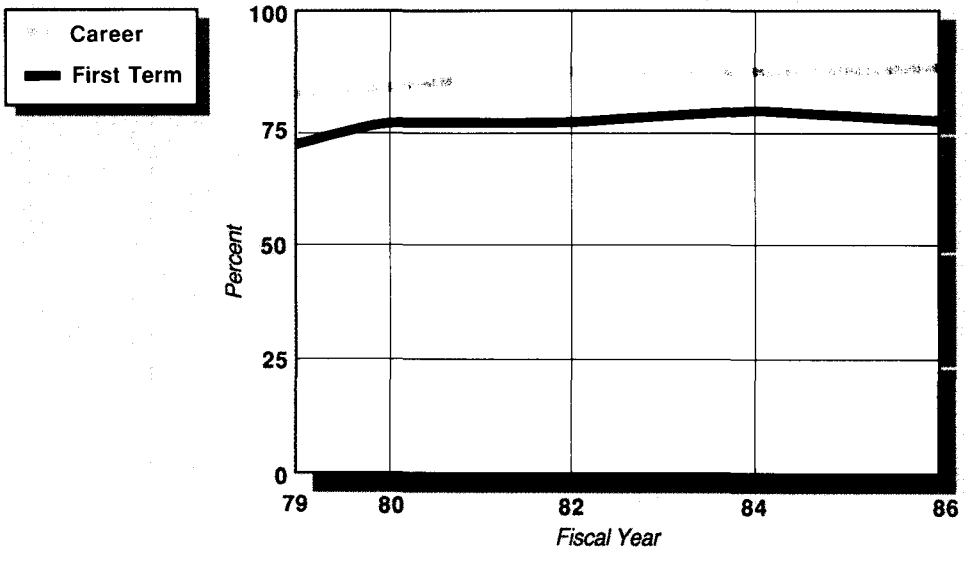
Nonprior Service (NPS) Reserve Enlistments -- High School Graduates and Mental Category

	FY 1980		FY 1986	
Total NPS Enlistments	93,700		102,600	
(Army Reserve Components)	(76,200)		(78,200)	
High School Graduates[a]	61,300	(65.4%)	91,400	(89%)
(Army Components)	(48,600)	(63.8%)	(68,600)	(87.7%)
Mental Category I-III	68,300	(72.9%)	93,600	(91.2%)
(Army Reserve Components)	(53,300)	(69.9%)	(69,500)	(88.9%)

[a]Includes equivalency certificate and diploma graduates and students currently in high school who are expected to graduate.

Chart II.C.7

Increased Selected Reserve Retention Rates



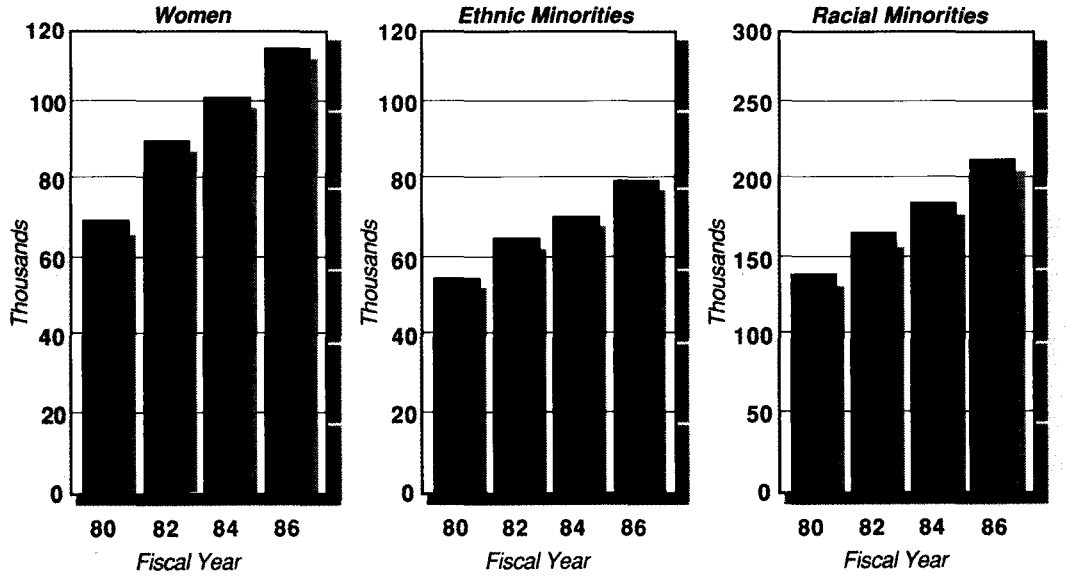
Increased recruiting resources and incentives, particularly educational benefits, are major factors in providing the DoD with a better quality, more highly motivated reservist. Lower attrition is reflected by the steady increase in Selected Reserve end strength while overall accession needs have only slightly increased. To meet projected growth targets of nearly 20 percent through 1990, and to achieve the desired readiness posture, we must maintain the most desirable mix of pay, incentives, and benefits for reserve members and their families. The President has commissioned the Sixth Quadrennial Review of Military Compensation to do a comprehensive in-depth study of all reserve pay issues. Increased retention rates since FY 1980 are reflected in Chart II.C.7.

Our support for enhanced roles for women and minorities in the armed forces is also seen in the Reserve Components (see Chart II.C.8). Our policy for placing women in the Reserve Components is consistent with that of the Active Components. The increase in number of female Servicemembers in the Selected Reserve has been 69 percent since FY 1980.

For minorities, the growth has been just as dramatic. In accordance with the Department of Commerce directives, minorities are measured in two ways, by ethnic group and by racial/population group. The ethnic group identification represents that segment of the population possessing common characteristics and a cultural heritage significantly different from the general U.S. population. Since 1980, the Selected Reserve has experienced a growth of 39 percent in its ethnic population membership. The racial group is composed of persons descending from, or with their origin in, a particular racial group. Noncaucasian members of the Selected Reserve have increased 46 percent since FY 1980.

Chart II.C.8

Growth of Women and Minorities in the Selected Reserve



(3) Full-Time Support Personnel

The Guard and Reserve are experiencing continued growth in full-time support levels. This full-time support is provided by Active Component personnel, Active Guard/Reserve personnel, military technicians, and Department of the Army civilians. Their primary purpose is to provide up-to-date active-duty training and instruction to the Selected Reserve unit to which they are assigned. The total full-time support strength at the end of FY 1986 was approximately 14.5 percent of the Selected Reserve (see Table II.C.5).

Table II.C.5

Full-Time Support Personnel[a]

(End Strength in Thousands)

	Actual		Planned		
	FY 1980	FY 1986	FY 1987	FY 1988	FY 1989
Army National Guard	32	52	54	58	57
Army Reserve	17	26	26	29	30
Naval Reserve	20	25	29	31	32
Marine Corps Reserve	5	6	7	7	8
Air National Guard	26	32	33	34	34
Air Force Reserve	11	15	15	16	16
Total[b]	**111**	**161**	**172**	**174**	**178**
Percent of Selected Reserve	12.9	14.2	14.5	14.5	14.7

[a]Includes Active Guard and Reserve (AGR), Military Technicians (MT), Active Component (AC), and Civil Service (CS) personnel.

[b]Numbers may not add due to rounding.

(4) Individual Ready Reserve (IRR) / Inactive National Guard (ING)

We have taken specific management actions since FY 1980 to increase the size of the IRR and ING manpower pool. Examples include incentives/bonuses for IRR participation, and reserve counterpart or refresher training, where the reservist returns to active duty for up to 30 days to train side-by-side with an Active Component counterpart.

By FY 1990 the IRR/ING strength is projected to be 663,000, primarily as a result of increasing the military service obligations from six years to eight years. We continually pursue initiatives to retain members with key skills and to reduce specific shortages in combat and other critical wartime skills. We will begin this year to

screen the IRR to ensure reservists are available to meet the key skills requirements if mobilization becomes necessary.

d. Civilian Manpower

(1) The Role of Civilians

Our policy is to use civilian employees and contractors wherever operationally possible to free our military forces to perform military functions. This policy not only minimizes the number of men and women required on active duty, it also enables civilians to provide stability and continuity to those functions requiring rotation of uniformed personnel. As a declining youth population forces us to compete harder with the private sector for prospective recruits, use of civilians helps us meet our total manpower demands.

Civilians participate in all defense activities not potentially involving combat and account for one-third of all our active manpower. They are heavily involved in support and auxiliary areas -- research and development, base operations support, depots, shipyards, and other logistics activities -- where they perform functions essential to near- or long-term military readiness. Many occupy overseas positions that would be essential to military operations in wartime. The chapter on force projection (Chapter III.E.) discusses how we would fill these essential positions during a crisis.

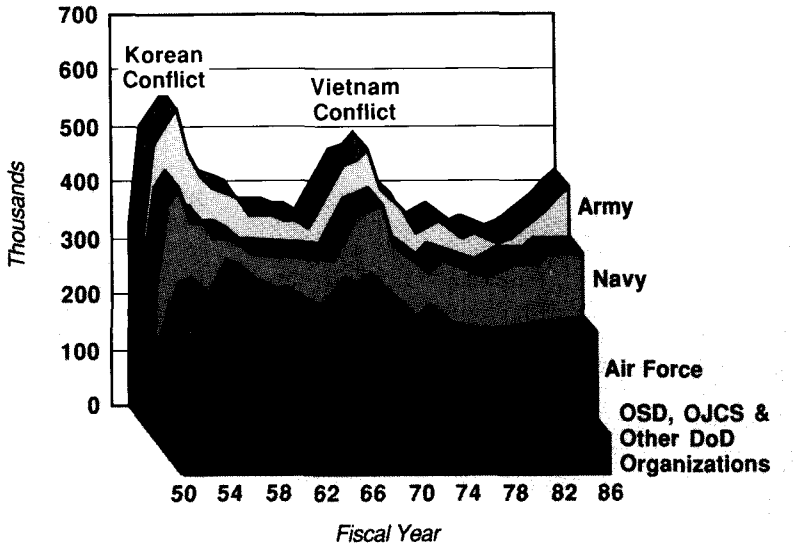
(2) Size of the Civilian Work Force

In FY 1988 DoD plans to employ about 1,123,100 civilians, of whom about 1,034,900 will be hired directly by the United States. The equivalent numbers for FY 1989 will be 1,124,900 and 1,035,800. The remainder for each fiscal year will be indirect-hires: foreign nationals paid by their own government for working at U.S. bases in accordance with Status of Forces Agreements. We reimburse the host country for the cost of these personnel. Chart II.C.9 shows total civilian personnel strength levels since FY 1950.

These employment totals are 13 percent higher than FY 1980 levels and reflect our increased defense resources and workload. Expansion in our overall defense program during the Reagan Administration has necessitated these additional employees. The increase in civilian manpower will continue to help us reduce maintenance backlogs, better manage spare parts, handle more foreign military sales, and civilianize former military positions, allowing the military to return to military positions and thereby increasing readiness. Yet, in spite of this growth, civilian manpower costs have declined as a share of the total DoD budget.

Chart II.C.9

Civilian Personnel Strength Levels



As a result of congressional action, we have operated without statutory or administrative civilian end strength ceilings during FY 1985 and FY 1986. The test of departmentwide ceiling-free operations follows earlier approval by the Congress for a two-year test of ceiling-free operation in the DoD's industrially funded activities such as depots and shipyards. This flexibility to match employment levels to funded workload requirements has produced a wide range of benefits, including gains in military-civilian substitution, improvement in training and work scheduling, and the avoidance of the fire-rehire cycle for temporary employees at the end of the fiscal year to accommodate end strength ceilings.

As a result of this flexibility, defense managers can purchase the services of a larger, but relatively less expensive per person mix of manpower. In addition, many tasks that would otherwise be performed through contracts or by military personnel can be accomplished by civil servants when justified by lower cost or other considerations. We will continue to report to the Congress on ceiling-free end strength operations.

(3) Characteristics and Management of the Department of Defense Civilian Work Force

As the professional, technical, and administrative civilian work force has expanded to accomplish increasingly complex support functions, increased emphasis has been placed on quality recruitment. We have had some success. As the general schedule (white collar) work force has expanded by 13 percent since 1980, employees with a college

degree have increased by 4 percent to nearly 30 percent of the work force.

However, work force composition when viewed using age and length of service percentage distributions as indicators, is also undergoing change. Among our white collar work force there has been a decline in our more senior, experienced employees, with no corresponding increase among those who are under age 31. Work force expansion has occurred principally in the 30-to-40-year age group, with under ten years of service. Similar changes are also occurring in the blue collar work force, despite the fact that the total size of that force has remained constant.

The dynamic changes in the composition of the civilian work force are of immediate concern, for they are indicators of problems which, if left unattended, may result in future recruitment and retention difficulties. We anticipate a continuing demand for highly skilled specialists in acquisition, engineering, and scientific research, in addition to our need for innovative managers and administrators. We endorse the Civil Service Simplification Act, introduced by the Administration, which would allow the Office of Personnel Management to approve alternative personnel systems designed to enhance recruitment and retention.

3. Conclusion

Without qualified, dedicated people to operate and maintain military equipment and fill our combat and support units, our improvements in force structure and modernization over the past six years would have been marginal at best. Therefore, people remain a matter of utmost concern to this Administration. If we are to maintain our current defense posture, we must also maintain our ability to attract and obtain the high-quality people we now have in each category of our Total Force. We must strive to manage these people in ways that achieve maximum flexibility, effectiveness, and productivity. Accomplishing these goals is our challenge for the future, and it is a challenge we must meet if we are to ensure our nation's security.

D. THE INDUSTRIAL BASE

1. Introduction

The ability of our industrial base to support flexible responses to national emergencies is critical to the overall national security objectives of the United States. A healthy industrial base, capable of meeting both civilian and military needs in peacetime as well as during crises and periods of prolonged combat, contributes to our deterrent posture and the general well-being of the nation.

Recent studies have highlighted serious deficiencies in the industrial base. Largely due to a lack of competitiveness, many basic industries important to defense production have declined. This decline is eroding the mobilization manufacturing base and, left unchecked, can rob the United States of technical expertise necessary for long-term economic survival. Erosion of our industrial base could ultimately lead to a "hollow defense" if vigorous action is not taken now.

Since we must rely on the ingenuity and creativity of the private sector for the development of new technologies and techniques, our goal is to formulate policies and programs that foster a climate conducive to innovation. Thus some of our efforts promote industrial competitiveness by emphasizing increased productivity and quality, both in products and in the work force, and by streamlining the acquisition process to reduce excessive contract requirements that unnecessarily raise the cost of weapons systems.

Where we find that overseas sourcing and dependency are diminishing U.S. industrial preparedness, we are examining innovative ways to make critical industrial sectors more competitive, and less vulnerable to trade disruptions. Furthermore, we are exploring development of a Defense Manufacturing Initiative that would result in new measures to improve the competitiveness of the industrial base. These and other projects are discussed below.

2. Industrial Capabilities Assessment Systems

a. *Industrial Alert Conditions*

To demonstrate national intentions and resolve in peacetime, as well as during periods of political, economic, and security crises, the domestic industrial base must be capable of responding flexibly across a broad spectrum of national emergencies. To achieve this capability we are exploring the feasibility of a system of Industrial Alert Conditions (INDCONs). INDCONs, similar to the military system of defense conditions, will be supported by a data base that identifies the range of possible industrial capabilities and responses. This initiative will prioritize and implement peacetime measures to improve industrial responsiveness, help reduce the time required by

industry to meet emergency needs, and provide a pre-developed set of response options for use during crises. The system will create a series of graduated responses to crises within a range of existing political, resource, and policy constraints.

b. Defense Industrial Network

We are developing the Defense Industrial Network (DINET) -- an automated information system that will:

- -- Help decisionmakers answer product-specific questions on how quickly the industrial base can respond under peacetime, surge, and mobilization scenarios;
- -- Identify production bottlenecks and options for alleviating them;
- -- Provide indications of where foreign sourcing is occurring in the lower production tiers of the industrial base; and
- -- Identify the relationship suppliers have to more than one weapon system.

The DINET is being designed and data elements collected from a number of sources. Pertinent foreign sourcing, industrial capabilities, and materials end-use data are being gathered from the Departments of Commerce and the Interior, and components of the DoD.

c. Production Base Analysis

The Military Departments and Defense Logistics Agency each prepare an annual Production Base Analysis (PBA) as part of the Industrial Preparedness program. The PBA examines the industrial capabilities for supporting major weapons systems. It points up specific constraints and bottlenecks in the base and recommends solutions. The PBA provides the data for decisions on programming and budgeting industrial preparedness measures, which include enhancements in maintenance, modernization, and expansion of the industrial base.

3. Acquisition Streamlining, Productivity, and Quality

a. Acquisition Streamlining

Acquisition streamlining is a major DoD initiative for reducing the costs and time involved in weapons systems acquisition. We began to implement acquisition streamlining in January 1984, when the Services were directed to identify pilot programs where acquisition streamlining would be employed. We also view acquisition streamlining as an effective long-term solution to the problem of overspecification. Indeed, the Final Report of the President's Commission on Defense Management noted our progress, observing that:

All too often requirements for new weapon systems have been overstated. This has led to overstated specifications, which has led to higher cost equipment. Such so-called goldplating has become deeply embedded in our system today. The current streamlining effort in the DoD is directed at this problem.

Acquisition streamlining is a mandatory requirement for all new DoD system acquisition programs beginning development. Under this initiative, emphasis is being placed on specifying contract requirements in terms of what is needed (performance required), rather than detailed "how to" specifications and requirements during the early phases of design. Contractor recommendations and decisions on the most cost-effective application of military specifications and other detailed contract requirements will be an integral part of the early design process. Cost-benefit analysis will be central to decisions on what requirements are ultimately included in the contract. Our goal of acquisition streamlining is to provide those involved early in a weapons system's design with the flexibility to identify the most appropriate requirements for contractual incorporation at the most appropriate time.

Important milestones achieved include issuance, in January 1986, of a DoD Directive (DoDD 5000.43) covering the program, and submission of proposed changes to the Federal Acquisition Regulation in July 1986. Acquisition streamlining advocates have been appointed in each Military Department. Acquisition streamlining has been integrated into the curriculum at the Defense Systems Management College. Progress in implementing the program will be reviewed by the Joint Requirements and Management Board (JRMB) at major program decision milestones.

b. Industrial Modernization Incentives Program

The Industrial Modernization Incentives Program (IMIP) is a major DoD initiative that completed a concept test phase during the past year. It is an important part of our efforts to promote manufacturing and productivity improvement in the acquisition environment. The IMIP is aimed at increasing defense contractor capital investment, leading to greater productivity, improved quality, reduced DoD acquisition costs, and an enhanced industrial base. The main focus is on encouraging contractors to invest their own funds for this purpose. Limited DoD seed funds play a significant role in certain circumstances, but dwindling funding levels have hampered overall efforts. The primary incentives offered are shared savings, contractor investment protection, and award fees.

Important milestones include issuance of a new DoD Directive covering the program (DoDD 5000.44) in April 1986. Related coverage in the DoD Federal Acquisition Regulation Supplement was published for public comment in May 1986, and the DoD Guide on the IMIP was signed in August 1986. Proper follow-through at this stage is necessary to achieve the full benefits of the program. The IMIP presents a significant opportunity to contribute to the revitalized, modern, and efficient industrial base so important to the security of our nation.

The IMIP represents another DoD program that alleviates shortcomings noted in the Packard Commission Report. The report states that:

> ***DoD's procurement practices lead to significant disincentives for U.S. manufacturers to modernize their production processes, and thus impacts both peacetime efficiency as well as crisis responsiveness. . . . The problem has been studied, reviewed, and analyzed by many -- with documented findings. There is a need now for selective and prudent investments to obtain real improvement in industrial base responsiveness.***

By aggressively seeking ways to improve the management of DoD resources, we were close to resolving the commission's concerns in this area prior to the publication of its report.

4. Enhancing the Quality of the Acquisition Work Force

The defense acquisition work force is our bridge to the industrial base and the foundation for all our defense acquisition improvement efforts. We currently have a highly capable acquisition work force of military and civilian employees who manage research and development, procurement, and logistics programs. Our acquisition work force has done an admirable job considering the large task involved, and the intense pressure and close public scrutiny they have been subjected to over the past few years. We must continue to sharpen their skills through enhanced career programs and quality training. Furthermore, we have directed that experience criteria and mandatory training requirements be established for both military and civilian program managers and contracting personnel. Two new DoD Directives implement this. Current training curriculum and methods of instruction are under study. Our goal is to provide more structured management of the acquisition training base. In support of this goal, we also are studying the concept of a Defense Acquisition University.

5. Industrial Base Programs and Initiatives

a. Manufacturing

(1) Defense Manufacturing Initiative

We intend to place increasing emphasis on manufacturing in the future. To this end, a new concept -- The "Defense Manufacturing Initiative (DMI)" -- is in the formative stages. Our intention is to identify, integrate, and promote new and promising manufacturing and industrial processes that have the potential to enhance not only our defense industrial base, but U.S. industry as a whole. Improved

competitiveness, based on changes in manufacturing procedures, technologies, and structure, is an objective of the DoD, as well as the commercial industrial base on which we rely. With an annual procurement budget in excess of $100 billion, we have the opportunity and leverage to expand our leadership role in promoting manufacturing and productivity improvement. The DMI will focus on technological, managerial, and human resource aspects that promote manufacturing and productivity improvement. To implement the DMI, we plan to form a steering group with representatives from the Office of the Secretary of Defense, DoD components, other government agencies (such as the Departments of Commerce and Labor), the executive branch, academia, and industry.

(2) Manufacturing Technology (ManTech) Program

The ManTech program improves our defense industrial base productivity and responsiveness by supporting initiatives to advance production technologies of value to the DoD. We have a particular interest in advancing manufacturing technology since we rely on technological rather than numerical superiority as a basis for the nation's defense. State-of-the-art equipment and production techniques require continual development of advanced manufacturing technology.

The Manufacturing Studies Board of the National Research Council is completing a review of the ManTech program. In its initial report, the board concluded that funding the ManTech program is essential if we are to meet our advanced manufacturing technology requirements.

The ManTech program has had a series of success stories over the years. Perhaps the most significant is the development of numerically controlled machine tools. We initially invested in this technology to enable our contractors to produce high performance aircraft. Today the numerically controlled machine tool industry exists worldwide and is essential to the civil as well as the military industrial sectors. One recent ManTech investment developed a machine that permits the repair of high-cost aircraft and missile-hybrid circuits that previously were scrapped as defective. Over 100 of these machines are now being used throughout industry. The audited savings to date are over $150 million, with additional savings projected.

We recently reviewed the scope of ManTech investments and have concluded that the program should begin to focus on long-term initiatives, in addition to shorter term DoD and contractor production needs. We envision a program that will concentrate on major manufacturing technology thrust areas to influence long-term factory floor technological advances. Our first major thrust area will be on machine tool technology. Additional thrust areas undoubtedly will focus on computer integrated manufacturing hardware and software; applications of artificial intelligence technologies needed for the factory floor; and the development of advanced sensor technology that will result in industrial machines capable of assessing their environment -- in some cases through vision-based technologies. Eventually, ManTech will become an individual element of our DMI, which will be much broader in scope.

(3) Machine Tool Action Plan

The President has determined that the U.S. machine tool industry is critical to the national defense. This industry has been under severe economic stress during the past several years. We are working closely with the Department of Commerce to develop and then implement a series of initiatives designed to strengthen and revitalize this critical national asset.

b. Defense Production Act

The Defense Production Act (DPA) is a congressional mandate to assure that the nation will have both sufficient resources and the personnel to manage them to meet national defense needs in potential national emergencies. Although originally passed in 1950 as emergency legislation, the DPA has been extended regularly every two or three years since 1953.

(1) Priorities and Allocations Program (Title I)

The DPA of 1950 is our legislative authority for assuring the industrial readiness of the United States and for keeping our major defense programs on schedule and within cost. Our principal nuclear deterrent forces, such as the B-1 bomber, Trident submarine, and Peacekeeper missile have production schedules, specified shorter lead times, deployment plans, and cost containment schedules that rely on the DPA (Title I) provisions.

(2) Production Expansion (Title III)

Title III of the DPA provides for the expansion of industrial capacity to meet national security needs. We use purchase guarantees to establish required capacity where ordinary market mechanisms or stockpiling prove inadequate to meet defense needs. A new Title III Program Office became operational on October 1, 1986. This office coordinates all Title III projects in an effort to expand production capacity for critical materials and components for which the United States is experiencing a critical shortage. We are now issuing contracts for increasing industrial capacity for high-purity polysilicon. We expect funds for FY 1986 to be obligated by December 1987, for projects in high-purity quartz fiber; polycarbonate; pitch-based carbon fibers; and reclamation of superalloy scrap. Later projects will include high-purity quartz fiber (a follow-on project), intrinsically pure polysilicon (another follow-on), and discontinuous-silicon carbide reinforced aluminum.

(3) The Strategic and Critical Materials Stockpiling Act

The congressionally stated purpose of the National Defense Stockpile is to ensure a reliable supply of critical industrial materials necessary to maintain our nation's industrial readiness in time of war. Assured access to many materials, ranging from basic raw materials to exotic high technology materials is needed to eliminate or minimize bottlenecks that would compromise our ability to meet military, industrial, and civilian needs during an emergency. As a result of recent studies indicating a need to modernize and upgrade our readiness posture, we look to improving stockpile assets to meet the needs of our new and emerging weapon systems. Much of this focus is on availability of materials to the DoD, along with development of policies designed to ensure defense production during national emergencies.

c. Government-Owned Industrial Property Initiatives

The Defense Industrial Reserve Act specifies that an essential nucleus of government-owned plants and equipment may be retained to support national defense, or for other emergency use. It further provides me with the authority to determine essential facilities and designate what excess industrial property shall be liquidated. I fully support the underlying intent of the Congress that to the maximum extent practical, we will rely upon private industry to support defense production.

Recent reviews conclude that positive management actions can reduce government ownership of plants and equipment in the possession of defense contractors or in idle storage. These reviews also conclude that millions of dollars are being needlessly expended annually by our retention of excess or otherwise nonessential property. Therefore, I am directing the DoD components to accomplish the following:

-- Dispose of old, obsolete, and nonessential government property;

-- Reduce the amount of government property in the possession of contractors;

-- Bring a halt to the continuing increase in new government-owned property going to contractors;

-- Use existing incentives to encourage increased private sector investment in productivity-enhancing manufacturing equipment;

-- Eliminate the practice of routine transfer of government property from one contract to another;

-- Identify plants and equipment that are considered essential for government ownership;

-- Stop the current practice of storing inactive property unless specifically justified as essential for the defense mission; and

-- Improve property accountability records and accounting systems to provide improved control and management oversight.

The Under Secretary of Defense for Acquisition will oversee the implementation of these industrial property initiatives to ensure continued visibility and accountability. The Defense Council on Integrity and Management Improvement will, as appropriate, follow implementation actions.

6. Conclusion

A healthy and responsive domestic industrial base is essential to our ability to maintain a credible deterrent and to meet our military needs during crisis. In recent years the United States has witnessed stagnation in its manufacturing economy, with actual declines in many industries. The problem is national in scope with direct implications for the Defense Department.

Our efforts to stem this decline and help restore vitality to U.S. industry must be conducted so as to create a climate that stimulates our declining industries to become internationally competitive once again. The key to our success will be the advances in design and application achieved as a result of innovations within individual companies.

We are working, and will continue to work, to help restore competitiveness to U.S. industry through policies that increase productivity and quality and decrease the costs of doing business with the department. The problems we face are complex and require long-term strategies. As partners with industry, we will formulate the best possible programs to restore the competitiveness of this critical national asset -- our industrial base.

Part III
Defense Programs

A. LAND FORCES

1. Introduction

a. *Force Rationale*

Land forces -- the Army and Marine Corps -- are the only component of our armed forces capable of seizing and defending territory. To support our strategy of deterring aggression, a significant portion of our land forces are forward deployed in Europe and the Far East. Others, located in the United States, must be prepared to reinforce these forces or deploy rapidly to other areas. In this way, our land forces form the bedrock upon which our strategy for deterring nonnuclear war is based.

In coordination with allied forces, and with the support of U.S. air and naval forces, our land forces must be capable of defeating the heavily armored, tactically mobile forces of the Warsaw Pact; of aiding other friendly states threatened by modern, well-equipped forces; and, at the other extreme of the conflict spectrum, of providing rapidly deployable forces worldwide for "show of force" missions or for operations against less sophisticated forces.

In the final analysis, our success or failure in war is based on our ability to hold and control the ground. Thus, the military posture of our land forces is central to our ability to deter aggression or, if deterrence fails, to defend our interests. Clearly, success on the battlefield is not simply a function of the aggregated potential of weapons. It is a function of sound doctrine, well-trained forces, and qualitatively superior systems and technologies with which to balance the quantitative advantage now enjoyed by the Soviet Union.

Because of the variety of possible contingencies, structuring our land forces is a difficult problem. Those forces capable of opposing the Warsaw Pact and other well-equipped mobile forces are the most expensive and the most difficult to deploy, whereas those that can deploy rapidly -- predominately light infantry -- are limited in their capability to oppose armored forces. Similarly, most rapid-response missions require highly trained and readily deployable active forces. Yet, because active forces are much more expensive than reserves, we maintain as small an active force as feasible.

These factors, combined with a scarcity of resources, drive our force planning and determine the size and mix of forces we maintain. First and foremost, we must provide forward-deployed forces, rapid reinforcements for them in time of crisis, and "forcible-entry" forces for operations worldwide. Also, we need to give our forces adequate combat support and combat service support (e.g., engineers, maintenance, and medical care) to sustain them in peacetime and in war. We attempt to reduce costs and increase our capability for worldwide deployment through judicious prepositioning of equipment and supplies.

b. Program Goals

(1) General

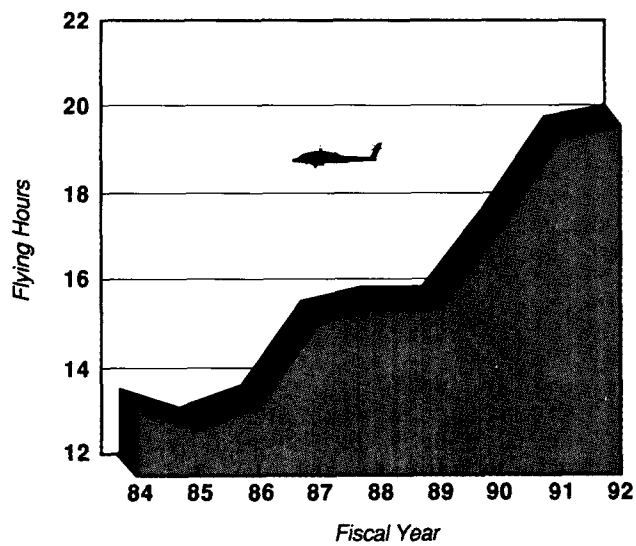
Our program seeks to provide the minimum essential number of combat forces that can be properly equipped and trained, and adequately supported. The forces must also be carefully balanced, both between their active and reserve elements and between their capabilities and those provided by allies. The Army's goal is to attain a modernized and ready 28-division force. The Marine Corps program is structured to support three active Marine Amphibious Forces and one reserve division-wing team. The Army will continue its buildup of five light infantry divisions, and the Marine Corps, having completed the establishment of its third Maritime Prepositioning Ship (MPS) Squadron in FY 1986, will continue to test and exercise MPS concepts.

(2) Readiness

Readiness is the ability of forces to fight with little or no warning and, if necessary, to reinforce forward-deployed fighting forces with active and reserve units from home bases. In support of treaty obligations, we routinely station Army forces in Central

Chart III.A.1

Monthly Flying Hours Per Crew
(Active Army Forces)



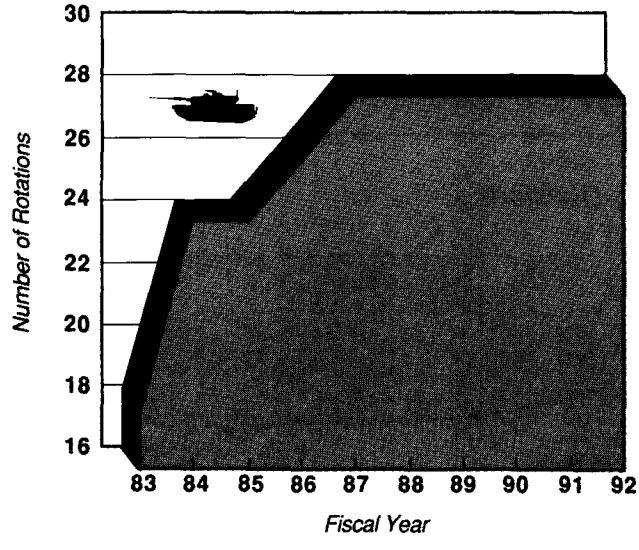
Europe and Korea, and Marine forces in Japan and aboard amphibious ships at sea. Both the forward-deployed units and the larger forces stationed at home must be given adequate equipment and proper training to be ready to fight. We have made progress in each of these areas, but in some cases, funding restrictions have forced us to reduce the rate of training and modernization.

Tough, realistic training is the cornerstone of combat readiness. Army units are benefiting from rotations to the National Training Center and from the use of new automated training devices. In FY 1988, 28 active and reserve heavy battalions will rotate through the National Training Center, maintaining our current level of training. This program offers realistic mechanized training for battalion-sized forces, and is critical to our ability to defeat modern Soviet-type armies. Army monthly aircrew flying time will increase slightly in FY 1988 and FY 1989 to an average of 15.8 hours. Charts III.A.1 and III.A.2 show recent and projected training trends.

Chart III.A.2

Battalion Rotations Through the National Training Center

(Active and Reserve Army Forces)



Likewise, a rigorous training regimen keeps the Marine Air-Ground Task Forces (MAGTFs) proficient. Marine ground and air forces frequently conduct combined-arms exercises each year at the Marine Corps Air- Ground Combat Center in California. Numerous amphibious exercises and other programs routinely conducted at home and abroad provide additional opportunities for training.

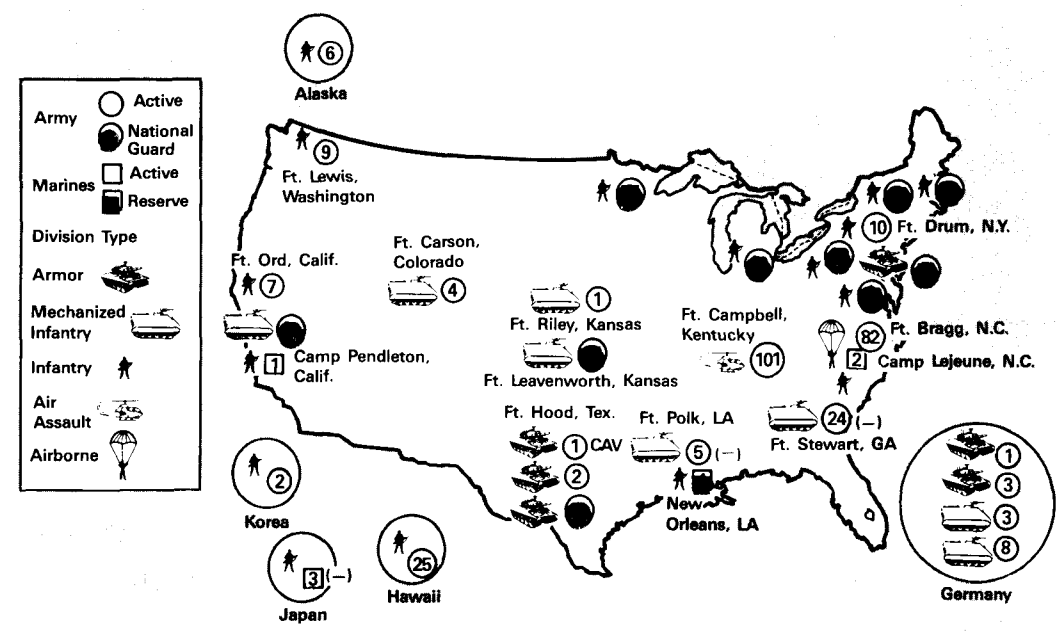
(3) *Sustainability*

Sustainability is a measure of the staying power of our forces. The Army and the Marine Corps are making progress in this area, but at a slower pace than is desired. We are procuring and prepositioning major items of equipment that would be needed to replace combat losses, and are expanding our stocks of spares, repair parts, and other secondary items needed to keep that equipment functioning on the battlefield. On the other hand, fiscal constraints have caused us to reduce funding for Army and Marine munitions 9 percent in FY 1988 and 7 percent in FY 1989 below budgeted FY 1987 levels, and funding for secondary-item war reserves will decrease slightly in both years.

c. *Force Composition and Disposition*

We have made no significant changes in our force structure plans since last year. Our FY 1988 program continues the expansion to a 32-division force, establishing units to support the new divisions as they become deployable. The force will eventually comprise 21 active divisions (18 Army and 3 Marine) and 11 reserve divisions (10 Army and 1 Marine). Fully two-thirds of the support structure in FY 1988 will be in the reserves. In addition, we will continue to rely on allies for a significant amount of support, both in Europe and Korea.

Chart III.A.3
Deployment of U.S. Divisions



Resource constraints force our active divisions to rely on reserve forces to reach their full combat potential. Five of our 18 active Army divisions will draw one-third of their combat units from the reserves. Four other divisions will rely on the reserves to supply one or more combat battalions. Reserve units that are assigned to active divisions are commonly called "roundout" units. This practice provides fully structured divisions in time of war and helps reduce the cost of manning our land forces in peacetime.

Chart III.A.3 shows the planned location of the Army's and Marine Corps' active and reserve divisions at the end of FY 1988. In addition to the deployed forces shown, two brigades of CONUS-based Army divisions are stationed in Europe, and one Marine brigade is based in Hawaii. At the end of FY 1987, the Army will maintain one theater defense brigade and two armored cavalry regiments in Europe, one separate National Guard infantry brigade in Hawaii, five active and eighteen reserve brigades and regiments in CONUS, an active infantry brigade in Panama, and a National Guard infantry brigade in Puerto Rico.

In FY 1988, we will continue to reorganize and consolidate the Army's active force structure. The light force structure will grow as the 6th Infantry Division (Light), based in Alaska, and the 10th Mountain Division, at Fort Drum, New York, each receive an additional active infantry battalion. Both divisions have been assigned reserve roundout brigades. Overall Army and Marine structure is shown in Chart III.A.4.

Chart III.A.4

Army and Marine Division Structure

Divisions	Heavy[a]	Light[b]	Total
Active Army	10	8	18
Army National Guard	4	6	10
Active Marine Corps	—	3	3
Reserve Marine Corps	—	1	1
Total	**14**	**18**	**32**
Nondivisional Maneuver Brigades/Regiments[c]			
Active Army	6	3	9
Army Reserve Components	11	9	20
Total	**17**	**12**	**29**

[a]Armored and Mechanized.
[b]Marine Forces, Infantry, Air Assault, Airborne, Light Infantry.
[c]These units have not been assigned a *roundout* mission.

In FY 1989, we will reorganize three infantry battalions in the 2nd Infantry Division, based in Korea, into two air assault infantry battalions. This will increase the division's rapid-reaction capability.

The reserve combat force structure will change with the reorganization of two armored cavalry regiments into heavy brigades. The heavy divisions are continuing their conversion to the "Army of Excellence" configuration. The tactical support structure will increase by 13,900 spaces over FY 1988 and FY 1989.

2. Equipping the Force

Modernization of the land forces will continue over the next five years as we introduce new combat systems, upgrade existing ones, and develop new systems for the future. The most dramatic gains in warfighting capability will stem from the introduction of new close-combat systems, such as the Army's M1A1 tank, M2A1/M3A1 infantry/cavalry fighting vehicles, and AH-64 attack helicopter. Critical research and development efforts, while not contributing to immediate warfighting capability, are needed for the future.

a. Close Combat

Ground direct-fire combat systems support our forces' ability to conduct close combat and maneuver.

M1 Abrams -- Modernization of the Army's tank force with the 120mm-gun M1A1 will continue throughout the period. As a result of funding limitations, procurement levels for the Army will decline from the previously planned 840 tanks a year to 600 in FY 1988 and FY 1989, and then 480 a year in FY 1990 through FY 1992. This will delay our modernization of two Army tank battalions by two years. The Marine Corps will begin buying the tank in FY 1989.

M2 / M3 Bradley -- Production of M2/3 Bradleys will also be reduced relative to earlier plans. Procurement of approximately 600 fighting vehicles a year is anticipated. This will delay achieving the Army's acquisition objective of 6,882 M2 infantry and M3 cavalry vehicles.

Antitank Missile Systems -- The Advanced Antitank Weapon System-Medium (AAWS-M), will undergo technical demonstration prior to entering full-scale development. This constitutes an important first step toward the eventual replacement of the Dragon system, which has been in the inventory since the early 1970s. In addition, the Army will begin developing a new system, the Advanced Antitank Weapon System-Heavy (AAWS-H), as a potential replacement for the tube-launched, optically tracked, wire-guided (TOW) missile. Initial production of both systems is expected in the mid-1990s. To bridge the gap until they are fielded, the Army and Marine Corps will continue exploring possible improvements to the TOW and Dragon systems. Combined Army and Marine Corps procurement of TOW missiles will remain at approximately 12,000 a year in both FY 1988 and FY 1989.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
M1A1				
Development:				
$ Millions	22.3	31.3	54.3	46.0
Procurement				
Quantity	790	800	600	600
$ Millions	1,752.5	1,799.4	1,537.0	1,569.3
M2A1 / M3A1				
Development:				
$ Millions	19.2	44.3	21.6	21.8
Procurement:				
Quantity	716	662	616	618
$ Millions	735.6	837.1	736.5	714
AAWS-M				
Development:				
$ Millions	56.8	46.9	30.5	115.4
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	-	-
AAWS-H				
Development:				
$ Millions	-	-	28.6	116.2
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	-	-

b. Aviation

Aviation forces support battlefield operations by providing maneuverability, direct fire support, and the capability to interdict enemy rear forces and support areas. The FY 1988/FY 1989 budget will continue our major modernization of the fleet, which is designed to increase the firepower of the ground-attack component, increase lift capability in the assault-support element, and improve survivability forcewide.

(1) Army Attack and Scout Helicopters

AH-1S (Cobra) -- The Army's fleet of 1,087 Cobra helicopters will continue to provide light heliborne antiarmor capability well into the 1990s until it is replaced by the LHX. The Cobras are armed with the TOW missile, 2.75 inch rockets, and either a 20mm cannon or combination 40mm grenade-launcher/7.62mm machine gun.

AH-64 (Apache) -- The Army will field 29 attack helicopter battalions in its active and reserve forces by FY 1991. Armed with up to 16 Hellfire missiles, the AH-64 significantly increases the Army's antiarmor capability. Funding limitations have forced the Army to reduce its procurement objective from 675 to 593 aircraft. The FY 1988 budget request, the last planned year for AH-64 procurement, funds 67 aircraft.

LHX -- Today, the Army operates more than 7,000 light helicopters for utility, scout, and attack missions. The LHX, currently under advanced-technology development, will begin replacing these helicopters with a common air vehicle in the mid- to late-1990s. The Army plans to start full-scale development of this advanced rotorcraft in early 1988. The FY 1988/FY 1989 budget request funds the start of a five-year competitive development of scout-attack (SCAT) and utility prototypes. Selection of the winning team and production contract award is planned for 1993.

(2) Army Assault-Support Helicopters

UH-60 (Black Hawk) -- Black Hawk's lift capability, reliability, and survivability will greatly increase the effectiveness of Army air assault and combat support operations. The FY 1988/FY 1989 budget request funds 133 aircraft, continuing a procurement line first started in 1977. The Army will initially procure a total of 1,107 of these aircraft through early 1991.

CH-47D (Chinook) -- This upgraded version of the CH-47C medium-transport helicopter incorporates stronger engines and an improved rotor system. It also is more reliable and easier to maintain. The funds requested for FY 1988 and FY 1989 will allow us to upgrade 96 aircraft.

(3) Marine Corps Assault-Support Helicopters

CH-53E (Super Stallion) -- The free world's largest helicopter, the CH-53E will provide heavy lift for Marine combat systems such as seven-ton M198 howitzers and 14-ton light armored vehicles. Four squadrons of the helicopters will be fielded by 1990, including the procurement of 13 aircraft requested in the FY 1988/FY 1989 budget.

AH1-W (Super Cobra) -- The Super Cobra will have improved engines and the ability to fire Hellfire, TOW, and AIM-9 air-to-air missiles. Inventory objectives will be achieved by a combination of new procurement and modification of existing aircraft.

MV-22 (Osprey) -- This advanced tilt-rotor aircraft will begin to replace the Marine Corps' CH-46 assault-support transports in the early 1990s, and provide support to Army Corps and theater commands and Army special operations forces in the mid-1990s. It will provide significant increases in speed, range, and survivability over conventional helicopters. The MV-22 entered full-scale development in 1986.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
MV-22				
Development:				
$ Millions	525.2	422.7	465.7	306.7
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	-	338.2
LHX				
Development:				
$ Millions	107.2	142.9	408.0	616.0
CH-53E				
Development:				
$ Millions	1.9	1.6	20.1	9.2
Procurement:				
Quantity	4	10	6	7
$ Millions	59.1	152.4	104.3	126.5
AH-1W				
Development:				
$ Millions	11.3	5.8	11.2	12.6
Procurement:				
Quantity	22	-	22	12
$ Millions	179.2	35.5	172.7	86.8
AH-64				
Development:				
$ Millions	10.5	-	18.4	4.8
Procurement:				
Quantity	116	101	67	-
$ Millions	1,096.5	1,042.6	654.6	77.7
UH-60				
Development:				
$ Millions	15.8	-	-	-
Procurement:				
Quantity	78	82	61	72
$ Millions	386.1	363.4	453.1	486.5
CH-47D				
Development:				
$ Millions	-	-	-	-
Procurement:				
Quantity	48	48	48	48
$ Millions	275.2	256.0	231.9	265.4

c. *Air Defense*

Air defense systems protect our forces during the conduct of close combat and rear defensive operations. Programs for FY 1988 through FY 1992 focus on the development of divisional air defense systems for the 1990s.

Forward-Area Air Defense (FAAD) -- The FAAD initiative is designed to modernize our divisional air defenses. The concept addresses both weapons and command and control systems. It consists of five elements: a replacement for the 20mm Vulcan gun; a pedestal mount to improve Stinger effectiveness; a non-line-of-sight weapon to counter an emerging helicopter threat; an automated command, control, and intelligence (C^2I) system; and improvements in the antiair capabilities of combined-arms weapons, such as the M1 tank and Bradley Fighting Vehicle, and antiair capability for helicopters. The concept was reviewed by the Joint Requirements and Management Board (JRMB) last July. In addition to approving the concept for planning purposes, the JRMB authorized the system's C^2I component to proceed into full scale development, and scheduled subsequent milestone reviews for the remaining elements of the system.

Light Armored Vehicle - Air Defense (LAV-AD) -- The LAV-AD belongs to a new family of light armored vehicles designed to improve the mobility, firepower, and survivability of Marine forces. Its job will be to carry air-defense weapons protecting Marine ground forces from air attack. Approximately 125 air-defense vehicles will be procured during FY 1991 and FY 1992.

Stinger -- The Army, Marine Corps, and Navy will continue procurement of the Reprogrammable Microprocessor (RMP) version of the Stinger missile throughout the period. Combined procurement will be approximately 7,700 missiles in FY 1988, and about 6,000 a year through FY 1992.

Chaparral -- The Army expects to complete preproduction testing of the Rosette Scan Seeker version of the Chaparral missile in FY 1987, and to award a limited production contract in FY 1988. Current plans call for increasing the procurement rate to about 1,200 missiles a year by FY 1990.

Hawk -- First fielded in 1960, Hawk medium-range missiles are designed to provide around-the-clock protection against low-to-medium-altitude air attacks. Currently, the missiles are undergoing a major modification to improve their firepower, reliability, and tactical mobility. In addition, the Marine Corps is continuing to buy new Hawk missiles.

Patriot -- The Patriot is the Army's most advanced long-range surface-to-air missile. It is designed to operate in an electronic countermeasures environment against high-performance aircraft. Three battalions of the missiles have been fielded with our forces in Europe. Additionally, the Netherlands, Germany, and Japan are procuring the system for their forces. The FY 1988/FY 1989 budget requests funds for NATO Rationalization, Standardization, and Interoperability (RSI), and development of product improvements to increase Patriot's effectiveness. We have also initiated the Joint Tactical Missile Defense program, which could provide Patriot a defense against increasingly accurate Soviet tactical ballistic missiles.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
LAV-AD				
Development:				
$ Millions	-	-	16.0	15.3
Stinger				
Development:				
$ Millions	21.9	7.0	4.8	-
Procurement:				
Quantity	3,709	6,250	7,692	8,115
$ Millions	283.9	362.0	358.2	417.4
Chaparral				
Development:				
$ Millions	15.2	5.4	1.5	-
Procurement:				
Quantity	-	-	122	368
$ Millions	122.4	28.5	34.2	58.4
Patriot				
Development:				
$ Millions	47.7	24.0	27.0	34.1
Procurement:				
Quantity	560	700	715	815
$ Millions	874.8	962.3	891.5	841.5
I-HAWK				
Development:				
$ Millions	2.3	10.2	15.4	16.4
Procurement:				
Quantity	550	430	525	526
$ Millions	203.4	176.4	227.2	208.2

d. Artillery Fire Support

We are improving our forces' ability to detect advancing enemy formations and mass large volumes of accurate, effective firepower against them. To that end, we are upgrading the target-acquisition and fire-control capabilities of our fire-support systems, developing new munitions with improved laser-homing capabilities, and increasing the overall sustainability of our fire-support forces on the battlefield.

Target Acquisition -- The Army is working on two new systems that will provide long-range targeting support for its missile and artillery batteries. The Joint Surveillance and Target Attack Radar System (JSTARS), described in more detail in the Deep Operations section, will be able to locate and track moving targets at extended ranges. The Aquila remotely piloted vehicle (RPV), an unmanned aircraft, will be used to locate and designate targets for laser-guided weapons and to provide firing data for artillery units.

Fire Control -- Under development by the Army, the Advanced Field Artillery Tactical Data System (AFATDS) is a new-generation automated fire control system designed to increase the efficiency and targeting capacity of all available ground indirect fire support means. The

Marine Integrated Fire and Air Support System (MIFASS), under development by the Marine Corps, will integrate the coordination and control of both ground indirect fire support systems and tactical air support.

Weapons and Support Systems -- The Multiple-Launch Rocket System (MLRS) is a high-rate-of-fire weapon assigned to general support artillery units. It can be used to supplement cannon artillery fire or to strike targets, such as enemy artillery and air-defense systems, beyond cannon range. A single launcher can fire its load of 12 rockets in less than a minute, covering an area the size of six football fields with approximately 7,700 grenade-like submunitions effective against both personnel and lightly armored targets. The Army began deploying the MLRS in FY 1983 and is using multiyear procurement authority for its continued production. At the same time, as part of a multinational program with Germany, France, and Great Britain, the Army is working on a warhead for the system that will be able to dispense terminally guided submunitions.

In the coming years, the Army and the Marine Corps will continue modernizing their inventories of howitzers. The FY 1988/FY 1989 budget seeks funds for the Howitzer Improvement Program, under which the Army is upgrading its self-propelled M109s. Entering procurement this year is a new towed 105mm howitzer for the Army's light infantry divisions.

Ammunition -- The Army and the Marine Corps are continuing to build their inventories of improved conventional munitions, 155mm howitzer-delivered scatterable mines, and 155mm laser-guided Copperhead artillery projectiles. A large number of these items have been earmarked for the war reserve stocks. Under development by the Army is a new fire-and-forget weapon, called the Sense and Destroy Armor Munition (SADARM), that uses a self-forged fragment to destroy lightly armored targets.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
Fire Support				
MLRS				
Development:				
$ Millions	28.5	41.0	29.6	37.1
Procurement:				
Quantity	72,000	72,000	72,000	36,000
$ Millions	469.1	456.1	447.1	417.0
Light Howitzer				
Development:				
$ Millions	10.9	13.1	6.3	1.6
Procurement:				
Quantity	-	64	113	103
$ Millions	-	25.6	29.9	28.8
RPV				
Development:				
$ Millions	80.3	61.8	32.6	29.6
Procurement:				
Quantity	-	-	-	-
$ Millions	27.9	49.0	178.4	196.3

e. *Deep Operations*

The AirLand Battle commander must synchronize close, deep, and rear operations to ensure success. Deep operations are conducted to disrupt enemy supply lines and command and control functions, and to impede efforts to reinforce enemy units on the front lines. The AirLand Battle doctrine advocates the use of all available assets for such operations. This requires close coordination between the Army, other U.S. and allied forces, and the employment of coordinated systems for detecting, identifying and engaging distant targets. Significant advances have been made in acheiving these capabilities. Development of acquisition and identification systems focuses on sensors for detecting and identifying distant targets and automated systems for distributing targeting information to field commanders. Fire support systems such as MLRS, and advanced weaponry such as the Army Tactical Missile System, significantly enhance our ability to engage enemy forces deep in rear areas. Highlights of our programs are presented below:

Joint Surveillance and Target Attack Radar System (JSTARS) -- This airborne detection system, being developed jointly by the Army and the Air Force, will be able to monitor and assist our forces in attacking moving targets well before they reach the main battlefield. Drawing on the information it provides, our forces will use their advanced weapons systems to attack targets deep behind enemy lines.

Joint Tactical Fusion Program (JTFP) -- This automated data processing system will provide intelligence and electronic warfare command and control support to Army division and corps commanders and Air Force intelligence squadrons. The system consists of two components -- an All-Source Analysis System (ASAS) being developed by the Army; and an Enemy Situation Correlation Element (ENSCE), under development by the Air Force. The information provided by the system will help commanders assess the status and disposition of enemy forces and targets.

Army Tactical Missile System (ATACMS) -- This new missile will be fired from existing and future MLRS launchers, and will dispense submunitions against targets deep behind enemy lines. Designed to exploit the long-range vision of our new target acquisition and guidance systems, the system will be used to attack enemy follow-on forces, air defense systems, tactical ballistic missile launchers, and command and control facilities. The missile will undergo development and operational testing during FY 1988 and FY 1989.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
JSTARS				
Development:				
$ Millions	47.5	326.8	361.3	253.7
Procurement:				
Quantity	-	3	6	15
$ Millions	-	16.8	36.9	84.9

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
JTFP				
Development:				
$ Millions	145.5	150.2	155.1	124.7
ATACMS				
Development:				
$ Millions	109.3	84.8	112.2	86.6
Procurement:				
Quantity	-	-	-	166
$ Millions	-	-	16.9	81.3

f. Combat Service Support

Combat service support provides equipment and services for the logistical resupply, maintenance, medical care, and feeding of our frontline forces. The numerous systems providing this support range from tactical vehicles and expeditionary soft shelters to protective clothing, medical equipment, fuel storage, water purification equipment, cargo-handling equipment, and containers. We have improved our combat service support in the Army and Marine Corps through modernization, automation, and unit activations and conversions.

g. Tactical Command, Control, and Communications and Intelligence

It is not enough merely to provide our land forces with modern weapons systems; we must also be able to direct their operations efficiently in battle. To that end, we are fielding a variety of command, control, communications, and intelligence (C^3I) systems that will enable tactical commanders to locate and gather information about enemy forces; assist them in analyzing that information; provide jam-resistant, secure communications links between headquarters and subordinate units; and allow our forces, through the use of electronic combat, to disrupt enemy communications and intelligence gathering. (Additional details on C^3I systems can be found in Chapter III.F.)

The Army Command and Control System (ACCS) will provide automated C^3I support to corps-through-battalion-level commanders in five major functional areas: control of maneuver forces, fire support, air defense, combat service support, and intelligence and electronic combat. The Army's Advanced Field Artillery Tactical Data System (fire support), Forward-Area Air-Defense C^2 System (air defense), and All-Source Analysis System (intelligence) were discussed in previous sections. A Maneuver Control System (MCS) and Combat Service Support Control System (CSSCS) complete the five functional subsystems under the umbrella concept. These latter systems will be fielded throughout the program period.

Commanders require not only the support of automated C^2 systems, but the communications capabilities to implement their decisions.

The Army is fielding three major systems that satisfy the distinct communications needs of tactical commanders.

Army Data Distribution System (ADDS) -- This secure, jam-resistant digital communications system will be used to exchange information between elements of the Army command and control system. It will also provide information on the position of each user and the location of friendly ground forces, thereby allowing more accurate battlefield navigation.

Single-Channel Ground and Airborne Radio System, VHF (SINCGARS-V) -- These combat-net, very high frequency (VHF) radios will provide secure, jam-resistant replacements for obsolescent equipment now in use. The Navy plans to install SINCGARS on amphibious ships and naval gunfire support ships in 1991, ensuring interoperability of naval and Marine forces.

Mobile Subscriber Equipment (MSE) -- Whereas ADDS will quickly transfer data among computers and SINCGARS will perform much like a police car radio, MSE will be the Army's equivalent of a commercial telephone network. It will provide secure field telephone and data services at the corps and division levels, using mobile automatic switchboards connected by radio links. Commanders will be able to use the equipment from their vehicles and mobile command posts. The system will be fielded beginning in FY 1988. The FY 1988/FY 1989 budget request supports procurement of 24 signal battalion sets. A total of 48 sets will be procured through FY 1990.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
MCS				
Development:				
$ Millions	12.0	9.6	14.0	12.0
Procurement:				
Quantity	-	-	-	-
$ Millions	58.2	55.2	96.1	9.7
AFATDS				
Development:				
$ Millions	18.8	10.3	40.9	25.8
Procurement:				
Quantity	-	-	-	-
$ Millions	24.3	-	77.7	78.7
FAAD C2				
Development:				
$ Millions	20.1	39.5	108.0	124.2
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	76.3	63.1
CSSCS				
Development:				
$ Millions	3.6	4.5	1.2	1.4
ASAS				
Development:				
$ Millions	145.5	150.2	155.1	124.7

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
ADDS				
Development:				
$ Millions	33.4	35.7	33.9	25.5
Procurement:				
Quantity	-	-	-	-
$ Millions	13.8	70.0	116.6	159.9
SINCGARS				
Development:				
$ Millions	11.2	11.6	15.9	9.4
Procurement:				
Quantity	-	-	720	17,200
$ Millions	96.2	-	23.5	343.5
MSE				
Procurement:				
Quantity	-	-	-	-
$ Millions	335.3	903.7	1,019.8	995.7

3. Conclusion

U.S. land forces are structured and deployed to deter aggression throughout the world. Should deterrence fail, forward-deployed land forces provide a means of bringing U.S. military power to bear quickly in defense of vital security interests. The programs outlined in this chapter are essential to that capability. They must be fully supported by the Congress if we are to cope successfully with the evolving threat to our security in the years ahead.

B. NAVAL FORCES

1. Introduction

a. *The Maritime Strategy*

As an island nation and senior partner in a global alliance system, the United States needs strong naval forces to support its maritime strategy. In peacetime and in crisis, the maritime strategy supports our foreign policy by maintaining ready and capable forces in forward locations. Such deployments help keep the peace by maintaining U.S. access to key regions, while demonstrating our commitment to preserving stable regional balances. U.S. naval forces stand ready to protect our citizens and friends overseas, whether it be against the threat of terrorism or communist subversion.

In a major war, naval forces would play a crucial role in our overall defense effort. Their primary tasks would include keeping key sea-lanes open, supporting air and ground operations on the flanks of NATO and elsewhere on the Eurasian littoral, and taking the initiative against weak points in the Soviet military structure. We believe our prospects for terminating a major conflict with the Soviet Union on terms favorable to the West are substantially improved if the Soviets are forced to fight from a defensive posture. For this reason, the maritime strategy emphasizes an ability to conduct offensive operations with qualitatively superior forces.

The task of maintaining technological superiority has been made all the more difficult by the dramatic improvements in Soviet capabilities in recent years. This trend is particularly evident in the Soviet submarine force. New submarine classes -- such as the Typhoon, Oscar, Akula, Mike, and Sierra -- represent significant advances in quieting, speed, weapons capacity, and resistance to damage. Also, the continued deployment of long-range Backfire bombers, introduction of new generations of surface combatants, and deployment of improved antiship weapons pose further serious threats to our naval forces.

Beyond these improvements in warfighting capability, the Soviets have significantly extended the reach of their naval forces. Their navy has become a true "blue-water" force, able to sustain operations in distant waters. There has been a trend toward larger ships with greater steaming ranges. The number of nuclear-powered submarines has steadily grown, enabling a larger force to stay on patrol for extended periods. And the Soviets have built a merchant fleet and a network of overseas bases to provide logistics support for their far-flung maritime operations. This threat mandates we continue our expansion of naval forces to meet our global commitments.

b. Composition of U.S. Naval Forces

Over the past six years, we have made significant progress in building a larger, more capable fleet. At the end of FY 1986, the Navy had 555 deployable battle force ships, up from 479 at the end of FY 1980. Chart III.B.1 shows the composition of the fleet by type of ship.

Chart III.B.1

Deployable Battle Force Ships

	FY 1980	FY 1986	FY 1989 (Estimated)
Ballistic Missile Submarines	40	39	38
Strategic Support Ships	8	6	6
Aircraft Carriers (Deployable)	13	13	14
Battleships	0	3	4
Cruisers	26	32	43
Destroyers	81	69	69
Frigates	71	113	116
Nuclear Attack Submarines	74	97	101
Diesel Attack Submarines	5	4	4
Patrol Combatants	3	6	6
Amphibious Ships	66	62	67
Mine Warfare Ships	3	3	10
Combat Logistics Ships	48	53	61
Support Force Ships	41	55	66
Total	**479**	**555**	**605**

Table reflects data as of December 29, 1986

To operate the expanded fleet within the constraints placed on active manpower levels, the Navy has enlarged the roles of the Naval Reserve Force (NRF) and the Military Sealift Command (MSC). The reserve forces are assuming an important role in manning many of the Navy's newest frigates and mine warfare ships. By the end of FY 1986, the Navy had transferred 15 modern frigates of the FFG-7 and FF-1052 classes from the active force to the NRF, and it plans to turn over 11 more by the end of FY 1990. Eventually, all of our new MCM-1 and MHC-1 minesweepers will be assigned to the NRF. The MSC, which operates selected naval auxiliaries with civilian crews, has assumed a significant role in manning the Navy's growing fleet of support ships.

Besides manning an increasing number of ships, the NRF flies many of the Navy's antisubmarine warfare and minesweeping aircraft, as shown in Chart III.B.2. (Naval fighter and attack aircraft are covered in the chapter on Tactical Air Forces.)

Chart III.B.2

Naval Aircraft Force Composition

(Antisubmarine Warfare and Mine Countermeasures)

	Active Squadrons			Reserve Squadrons		
	FY80	FY 86	FY 89	FY 80	FY 86	FY 89
Maritime Patrol Aircraft	24	24	24	13	13	13
Carrier-Based Antisubmarine Aircraft	11	11	12	0	0	0
Antisubmarine Helicopters	17	23	27	4	5	5
Minesweeping Helicopters	2	2	2	0	0	1

c. *Program Goals for Naval Forces*

The program goals we established six years ago remain essentially unchanged, although we have made some adjustments in priorities as elements of the program have come to fruition and fiscal constraints have tightened. For the FY 1988-92 period, our goals can be summarized as follows:

-- To reach and sustain a 600-ship fleet, with the proper composition of individual ships;

-- To promote the competitive strategies initiative through our modernization programs and enhancements in our operational doctrine;

-- To sustain the high levels of readiness achieved over the past six years; and

-- To increase wartime sustainability through expanded stocks of munitions.

Despite the fiscal constraints imposed by national deficit-reduction measures, our program makes considerable progress toward these goals. However, there should be no illusion that we can continue to absorb annual budget cuts and still maintain a ready, capable, globally responsive fleet.

(1) The 600 Ship-Navy

While there is no mathematical formula for setting force structure goals, we believe the goals established for our naval forces strike a reasonable balance between the threat and national resource constraints. It is important to note, however, that these goals represent minimum objectives, with a corresponding acceptance of some degree of risk.

When this Administration took office six years ago, we found the Navy to be too small to meet the global requirements of a major conflict with the Soviet Union. It was also stretched thin by its responsibility to maintain sizable forward deployments in regions where the United States has vital interests. The requirement to maintain a substantial naval presence in the Indian Ocean had become particularly burdensome for our naval personnel. To relieve these pressures, we embarked on a naval expansion program designed to build a 600-ship Navy by the end of the decade. The major elements of that program are outlined in Chart III.B.3.

Chart III.B.3

The Navy's Force Structure Goals

20-40[a]	Ballistic Missile Submarines and Support Ships
15	Deployable Aircraft Carriers
4	Reactivated Battleships
100	Antiair Warfare Cruisers and Destroyers
37	Antisubmarine Warfare Destroyers
101	Frigates
100	Nuclear-Powered Attack Submarines
14	Mine Countermeasures Ships
75	Amphibious Ships (MAF-plus-MAB Lift)
6	Patrol Combatants
65	Combat Logistics Ships
60-65	Support Ships and Other Auxiliaries
600	**Deployable Battle Force Ships**

[a]The force-level goal for strategic submarines has not been determined; the eventual force level will depend on arms reduction talks and other factors.

I am pleased to report that over the last six years we have made major progress toward these goals. The fleet has grown to 555 deployable battle force ships today. And more ships are on the building ways, scheduled for delivery over the next few years. As they enter service faster than older vessels are retired, the Navy will reach the 600-ship mark by the end of FY 1989. To sustain the force at that level in the next decade and beyond, we will need to

maintain a steady construction rate of about 20 ships a year. The shipbuilding plan for FY 1988 through FY 1992 is shown in Chart III.B.6 at the end of this chapter.

Within the framework of the 600-ship Navy, we will achieve many of the individual force-structure goals outlined above. By the end of the decade, the fleet will include 15 deployable aircraft carriers, four reactivated battleships, and about 100 attack submarines. Tighter fiscal constraints, however, will delay the achievement of other goals until the next decade. The shortfall of cruisers and destroyers will be particularly severe, given the large numbers that will have to be built simply to replace older ships scheduled to retire in the 1990s. The amphibious lift objective will be significantly delayed relative to the original plan developed three years ago. Likewise, requirements for mine warfare and support ships will not be fulfilled until the mid-1990s, when the last ships in the FY 1988-92 program are delivered.

(2) Modernization Goals

Naval modernization programs emphasize the development of weapons and tactics that allow our forces -- once hostilities have been initiated -- to strike first, from extended ranges. The approach emphasizes surveillance systems capable of detecting enemy forces at long ranges, well before our own forces can be targeted. It also emphasizes long-range weapons and fire-control systems with "fire-and-forget" capabilities, high accuracy, and rapid rates of fire.

(3) Readiness

U.S. naval forces are maintained in a high state of readiness. The sharp improvements of the past six years in recruiting and retention have paid handsome dividends in a more ready and capable force. On average, manning has increased by 10 percent. Large increases in funding for spare parts and depot maintenance have also contributed to improved readiness. For example, the Navy has reduced its backlog of ships awaiting overhaul from 16 in 1980 to two today. It has also been able to extend the time between major overhauls by providing for more frequent, but shorter, repair periods and by increasing shipyard productivity. As a result of these and other efforts, the Navy has enjoyed about a 50 percent jump in time free from major equipment failures for its surface ships. The FY 1988-92 program seeks to preserve this hard-earned progress in the years ahead.

The fleet keeps its readiness up by training regularly with the other Services and with allied navies. A number of exercises are conducted around the world each year, often in close proximity to Soviet or other potentially hostile forces. Last year's freedom-of-navigation exercises in the Gulf of Sidra are prime examples. In 1986, the Navy and the Marine Corps conducted 90 major exercises, involving 33 allied countries.

In FY 1988, the Navy will continue to operate at a high tempo. The budget supports 50.5 steaming days per quarter for the forward-deployed fleets (the Sixth and Seventh), with the "home" fleets (the Second and Third) steaming an average of 29 days per quarter. At

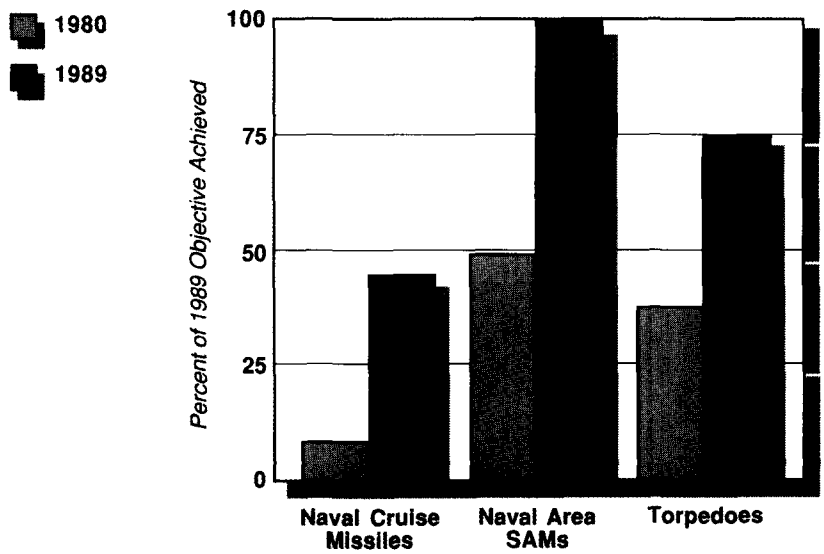
the same time, the Navy is trying to ease the burden of overseas deployments on its personnel by scheduling more flexible deployments. Using battleships for routine peacetime patrols is one way to achieve such flexibility. This approach was followed last year, when USS NEW JERSEY was deployed to the Western Pacific for several months, allowing the aircraft carrier force to delay a major deployment that would otherwise have been required to maintain a presence in the region.

(4) Sustainability

Sustainability, the "staying power" of the force in combat, has also improved substantially in recent years. The Navy has largely completed the task of building its stocks of war-reserve spares and repair parts for its combatants, though some shortfalls still exist in the shore establishments and reserve units. It has also substantially increased its stockpile of munitions, as shown in Chart III.B.4.

Chart III.B.4

The Navy Is Steadily Building Its Stocks of Weapons



With spares stocks near their required levels, procurement emphasis has turned to meeting munitions needs. The goal is to provide weapons that can strike targets from long ranges, with great accuracy, maximum autonomy, and rapid rates of fire.

To disperse its surface combatant force as a hedge against a possible attack, the Navy is adding 10 new homeports to the 18 existing ports maintained in the continental United States. The new

ports will reduce the crowded conditions and other deficiencies at the current bases, providing modern facilities for some 64 surface ships. Two sites -- Staten Island, New York and Everett, Washington -- were funded in the FY 1986 and FY 1987 budgets. Funds for eight more ports are requested in our FY 1988-92 program. To accomplish this program within constrained fiscal resources, we have imposed a cost cap of $846 million on the homeporting projects, including $235 million for Staten Island, $272 million for Everett, and $339 million for the other homeports.

2. FY 1988-92 Programs

The following sections describe the naval programs we are proposing for FY 1988 through FY 1992. The programs are divided into four categories:

-- Power projection;

-- Antisubmarine warfare;

-- Antiair warfare; and

-- Mine warfare and support.

Though functionally distinct in some respects, the forces assigned these missions operate together as an integrated whole, each contributing to the successful accomplishment of the maritime strategy. Moreover, most of the Navy's forces provide capabilities in more than one warfare area.

a. Power Projection

Our specific objectives for the power-projection forces remain unchanged from previous years. We are expanding the aircraft carrier force to 15 deployable carriers. We are refurbishing and returning to service four Iowa-class battleships. We are expanding and upgrading the amphibious fleet. And we are arming our surface and subsurface forces with Tomahawk and Harpoon cruise missiles, giving them a capability to strike distant targets at sea and on land.

(1) Aircraft Carrier Forces

Carrier battle groups, perhaps the most visible symbol of U.S. naval power, form the core of today's Navy. These forces can execute the full range of naval missions: they can strike targets at sea and on land; they can establish air defense umbrellas in the skies above naval task forces; and they can undertake operations against enemy submarines.

This past fall, the Navy achieved a major milestone in its force expansion when its fourteenth deployable carrier, USS THEODORE ROOSEVELT (CVN-71), joined the fleet. The ROOSEVELT's delivery was almost a year and a half ahead of schedule. Later this year, USS ABRAHAM LINCOLN (CVN-72), the first of the two carriers authorized in

FY 1983, will be launched on schedule for delivery in FY 1990 as the fifteenth deployable carrier. The second carrier in the multiship program, USS GEORGE WASHINGTON (CVN-73), is scheduled for delivery in early FY 1992, permitting replacement of USS CORAL SEA, which will leave the deployable force to become the Navy's training carrier.

To sustain a force of 15 carriers through the 1990s and into the next century, the Navy is now beginning the process of ordering replacements for its older carriers. The FY 1988/FY 1989 budget includes $1.4 billion in long-lead funding for two carriers, one to be requested in FY 1990 and the other planned for FY 1993. This acquisition program will ensure the economic benefits of maintaining a stable, well-trained work force by beginning these carriers as the ones currently under construction are delivered.

In the meantime, the Navy is prolonging the life of its older carriers through service life extensions. These two-to-three-year overhauls provide at least 15 more years' service for ships approaching retirement age. Two carriers have already been refurbished, and work on a third is under way. Funds for the fourth ship in the program -- USS KITTY HAWK -- are requested in FY 1988.

(2) Battleships

Next fall, the Navy will complete reactivation of the last of its four Iowa-class battleships, USS WISCONSIN. These ships can conduct missile strikes against land or sea targets and provide naval gunfire support for amphibious assaults. In peacetime, they help maintain a highly visible maritime presence in forward areas, as illustrated by last year's deployment to the Western Pacific of USS NEW JERSEY.

Plans for FY 1988 and FY 1989 center on upgrading the ships' fire-control system and developing new 16-inch rounds with extended range and multiple payload options. These improvements are expected to be available in 1991. We are also testing the ability of the battleships to launch and recover remotely piloted reconnaissance vehicles.

(3) Cruise Missile Forces

Tomahawk and Harpoon cruise missiles continue to improve the fleet's antiship and land-attack capabilities, as new variants with increased range and versatility reach the fleet. Over-the-horizon targeting capability has matured and now supports employment at the weapons' full ranges.

Tomahawk -- Successful testing of this versatile weapon has confirmed its readiness for the higher production rates now being implemented. The budget provides funds for 475 missiles in FY 1988 and 510 in FY 1989. The missiles will be produced under competitive contracts that will reduce unit costs.

Harpoon -- Already a proven antiship missile, an air-launched version of Harpoon will soon be available for land-attack missions. The antiship variant is presently deployed aboard surface combatants, attack submarines, and attack and patrol aircraft. The budget supports production of 124 missiles in FY 1988 and 138 in FY 1989.

(4) Amphibious Assault Forces

Amphibious assault forces give us a means of rapidly deploying Marine air and ground units to distant trouble spots, with the equipment to fight their way across hostile coasts. In wartime, these forces would be used to establish lodgements ashore and secure flank areas, or to seize the initiative in counteroffensive operations. In peacetime, they maintain a continuous presence in areas of vital interest or potential turmoil.

We have begun a major and long-needed modernization and expansion of the amphibious forces. The goal of the force expansion is to provide lift for the assault echelons of a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). This will require an increase of roughly one-third over today's capacity, which can accommodate only a MAF. Three new classes of ships -- the LHD-1, the LSD-41, and the LSD-41 Cargo Variant -- support that effort. The force moderniza-tion is linked to a new operational concept for amphibious assaults. Consistent with our effort to extend the combat range of naval forces, the new concept calls for launching assaults from points over the horizon, where the opportunity for surprise is greater and the vulnerability of ships is lower. Key to this new capability is the procurement of new ship-to-shore equipment with extended ranges, such as the landing craft, air cushioned (LCAC) and MV-22 tilt-rotor aircraft.

Unfortunately, fiscal pressures have forced a delay in the amphibious shipbuilding program. As a result, the MAF-plus-MAB goal will not be achieved until the late 1990s or beyond the year 2000, depending on retirement schedules for older ships and plans for building new ships.

LHD-1 -- LHD-1s will provide the largest share of the increased lift needed to meet the MAF-plus-MAB goal. These 40,000-ton ships are each designed to carry nearly 2,000 Marines, as well as 42 CH-46 helicopter equivalents, three LCACs, and sizable amounts of assault vehicles and cargo. The lead ship in the program, USS WASP, is now under construction, with delivery scheduled for FY 1989. The second ship was awarded by competitive bid in FY 1986. The third and fourth ships will be awarded as options with funds requested in FY 1988 and FY 1989. The fifth ship, which is needed to build toward the MAF-plus-MAB objective, is scheduled for authorization in FY 1991. Due to fiscal constraints, authorization of a sixth ship, which will begin the process of replacing seven ships of the older LPH-2 class, has been delayed beyond the current five-year program. Unless the LPH-2s can be operated beyond their currently scheduled 35 year lives, this will delay our ability to sustain the helicopter lift goal until after the year 2000.

LSD-41 Cargo Variant -- The eight ships of the LSD-41-class will provide a means to transport and support LCACs in amphibious operations. After a break in LSD-41 orders last year, the FY 1988/FY 1989 budget provides funds for the first ship of a new design. The LSD-41 Cargo Variant will have essentially the same hull and engineering plant as its predecessor, but will carry more cargo in exchange for fewer LCAC spaces. Six of these ships will be needed to meet the MAF-plus-MAB goal. Due to fiscal constraints, however, we were able to accommodate only five in the FY 1988-92 shipbuilding plan, thereby delaying attainment of the cargo lift objective until 1997.

LCAC -- The LCAC is the key to the new over-the-horizon assault concept being developed for the amphibious forces. It is designed to carry the combat and logistical vehicles of a Marine landing force from ship to shore at speeds in excess of 40 knots. To support the landing requirements of a MAF and a MAB, we plan to buy at least 90 of these craft. The first 33 were authorized in FY 1981 to FY 1986, and six have already been delivered. Reliability problems uncovered during testing have necessitated refinements in the craft's design, delaying contract awards for most of the craft authorized in FY 1985 and FY 1986 until additional testing verifies the efficacy of the corrections. As a result, we have delayed full-production procurement until the satisfactory completion of operational testing scheduled for spring 1987. It is anticipated that the remaining FY 1985 and FY 1986 authorized craft will be awarded no later than the summer of 1987. In the meantime, the FY 1988 request funds long-lead materials for the FY 1989 purchase, thus easing the impact of the production delays on the manufacturers of key components.

Ship-to-Shore Aircraft -- The MV-22 Osprey will provide the Marine Corps with an advanced tilt-rotor aircraft to replace its fleet of CH-46 assault-transport helicopters. With a significant increase in speed, range, and carrying capacity, the MV-22 will facilitate over-the-horizon amphibious assaults against formidable opponents, as well as support subsequent operations ashore. The Osprey entered full-scale development last year, and initial procurement funds are requested in FY 1989. Fielding of the first squadron is scheduled for FY 1992.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
CVN Aircraft Carrier				
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	644.0	797.0
CV Service Life Extension Program				
Procurement:				
Quantity	-	-	1	-
$ Millions	66.1	94.9	753.0	76.2
Tomahawk Missiles				
Procurement:				
Quantity	249	324	475	510
$ Millions	649.4	717.6	993.9	1,029.7
Harpoon Missiles				
Procurement:				
Quantity	347	96	124	138
$ Millions	268.4	122.3	161.7	133.3
LHD-1				
Procurement:				
Quantity	1	-	1	1
$ Millions	829.0	40.4	783.2	750.1

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
LSD-41 Variant				
Procurement:				
Quantity	-	-	1	-
$ Millions	3.6	20.8	349.3	36.0
LCAC				
Procurement:				
Quantity	12	-	-	9
$ Millions	275.0	4.4	45.4	232.4

b. Antisubmarine Warfare Force

The preeminent role given to attack submarines in the Soviet fleet requires that we pay special attention to developing effective ways to counter them. The large size of the Soviet force has always been a problem for our antisubmarine forces. What is new is the dramatic improvement in the force's performance, particularly in quietness. Coupled with increases in speed, diving depth, weapons capacity, and damage resistance, this trend demands that we redouble our efforts to upgrade our antisubmarine warfare capabilities.

Conceptually, our basic strategy for combatting the Soviet submarine threat remains unaltered. We still see a need for a layered-offensive strategy that seeks to engage Soviet submarines in forward areas and barriers, before they approach our forces. For such operations, we rely primarily on attack submarines and antisubmarine warfare (ASW) patrol aircraft supported by long-range surveillance systems. Even under the most favorable circumstances, however, some submarines would escape our forward sweeps. They would have to contend with the layered defensive screen surrounding our naval task forces. That screen consists of surface combatants equipped with advanced sonars and antisubmarine torpedoes and rockets, torpedo-armed antisubmarine helicopters, and carrier-based ASW patrol aircraft, as well as attack submarines operating in the direct-support role.

(1) Surveillance Systems

The success of our strategy of engaging Soviet submarines in forward areas is highly dependent on maintaining a high encounter rate in patrols conducted by attack submarines and long-range patrol aircraft. Essential to this approach is a long-range surveillance capability in forward areas.

One of our most important ongoing programs in this area is the TAGOS Surveillance Towed-Array Sonar System (SURTASS). These ships will be used to extend coverage to ocean areas not routinely monitored by fixed systems and to provide backup coverage in the event those systems are incapacitated. Nineteen TAGOS ships have been authorized through FY 1987, and ten have now joined the fleet. The system is proving to be extremely effective in initial testing and operations. The first Small Waterborne Area Twin Hull (SWATH) version with improved sea-keeping characteristics was awarded last

year. The five-year program funds eight more SWATH TAGOS, including three in FY 1989.

To counter the quieter Soviet submarines of the future, we are developing entirely new surveillance systems. One such device, the Fixed Distributed Surveillance System (FDS), has yielded impressive results in preliminary testing. Systems using advanced technology are also being investigated, as are new active sonars to complement our passive systems.

(2) Attack Submarines

In any major naval campaign, nuclear-powered attack submarines would carry the brunt of the initial engagements. Early in a war, they would move into far-forward positions, including waters where the Soviet navy would be operating in strength and where little assistance from friendly forces could be expected. Operating under such conditions places a premium on stealth, quick and accurate weapons delivery, and firepower.

To meet the global requirements of the maritime strategy, we are also expanding the size of the attack submarine force. Our goal is a force of 100 modern nuclear-powered submarines. We have made significant progress toward that goal, increasing the force from 74 SSNs in FY 1980 to 97 at the end of FY 1986, with the force expected to reach 100 in FY 1988. Continued production of three or four submarines a year will be needed to sustain that level and to modernize the force with improved units able to maintain a qualitative edge over Soviet submarines.

SSN-688 -- The SSN-688 LOS ANGELES-class submarine remains the mainstay of the attack fleet, with 34 of the 56 units authorized through FY 1987 having been delivered through the end of FY 1986. The newest ships are equipped with Vertical Launch Systems (VLS), adding significant Tomahawk-strike capability to the class. Joining the fleet later this year will be the SSN-751, the first of the Improved SSN-688s, which features the new AN/BSY-1 combat system, new sound-quieting equipment, enhanced Arctic warfare capability, and more effective sensors. The FY 1988-92 shipbuilding plan accommodates only 10 additional SSN-688s, a reduction from previous plans necessitated by fiscal constraints. Two shipyards maintain a strong competition for these contracts.

SSN-21 -- The SSN-21 class will maintain our submarine superiority, especially in sound quieting, well into the next century. The SEAWOLF, lead ship of the class, remains on track for a FY 1989 authorization. It will be quieter, faster, and deeper-diving than its predecessors. Equipped with more effective sensors and carrying substantially more onboard weapons, this class will have tremendous ASW and strike capabilities for employment in far-forward positions, including the Arctic. Competition for SSN-21 production is expected to be brisk, with two yards vying for the lead-ship contract and making investments in modern facilities to reduce construction costs and production times.

ADCAP Torpedoes -- At-sea testing of this highly capable torpedo continues, giving the submarine force a potent weapon against the best Soviet submarines. With across-the-board improvements in performance, ADCAP will remain an effective counter to the Soviet threat

well into the next century. A second manufacturer will begin production in FY 1987. We are requesting funds for 100 torpedoes in FY 1988 and 350 in FY 1989.

ASW Standoff Weapon -- Fiscal constraints have forced a rescheduling of the Sea Lance ASW Standoff Weapon program. The conventional version of Sea Lance, now in full-scale engineering development, will be capable of delivering conventional MK-50 torpedoes over long ranges with great accuracy, giving the submarine force a much needed conventional standoff capability. A second version of Sea Lance, outfitted with a nuclear depth bomb, will be deployed.

(3) Surface Ship ASW Systems

ASW Helicopters -- SH-60B LAMPS MK III helicopters, also known as Seahawks, will be based aboard almost 100 of our most modern surface combatants, allowing them to prosecute long-range submarine contacts provided by our new Tactical Towed-Array Sonar (TACTAS) system. Four squadrons are now operational, and two more are used for training. The reliability of this system has been extremely high, with mission-capable rates exceeding 90 percent. To replace its aging force of carrier-based ASW helicopters, the Navy has begun procuring a variant design, designated SH-60F. The FY 1988 and FY 1989 budgets procure a mix of 18 "F" and six "B" models each year, reflecting a fiscally constrained production cap of 24 SH-60s per year.

MK-50 Torpedo -- This new antisubmarine weapon is designed for launch from surface ships, ASW helicopters, and maritime patrol aircraft. In addition, it will be employed with the SEA LANCE ASW standoff weapon. Relative to its predecessor, the MK-50 provides significant improvements in speed, diving depth, accuracy, and lethality. The MK-50 will complete development in FY 1989 and has begun operational testing in support of a limited production decision early this year. We are requesting funds for 153 torpedoes in FY 1988 and 224 in FY 1989.

(4) Maritime Patrol Aircraft

Maritime patrol aircraft contribute to our antisubmarine warfare capabilities through their important role in long-range offensive operations and barrier patrols. The P-3C Orion, of which some 270 have been procured through FY 1987, is the backbone of the active force, while older "A" and "B" models are flown primarily by the reserves. The FY 1988/FY 1989 budget initiates a competitive procurement program for a new P-3G model, which will incorporate modern engines and other airframe changes for improved range and advanced avionics for improved detection and localization capabilities. The aircraft will have a low development cost, with an expected payoff in lower production costs through competitive procurement. The program anticipates a "winner-take-all" competition for 125 aircraft, with the first four procured in FY 1990, followed by 25 a year through FY 1994 and the remaining 21 in FY 1995.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
TAGOS SURTASS SHIPS				
Procurement:				
Quantity	1	4	-	3
$ Millions	45.9	194.1	5.8	177.4
FDS				
Development:				
$ Millions	12.3	33.3	76.0	112.0
SSN-688				
Procurement:				
Quantity	4	4	3	2
$ Millions	2,329.1	2,295.0	1,804.6	1,588.9
SSN-21				
Development:				
$ Millions	237.0	240.6	213.2	195.1
Procurement				
Quantity	-	-	-	1
$ Millions	-	375.0	257.6	1,481.0
MK-48 ADCAP				
Procurement:				
Quantity	123	50	100	350
$ Millions	364.9	225.1	243.4	541.8
Sea Lance				
Development:				
$ Millions	67.1	109.7	114.3	113.5
SH-60B / F Helicopters				
Procurement:				
Quantity	18	24	24	24
$ Millions	291.2	357.7	434.4	456.1
MK-50 Torpedo				
Procurement:				
Quantity	-	39	153	224
$ Millions	-	65.9	222.4	277.6
P-3C / G				
Development:				
$ Millions	29.5	54.4	126.9	152.1
Procurement:				
Quantity	9	9	-	-
$ Millions	374.7	397.3	.1	44.4

c. *Antiair Warfare Forces*

Soviet tactical missiles pose a serious threat to our naval forces, sea lines of communications, and forward bases. These highly sophisticated weapons -- designed for launch from bombers, submarines, and surface ships -- are being produced in several versions with different attack profiles and methods of guidance. Because they

are difficult to intercept, the missiles can best be countered by detecting and engaging the aircraft and vessels that carry them. In some instances, this may require long-range strikes against enemy bases in an effort to destroy bombers or naval vessels before they have an opportunity to initiate an air attack. Moreover, we seek to hinder an enemy's ability to target our forces through extensive use of jamming, deceptive movements and formations, and decoys.

Each region of potential conflict has unique geographical characteristics that influence our choice of a defense. Thus, we have adopted a regional approach to maritime antiair warfare, designed to exploit Soviet geographical constraints. In many cases, this involves the use of land-based aircraft operating from forward bases in conjunction with our naval forces, an approach that exploits our advantages in overseas basing and the Soviet Union's disadvantages in having to transit various geographical chokepoints.

Because the air threat is so severe, we plan to conduct a "layered" defense, in which enemy forces would be attacked in a series of engagements by different types of weapons systems. This maximizes the protection afforded to our forces and makes it difficult for an enemy to overcome any one element of our defensive screen. Thus, while longer-range regional and outer-zone defenses provide a high degree of leverage to our antiair warfare effort, we must also maintain strong local defenses in the immediate vicinity of naval task forces to protect against "leakers" that might penetrate our other defenses.

(1) Wide Area Surveillance and Control

By giving our forces an opportunity to position themselves to engage the enemy, timely warning of air strikes maximizes the effectiveness of our defenses. This warning can come from any combination of Navy, Air Force, or national surveillance systems.

The tactical Relocatable Over-the-Horizon Radar (ROTHR) system will, as its name implies, substantially increase the amount of warning time available to our maritime forces. The radars will have a detection range of up to 1,600 miles, and will be deployed in regions where they can scan likely bomber-attack corridors, as well as surface-ship approaches. Being "relocatable" to prepared sites, they will also provide a capability to establish wide-area coverage in regions not routinely monitored.

To provide commanders with the right information at the right time, we need a comprehensive, integrated command and control network. Several programs described in Chapter III.F (Command, Control, Communications, and Intelligence (C^3I)) will give battle groups at sea the kind of C^3I support they need for an effective defense against the Soviet air threat.

(2) Broad-Area Interception

Given proper warning, a land- or carrier-based team of early warning aircraft, fighter interceptors, and electronic warfare aircraft can detect and intercept approaching bombers before they come within missile-launch range. To supplement our aircraft systems, we

are upgrading our ship-launched Standard Missiles (SM-2) to enable them to intercept enemy bombers at longer ranges and higher altitudes. This will permit antiair warfare surface combatants to contribute to broad-area air defense operations.

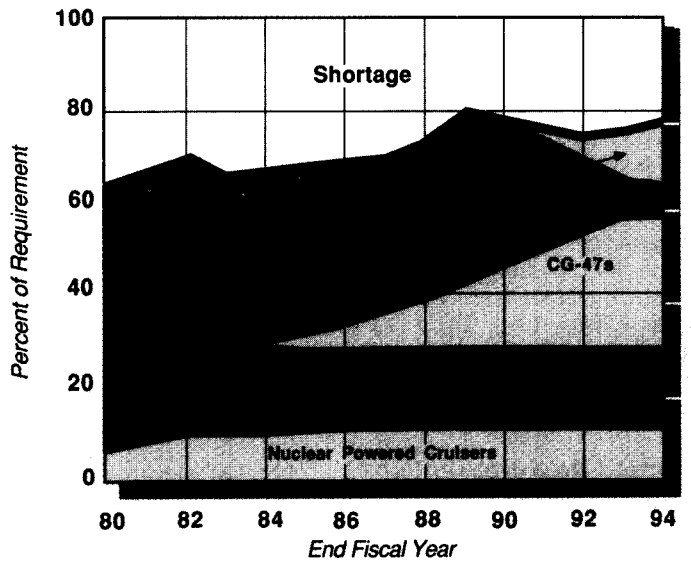
(3) Antiair Warfare Ships

Our long-range weapons will never guarantee a "leak proof" air defense net, so we must also maintain strong local defenses. These systems protect our most critical naval forces from enemy missiles that survive the broad-area defenses or are launched at relatively short ranges from undetected submarines. Two new types of AAW ships -- the CG-47 cruiser and DDG-51 guided missile destroyer -- are bolstering the self-defense capabilities of our naval battle groups. Both ships feature the AEGIS radar and combat system, which incorporates advanced technologies for detecting and intercepting high-speed cruise missiles at sea. The system's powerful phased-array radar can detect incoming missiles at long ranges, and its automated fire-control equipment can track and engage many targets simultaneously. Coupled with the Vertical Launch System (VLS) being installed aboard these ships, the AEGIS system dramatically improves the fleet's air defense firepower. Looking ahead to the future, we are developing an Advanced NATO Antiair Warfare Ships System for the next generation of U.S. and NATO surface combatants.

CG-47 -- The Congress has authorized 22 Ticonderoga-class cruisers through FY 1987, six of which have already joined the fleet. One of these, USS BUNKER HILL (CG-52), is the first warship to carry the VLS. The FY 1988-92 program funds the last five ships, including two each in FY 1988 and FY 1989.

Chart III.B.5

Shortage of AAW Cruisers and Destroyers



DDG-51 -- The lead ship in the 29-ship DDG-51 program, USS ARLEIGH BURKE, is now under construction. Contracts for the next two ships, appropriated in FY 1987, will be awarded to two different shipyards on the basis of a competitive award. The five-year program projects construction of 20 additional units, including three in both FY 1988 and FY 1989. Unfortunately, this rate of construction will barely keep pace with retirements of older AAW destroyers, leaving the fleet short of antiair warfare ships throughout the next decade, as Chart III.B.5 shows.

(4) AAW Weapons

FY 1988 marks the first year of competition for the guidance, control, and airframe sections of the Standard Missile (SM-2), reflecting our effort to provide second sources for as many major weapon systems as possible. We plan to buy 1,150 of these surface-to-air missiles in FY 1988 and 1,635 in FY 1989. To improve the SM-2's effectiveness against low- and high-altitude cruise missiles, we are incorporating new fuses and greater propulsion power into the newest models.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
ROTHR				
Development:				
$ Millions	56.1	-	-	-
Procurement:				
Quantity	-	-	1	2
$ Millions	-	2.2	88.1	187.4
CG-47 Cruiser				
Procurement:				
Quantity	3	3	2	2
$ Millions	2,505.3	2,793.8	2,007.8	1,838.0
DDG-51 Destroyer				
Procurement:				
Quantity	-	2	3	3
$ Millions	70.4	1,730.4	2,198.5	2,225.5
SM-2 Missiles				
Procurement:				
Quantity	1,271	1,194	1,150	1,635
$ Millions	740.6	689.0	588.2	824.9

d. Support and Mine Warfare Forces

The expansion of the fleet has brought with it an increased requirement for mobile logistics support ships and mine warfare ships. These are the ships that provide the fleet with repair services; supply ships at sea with food, fuel, ammunition, and other consumables; clear harbors of enemy mines; and perform

other specialized support functions. Beyond the need to expand the forces, we must also replace existing units nearing retirement age. The procurement outlined below reflects those requirements.

(1) Support Forces

Fast Combat Support Ships -- Last year, the Congress authorized the lead ship of the new AOE-6 class. These ships will operate with carrier battle groups, which they will keep supplied with food, fuel, ammunition, and other provisions. We plan to buy three more AOE-6s over the next five years, including one in FY 1989. This will bring our existing inventory of 11 station ships to the level needed to support a 15-carrier force.

Fleet Oilers -- The FY 1988-92 program includes seven TAO-187 fleet oilers, including two each in FY 1988 and FY 1989. These ships, operated by the Military Sealift Command, shuttle fuel from forward bases and consolidation points to battle groups at sea. The new ships are needed to replace the 35-to-40-year-old vessels now performing this service.

(2) Mine Warfare Forces

The Soviet Union has long maintained the world's largest and most capable inventory of naval mines. Though we would look to our allies to perform the bulk of mine-clearing operations in a major conflict, we still must maintain a capability to clear our home ports and sweep areas overseas where allied help might not be available. For this reason, the Navy is revitalizing its mine warfare capabilities, replacing the 1950s-vintage equipment it now operates.

MCM-1 -- The MCM-1 mine countermeasures ship will improve the Navy's minesweeping capabilities and provide our forces with a system for hunting and neutralizing advanced mines that cannot be countered by sweeping techniques. Eleven MCM-1 ships have been authorized to date, and the final three are requested in the FY 1988 budget. The lead ship, USS AVENGER, will join the fleet this year.

MHC-1 -- As a complement to the MCM-1, the Navy needs a smaller mine-hunter to clear U.S. ports during initial harbor breakout operations. I regret to say that the MSH-1 program, which had been intended to fill that role, has been terminated for technical reasons. The Navy has initiated construction of an Italian-design mine-hunter as a replacement. The lead ship of the new MHC-1 program will be purchased with FY 1986 funds originally earmarked for MSH-1 construction. Funds for the first two follow-on ships are requested in FY 1989, with a total of 12 MHC-1s projected in the five-year plan.

MH-53E -- The MH-53E will upgrade and expand our existing force of mine countermeasures helicopters. Compared with the RH-53Ds now flying this mission, the MH-53E will provide a much-needed boost in flight endurance and capability to tow mine-clearing devices. A total of 17 MH-53Es have been funded to date, with the first delivery expected this year. The five-year plan projects procurement of the remaining 15 during FY 1988 and FY 1989.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
AOE-6 Support Ships				
Procurement:				
Quantity	-	1	-	1
$ Millions	-	499.0	-	428.0
TAO-87 Oilers				
Procurement:				
Quantity	2	2	2	2
$ Millions	257.8	273.5	286.9	268.7
MCM-1 Ships				
Procurement:				
Quantity	2	-	3	-
$ Millions	269.0	17.6	325.2	21.6
MHC-1 Ships				
Procurement:				
Quantity	1	-	-	2
$ Millions	120.1	.1	2.1	200.0

3. Conclusion

Over the past six years, we have grown steadily closer to our goal of a modern 600-ship Navy; a powerful deterrent force, but one ready for combat and able to sustain itself in battle if deterrence fails. As the fleet grows, it is gaining the modern ships, aircraft, and weapons needed to support the maritime strategy. These forces improve our ability to protect vital sea-lanes, conduct an active defense of the Eurasian littoral, and take the initiative in any major conflict with the Soviet Union.

At the same time, we face difficult challenges ahead as we attempt to maintain adequate naval power within the reduced resources available for defense. Although we have made every effort to get the most defense capability out of each dollar by means of competitive procurement and other management efficiencies, we will still face shortfalls and delays in fielding new equipment. Reductions in attack submarine construction will delay the modernization of the force. Construction of modern surface combatants will barely keep pace with retirements of older ships, leaving the Navy short of the number and mix of ships needed to meet wartime requirements. And the achievement of our amphibious lift goal will be delayed by shipbuilding reductions. Likewise, the Navy will not fill its requirements for support and mine warfare forces until the mid-1990s. To sustain the 600-ship Navy and to overcome these shortfalls, we need to restore steady real growth in funding for naval programs.

Chart III.B.6

FY 1988-92 Shipbuilding Program

	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY88-92 Five-Year Total
New Construction						
Trident (Ballistic Missile Submarine)	1	1	1	1	1	5
SSN-688 (Attack Submarine)	3	2	2	2	1	10
SSN-21 (Attack Submarine)	–	1	–	2	2	5
CVN (Aircraft Carrier)	–	–	1	–	–	1
CG-47 (Guided Missile Cruiser)	2	2	1	–	–	5
DDG-51 (Guided Missile Destroyer)	3	3	3	5	6	20
LHD-1 (Amphibious Ship)	1	1	–	1	–	3
LSD-41 (Landing Ship Dock-Cargo Variant)	1	–	1	1	2	5
MCM-1 (Mine Countermeasures Ship)	3	–	–	–	–	3
MHC-1 (Coastal Minehunter)	–	2	3	3	4	12
PXM (Patrol Craft)	–	–	1	–	4	5
AOE-6 (Fast Combat Support Ship)	–	1	–	2	–	3
AE-36 (Ammunition Ship)	–	–	–	1	1	2
ARS (Salvage Ship)	–	–	1	–	–	1
TAO-187 (Fleet Oiler)	2	2	2	1	–	7
TAGOS (Surveillance Ship)	–	3	3	2	–	8
AGOR (Research Ship)	–	1	2	4	–	7
	16	**19**	**21**	**25**	**21**	**102**
Conversions/SLEPs						
CV (Aircraft Carrier) SLEP	1	–	–	1	–	2
AO (Oiler) Conversion	1	2	1	–	–	4
TACS (Crane Ship) Conversion	2	2	–	–	–	4
	4	**4**	**1**	**1**	**0**	**10**

C. TACTICAL AIR FORCES

1. Introduction

Tactical air forces are a flexible, responsive element of our general purpose forces. They can be equipped with a variety of weaponry to support a wide range of military operations, deployed worldwide on land and at sea, and refueled in flight. Thus, our tactical air forces have the ability to strike quickly and effectively any adversary who threatens U.S. or allied interests. For example, several times in the past year we have used our tactical air forces to conduct retaliatory strikes in response to terrorist attacks.

Tactical aircraft have historically proven to be invaluable in land and naval campaigns. They have been used to gain and maintain air superiority, attack targets on enemy territory or at sea, and provide air support to friendly forces in close combat with the enemy. When used in an air-superiority role, tactical aircraft provide land and naval forces protection from enemy aircraft. In the direct-attack role, they can be employed against a wide variety of targets, ranging from ships and airfields to enemy troop concentrations, supplies, and vehicles. One of the most difficult and important missions of our tactical air forces is to provide close air support to Army and Marine ground forces. It is in this role that they have traditionally made one of their most important contributions.

To perform these missions in support of our national strategy, our tactical air forces, both the Active and Reserve Components, must have responsive C^3I systems operated by highly trained men and women; sufficient numbers of modern, technologically superior aircraft; adequate stocks of spare parts and munitions; and highly trained aircrews and maintenance personnel. Historically, we have enjoyed a comfortable technological lead in tactical aircraft and weaponry over our adversaries. However, the Soviet Union is now introducing aircraft and air defense weapons that are only slightly less sophisticated than those fielded by our forces and our allies. As a result, our qualitative advantage in aircraft has narrowed, particularly in the air-superiority fighter force. New Soviet fighters, such as the MiG-29 Fulcrum and Su-27 Flanker, are nearly as capable as our best fighters. These new aircraft, added to an already impressive and increasingly effective array of surface-to-air missiles and C^3I systems, will constitute a credible Soviet challenge to our tradition of air supremacy in any future confrontation.

To maintain our advantage, we are developing a new generation of tactical aircraft that will incorporate the latest in propulsion, armament, avionics and material technologies, at a reasonable cost. It is imperative that we acquire the Air Force's Advanced Tactical Fighter (ATF) and the Navy's Advanced Tactical Attack (ATA) aircraft to offset a numerically superior, technologically evolving Soviet threat; at the same time, we must make other needed improvements. Current budget constraints, however, will result in underequipped tactical air forces in the 1990s. With regard to readiness and sustainability, budget constraints will have an immediate negative

effect on training, spare parts availability, and weapon stockpiles. While our tactical air forces will continue providing a formidable capability to support the AirLand battle and maritime operations, the deep reductions in programmed spending will significantly erode our ability to make improvements necessary to maintain technological superiority.

a. Force Structure and Training

To execute the broad range of missions which they may be called upon to perform, our tactical air forces require a variety of aircraft. These include air superiority, close air support, and air-interdiction aircraft, as well as those which deliver no weapons, but provide vital support. These support aircraft perform such functions as early warning, command and control, reconnaissance, electronic combat, aerial refueling, and support for special operations forces.

(1) Air Force Aircraft

Two-thirds of the Air Force's tactical aircraft are in the active inventory; the remainder are flown by the reserves. Currently, the Air Force has the equivalent of 36.7 wings -- 24.5 active and 12.2 reserve. Each wing typically is comprised of 72 aircraft, organized into three squadrons. Because of fiscal constraints, the Air Force will maintain its near-term force level at about 37 wings. The Air Force continues to plan for growth to 40 tactical fighter wings as an interim objective, and will resume growth toward that objective as soon as fiscally possible. The goal is to maintain the average age of its inventory at about 10 years.

In addition to its tactical fighter wings, the Air Force operates 14 squadrons (three active and 11 Air National Guard) of air-defense fighters. Furthermore, beginning in the early 1990s, 56 FB-111s will be transferred from the strategic forces to the tactical inventory. These aircraft will supplement the Air Force's long-range air-interdiction forces.

The modernization of the reserve forces is continuing. Units flying older-model F-4s are being equipped with F-16s and F-15s. Fourteen more units will receive these more capable aircraft within the next four years.

(a) Air Force Training and Personnel

The combat readiness of our fighter aircrews is directly related to the quality of their peacetime training. Training quality, in turn, depends on such factors as flying time, range, and airspace availability; realistic simulations of the threat; and quality briefing and debriefing facilities.

In view of the downturn in pilot retention in recent years, we must increase the flight training time of our younger, less

experienced pilots. That goal has been frustrated by cutbacks in operations and maintenance funding, which reduces our flying program hours below required levels.

We have made significant progress in improving the quality of each training opportunity by increasing the density and realism of threat simulators on our tactical ranges. We are in the process of improving the briefing and debriefing facilities at our Air Combat Maneuvering and Instrumentation ranges. These state-of-the-art facilities provide pilots with an opportunity to analyze air-to-air combat tactics and critique their performance with the aid of computerized displays.

Realistic training exercises give our aircrews an opportunity to practice their skills in situations that closely parallel actual combat conditions. Examples include the RED FLAG exercise series, conducted at Nellis Air Force Base, Nevada; COPE THUNDER, in the Philippines; and the CHECKERED FLAG overseas deployment program. This training significantly increases combat readiness, and is expected to improve wartime survivability. Our forces' participation in such exercises has increased by 93 percent since 1980. Budget pressures, however, forced the cancellation of one RED FLAG exercise in FY 1986, denying a large number of fighter crews the opportunity to experience this critical training.

(2) Navy and Marine Corps Aircraft

Navy and Marine Corps air wings operate a variety of aircraft types, each optimized for a specific mission. As an integrated unit, each wing can operate independently in support of carrier battle groups or amphibious forces.

(a) Navy Carrier Air Wings

The Navy currently has 13 active carrier air wings and two reserve wings. A fourteenth carrier air wing is expected to complete activation during FY 1988. This year, it will introduce a new, "notional" wing configuration, containing a somewhat different mix of aircraft designed to exploit our advantages in air-to-air and air-to-ground combat capabilities. Eventually, eleven of the fourteen active air wings and both reserve wings will operate this new mix of aircraft. The numbers and types of aircraft in traditional and notional wings are compared in Table III.C.1.

(b) Marine Aircraft Wings

The Marine Corps has three active air wings and one reserve wing. Each of the active wings is optimized for a given theater of operations. Two of the wings are based in the United States, on the east and west coasts, and the third is in Japan. A typical wing operates some 300 aircraft, organized into 20 to 25 squadrons (see Table III.C.1).

Table III.C.1

Typical Composition of Navy and Marine Corps Air Wings

Navy			Marine Corps	
Type of Aircraft	Number of Aircraft Traditional Wing	Number of Aircraft Notional Wing	Type of Aircraft	
F-14	24	20	F/A-18	48
F/A-18 (or A-7)	24	20	A-6	20
A-6	10	20	AV-8B	40
KA-6D	4	0	TA-4/OA-4	9
EA-6B	4	5	RF-4 or F/A-18	8
E-2C	4	5	EA-6B	8
S-3	10	10	KC-130	12
SH-3	6	6	CH-53	48
Total	**86**	**86**	AH-1	24
			UH-1	24
			OV-10	12
			Total	**313**

(c) Navy and Marine Corps Training and Personnel

Currently, Navy and Marine aircrew readiness is exceptionally high. In FY 1988, they will average 25 hours of flying time per month, or 300 hours a year -- which is consistent with FY 1987 levels. We must continue to devote sufficient resources to training programs to keep pilot proficiency high, particularly in light of the recent downward trend in retention.

Like the Air Force, the Navy and Marine Corps use Air Combat Maneuvering Ranges and other instrumented ranges to supplement training time in the air. These facilities enable aircrews to improve their tactical skills quickly, and at greatly reduced cost. The extensive use of computerized videos and debriefs at such ranges provides a dramatic improvement in learning curves. Likewise, joint-Service exercises such as COPE THUNDER, RED FLAG, and MAPLE FLAG provide the most realistic training available to our aircrews. Their participation in these exercises continues to increase.

2. FY 1988-92 Programs

a. *Program Goals*

The FY 1988-92 program reflects our continued determination to maintain a qualitatively superior force that can meet the growing Soviet challenge. The program seeks to:

-- Increase the readiness and sustainability of our forces through better training, higher stocks of spare parts, and more effective munitions;

-- Modernize the active and reserve forces with more capable aircraft, using competitive procurement and other measures to hold down costs;

-- Improve the electronic combat and command and control capabilities of our tactical air forces; and

-- Use modern technology to add to our surveillance and target-acquisition capabilities.

b. *Combat Readiness and Sustainability*

We have placed great emphasis on improving combat readiness and sustainability and, with the support of the Congress, have made substantial gains in these areas. Unfortunately, recent congressional budget reductions threaten to undermine our progress. We must have full funding support if we are to continue improving our capabilities to fight and win.

(1) Equipping the Force

The readiness of our tactical air forces has improved significantly in recent years as a result of new aircraft procurement. Air Force F-15 and F-16 fighters continue to replace older aircraft like the F-4. Navy and Marine Corps F/A-18s are replacing F-4s and A-7s aboard aircraft carriers and in forward-deployed squadrons. Our newest strike-fighter, the F/A-18, took part in last year's operations against Libya, during which it proved its exceptional versatility.

(2) Aircrew Readiness

In average annual flight time, we continue to do well. We have been able to improve the quality of realistic training, both in individual aircrew training and in large-scale exercises.

The tactical air warfare exercises conducted by U.S. forces today are the most sophisticated and realistic in the world. Exercises like those conducted by the Marine Corps at Yuma, Arizona; the Navy at Fallon, Nevada; the Air Force at Nellis Air Force Base, Nevada; and Clark Air Base, Philippines, involve aircrews from other Services and, in some cases, other countries. The tactical problems presented are demanding and realistic. Aircrews are painstakingly debriefed at the completion of each mission to reinforce lessons learned in the air. Increased flight time, combined with realistic exercises and training, ensure our aircrews are capable of fighting -- and winning -- in a wide range of combat scenarios.

(3) Sustaining the Force

We must be ready for the possibility of extended conflict; therefore we continue to increase our stocks of war reserve munitions. This is being done in two ways. First, we are modernizing our inventories with new "smart" weapons, such as laser, infrared, and optically guided projectiles. At the same time, we are also improving our existing weaponry through improvements in fuzing, propellants, and warheads.

While essential to a modern fighting force, sustainability programs have become frequent targets for budget cuts by those using "short-war" scenario assumptions. We intend to continue according sustainability a high priority. However, fiscal constraints have slowed our efforts to increase spares and repair parts levels beyond 30 days of projected wartime expenditure.

c. Force Modernization

(1) Air Force Programs

The Air Force's FY 1988-92 programs for tactical air forces are dedicated to maintaining our qualitative superiority. We continue replacing older aircraft, such as the F-4, with modern F-15s and F-16s. Those aircraft are being upgraded with more advanced systems, such as the Airborne Self-Protection Jammer (ASPJ) on the F-16 and the Low-Altitude Navigation and Targeting Infrared System for Night (LANTIRN) on the F-15 and F-16, to keep pace with the threat. At the same time, older aircraft, like the A-7, are being modified to gain additional capability at the lowest possible cost.

We are also improving the weapons carried on our tactical fighters. This includes updating combat-proven air-to-air missiles such as the AIM-7 Sparrow and AIM-9 Sidewinder, as well as developing new ones, like the AIM-120 Advanced Medium Range Air-to-Air Missile (AMRAAM). We have approved full production of the Imaging Infrared (IIR) Maverick air-to-ground missile and are developing other, more effective air-to-ground munitions for the future, such as the Sensor Fuzed Weapon and Direct Airfield Attack Combined Munition.

(a) Major Programs

F-15 (Eagle) -- Our FY 1988-92 program continues procurement of the F-15E fighter, buying 210 of these aircraft at a rate of 42 a year. The dual-role "E" model is designed primarily for long-range, large-payload capability to strike deep into enemy territory at night and during adverse weather. It does, however, retain much of the capability for air-superiority missions inherent in earlier F-15 designs. Each F-15E will be equipped with the LANTIRN system and AMRAAM to add to the attack capability designed into the basic aircraft and its systems. A total inventory of 392 F-15Es is planned. Concurrent with this new production, we are upgrading the existing F-15s with avionics and serviceability enhancements.

F-16 (Fighting Falcon) -- The F-16 is the Air Force's multirole fighter. Replacing the versatile F-4, it is routinely assigned to perform most of the Air Force's fighter missions. Starting in late FY 1987, all F-16C/Ds will be equipped with a modified radar -- the APG-68M -- to help lower procurement costs. To supplement the F-15E's night-attack capability, 350 F-16s will be equipped with the LANTIRN system.

Increased-Thrust Engines -- The engines in the F-15 and F-16 fighters have not been upgraded in thrust since their introduction in the early 1970s. In the meantime, the Soviets have introduced an entire generation of new fighters with substantially improved performance. Our fighters have grown in weight due to improvements in avionics, armament, and self-protection capability. To restore a tactical advantage to the F-15s and F-16s for the 1990s, we are increasing the thrust levels of the engines used in these aircraft. Two firms are under contract to develop 29,000 pound thrust class engines for installation beginning in FY 1987.

A-7D (Corsair II) Modification Program -- Originally, we had planned to begin retiring our A-7s in the early 1990s. Analyses have shown, however, that, with modification, the airframes could provide additional years of service. Research and development funds have been identified to modify prototype aircraft to test the feasibility of installing new engines and improving aerodynamic performance. If this prototype program is successful, we intend to modify some A-7s and retain them in the fighter force into the next century. Procurement of modification packages could begin in FY 1991. In the meantime, we are modifying three squadrons with new avionics (i.e., forward-looking infrared pods, new computers, and heads-up displays) providing a much needed, low-altitude night attack (LANA) capability.

Fighter Aircraft Competition -- The Air Force has completed a full and open competition for fighter aircraft to replace the Air National Guard's aging F-4s. These aircraft are part of the CONUS air-defense force. The replacement aircraft, modified F-16As, will be much more capable than the present force, with significantly improved reliability and maintainability.

Advanced Tactical Fighter (ATF) -- As the Soviets continue to improve the quality of their tactical fighter force, it has become necessary to introduce a new air-superiority fighter that will allow us to maintain our qualitative superiority over projected threats. The ATF program has completed its first milestone review by the Joint Requirements and Review Board, initiating the demonstration and validation phase of the program. This phase includes flying prototypes in a competitive environment between two aircraft contractor

teams and two engine contractors. Evaluation of these prototypes will lead to a full-scale development program and procurement starting in FY 1993.

Close Air Support Aircraft -- A concept design effort will be initiated to evaluate aircraft design options for a follow-on to the A-10 close air support aircraft. The design goal will be to provide a significant increase in capability over the A-10, while maintaining a low unit cost and high readiness.

Low-Altitude Navigation and Targeting Infrared System for Night (LANTIRN) -- This twin-pod system will help F-15Es and F-16C/Ds navigate and locate targets at night while flying low enough to avoid enemy air defenses. After completing a successful test program, the navigation pod is now in production. The targeting pod has undergone initial operational testing and is in limited production.

AIM-7M (Sparrow) -- This semi-active, radar-guided air-to-air missile, used by both the Navy and Air Force, is designed to counter a broad spectrum of threats. The newest "M" version features an improved monopulse seeker and a new fuze. It can operate in all types of weather and against electronic countermeasures. Until AMRAAM is introduced, the Sparrow will remain the mainstay of our radar missile inventory.

AIM-9M (Sidewinder) -- This infrared-guided, short-range air-to-air missile is used for close-in "dogfights" by the Navy, the Marine Corps, and the Air Force. The "M" version has an improved ability to acquire targets in a high-infrared-clutter environment as well as an improved infrared counter-countermeasures capability.

AIM-120A (AMRAAM) -- Our newest radar-guided missile, the AIM-120A, is currently in the flight-test portion of its development program, and begins low-rate initial production in FY 1987. Like the Navy's Phoenix, the AMRAAM has an active radar seeker in its nose, giving it a "launch-and-maneuver" capability. This means that the missile can guide itself to its target, freeing the launching aircraft to pursue other targets or to return to base. The sophisticated electronic counter-countermeasures built into the missile will allow it to cope with the electronic threats of the 1990s. The AIM-120 will be used by the Navy and the Air Force, as well as by some of our European allies.

AGM-65D/G Imaging Infrared (IIR) Maverick -- This version of the versatile Maverick missile is being procured by the Air Force to support Army ground forces. Unlike the earlier version that used an onboard television camera for guidance, the current "D" version has an infrared seeker enabling it to operate equally well in day or night and in limited adverse weather. The "G" version is quite similar in design, except that it has a larger warhead for use against enemy bunkers.

Air Base Operability -- Improving our ability to operate from overseas air bases in wartime remains a high priority. Our goal is to ensure that key overseas airfields can withstand air and ground attacks and still generate sufficient numbers of combat sorties.

The first priority of air and ground defenses is to detect and engage attackers before they can inflict damage on our bases. Toward that end, we are actively pursuing both air and ground defense initiatives. The former include Roland, Rapier, and Stinger surface-to-air missiles, replenishment spares, and manpower for point air defense of our bases. These programs are being conducted as part of

air defense agreements with the United Kingdom, Germany, Turkey, Italy, and, in the near future, Belgium.

Survivability programs provide protection against both conventional and chemical attacks. In the conventional arena, we are building revetments to shield our facilities and people from blast and shrapnel. To protect our aircraft, we have begun construction of shelters in Korea and Japan. These facilities are being funded by the host governments. Funding for shelters in Europe is provided by the NATO Infrastructure budget or by the United States unilaterally, as specified in NATO agreements. In the chemical arena, we have issued protective equipment to personnel, fielded collective protective systems, and improved our detection and decontamination capabilities

The ability of our bases to recover from attacks must also be improved. Programs in this area focus on providing systems that allow the most significant payback in terms of sortie generation. Primary emphasis is placed on providing capabilities to report and assess damage, safe and remove unexploded ordnance, repair operating surfaces, and restore utilities and communications. Key to this is our ability to exercise command and control over surviving forces during pre-, trans-, and post-attack. Emphasis is placed on providing a survivable communications network to meet these goals.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
F-15				
Development:				
$ Millions	217.7	156.1	118.6	69.3
Procurement:				
Quantity	48	42	42	42
$ Millions	1,776.5	1,760.2	1,654.9	1,734.0
F-16				
Development:				
$ Millions	61.1	54.9	36.5	23.6
Procurement:				
Quantity	180	180	180	180
$ Millions	2,916.6	2,952.0	2,885.2	3,416.7
LANTIRN				
Development:				
$ Millions	36.9	38.8	19.9	4.7
Procurement:				
Quantity	9	150	250	471
$ Millions	420.7	756.7	741.4	648.2
IIR Maverick				
Procurement:				
Quantity	2,435	2,419	2,701	2,631
$ Millions	410.3	404.6	458.1	490.1
AMRAAM				
Development:				
$ Millions	89.6	37.2	28.2	-
Procurement:				
Quantity	-	180	630	1,800
$ Millions	193.4	579.5	832.9	993.4

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
AIM-9M				
Procurement:				
Quantity	3,770	1,371	1,244	760
$ Millions	173.4	75.6	96.4	48.0

Table III.C.2

Fighter and Attack Aircraft Procurement
(FY 1988 through FY 1992)

	1988	1989	1990	1991	1992
	Air Force Fighter Procurement				
F-15E	42	42	42	42	42
F-16	180	180	180	180	150
Total	**222**	**222**	**222**	**222**	**192**
	Navy/Marine Corps Fighter/Attack Procurement				
F-14D	12	12	19	30	42
A-6F	12	18	24	24	36
F/A-18	84	72	72	72	72
AV-8B	32	32	15	15	15
Total	**140**	**134**	**130**	**141**	**165**

(2) Navy and Marine Corps Programs

The FY 1988-92 program continues a major modernization of Navy and Marine Corps tactical air forces. It equips active squadrons with new F/A-18s, AV-8Bs, A-6Fs, and F-14Ds, and the reserves with A-6s, F-14s, and F/A-18s. As a result of these latter additions, for the first time in years, the reserve aviation force structure will truly mirror the active structure. The program improves the survivability, reliability, and lethality of our aircraft and weapons forcewide. And, through the introduction of new "notional" air wings, it provides the carrier forces with added flexibility for meeting a variety of contingencies.

To continue modernizing the force, the FY 1988-92 program calls for procurement of 1,348 Navy and Marine Corps aircraft. Though this represents a substantial reduction from previously planned levels, it will allow us to reduce the average age of our naval tactical aircraft from 11.1 to 9.7 years by FY 1992. We will also continue to upgrade our existing forces with more modern weaponry and support equipment. Our acquisition strategies will take advantage of competitive procurement wherever possible, and will be based on a careful examination of alternative avenues to achieve desired levels of readiness.

(a) Major Programs

F-14 (Tomcat) -- This all-weather air-superiority fighter is unmatched in its role of fleet air defense. Armed with long-range Phoenix missiles, it constitutes the outer ring of our carrier defenses. For close-in engagements, it carries AIM-7 Sparrow and AIM-9 Sidewinder missiles. This array of air-to-air weaponry, coupled with an internally mounted 20mm cannon, gives the F-14 versatility. To ensure its effectiveness throughout the 1990s, we are upgrading the aircraft's radar, avionics, fire control systems, and engines. An F-14A+ model with the F110 advanced-performance engine is now in production, and a new F-14D model will be produced beginning in FY 1988. The F-14D will incorporate a new digital avionics suite, the ASPJ electronic countermeasures system, an advanced air-to-air radar, and more reliable, high-performance engines. It will be capable of engaging multiple targets with the new AMRAAM. The last two Naval Reserve F-4 squadrons will complete their transition to F-14s in FY 1988.

A-6 (Intruder) -- The A-6 is our only true all-weather carrier-capable strike aircraft. Its primary mission is deep interdiction of both sea and land targets. Despite its age, repeated upgrades have kept the A-6 one of our most reliable and versatile attack aircraft. Its capabilities were demonstrated most recently during the 1986 Libyan operations, when it successfully executed strikes against both naval and land-based military targets. To maintain the A-6's effectiveness in the coming years, an improved model, the A-6F, will be procured starting in FY 1988. That model, incorporating advanced digital avionics, a new high-resolution radar, and new high-performance engines, will be the mainstay of the all-weather medium-attack force until the Advanced Tactical Aircraft (ATA) is fielded in the 1990s. The Naval Reserve will begin transition to the A-6E and KA-6D in FY 1988 and the EA-6B in FY 1989. These transitions will mark the completion of the fully modernized Naval Reserve TACAIR wings by FY 1991.

AV-8B (Harrier) -- This second-generation Vertical/Short Takeoff and Landing (V/STOL) aircraft will replace the AV-8A/C and the A-4M in Marine air wings. Its primary mission will be to provide close air support to front-line commanders while operating from unprepared airfields near the battle area. Compared with earlier V/STOL models, the AV-8B has significantly greater range, payload, and operational versatility; in weapons delivery accuracy, it is ranked among the best combat aircraft in the world. Like the F-14D, the AV-8B will be equipped with the new ASPJ, greatly enhancing its survivability in high-threat environments. The Marines plan to field eight AV-8B squadrons of 20 aircraft each.

F/A-18 (Hornet) -- This high-performance, dual-mission aircraft has recently completed its second carrier deployment. Its performance and reliability confirmed our high expectations for this state-of-the-art strike aircraft. As a fighter, the F/A-18 has unsurpassed maneuverability and acceleration within its operational speed range, and is considered an excellent "dog-fighting" aircraft. As an attack aircraft, it can carry the entire spectrum of ordnance and deliver its weapons with great accuracy. Additionally, the Hornet's speed, agility, and on-board self-defense features provide an unprecedented margin of survivability and safety. Its reliability and maintainability have surpassed our expectations, yielding increases in sortie rates and mission capable status, while reducing maintenance man-hours. As a result, the F/A-18 has maintained a safety record unmatched by any previous new tactical aircraft. This improvement over expected peacetime attrition levels partly compensated for the reduction in F/A-18 procurement.

The F/A-18 is the backbone of our modernization effort. It is replacing both the F-4 and the A-7 in the Marine Corps and the Navy. Beginning in FY 1988, a new "C" model featuring upgraded electronic countermeasures equipment, expanded air-to-air capability, and upgraded avionics will enter production. In FY 1990, we will begin procuring the F/A-18D, a two-seat all-weather version designed to meet the Marine Corps' attack and reconnaissance requirements.

AGM-65F Imaging Infrared (IIR) Maverick -- The Imaging Infrared (IIR) Maverick will be carried by F/A-18s, A-6s, and AV-8Bs and is designed to operate in any type of weather, in day or night. The missile's stand-off range will make it especially well suited for sea-control operations.

AGM-65E Laser Maverick -- This precision-guided missile uses a laser sensor to "home in" on designated targets. It will be particularly useful for close air support missions when attacking targets in close proximity to friendly troops. The missile can be launched from stand-off ranges, thus minimizing aircrews' exposure to battlefield defenses. The system will complete operational evaluations this year, and enter production in FY 1988.

AIM-54C (Phoenix) -- This long-range air-to-air missile is deployed exclusively on Navy F-14 interceptors. Each aircraft can carry up to six of the missiles and launch them nearly simultaneously against different targets. The "C" model has a longer range than earlier versions, and has been designed to defeat the threat of the 1990s. The Navy will establish a second production source for the missile and plans to continue procuring it through the early 1990s.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
F-14				
Development:				
$ Millions	347.9	263.9	184.8	143.9
Procurement:				
Quantity	18	15	12	12

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
F/A-18				
Development:				
$ Millions	54.3	31.7	17.3	19.9
Procurement:				
Quantity	84	84	84	72
$ Millions	2,174.9	2,305.5	2,472.6	2,328.3
A-6E/F				
Development:				
$ Millions	235.4	170.9	124.0	78.1
Procurement:				
Quantity	11	11	12	18
$ Millions	281.0	329.5	812.1	839.7
AV-8B				
Development:				
$ Millions	65.3	44.5	13.1	11.4
Procurement:				
Quantity	46	42	32	32
$ Millions	740.0	653.6	628.2	689.4
Laser Maverick				
Procurement:				
Quantity	1,500	1,800	1,099	0
$ Millions	151.6	160.2	111.8	0
AIM-54A/C				
Procurement:				
Quantity	265	205	430	560
$ Millions	315.1	285.6	398.0	465.0

d. Electronic Combat

(1) Air Force Electronic Combat Programs

F-4G (Wild Weasel) -- This version of the venerable F-4 Phantom has been refitted with specialized electronic warfare equipment and armed with antiradiation missiles, such as the high-speed antiradiation missile (HARM). The aircraft is designed to autonomously locate, destroy, or suppress enemy radar and surface-to-air missile sites and to provide protection for our strike or reconnaissance forces. The fleet is being upgraded to enable it to cope with electronic threats well into the 1990s.

EF-111A (Raven) -- The 36 aircraft in the EF-111A fleet are designed to jam enemy early warning, acquisition, and ground control radars. The planes can operate from stand-off ranges or be employed in close proximity to other tactical aircraft. With FY 1988 funds, we will begin a series of upgrades to the electronic countermeasures gear. The first set will focus on improving computer processing capabilities; the remainder will update the radio receiver and antennas. These upgrades will permit the aircraft to operate well into the next century.

EC-130H (Compass Call) -- These modified C-130 aircraft are designed to disrupt enemy communications from stand-off ranges. Ten aircraft are already in service, and six more are being modified with prior-year funds. The first of the planes entered the inventory last November. With FY 1988-92 funds, we will be making modifications to enable the aircraft to counter new Soviet threats.

Airborne Self-Protection Jammer (ASPJ) -- This internally mounted system is designed to detect enemy radar signals, analyze them, and then pick the correct electronic countermeasure to jam the signals. The system is being developed jointly by the Air Force and the Navy for installation on F-16Cs, F/A-18s, F-14Ds, A-6Es, and AV-8Bs. Reliability and environmental tests are now being conducted, and operational fight tests will be completed in FY 1988. The jammers will be deployed beginning in the early 1990s on both new-production and existing aircraft.

Electronic Countermeasure Pods -- These externally mounted pods generate electronic signals that jam enemy radars. The first pods were developed during the Vietnam War and have been carried on most Air Force aircraft since then. They will remain in use until all of the aircraft in the inventory can be equipped with internally carried systems. The Air Force currently has two pod programs under way -- one involving production of new ALQ-131 pods and the other entailing modifications to older ALQ-119 systems (redesignated ALQ-184s). We believe that this combination of new procurement and upgrades of existing equipment will produce the most capability for the dollar.

Joint Tactical Information Distribution System (JTIDS) -- This new digital communications system will provide secure, jam-resistant channels for transmitting data and voice messages. Development testing of Class 2 terminals is nearing completion, and operational tests are scheduled to begin early in FY 1987, followed by installation in the Navy's F-14D. The Air Force's F-15 JTIDS Class 2 terminal program has been canceled due to budget constraints. JTIDS Class 1 equipment is already in service on Air Force E-3 (AWACS) aircraft and at NATO command and control centers. Additional terminals of various sizes and capabilities will be fielded into the 1990s.

Integrated Avionics (INEWS / ICNIA) -- Since World War II, new electronic combat systems have been added to our combat aircraft as individual stand-alone avionics systems. As these systems have become more sophisticated and complex, the costs of developing and integrating them into aircraft one at a time have become prohibitive. The INEWS/ICNIA technology development programs will make major changes to the way we add new capabilities to our avionics systems. The INEWS/ICNIA systems, when fully developed, will employ common hardware and software modules in various combinations to tailor the operational capability to the mission of the particular aircraft type. The INEWS/ICNIA continues as a joint Air Force/Navy program targeted for the Advanced Tactical Fighter, the Advanced Tactical Aircraft, and possibly the Army LHX.

(2) Navy Electronic Combat Programs

AGM-88 High-Speed Antiradiation Missile (HARM) -- This air-to-surface missile, deployed with Navy and Air Force aircraft, guides itself to its targets by homing on radar beams. HARM missiles were used in last year's operations in the Gulf of Sidra, where they scored several direct hits and effectively suppressed enemy fire-control

radars, which allowed naval strike aircraft to complete their missions without loss. The system will be procured through FY 1990. The HARM has been closely integrated with the avionics of the F-4G and A-6E, and will also be integrated with the F-16. We intend to continue working to improve the missile's coverage, effectiveness, and versatility.

AGM-122 (Sidearm) -- This new short-range weapon will provide an effective, inexpensive self-defense system for a variety of aircraft. Consisting of a Sidewinder body with a modified AIM-9C antiradiation seeker, the missile has been designed for use in close air support operations against heavily defended targets. It can be employed with little or no aircraft modification. Although the Sidearm is compatible with all naval attack aircraft and helicopters, it will be used primarily on Marine Corps' AH-1s, AV-8Bs, and OV-10Ds.

EA-6B (Prowler) -- This carrier-based tactical support aircraft proved a most valuable asset last year, when it successfully suppressed enemy early warning and acquisition radars during the Libyan operation. This year, we will be activating the twelfth of fourteen planned active EA-6B squadrons. In FY 1989, the aircraft will begin its deployment with the reserves. The system's performance is being enhanced under the Improved Capability Program (ICAP II). Other improvements will follow in the Advanced Capability Program (ADVCAP), which is scheduled to begin in FY 1990. These upgrades will significantly increase the Prowler's effectiveness and frequency coverage, as well as achieve a quantum increase in system reliability and maintainability. EA-6B squadrons will also receive the HARM missile system. Together, these upgrades will substantially improve our ability to counter new generations of enemy radar, communications, and weapons systems.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
Compass Call				
Procurement:				
Quantity	-	-	-	-
$ Millions	18.5	33.9	15.0	18.4
EF-111A				
Procurement:				
Quantity	-	-	-	-
$ Millions	-	-	-	57.9
EA-6B				
Development:				
$ Millions	81.2	50.1	54.6	26.5
Procurement:				
Quantity	12	12	6	9
$ Millions	399.6	430.7	353.9	489.0
HARM				
Procurement:				
Quantity	2,141	2,462	2,514	2,659
$ Millions	602.4	611.9	617.6	619.8
F-4G Wild Weasel				
Development:				
$ Millions	36.9	35.3	17.8	17.0

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
INEWS / ICNIA				
Development:				
$ Millions	46.4	123.7	83.3	41.0
ASPJ				
Procurement:				
Quantity	-	6	24	217
$ Millions:	55.8	114.0	176.7	431.4

e. *Target Acquisition, Surveillance, and Reconnaissance*

Airborne Warning and Control System (AWACS) -- The 34 E-3 aircraft in the AWACS fleet are routinely deployed overseas in both training exercises and peacetime surveillance missions. A number of the planes are stationed on Okinawa, Iceland and Alaska, and four have been operating from Saudi Arabia to monitor activities in the Persian Gulf. Those aircraft will be redeployed as the Saudis assume air surveillance responsibilities with the E-3s they are now receiving.

The Air Force is working on a number of improvements for the E-3 force. Some new equipment, such as operator consoles for additional crew members, is already being installed. For the future, we are studying advanced airborne surveillance concepts that will greatly expand on the E-3's capabilities.

In addition to E-3 upgrades, we continue to look for affordable ways to search very large areas, while detecting targets with increasingly small radar signatures. Several promising technologies may help us achieve these seemingly incompatible aims. Large fixed over-the-horizon radars are one attractive option. It will probably be several years, however, before we are in a position to identify a particular surveillance force structure to complement, and ultimately replace, the E-3 force.

Precision Location and Strike System (PLSS) -- Since the 1970s, the Air Force has been investigating ways to intercept electronic signals in order to provide targeting information during the course of an attack. Unfortunately, the complex task of processing and analyzing the vast number of signals picked up during fast-paced combat operations has proven to be more difficult than anticipated. We are analyzing the data gathered from the PLSS prototype tests and will decide later this year what disposition to make of the existing prototype equipment.

Joint Surveillance Target Attack Radar System (JSTARS) -- The JSTARS system offers significant potential to improve our knowledge of enemy ground force movements that occur far behind the front line. The radars will help Army and Air Force units locate, identify, and attack these "deep" targets well before they reach the main battlefield. Should these efforts prove fruitful, the JSTARS will add a unique surveillance and attack capability in the 1990s.

A major operational utility evaluation (OUE) is under way to refine the E-8A's concept of operations and configuration plan.

Factors under review include self-defense features, friendly fighter combat air patrol provisions, and orbit planning. We will be considering the results of those analyses this year, and will conduct field tests (some using E-8 prototypes) over the next several years.

The JSTARS program comprises several elements. The initial system will consist of Air Force's E-8A aircraft (modified Boeing 707s, previously designated C-18s) and Army's Ground Station Modules (GSM), which are truck-mounted data-link receiver and display units. The airborne radar is designed to locate and identify "deep interdiction" targets, permitting Army and Air Force units to attack these targets before they reach the main battlefield. Both components are now in full-scale development. Subsequent elements of the system will incorporate enhanced survivability features for operations in high-threat areas. We tentatively plan to acquire up to ten E-8As, enough to sustain one wartime station overseas as well as satisfy training and maintenance needs.

Advanced Tactical Air Reconnaissance System (ATARS) -- The ATARS is an umbrella concept for a series of upgrades in tactical reconnaissance capabilities. Major elements of the program include the Tactical Air Reconnaissance System (TARS) and the Unmanned Air Reconnaissance System (UARS). The TARS, now in full-scale development, consists of electro-optical sensor suites (sensors, recorders, a video management system, and data-link sets) that will be installed in RF-4Cs and in an unmanned vehicle. In addition, the TARS focuses on the development of a tactical ground station using modular technology developed under the Advanced Deployable Digital Imagery Support System (ADDISS)program. The unmanned system is a joint Navy/Air Force program with the Navy as lead service for development of a medium range platform and the Air Force lead service for sensor development. The unmanned vehicles will complement the Air Force RF-4C reconnaissance fleet.

TR-1 -- These high-altitude reconnaissance aircraft have been procured to support the Tactical Reconnaissance System (TRS) -- a combination of active radars and passive surveillance sensors -- as well as the PLSS system. As noted earlier in this section, the PLSS has been canceled, thereby reducing our TR-1 requirements. Three TR-1s previously planned to support PLSS are being reallocated to the strategic reconnaissance role. Further, this transfer eliminates the need to buy three more aircraft in FY 1988.

The initial operational test of the prototype TRS is nearing completion. Results of this testing have shown the need for some system modifications. Incorporation of these modifications, as well as some expansion of planned future ground-station capabilities, have delayed ultimate program completion by several years. By delaying the program's completion, we can deal more effectively with the technical challenges the TRS program faces and incorporate the findings of ongoing testing. The TRS has become particularly important, however, in light of changes to the PLSSs program. I intend to give close scrutiny to this program over the coming year to ensure that it will be capable of providing needed tactical reconnaissance information on schedule.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
E-3A Modification				
Development:				
$ Millions	105.2	96.8	110.7	88.4
Procurement:				
Quantity	-	-	-	-
$ Millions	.9	33.5	27.7	40.7
ATARS				
Development:				
$ Millions	8.5	21.5	64.4	62.9
Joint STARS				
Development:				
$ Millions	2.9	300.0	337.9	238.3
Procurement:				
Quantity	-	3	6	15
$ Millions	-	16.8	36.9	84.9

3. Conclusion

Our tactical air programs are designed to modernize our forces, both active and reserve. While the most obvious modernization trend has been the introduction of new aircraft, other less obvious but equally important improvements are being made. Weapons and C^3I systems employing the latest in technology are being procured. Older aircraft and weapons are being upgraded to prolong their service life and decrease costs. Readiness and sustainability have been increased through the procurement of additional spare parts and weapons for war reserve stocks.

Though much progress has been made, a good deal more remains to be done. The reductions in current defense budgets threaten to disrupt the steady improvements achieved over the past several years. These programs must move forward if our tactical air forces are to retain their competitive advantage over a rapidly improving adversary.

D. NUCLEAR FORCES

1. Introduction

The President's Strategic Modernization program, announced in October 1981, directed a comprehensive revitalization of our strategic offensive and defensive forces and their supporting command, control, communications, and intelligence systems. In 1983, the Strategic Defense Initiative (SDI) was added to examine advanced technologies that could provide for highly effective defenses against ballistic missiles. The strategic modernization program, in combination with the SDI, will enhance our ability to deter aggression, strengthen stability, and provide the Soviets with incentives for suitable arms reductions, thereby increasing the security of the United States and its allies.

The majority of systems in the President's program are now being deployed or are well along in development. The first of 50 Peacekeeper Intercontinental Ballistic Missiles (ICBMs) have been installed in Minuteman silos; the first of five squadrons of B-1B bombers is operational; a seventh Trident submarine has entered service, and an eighth is currently undergoing sea-trials; and increasing numbers of air-launched cruise missiles are being deployed. The Trident II submarine-launched ballistic missile will begin flight tests during 1987, and the Small ICBM will enter full-scale development. In FY 1988, we will begin full-scale development on a new, more survivable basing mode for the second 50 Peacekeeper missiles. The Advanced Cruise Missile and Advanced Technology Bomber are progressing toward their planned deployment dates in the late 1980s and early 1990s.

To complement these substantial improvements in strategic offensive capabilities, we are modernizing our nonstrategic nuclear forces and strengthening our strategic defenses. New air-defense radars are being installed, and interceptor squadrons are receiving more capable aircraft. An antisatellite weapon has been successfully tested. The SDI program is investigating potential ballistic-missile defenses, while a parallel program is examining advanced air-defense concepts. The survivability of our weapons and supporting systems is being strengthened forcewide.

We are encouraged by the Soviets' recent willingness to discuss deep arms reductions at the Reykjavik conference. The forcewide improvements in our nuclear deterrent have helped increase the chances for equitable and verifiable reductions by signalling our resolve and allowing us to bargain from strength. As we modernize our forces, we will continue to seek agreements that foster stable deterrence at much lower levels of armament.

2. Composition of Nuclear Forces

U.S. nuclear forces can be grouped into four categories: strategic offensive forces; strategic defensive forces; command, control, communications, and intelligence (C^3I) systems; and nonstrategic nuclear forces.

Strategic offensive forces include land-based intercontinental ballistic missiles (ICBMs); submarine-launched ballistic missiles (SLBMs); and long-range bombers armed with gravity bombs, short-range attack missiles (SRAMs), and air-launched cruise missiles (ALCMs). Together, these three elements of the force -- land- and sea-based missiles and bombers -- constitute the strategic nuclear triad.

Strategic defensive forces include ground-based surveillance systems and air defense forces. The surveillance systems warn of bomber and cruise missile attacks, while the air defense forces control access to North American airspace and provide a limited defense against air attack. Although we have no defenses against ballistic missiles at present, the SDI research is examining technologies that could provide such protection in the future.

C^3I support is provided by ground- and space-based surveillance and communications systems. The surveillance systems warn of ballistic missile attacks, and the communication systems link the warning sensors to command centers, and commanders to their forces. Effective deterrence demands that these systems be able to function both during and after an attack.

The nonstrategic nuclear forces consist of systems designed to operate at less than intercontinental range. They include: intermediate-range ballistic missiles; land- and sea-based cruise missiles, other sea-based systems, and bombers carrying nuclear weapons; short-range artillery projectiles and surface-to-surface missiles; land-based defensive systems, such as surface-to-air missiles; and atomic demolition munitions. These forces enhance deterrence by providing a capability to respond to aggression at the lower end of the nuclear spectrum, firmly linking the strategic forces to the conventional forces of both the United States and our allies.

3. FY 1988-92 Programs for Strategic Forces

The FY 1988-92 program completes production of several key systems in the President's Strategic Modernization program, continues development and begins deployment of others, and pursues a vigorous research program for defenses against ballistic missiles.

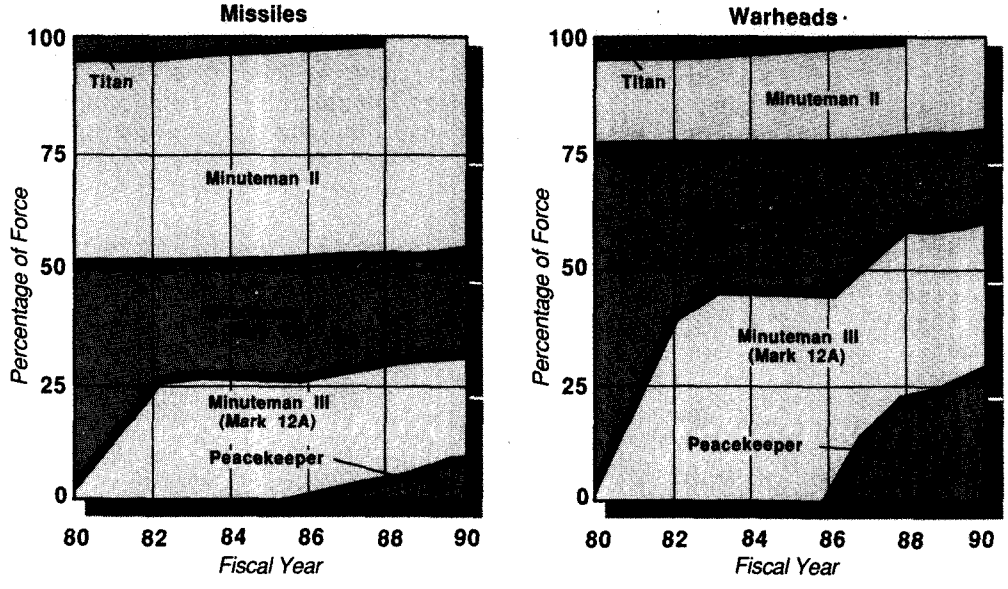
a. *Strategic Offensive Forces*

(1) ICBM Forces

High alert rates and reliable supporting communications make ICBMs the most responsive element of the triad. Their excellent accuracy allows them to hold very hard Soviet targets, such as missile silos and launch-control facilities, at risk -- an essential element of deterrence. We have begun deploying the Peacekeeper missile and are beginning full-scale development of the Small ICBM. We are starting work on a new basing mode for the second 50 Peacekeepers. We are modernizing the Minuteman force and retiring our aging force of Titan IIs, the last of which will be deactivated later this year. Chart III.D.1 shows the projected composition of the ICBM force through FY 1990.

Chart III.D.1

Composition of the ICBM Force Through FY 1990



We began deploying Peacekeeper missiles in modified Minuteman silos at F.E. Warren Air Force Base, Wyoming, at the end of 1986. Fifty missiles will be operational by the end of 1988. Flight tests continue to confirm the Peacekeeper's excellence, with 15 successful flights as of December 1986. Five more tests are planned for early 1987. We have investigated several promising basing modes for the second 50 missiles, and believe that basing them on rail cars garrisoned at existing Air Force bases will provide survivability at reasonable cost. In this concept, trains carrying two Peacekeepers each would remain on base during peacetime, but would be made survivable during a crisis by moving out across the existing rail network.

Initial development of the rail garrison system will begin in FY 1987, with, we hope, full-scale development starting in FY 1988. We also hope to begin deploying missiles in the new basing mode in 1991 and to have all the second 50 Peacekeepers deployed by December 1993. Our FY 1988/FY 1989 request seeks full-scale development funds for the rail garrison basing mode, as well as production funds for 42 Peacekeepers; 25 missiles for operational and aging tests, and 17 missiles for deployment.

We are starting full-scale development on the Small ICBM. Tests show that missile launchers for the single-warhead missile and slightly larger missiles can achieve satisfactory levels of hardness to nuclear effects and still be sufficiently mobile to survive an attack. We are considering deploying the missiles near Minuteman sites in the northern states, with the potential for later deployments on southwestern military bases. We are requesting funds in FY 1988/FY 1989 to continue full-scale development of the missile and its hardened mobile launcher.

The FY 1988-89 program continues to replace aging Minuteman components, and develops equipment that more efficiently processes the messages sent to launch control officers. We are developing decoys and chaff for deployment on the Minuteman III missiles to help them penetrate Soviet ABM defenses, and are developing more sophisticated penetration aids and a maneuvering reentry vehicle (MARV) to counter potential future threats.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
Peacekeeper Missiles and Basing				
Development:				
$ Millions	663.5	278.8	49.5	39.0
Construction:				
$ Millions	55.8	25.9	9.4	6.5
Procurement:				
Quantity	12	12	21	21
$ Millions	1,152.1	1,136.6	1,276.9	1,361.1
Peacekeeper Follow-on Basing				
Development:				
$ Millions	57.2	115.5	593.0	1,248.3
Construction:				
$ Millions	-	-	-	44.5
Small ICBM and Mobile Launcher				
Development:				
$ Millions	581.5	1,153.1	2,233.2	2,174.4
Procurement:				
$ Millions	-	-	-	121.6
Minuteman Modernization				
Development:				
$ Millions	4.8	48.3	107.7	199.6
Procurement:				
$ Millions	120.0	100.4	119.2	77.7

(2) Sea-Based Strategic Nuclear Forces

For the last two decades, our sea-based leg of the triad has consisted of about 40 ballistic-missile submarines (SSBNs) armed with submarine-launched ballistic missiles (SLBMs). Sea-basing has made this force our most survivable, and modernization programs will ensure it remains so -- despite determined Soviet efforts in the area of antisubmarine warfare (ASW).

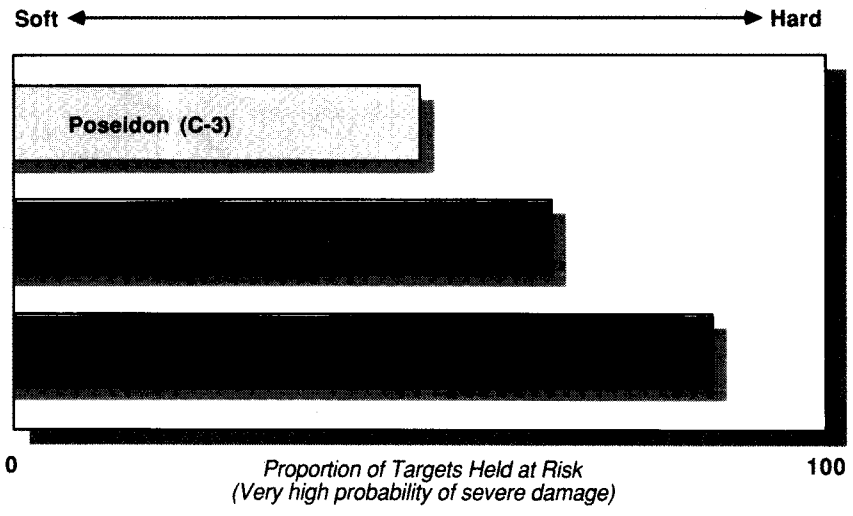
The Poseidon has been the mainstay of the SSBN force since the mid-1960s. Though these submarines were designed to have a 20-year life span, regular maintenance and cost-effective overhauls have extended their useful lives by about ten years. The President directed early retirement for one Poseidon in September 1985 to comply with SALT II limitations, and for two Poseidons in May 1986 for military and budgetary reasons.

The Trident submarine will preserve our survivability advantage into the 21st century. It is quieter and faster than the Poseidon and is better equipped to detect and counter enemy threats. We are producing Trident SSBNs at a rate of about one a year. Seven are now operational, and an eighth began sea trials in May 1986. Our FY 1988/89 program procures the 15th and 16th ships, which will be deployed in 1994 and 1995. It also continues development of countermeasures to offset potential Soviet ASW capabilities.

The Trident's 24 missile tubes will accommodate the new Trident II (D-5) missile. The D-5's significant increase in accuracy and

Chart III.D.2

U.S. SLBM Capability Against the Target Spectrum



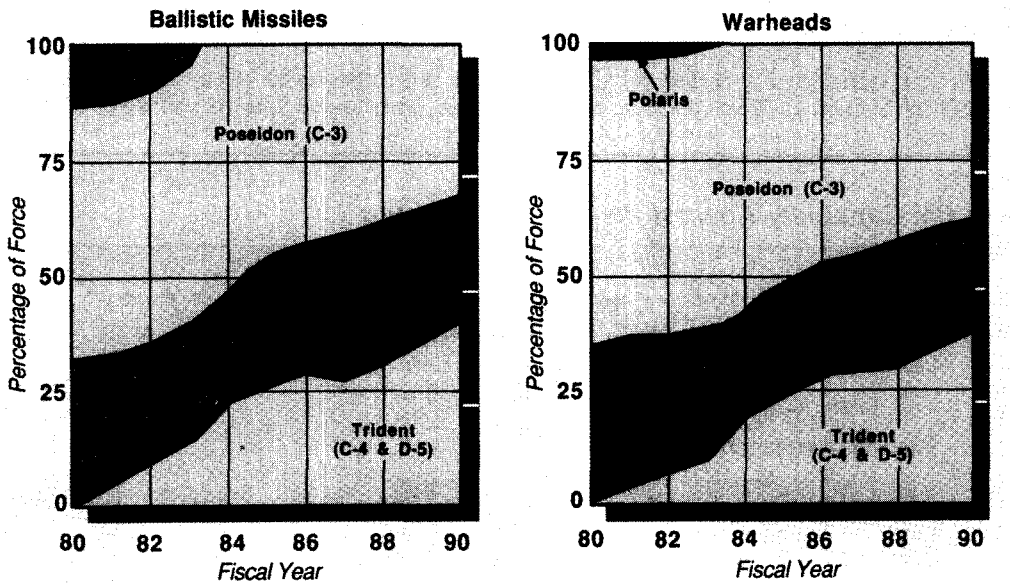
payload over today's Poseidon (C-3) and Trident I (C-4) missiles will provide the SSBN force with the capability to hold hardened targets at risk. Flight tests of the D-5 will begin in 1987. The missile will be deployed on the ninth Trident submarine, which begins sea trials in September 1988 and will be fully operational in late 1989. All subsequent Tridents will carry the D-5, and the first eight will be retrofitted with the missile during regular overhauls in the 1990s. Our FY 1988/89 request includes funding to procure 132 missiles.

Chart III.D.2 illustrates the steadily improving capability of our SLBMs to hold Soviet targets at risk. This capability is measured in terms of the proportion of targets that can be attacked to a very high probability of damage. Whereas Poseidon (C-3) could be used effectively against less than half of the targets, Trident II (D-5) will be effective against most of the hardened military targets, including missile silos and launch control facilities.

Chart III.D.3 shows the projected composition of the sea-based nuclear force through the end of FY 1990.

Chart III.D.3

Composition of the Sea-Based Force Through FY 1990



	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
Trident Submarine				
Development:				
$ Millions	35.3	34.3	31.6	43.9
Procurement:				
Quantity	1	1	1	1
$ Millions	1,255.9	1,440.1	1,353.3	1,422.6
Trident II Missile				
Development:				
$ Millions	1,968.9	1,595.0	1,098.5	581.7
Procurement:				
Quantity	-	21	66	66
$ Millions	508.4	1,346.9	2,251.3	2,227.1

(3) Strategic Bomber Forces

The inherent flexibility of bombers gives them a special role in the triad. They can be recalled or redirected after launch, make damage assessments following attacks, and be reconstituted for follow-on missions. They carry a large number of weapons and can hold at risk widely separated targets, as well as a number of mobile ones. In a maritime role, they can conduct surveillance, attack ships, and lay mines.

The bomber force currently consists of B-52s, FB-111s, and one squadron of B-1Bs. Together, these forces contribute about one-half of the weapons in the U.S. strategic arsenal.

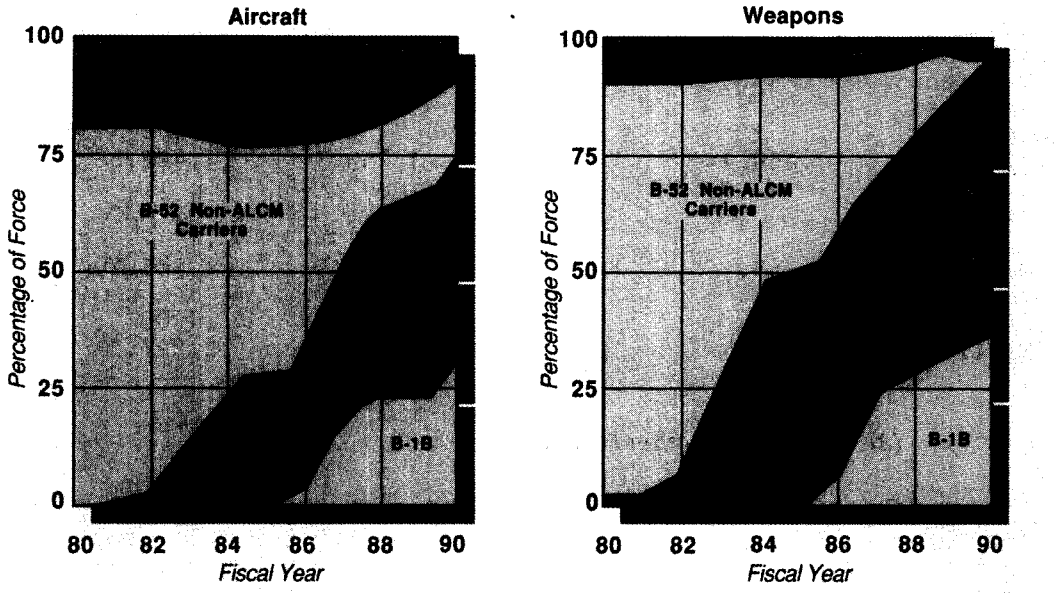
Bomber Modernization -- By the end of the decade, an improving Soviet air defense system will seriously erode the B-52's ability to penetrate to targets in the Soviet Union. The ongoing bomber modernization program is designed to maintain the deterrent capabilities of the force in the 1990s by using our technological advantage to defeat Soviet defensive efforts. The program has three main elements: the installation of air-launched cruise missiles (ALCMs) on B-52s, the production of 100 B-1B bombers, and the development of the Advanced Technology Bomber (ATB). Chart III.D.4 shows the composition of the bomber force from FY 1980 to FY 1990.

We have already equipped 98 B-52Gs with ALCMs, and are modifying the B-52H force to carry them. ALCMs present difficult targets for enemy air defenses because of their relatively small radar cross sections and the low altitudes at which they fly. They have prolonged the useful life of B-52s by allowing these older bombers to hold targets at risk without penetrating Soviet defenses. The new advanced cruise missile (ACM) will have a longer range than the existing ALCM-B. The extra range will allow bombers to stand off farther from enemy air defenses and the missiles themselves to circumnavigate some defenses. Low-observable technology will enhance the new missile's ability to penetrate highly defended areas. Compatibility tests with the B-1B will begin in FY 1987.

Chart III.D.4

Composition of the Bomber Force

(FY 1980 to FY 1990)



The B-1B will be our primary penetrating bomber well into the 1990s. The first squadron of the aircraft became operational at Dyess Air Force Base, Texas, in October 1986. As Soviet defenses continue to improve, we are taking advantage of our lead in low-observable technology to develop a new bomber that can overcome the most sophisticated threat. The ATB will ensure our continued capability to hold at risk those extremely valuable installations that the Soviets choose to protect with their most effective air defenses.

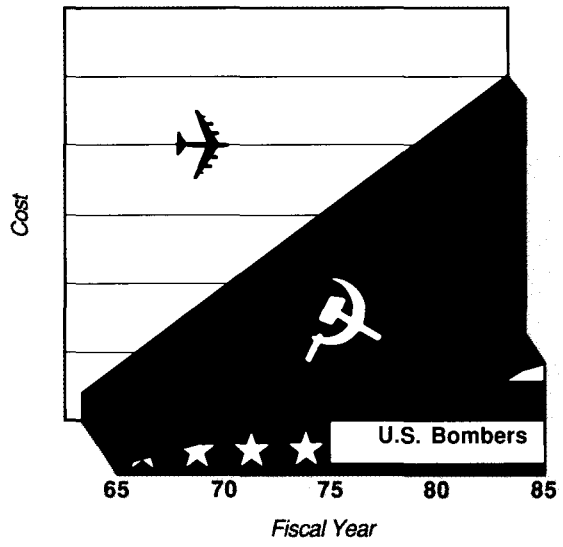
Our bomber modernization program forces the Soviets to make large, long-term investments in high-technology defenses at an enormous cost -- money they could otherwise spend on offensive weapons. As Chart III.D.5 shows, the Soviets have historically spent, and will likely continue to spend, about three times as much on their air defenses as we spend on our bomber force.

As we deploy new bombers, we plan to remove many of our older aircraft from strategic service. In the late 1980s, 69 non-ALCM-equipped B-52Gs will be assigned a purely conventional role. In addition, all four FB-111 squadrons will be transferred to the Tactical Air Forces in the early 1990s. In addition, we will begin deactivating the 98 ALCM-carrying B-52Gs in the early 1990s, replacing them with cruise-missile equipped B-1Bs operating in a "shoot-then-penetrate" role.

Chart III.D.5

Soviet Air Defense Costs Compared to U.S. Bomber Program Costs

(Cumulative Outlays)



(4) Tanker Forces

Aerial refueling allows bombers and fighters to reach more distant targets and circumnavigate enemy defenses. We are currently expanding our in-flight refueling capability by reengining existing KC-135As and purchasing new KC-10s. (The latter aircraft serve as cargo transports as well as tankers.)

In addition to reengining KC-135s with new CFM-56 engines, the KC-135 modernization program provides for safety and reliability modifications to the fleet. Reengining will increase the fleet's refueling capability by approximately 50 percent and ensure its continued effectiveness well into the next century. We have already installed the new engines on 94 KC-135s. Our FY 1988/FY 1989 budget procures support equipment and engines to modify 72 more aircraft.

Since we are buying the KC-10 primarily to enhance airlift capabilities, that aircraft is discussed in the chapter on Force Projection.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
B-52 Bomber Modification				
Development:				
$ Millions	4.6	-	-	-
Procurement:				
$ Millions	393.3	397.2	270.7	194.5
B-1 Bomber				
Development:				
$ Millions	248.4	112.8	415.5	386.7
Procurement:				
$ Millions	4,799.4	-	-	-
Air-Launched Cruise Missile				
Development:				
$ Millions	9.1	4.8	3.6	1.0
Procurement:				
$ Millions	30.4	12.1	2.3	1.2
KC-135 Modification				
Procurement:				
$ Millions	902.5	777.1	645.6	659.2

(5) Force Structure Modernization

Chart III.D.6

Ballistic Missile and Bomber Modernization

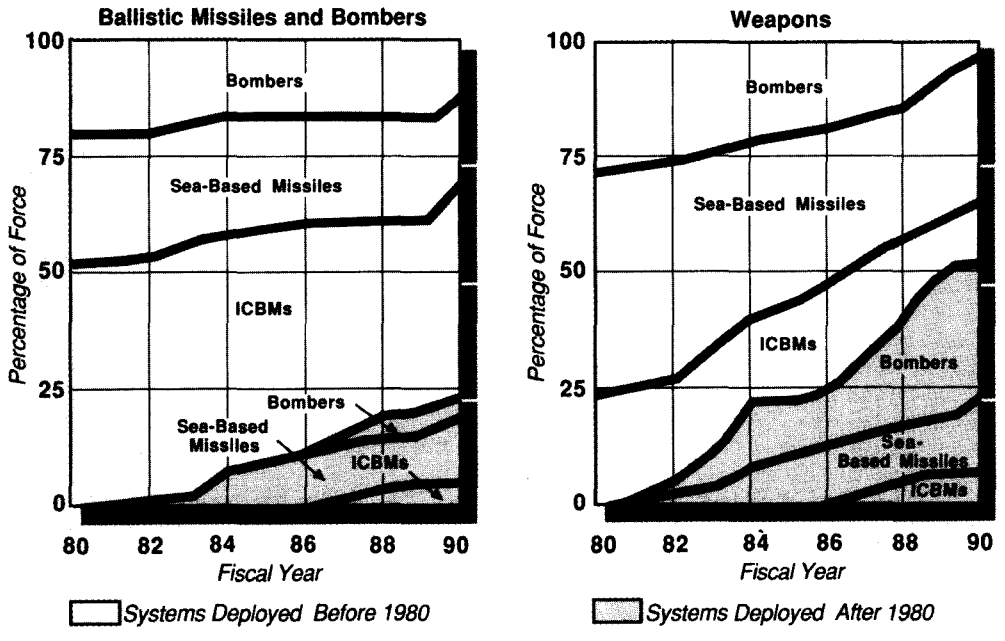


Chart III D.6. shows the actual and projected modernization of strategic forces during this decade. By 1990, modernized systems will constitute about 22 percent of the ballistic missile and bomber forces and about 51 percent of our strategic weapons.

b. Strategic Defensive Forces

Over the past six years, we have devoted considerable effort to strengthening our strategic defenses. Our FY 1988-92 program carries this effort forward. It focuses on potential ballistic missile defenses and advanced air-defense concepts. It further modernizes our air-defense radars and interceptor forces, completes a new space-surveillance system, and provides for an operational antisatellite system.

(1) Strategic Defense Initiative

The goal of the President's Strategic Defense Initiative (SDI) program is to provide a new and better way to deter war by reducing the utility of offensive ballistic missiles, ultimately rendering them impotent and obsolete. Our research on the technologies that could lead to highly effective ballistic-missile defenses signifies our intent to defend our territory and that of our allies. The SDI program, an excellent example of our use of competitive strategies, has the potential to use U.S. and allied technological superiority to reduce the effectiveness of Soviet ballistic missiles, as well as encourage the Soviets to negotiate equitable arms-control agreements. Chapter III.I.1 discusses the SDI program in detail.

(2) Air Defense

Long-range Soviet cruise missiles pose an increasingly serious air-defense challenge. The air-launched weapons are currently deployed with the Bear-H and are expected to be carried on the Blackjack when that aircraft becomes operational. Soviet sea-launched cruise missiles are expected to become operational soon and could be deployed on submarines patrolling close to our coast. To help defend against the cruise missile threat, we are updating our air-defense radars and interceptor forces, and continuing research into advanced air-defense concepts.

Surveillance Systems -- To provide timely warning of bomber and cruise missile attacks and to correct deficiencies in detecting low-flying penetrators, we are deploying a network of twelve Over-the-Horizon Backscatter (OTH-B) radars. The system will provide around-the-clock surveillance hundreds of miles from our coasts, and be able to detect intruders at any altitude. We are requesting funds in FY 1988 for the last of three sectors to be installed on the west coast, and in FY 1989, for the first of two Alaskan sectors, and the first of four central sectors.

With Canada, we are replacing the obsolete Distant Early Warning (DEW) Line with a new radar network, the North Warning System. The new system will consist of 13 long-range and 39 short-range radars,

designed to fill gaps in coverage of the northern approaches to the continent. (OTH-B radars in the United States would be hampered by the aurora borealis in the northern latitudes when attempting to look northward.) Our long-range installations will be completed by FY 1988, and we will begin producing the short-range radars in FY 1989.

Interceptor Forces -- Fourteen interceptor squadrons (three active and eleven Air National Guard (ANG)) are maintained on ground alert at 26 airfields around the country. In a crisis, these forces would be brought to a higher state of alert, dispersed, and augmented with other available aircraft. By FY 1988, fiscal constraints will have forced a change in the force structure to two active F-15 squadrons and twelve ANG squadrons.

We are continuing with our plans to modernize the ANG interceptor squadrons. By the end of FY 1988, F-16As will replace F-106s in four squadrons. We will transfer the F-15s from the disestablished active F-15 squadron to one of the seven ANG F-4 squadrons. We are also transferring an F-16A squadron from the tactical ANG forces to the air defense mission. Finally, except for the F-15 squadron, we will modernize the ANG squadrons by providing modified F-16As.

Advanced Research -- Our research into advanced air-defense technologies seeks revolutionary gains in capability rather than marginal upgrades. Analogous to the SDI's goals for ballistic missile defense, we seek to negate the enormous Soviet investments in cruise missiles and new bombers. In contrast to our program of the early 1980s, which emphasized research on sensors for detection and warning, the FY 1988-92 program supports a more comprehensive effort that includes research into long-range missiles, armed surveillance aircraft, battle management and C^3 systems, and survivability measures.

(3) Space Defense

The deployment of a U.S. antisatellite (ASAT) missile system will reduce Soviet confidence in the wartime availability of their low-earth orbit satellites and deter them from using their ASAT weapons for fear of retaliation. In FY 1988, building on the results of our successful test program, we will continue RDT&E work on the system, and in FY 1989, we will begin producing the missiles. Further congressional restrictions on ASAT testing will, however, needlessly delay attaining an operational capability with the system.

To detect threats against U.S. space systems and to monitor Soviet satellites, we are deploying a network of five ground-based electro-optical sensors. This network complements existing radars in detecting, tracking, and identifying objects in deep space. The funds we are requesting in FY 1988 will complete the system.

c. Strategic Command, Control, and Communications

Our FY 1988-92 program brings to maturity most of the strategic C^3 modernization efforts begun early in the Reagan Administration. Each component of the command and control structure is being improved -- sensors, command centers, and communications links. The following

sections highlight our progress to date, and present our programs for the coming five years. For an overview of our entire C^3I program, see Chapter III.F.

(1) Missile Warning and Attack Assessment Sensors

We deploy satellites and ground-based radars to warn of ballistic missile attack. The FY 1988-92 program completes upgrades for three of these systems, and continues work on one other.

Satellite Early Warning System -- Detection of ICBM and SLBM launches would provide the initial indication that an attack was under way. In FY 1989, we will start to replace currently deployed satellites with improved and more survivable models.

PAVE PAWS -- This ground-based surveillance system confirms warning of SLBM attacks and provides command centers with information on impact points. The system consists of four radars, three of which are operational. When the remaining radar becomes operational in FY 1987, we will have surveillance coverage of all submarine patrol areas off our coasts. We are also providing the two older radars with new data-processing equipment to match that installed at the new sites.

Ballistic Missile Early Warning System (BMEWS) -- We maintain radars in Alaska, Greenland, and England to confirm ICBM attacks. To improve their ability to distinguish among many targets with small radar cross-sections, we are installing new phased-array radars, similar to PAVE PAWS, at the Greenland and British sites. The Greenland upgrade will be completed this year, and the new radar in Britain will become operational in FY 1990.

Nuclear Detonation Detection System (NDS) -- Carried aboard the satellites of the Navstar/Global Positioning System (GPS), the NDS will detect, accurately locate, and report nuclear detonations worldwide. In peacetime, the system will contribute to test-ban monitoring; in a war, it would provide information on the location of nuclear blasts. With FY 1988/1989 funds, we will produce additional sensors and continue developing terminals for ground and airborne command posts. In FY 1989, we plan to launch seven NAVSTAR/GPS satellites. Limitations on launch capacity caused by the shuttle accident have forced a delay in the program's completion to the early 1990s.

(2) Command Centers

Command Centers are the focal point of our command and control system. We have undertaken an extensive program to harden our ground facilities against the electromagnetic pulse (EMP) effects of a nuclear blast. Airborne command posts will benefit from programs to protect their communications and data-processing equipment against EMP effects. We are requesting funds in FY 1988/FY 1989 to continue producing new ultra high frequency (UHF) radios for the airborne command posts.

(3) Communications

As with our other C^3 components, communications systems have been extensively modernized over the past several years to provide more reliable and survivable links to the forces. The FY 1988-92 program puts several new systems into service, and makes major upgrades in some existing systems.

Satellite Communications Systems -- The Air Force Satellite Communications (AFSATCOM) system consists of UHF transponders on a variety of host satellites and terminals widely distributed among command centers and forces. The system provides low-data-rate links to the nuclear forces.

The new Defense Satellite Communications System (DSCS)-III satellites, with their high-data-rate channels, transmit warning data from sensors to command centers and connect the E-4B command post aircraft to the bomber and ICBM forces. The FY 1988-89 program buys the last satellite and begins installing super high frequency (SHF) receivers at ICBM launch control centers.

The Milstar satellite network will ensure survivable, effective, continuous control of the strategic forces both during and after an attack. These satellites use extremely high frequency (EHF) communications, and are much less susceptible to jamming and nuclear effects than either DSCS-III or AFSATCOM. We are requesting FY 1988/89 funds to continue developing the satellites, the first of which are scheduled for launch in the early 1990s.

Ground-Wave Emergency Network (GWEN) -- The new ground-based communications system would relay messages to the bomber and tanker forces upon warning of an attack, and provide an alternate link to the ICBMs. It will operate in the low-frequency (LF) band, and be hardened against the effects of high-altitude nuclear bursts. The system will become operational in FY 1987 with 56 nodes. We will buy about 70 more nodes in FY 1988 and FY 1989 to increase survivability and jam-resistance, and expect to have the full system deployed by the early 1990s.

Miniature Receive Terminal (MRT) -- These very low frequency (VLF) terminals permit bombers to receive messages in flight at much greater distances than UHF line-of-sight communications, and with less susceptibility to nuclear effects than either satellite or high frequency (HF) radio transmissions. We will begin producing the terminals in FY 1988, and installing them in B-1 bombers in FY 1990.

TACAMO E-6A Aircraft -- The Navy maintains a special fleet of aircraft to communicate with its SSBNs at sea. These planes, called TACAMO, ensure that messages can be relayed to our SSBNs in a war, even if ground-based transmitters were destroyed. We are replacing the EC-130s currently flying the TACAMO mission with E-6As, whose greater speed and endurance permit SSBNs to operate over much larger areas, thus complicating enemy antisubmarine warfare efforts. The Navy needs 16 of these aircraft to support continuous patrols over the Atlantic and the Pacific. Six have already been authorized, and we are seeking funds to buy the remaining ten in FY 1988 and FY 1989.

Extremely Low Frequency (ELF) Communications -- ELF communications can penetrate sea-water to much greater depths than can transmissions at higher frequencies. They permit submarines to receive messages at their operating depths, reducing the risk of detection. We are

installing an ELF communications system at two sites in the United States. Both sites will be fully operational by the end of FY 1989. We plan to begin installing receivers on the submarines in FY 1988, equipping the entire SSBN force with them by FY 1990.

4. FY 1988-92 Programs for Nonstrategic Nuclear Forces

Our FY 1988-92 program supports a continued modernization of the nonstrategic nuclear forces. It maintains our Pershing II forces in Europe and continues deploying new ground-launched cruise missiles. It replaces aging dual-capable aircraft and short-range munitions with new systems, and upgrades our sea-based forces. Finally, it improves the C^3 systems that support our nonstrategic nuclear forces, and enhances the safety and security of our weapons and delivery systems. This program supports NATO's 1983 Montebello Decision to reduce the nuclear stockpile in Europe by 1,400 warheads while taking steps to ensure that the remaining warheads and their delivery systems are survivable, responsive, and effective.

a. Intermediate-Range Nuclear Forces

We completed deployment of 108 Pershing II missiles in Europe in 1985, and plan to complete deployment of 464 ground-launched cruise missiles by the end of 1988. These missiles' mobility increases their prelaunch survivability, thereby enhancing deterrence by increasing Soviet uncertainty about the likelihood of neutralizing our nuclear forces in a conflict. While we place the highest priority on these deployments, we continue to negotiate actively with the Soviet Union on the size of our respective European and global stockpiles of longer-range INF missiles.

We will continue to replace existing dual-capable aircraft with F-16s and F/A-18s in FY 1988 and FY 1989, and will bring long-range, night-interdiction F-15Es into the forces in the early 1990s. At the same time, we are enhancing the survivability of the aircraft and their nuclear weapons by introducing underground weapon storage vaults and hardened aircraft shelters, by taking extensive measures for defending against chemical weapons, and by enhancing our capabilities to repair rapidly those runways damaged by conventional weapons. Finally, we are improving the safety, security, and effectiveness of our nuclear munitions.

b. Short-Range Nuclear Forces

A recurring theme in our use of competitive strategies is to offset Soviet advantages rather than seeking a one-for-one match in capabilities. Our short-range nuclear forces (SNF) help offset the Soviets' massive advantage in conventional weapons, especially armor. They force a dilemma upon the enemy commander: should he concentrate

forces needed to break through NATO defenses and increase their vulnerability to nuclear attack; or disperse them to slow the attack's momentum and increase the possibility of defeat?

Modernization programs for the short-range forces focus on replacing aging nuclear artillery rounds. Some 8-inch W33s have been replaced by W79s, and some 155mm W48 rounds will be replaced by W82s. Both new rounds offer greater range and accuracy, and incorporate improved safety and security features. The current program of replacing a portion of the W33s is essentially complete, and W82 procurement is scheduled to begin in the near future. With the production-engineering funds requested in FY 1988 and FY 1989, we will prepare facilities to produce the W82.

Because congressional restrictions limit W79 and W82 production to no more than 925 munitions, we will have to retain some W33s and W48s in the inventory to meet theater commanders' requirements. Accordingly, we are initiating a program to enhance the safety and security of these older munitions.

The LANCE surface-to-surface missile system is undergoing a service life extension. In accordance with NATO's 1983 Montebello Decision, we are exploring options for an extended-range follow-on system to allow us and our allies to maintain this important deterrent capability beyond the mid-1990s.

c. *Sea-Based Systems*

Our nuclear weapons deployed at sea deter Soviet first use of similar weapons, provide a global nuclear deterrent, and contribute to the nuclear reserve force. We are requesting funds in FY 1988 to continue production of nuclear Tomahawk (TLAM(N)) cruise missiles and to develop a nuclear depth/strike bomb (NDSB). The TLAM(N) distributes long-range firepower throughout the fleet and confronts the Soviets with a difficult defensive task. The NDSB, combining land attack and ASW features in a single bomb, will replace the aging nuclear bombs currently fulfilling this mission and thus enhance the effectiveness, versatility and safety of our sea-based nuclear arsenal. Additionally, we are closely examining the costs and benefits of providing a nuclear warhead for the Sea Lance submarine-launched standoff antisubmarine weapon. Both new weapons would enter production in the 1990s.

d. *C^3 Support for Nonstrategic Nuclear Forces*

As with strategic C^3 systems, we have made major improvements in the reliability, security, and capability of the C^3 systems that support our nonstrategic nuclear forces. With the recent completion of UHF satellite network improvements, our primary effort centers on an HF radio program in the European and Pacific the-aters. The FY 1988/89 request will buy jam-resistant, EMP-hardened HF radios for installations at command centers, storage sites, and with deployed forces.

5. Conclusion

We have pursued our ambitious five-year Strategic Modernization program and the Strategic Defense Initiative to meet two goals: to bolster and maintain a credible deterrent that enhances stability, and to provide the Soviets with incentives for equitable arms reductions.

We continue to meet both goals. New or modernized forces now being deployed continue to increase our capability to deter aggression, while the SDI holds the promise of even more effective defense. Moreover, the Soviets' recent willingness to consider equitable and deep arms reductions at the Reykjavik Summit would not likely have been possible without our dedication to strategic modernization, the SDI program, and deployment of longer-range INF missiles in Europe.

We will continue to modernize while seeking deep arms reductions, with our overall goal to maintain security and stability at lower levels of armament.

E. FORCE PROJECTION AND MOBILIZATION

1. Introduction

a. *Strategy and Missions*

Our strategy of forward defense is designed to deter aggression. In the event of conflict, we must be able to bring our forces to bear quickly enough, and with enough strength, to blunt an enemy attack, to minimize territorial losses, and to create a military situation leading to our eventual victory. To support this strategy, we maintain:

-- An active force, including a considerable presence in key areas overseas, of sufficient size to prevail in small-scale conflicts and to serve as the vanguard of our response to large-scale aggression;

-- A reserve force capable of mobilizing quickly in the face of the larger threat;

-- Projection forces capable of rapidly transporting our military forces to the location of a conflict; and

-- A civilian work force capable of rapidly expanding to support the needs of our military forces in wartime.

The total size of the active force and the size of its forward-deployed elements are limited by a number of factors -- including affordability and the desires of our allies. Our ability to conduct a forward defense in wartime depends on our ability to mobilize our forces quickly and deploy them rapidly.

Mobilization entails far more than activating reserve units and assembling forces for deployment. It encompasses a wide range of activities, including the transition of our military and civilian work force from a peacetime to a wartime footing and the surging of our industrial base to produce the additional materiel needed for war. Similarly, the task of projecting combat forces entails more than mustering our airlift and sealift fleets. It requires extensive peacetime preparation, including prepositioning resources in potential theaters of conflict and negotiating agreements with allies for host-nation support in wartime. These and related matters will be addressed below.

b. *The Reserves*

The Reserve Components are key elements of our Total Force and an integral part of mobilization planning. Each of the three categories within the Reserve Components -- the Ready Reserve, the Standby

Reserve, and the Retired Reserve -- provide a vital contribution to our national defense in time of war or national emergency.

The Reserve Components contribute significantly in their role as augmentation and expansion forces under the Total Force policy. The Army Guard and Reserve provide one-half of the Army's combat power. Additionally, the Reserve Components provide about 80 percent of the Army's logistics, service support, and wartime medical capability. Modernization of the Naval Reserve continues and by the 1990s more than 50 ships of the emerging 600-ship Navy will be in the Naval Reserve. Modernization of Naval Reserve aviation includes the addition of more modern fighters and attack aircraft. The Marine Corps Selected Reserve provides roughly one-quarter of the Marine Corps' wartime force structure. The Air National Guard and Air Force Reserve provide 34 percent of the Air Force tactical fighter capability and 58 percent of tactical airlift. Additionally, the Air Reserve forces provide about 50 percent of our strategic airlift capacity and 20 percent of strategic air-refueling capacity.

The availability at mobilization of sufficient numbers of pretrained individuals to meet initial wartime manpower needs remains a major challenge. The Individual Ready Reserve/Inactive National Guard (IRR/ING) and military retirees constitute the bulk of this resource. Total IRR/ING strength now exceeds 500,000 and is projected to grow to nearly 650,000 by FY 1989. To ensure the mobilization, availability, and readiness of this important manpower pool, we require IRR members to report for one day of active duty each year to accomplish mandatory annual screening requirements. The Military Services are required by law to screen continuously all Ready Reservists to ensure they meet proper wartime standards.

There are nearly 500,000 nondisabled military retirees under the age of 60, available for peacetime preassignment to mobilization positions. Over one million additional retiree assets could be mobilized based on the retiree's military skills and the nature and degree of the retiree's disability. Age or disability alone is not a basis for excluding a retiree from service during mobilization.

Finally, the Standby Reserve is a relatively small pool of personnel (about 34,000) who maintain their military affiliation without being in the Ready Reserve. Members of the Standby Reserve have been designated key civilian employees, or have a temporary hardship or disability. They could be mobilized to fill manpower needs in specific skills.

2. Mobilizing the Force

The people and dollar resources we devote to defense cannot be employed effectively without efficient processes for the rapid transition from peace to war mobilization. Our ability to mobilize our forces rapidly is as important to our defense capability as the capability of the forces themselves. This mobilization process will directly influence the outcome of the first day of the next war, and in large part could determine the victor on the war's final day. Moreover, our adversaries' perception of this process constitutes a key element in the overall deterrence equation.

Mobilization planning is particularly important today in view of the massive threat confronting the United States and its NATO allies from the Warsaw Pact. This threat is fundamentally different from

that which we faced in World War II, when we entered the war at a very low level of preparedness, but had several years to develop our military-industrial base. It is also different from the situation we faced in Korea and Vietnam where a relatively small portion of our total force was actually engaged in combat. Today we must be ready to commit the bulk of our forces quickly. This requires that we prepare for war in peacetime.

The Total Force is often thought of only in terms of the Active and Reserve Components, but in reality it also encompasses retired military personnel and the civilians and contractors who work for the DoD. In this period of declining youth population and funding constraints, we need to obtain the best possible force mix to support military mobilization. The discussion below addresses the steps that we are taking to assure our ability to mobilize quickly our military and civilian resources. Our industrial mobilization efforts are discussed in Chapter II.D.

a. Mobilization Manpower Assets

We are working hard to make the fullest use of the Selected Reserve in our Total Force mobilization planning. In the event of a war, these forces would deploy alongside Active Component units; thus their missions demand that they be as capable and ready as their active-duty counterparts. As discussed earlier, by placing a substantial amount of capability in the reserve, we can minimize the size of our standing forces in a cost-effective manner. In deciding on the proper mix of active and reserve forces, we must consider overseas deployments and peacetime missions for which, in many cases, part-time reserve forces are not appropriate. We must also ensure there are sufficient Active Component forces on hand to reinforce troublespots where U.S. forces are not stationed in peacetime.

During a mobilization, the IRR would be used to bring both active and reserve units to their authorized wartime strength, to replace untrained or partially trained unit members, and to replace initial casualties. Annual mandatory screening of the IRR will help determine the members' skill proficiency, refresher training needs, and mobilization readiness, and will also help us keep track of any changes in the members' personal status. Initiatives designed to ensure that the IRR will be a valuable wartime asset are discussed in greater detail in Chapter II.C.

During the early stages of a major conflict, we would also make extensive use of military retirees for a variety of training and support functions. These well-schooled, multitalented people constitute a pool of trained individuals who are not currently members of either the active force or the Selected Reserve, but who have prior military experience. By law, they can be recalled to active duty by their respective Service secretaries to bring units to wartime strength, to expand the continental United Sates (CONUS) support base, or to perform other functions in the interest of national defense.

In the event of a mobilization, the strength of our military forces would need to be increased quickly. In addition to reservists and other pretrained military manpower, the Services would need to obtain many untrained individuals who, following initial training, could be assigned as replacements to existing or newly formed units. The Selective Service System is prepared to deliver inductees to the

armed forces in accordance with the training base's capacity to absorb them.

We are also continuing to increase the size of the civilian work force and expand our reliance on private-sector contractors to free additional military personnel for combat units, thereby reducing active manning requirements. Most of these nonmilitary personnel provide services related directly to the readiness of operational forces. Large numbers are employed in such fields as logistics, communications, medicine, and equipment maintenance. Because many of them occupy positions overseas that are essential to wartime operations, we have recently taken steps to ensure that they would remain available in an emergency.

Although significant progress has been made in the Total Force arena, we are continuing to explore ways to shift appropriate functions to the Reserve Components. In addition, we anticipate the transfer of appropriate functions to the Civilian Component, and increased reliance on military retirees.

b. Wartime Manpower Planning System

Until the late 1970s, there were no standard procedures for computing, presenting, or justifying wartime manpower requirements. Each Military Service developed its own assumptions and calculated its own manpower requirements. Without a common set of assumptions, policies, or definitions and without a common form of presentation, data purporting to represent wartime manpower requirements lacked both accuracy and credibility.

The Wartime Manpower Planning System (WARMAPS) was developed to solve this problem by providing a consistent methodology for establishing time-phased military and civilian manpower requirements and by identifying specific shortfalls (e.g., Medical Officers, Combat Enlisted) during mobilization. It is now the official method for computing, presenting, and justifying wartime manpower requirements.

The WARMAPS receives Service-developed incremental data on both the requirements for, and supplies of, manpower in specified levels of detail and by military function over the scenario timeframe. The system then compiles, compares, and computes the manpower status of each Service by occupational grouping at each time period. The WARMAPS pinpoints when the Services would experience military manpower shortfalls during mobilization and highlights critical skill shortfalls. These data provide the basis for the identification and analysis of problems, and then the development of alternatives and solutions. The system also identifies the locations and skills of civilian workers the Services would have to recruit to meet wartime needs. These data provide a basis for the review of our guidance, the analysis of our resources, and the development of plans and programs.

The WARMAPS data are used extensively for planning, programming, and budgeting functions and to support the preparation of congressional reports and responses to official inquiries. The WARMAPS is used routinely in our periodic mobilization planning reviews and in mobilization exercises.

We are quite confident of the credibility and utility of the WARMAPS military data over a variety of scenarios. We recently

instituted a review of WARMAPS civilian data and will be instituting a program to enhance data consistency. Tables III.E.1 and III.E.2 display the current WARMAPS data for military and civilian manpower based on a 180-day worldwide war scenario.

Chart III.E.1

Wartime Military Manpower Needs at Peak Shortfall

(Combat Enlisted in Thousands)

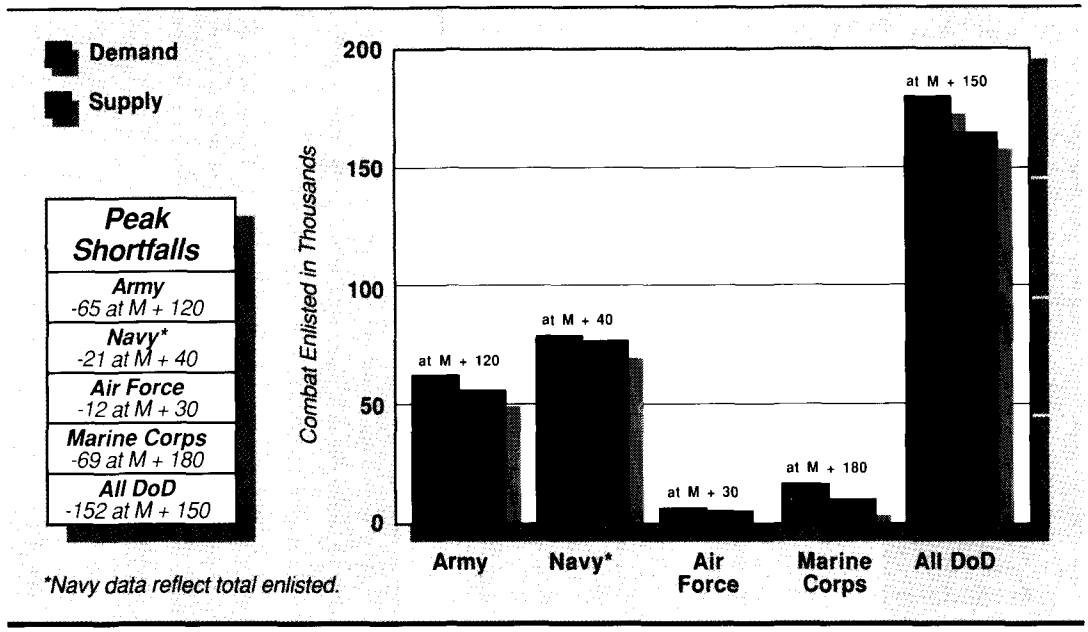


Chart III.E.2

Wartime Civilian Manpower Needs at M + 30

(Strengths in Thousands)

	DEMAND	SUPPLY	REQUIRED NEW HIRES
Army	442	284	158
Navy	327	253	74
Air Force	216	200	16
Marine Corps	23	17	6
Def Agencies	85	85	0
DoD Total	**1,093**	**839**	**254**

c. *Exercises*

Exercises remain our primary vehicle for evaluating and verifying our mobilization plans, policies, and procedures. We use them to identify major problems and deficiencies, and eventually to develop solutions. After the plans have been refined, we test them in subsequent exercises to make sure that they work. Since early 1981, we have devoted considerable effort toward enhancing our ability to carry out a military mobilization through extensive participation in JCS-sponsored command post exercises each year. Our mobilization tool, the OSD Crisis Management System, was tested in late 1982 and will be continuously evaluated and refined during subsequent exercises. In 1985 we conducted another exercise to see how well we could coordinate the many complex issues that arise during a mobilization.

In each exercise, we made significant progress on a number of issues, and also identified some additional areas requiring attention. In 1987, we will conduct another national-level exercise to test the modifications and procedural improvements we have made.

d. *Civilian Manpower for Mobilization*

We are putting special emphasis on testing and improving our ability to mobilize the civilian work force. I recently wrote to the military departments emphasizing my personal commitment to enhancing our civilian mobilization preparedness.

Currently, we estimate that during the first 30 days of a mobilization the DoD will need about 300,000 additional civilian employees to replace those with military obligations who will be recalled to active duty, and to meet expanded requirements for logistics and other support. Prior to 1981, there was effectively no guidance or planning for wartime civilian manpower. Accordingly, we established the procedural requirements for standardized civilian WARMAPS data. In 1982, we held the first civilian mobilization miniexercise in the Tidewater region of Virginia, to evaluate our ability to hire additional civilian workers to support a military mobilization. Following the Tidewater exercise, we revised our directive to cover many of the problems that were observed, such as the competition for recruitment between neighboring military installations in the region. Furthermore, in 1984 we obtained, from the Office of Personnel Management (OPM), delegation of emergency indefinite hiring authority during emergencies and mobilization.

During 1985, we held another miniexercise in the Bay Area of California, which allowed us to measure our progress in many areas and focus attention on other concerns. We are currently reviewing, revising, and expanding guidance in the civilian mobilization arena through republication of defense directives, instructions, handbooks, and manuals. Additionally, we are now in the process of planning another civilian mobilization miniexercise for 1987. It will encompass a greater mix of geographic areas, more military installations from all Services, and a larger demand for civilian manpower. We expect that this will become the first in a series of annual mobilization exercises specifically concerned with civilian mobilization issues.

3. Deploying the Force

a. *Force Projection Goals*

To counter the Soviet bloc's growing ability to launch simultaneous offensives in Europe, Southwest Asia (SWA), and the Pacific region, our long-term goal is to be able to deploy adequate forces to those areas simultaneously. Because the European and SWA portions of any such deployment would place the heaviest demands on our projection forces, our objectives for those regions are discussed below.

(1) Europe

The Warsaw Pact maintains a large active military force along its borders with Western Europe, where the road and rail networks could support a rapid buildup of forces. NATO must therefore be prepared to reinforce its in-place forces immediately upon receiving firm indication that a Pact buildup has begun. We maintain four Army divisions and two armored cavalry regiments forward deployed in Europe, and are committed to deploy six more divisions within ten days of a decision to mobilize. Our initial reinforcements would also include 60 tactical fighter squadrons, and one Marine Amphibious Brigade, plus their support detachments. The timely arrival of these U.S.-based units is essential to an effective forward defense during the opening weeks of a war, when the risk of a Pact breakthrough is at its greatest.

Given the constraints of distance and time, the personnel of these forces (as well as significant amounts of high-value equipment such as helicopters and C^3I gear) would be deployed by air. Many units would draw on prepositioned equipment in Europe. Once the initial reinforcements were in place, sealift would support most of the remaining deployments. Because government-controlled and U.S.-flag shipping can fulfill only a portion of our requirement, we would also rely heavily on ships from allied civil fleets. Our dependence on allied shipping to reinforce and resupply NATO would increase if we had to deploy forces simultaneously to one or more other theaters.

(2) Southwest Asia

The problems we would face in a SWA deployment differ from those of a NATO reinforcement in three respects:

-- A Soviet threat to SWA would take longer to materialize because of the limited road and rail systems and the greater distances to be traveled;

-- We have no forward-deployed land or air forces in the region; and

-- We would have to contend with limited ground transportation systems, as well as limited port facilities.

A deployment to SWA would require us to move our forces some 8,000 nautical miles by air (nearly twice the distance to Europe) and nearly 12,000 nautical miles by sea (more than three times the distance to Europe). At their destinations, our troops would be operating from ports and airfields that have little of the modern cargo-handling equipment found at European facilities. Moreover, since no U.S. combat units are based in SWA in peacetime, we would have to deploy an entire fighting force, with all of its support elements -- and do so very quickly.

Although our objectives in these circumstances are challenging, we have made significant progress toward achieving them. We are confident these objectives can be met if we carry through planned improvements in our projection forces, receive modest support from friendly nations in the area, and respond promptly to warning.

Our objective is to be able to deploy a major joint task force and its required support within six weeks of being asked for assistance. Establishing air defenses will have a high priority in the early stages of a deployment, along with securing ports and airfields. Airlift, combined with prepositioning, will provide the forces required to accomplish these tasks. Heavy combat and support forces will follow on fast sealift; and the remainder of the deployment will be completed by conventional sealift.

(3) Force Structure Goals

Our basic goal is to assemble the projection forces capable of moving military units to their destinations in the numbers required to support our warfighting strategies. Rigorous analysis of our mobility forces therefore requires the simulation of their performance under a variety of deployment scenarios. Such simulations permit us to compare the effectiveness of different combinations of prepositioning, airlift, and sealift, and help us develop goals and programs for prepositioning and lift capabilities.

Although our goals can conveniently be expressed by aggregate measures such as million-ton-miles-per-day (MTM/D) of airlift and short tons of sealift and prepositioning, it is important to bear in mind that they must be achieved through specific program increments -- by the procurement of transport aircraft, the funding of sealift improvements, and the assembly of unit equipment sets at prepositioning sites. Moreover, the exact kinds of planes and ships required depend on such variables as airfield and port capabilities at their destinations, and on the specifics of their missions -- such as whether inter-theater and intra-theater airlift are to be provided by the same or by different aircraft, and whether additional ships are needed to carry unit equipment or containerized cargo. Aggregate measures of capability thus omit certain information that is essential for structuring programs; nonetheless, they provide a useful framework for assessing our progress.

The results of our studies have led us to establish the following goals for our projection forces:

-- ***Prepositioning:*** In Europe, preposition six Army division sets of equipment and the support equipment for ten Army divisions; preposition equipment for one Marine Amphibious Brigade (MAB) in Norway; preposition Air Force equipment to support a rapid buildup to the 60-squadron level.

-- In Southwest Asia, preposition afloat in Maritime Prepositioning Ships (MPS) the equipment for one MAB, plus Army unit equipment for opening and clearing ports. Preposition additional Army and Air Force equipment ashore to support early-deploying units.

-- Elsewhere worldwide, preposition afloat the equipment for two more MABs under the MPS program.

-- Worldwide, preposition enough war reserve materiel to sustain combat forces until sealift could begin resupplying them.

-- ***Airlift:*** Achieve a 66 MTM/D strategic (intertheater) airlift capability by increasing the lift capabilities and lifespans of existing aircraft, procuring new aircraft of existing types, enhancing Civil Reserve Air Fleet (CRAF) capabilities, and developing a new class of aircraft to meet the needs of the next quarter century.

-- ***Sealift:*** Achieve a single-trip capability to carry one million tons of unit equipment. We can achieve this by expanding the RRF and by procuring equipment for modifying containerships to carry unit equipment, thereby increasing our ability to rely on the U.S.-flag commercial fleet.

b. Current Force Structure

In FY 1987, with the support of the Congress, we can achieve a significant portion of our goals. The airlift fleet can meet 60 percent of our 66 MTM/D airlift goal, and our combined sealift fleets will be able to carry 85 percent of our 1,000,000 ton goal of unit equipment in a single voyage.

Our current military intertheater airlift fleet comprises 314 aircraft: 234 C-141 Starlifters and 80 C-5 Galaxies (66 C-5As and 14 C-5Bs). We also have 57 KC-10 aircraft capable of serving either as cargo lifters, tankers, or both. In a major deployment, these forces would be augmented by aircraft from our civil fleet, which can contribute 227 passenger and 78 cargo aircraft through the CRAF program. Together, our current military and civilian air fleets have a cargo capability of 39.6 MTM/D for strategic deployments, in addition to the reserve required to meet our estimated simultaneous worldwide contingency requirements. Another 520 aircraft of shorter range (C-130s) and some 700 helicopters (CH-46s, CH-47s, CH-53s, and CH-54s) contribute to our capability to move troops and supplies within theaters.

The Military Sealift Command and the Maritime Administration maintain 108 dry cargo ships and 33 tankers. Most of these ships can be made available for sealift operations within five to twenty days of notification. About 116 additional cargo ships are in the National Defense Reserve Fleet and can be readied for use within one to three months.

As with airlift, our military sealift forces will be augmented in a major deployment by ships drawn from the civil fleet. The U.S.-flag fleet could supply about 200 dry-cargo ships and 120 tankers. Of these, about 140 dry-cargo ships and 17 tankers can be made available by charter or under government contract under the Sealift Readiness program, which operates at no direct cost to the DoD.

To support a rapid reinforcement of NATO, we have prepositioned 472 tons of Army equipment in Europe under the POMCUS (prepositioning materiel configured to unit sets) program. In addition to pro-viding storage space for unit equipment for the reinforcing divisions and combat and support units, the POMCUS facilities house much of the support for our four forward-deployed divisions.

We have also prepositioned unit equipment for three Marine Brigades afloat, in three squadrons of maritime prepositioning ships (MPS). These MPS brigades can be rapidly deployed to any trouble-spot worldwide. To enhance flexibility in their use, one brigade-set is currently prepositioned at Diego Garcia to support a rapid insertion of our forces in Southwest Asia; the other two sets are maintained in the Atlantic and Pacific.

To speed the deployment of our forces to Southwest Asia in a crisis, we have prepositioned afloat 7,000 tons of Army equipment for port-opening and clearance units. These units, which will be among the first to deploy in a crisis, will greatly increase the capacity of those ports to receive and process cargo and are essential to our successful projection of combat forces into the region.

c. *Assistance from Allies*

The NATO nations and other allies have agreed to contribute a number of ships and aircraft for a U.S. reinforcement of their regions. Our European allies have identified some 600 ships for this purpose -- the majority of the sealift capacity required for a NATO reinforcement. To augment our airlift force, they would also provide nearly 40 long-range cargo transports and a like number of passenger aircraft. The Republic of Korea will make a smaller number of ships and aircraft available in the event of a Korean conflict. These commitments will both speed the arrival of our forces and free some of our projection forces for use elsewhere.

Access to intermediate bases will be important for any deployment, particularly one requiring large amounts of airlift. Without access to intermediate bases for refueling, valuable aircraft cargo capacity will have to be sacrificed in order to carry more fuel, or an already overburdened aerial-refueling force will be pressed into additional service.

Our allies afford us peacetime access to a number of their bases. These facilities would be invaluable for supporting our forces in a crisis. Many of these bases, although adequate for everyday peacetime use, required upgrading or expansion to support the heavier airlift demands of a deployment. These projects, initially funded during the FY 1980-81 period, will be completed with funds provided in FY 1987.

d. *Improvements Since 1981*

Over the past six years, we have significantly improved our airlift and sealift fleets while greatly increasing the amounts of prepcsitioned unit equipment and war reserve materiel.

Our C-5 wing modification program, to be completed in 1987, has extended the aircraft's service life well into the next century. The C-141 stretch program, completed in 1982, has increased that aircraft's cargo capacity by 30 percent. Taken with the procurement of increased stored spare parts, funding for procurement of an additional 50 C-5B aircraft and 57 KC-10s, and enhancements in the capabilities of our CRAF, these improvements have increased our airlift capability from 26.9 MTM/D in 1981 to 39.9 MTM/D today.

We have similarly increased the capability of our sealift fleet since 1981. The Ready Reserve Force has grown from 27 to 82 ships; we have procured eight fast-sealift ships, which we now hold in reduced operating status; and the average age of the ships in the National Defense Reserve Fleet has diminished as we replaced World War II Victory ships with newer ships.

Our prepositioning efforts during the last six years have increased both the size and the flexibility of our rapid-response capabilities. While in 1981 we had only seven prepositioning ships, today we have 27, including four tankers and the three MPS squadrons. We have also increased the size of our POMCUS program approximately threefold. Under the NATO Prepositioning Procurement Package (PPP), the Air Force has made substantial progress in placing in Europe the equipment and vehicles to load, launch, and recover aircraft. In Southwest Asia, major shipments of Air Force equipment to Oman commenced in 1986.

4. The FY 1988-92 Program

a. *Expansion of Airlift Capability -- The C-17 Program*

The improvements in our airlift capabilities since 1980 have been achieved by increasing the load-carrying capacities of aircraft already in our inventory (the C-141 stretch program and the C-5 wing modification), and by procuring more aircraft designed in the 1960s and 1970s. To meet the 66 MTM/D goal, however, we must procure additional capability. The C-17 cargo aircraft, which is scheduled for procurement and deployment over the next five years, incorporates the most recent improvements in aircraft engineering and design. Though smaller than the C-5, the C-17 will be able to carry the full range of military equipment, including all armored vehicles and most other outsized cargo. It will have a lower life-cycle cost than the existing alternatives, largely because of its smaller crew size -- a particularly strong consideration in light of the overall limits on military manpower. In addition, the C-17's greater maneuverability on the ground will minimize congestion at larger airfields, ensure higher throughput at smaller fields, and permit us to use more bases for direct delivery of intertheater cargo to forward areas. In addition to providing intertheater airlift, the C-17 can also augment

the C-130 force in moving troops and materiel in an intratheater role.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
C-17 Cargo Aircraft				
Development:				
$ Millions	347.5	626.3	1,219.9	982.0
Procurement:				
Quantity	-	-	2	4
$ Millions	-	49.1	723.7	1,093.7

b. Sealift

(1) The Ready Reserve Force

To prevent the anticipated decline in the U.S. flag merchant fleet from causing a loss of strategic sealift capability, the FY 1988-92 program provides for further additions to the Ready Reserve Force (RRF). By 1992, the RRF, which in 1980 comprised only 27 dry-cargo ships, will have completed its programmed expansion to 100 dry-cargo ships and 20 tankers.

(2) Containership Utilization

Containerships, which constitute an increasing proportion of the commercial fleet, cannot carry many types of military cargo without modification. The Navy has therefore begun a program to procure equipment (universal adapters, flat racks, and sea sheds) that can be quickly installed in containerships on mobilization. Our goal is to procure enough of this equipment to outfit 50 average-sized containerships; the Navy's program will meet about 50 percent of that goal by 1992.

(3) Sealift Discharge

In placing primary reliance on sealift for deploying and resupplying forces in any large-scale conflict, we must ensure our ability to discharge cargo from commercial ships in ports that may lack cargo-handling equipment, and to deliver it over the shore in areas where ports are inadequate. The new Auxiliary Crane Ship (TACS) will meet that cargo-off-load requirement. It is capable of unloading military cargo, including heavy unit equipment, breakbulk supplies, and loading 20 and 40 foot containers from all existing ship types, where port facilities are nonexistent or inadequate. The Navy needs 12 TACS. Six were authorized in prior years, and the FY 1988-92 program buys the remainder.

To deliver cargo over the shore, the Army is procuring a variety of cargo-discharge equipment, including elevated causeways, lighters, and port-opening equipment.

	FY 1986 Actual Funding	FY 1987 Planned Funding	FY 1988 Proposed Funding	FY 1989 Proposed Funding
Ready ReserveForce				
Procurement:				
Quantity[a]	19	13	2	6
$ Millions	217.2	77.8	43.4	35.4
Flat Racks and Sea Sheds				
Procurement:				
Quantity	324	1,537	1,276	77.9
$ Millions	43.8	56.3	46.5	49.6
Sealift Discharge				
Procurement:				
$ Millions	66.8	61.9	55.5	55.8

[a] Quantity may vary depending on actual unit costs at time of purchase.

c. *Prepositioning*

(1) Europe

Our goal is to preposition enough unit equipment for six divisions, including their support elements, and for the support of our forward-deployed divisions and brigades. By 1992, our programs provide for prepositioning a great deal of that equipment -- more than we have today, and much more than we had in 1980.

(2) Southwest Asia

The FY 1988-92 program provides for prepositioning additional Army equipment in Southwest Asia, primarily for port-opening and clearance units. The Air Force will also complete prepositioning of support equipment.

Our ongoing negotiations with friendly nations in the area are expected to result in improved access and in additional prepositioning sites.

5. C^3 Support for Mobilization

The key to success in executing our strategy of forward defense lies in our ability to direct our resources to meet threats where and when they arise. We have greatly improved our abilities to plan the mobilization and deployment of our forces, to adapt those plans to deal with sudden changes in the worldwide threat, and to direct the execution of those plans when needed. We regularly exercise our plans and execution systems in both headquarters and field exercises.

a. The Joint Deployment Agency and System

Recognizing the complex requirements of rapid deployment, and the need to upgrade our associated command and control systems, the DoD established the Joint Deployment Agency (JDA) in 1979. Its mission is integrating our procedures for executing major deployments. The JDA has coordinated and monitored the development of the Joint Deployment System (JDS), a computerized management information system designed to plan, execute, and monitor force deployments under either peacetime or crisis conditions. Today, the JDS incorporates most of the information required for effective interactions among the Services, and is addressing Service-unique systems. Its functions will be incorporated into the Joint Operations Planning and Execution System, with an initial operating capability expected by FY 1990. To improve the coordination of Service activities, the JDA has also sponsored the development of the Transportation Coordinators' Automated Information for Movements System to provide timely data on movement characteristics and requirements. Each of the Services will have an initial capability to use this system at the unit level by FY 1990.

We have undertaken programs to improve the communications of our merchant ships, and to provide secure, jam-resistant communications between the ground elements of the Military Airlift Command and its aircraft.

b. The Joint Exercise Program

We test our force-projection capability regularly through both headquarters and field exercises. These tests are conducted as part of the Joint Exercise Program, which is overseen by the Joint Chiefs of Staff. In headquarters exercises, we assess the realism and executability of our plans, and the effectiveness of our command and control systems. Because few, if any, forces actually move during the exercises they cost relatively little to conduct, and permit us to evaluate our command and control capabilities with minimum disruptions of our peacetime readiness posture. The payoffs from these exercises have been very high. For example, the initial exercises of the late 1970s identified fundamental weaknesses in our ability to adapt deployment plans in rapidly unfolding crises. These findings led to the JDA's establishment and the development of the JDS. Similarly, the realization that we needed an improved framework for

organizing our response during crises, led to the establishment of the DoD Crisis Management System.

The complementary field exercises permit us to test, on a much smaller scale, the strategic conclusions we have reached in the headquarters exercises, and to assess the physical capabilities of our mobilization plans and deployment system. In the last two years, we have successfully demonstrated our capability to deploy forces rapidly to destinations in Northern Europe, the Middle East, and the Western Hemisphere.

6. Conclusion

We have elected to maintain a posture of vigilant readiness; to deter aggression by mobilizing in defense of our national interests, rather than existing as a garrison state. This approach is consistent with our national goals, and with our emphasis on attaining our ends through peaceful means, rather than through threats or coercion. Its success depends on our ability (and on the perception by our opponents that we have the ability) to counter the threat of aggression, or aggression itself, with our forces. Our projection forces serve this strategy by allowing us to rapidly bring large forces to bear in a number of potential theaters of conflict; and permitting our forces to close with an enemy in the critical early stages of conflict, when being there first counts most.

F. COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE

1. Introduction

Command, control, communications, and intelligence (C^3I) systems are the essential decisionmaking support systems and information pipelines between the command structure and field units, enabling effective command and control (C^2) of the forces. These integrated support systems consist of sensor arrays, communications networks, information processing and display systems, and command facilities.

To ensure an efficient mechanism for directing the evolution of C^3I systems from initial policy formulation through final acquisition, the management of these systems is centralized under the Assistant Secretary of Defense (C^3I). These systems are structured and managed to support the missions and functions shown in the following chart.

Chart III.F.1

Command, Control, Communications and Intelligence

Strategic C3 Systems	Theater & Tactical C3 Systems	Defensewide Communications & Information Systems		
		Navigation/ Warfare C2	Defensewide C3 Systems	Information Security
• Attack Warning & Assessment • Command & Control Elements • Communications Connectivity	• Command & Control Elements • Theater/Tactical Communications	• Navigation & Position Fixing • Land/Air/Naval Warfare C2	• Information Systems • Long Haul Communications • Support & Base Communications	• Communications Security (COMSEC) • Computer Security (COMPUSEC) • Tempest

Intelligence Systems		Special Warfare Systems	
National Intelligence	Tactical Intelligence	Electronic Combat Systems	Special Operations
• National Foreign Intelligence Program • Intelligence Technology	• Surveillance & Reconnaissance • Tactical Intelligence Systems & Related Technology • Mapping, Charting & Geodesy	• Electronic Combat • Self-Protection Systems • C3 Countermeasures	• Special Operations Technology • Special Operations Equipment

The key objectives which guide the C^3I program are discussed in Part I of this report, and highlights of the FY 1988-92 strategic C^3 programs are discussed in Chapter III.D.

2. Strategic C^3 Systems Overview

The President recently reaffirmed strategic C^3 as a top priority in his comprehensive defense revitalization program. Accordingly, we are aggressively pursuing programs aimed at resolving deficiencies which remain in the attack warning/attack assessment (AW/AA), command and control, and communications connectivity capabilities of our strategic C^3 systems.

To support improved ballistic missile surveillance and warning, the PAVE PAWS expansion program is deploying a new phased array radar in Texas to complement our three operational sites in Massachusetts, Georgia, and California. Together with the Perimeter Acquisition Radar Attack Characterization System (PARCS) in North Dakota, they will close existing gaps in warning coverage, and provide a substantial improvement in attack warning capability. Improvements to the Ballistic Missile Early Warning System (BMEWS) will also enhance the quality and detail of missile warning and attack assessment information.

In the atmospheric threat surveillance area, our capability to detect aircraft and cruise missiles across the North American boundary is being improved as the Distant Early Warning (DEW) line is replaced by the North Warning System (NWS). At the same time, operational costs will be reduced due to the lower manning requirements of the new system. The NWS, together with the new Over-the-Horizon Backscatter (OTH-B) radars planned for the Eastern, Western, and Central United States, plus Alaska, will provide complete surveillance and warning coverage of all air-breathing threats to North America.

Upgrades in the survivability and capability of the command centers that direct U.S. strategic forces are also continuing. For example, our program to replace Air Force One with a new Presidential transport aircraft will include acquisition of an expanded, improved communications suite. This improves connectivity with command centers and complements the capabilities of the E-4 National Emergency Airborne Command Post.

Strategic communications provide communications and assured connectivity between sensor sites, command locations, and nuclear capable forces. In the ground-based, airborne-relay, and satellite communications areas, we are making improvements that focus on increased capacity, survivability, and endurance.

Strategic Forces Modernization program ground-based communications improvements continue to be implemented. A major improvement is the Ground Wave Emergency Network (GWEN), a dispersed network of radio relay stations and user terminals designed to assure communications connectivity to CONUS-based forces. The GWEN is unique in that it is the only terrestrial C^3 system linking our warning sensors, the National Command Authorities (NCA), and our strategic forces which is resistant to electromagnetic pulse (EMP) effects. The GWEN system's ability to operate in a nuclear effects environment is crucial to U.S. deterrence. It deters Soviet planners from believing that high-altitude nuclear detonations could prevent the NCA from identifying the extent of a Soviet nuclear attack and ordering a U.S. retaliatory strike. When the first phase is operational in FY 1987, GWEN will improve our deterrent capability.

Since the Fleet Ballistic Missile (FBM) submarine force is the most survivable leg of the strategic triad, it is essential that we have survivable and enduring communications to and from the strategic submarine force. Connectivity with our submarine forces is being improved with the deployment of the Extremely Low Frequency (ELF) communications system and development of the E-6A communications aircraft. To support longer-range improvements, a technology program is being pursued for the potential development of a satellite-to-submarine blue laser communications system.

With the loss of the Challenger, launch schedules of some of our satellite communications programs and other space-based systems have slipped. Nonetheless, we continue improving the quality and cost effectiveness of these programs. For example, we have a fixed price, multiyear procurement program for the acquisition of the remaining DSCS III communications satellites. In addition, development of Milstar satellite and terminal systems is continuing. The Milstar will provide a survivable, jam-resistant satellite space segment for two-way connectivity to our strategic and tactical forces. Our strategic C^3 modernization efforts will allow us to attain a degree of survivable connectivity with the nuclear forces far surpassing today's capabilities, especially as the satellite system improvements become fully operational.

3. Theater and Tactical C3 Systems Overview

Theater and tactical C^3 systems are essential for planning, directing, and operating military forces in combat environments. The overall objective of our theater and tactical C^3 program is to provide the secure, interoperable, and enduring C^3 systems required by U.S. and allied forces. In pursuit of this goal, we are continuing programs to improve our near-term C^3 capabilities and meet the C^3 needs of the future.

Our program to improve the combat identification capabilities of U.S. and allied forces continues to make progress. A new system for combat identification, designated Mark XV in the United States, will supplement the aging Mark XII system and is being developed in collaboration with our NATO allies.

Similarly, initiatives to improve interoperability are producing tangible gains in our ability to command and control joint operations. An example is the implementation of the Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Message Text Format (MTF) system for communicating and reporting among members of joint task forces. Implementation of the MTF system culminated many years of development and testing, and is a significant enhancement to interoperability among the components of a joint task force. In preparation for implementation, all the Services, Defense agencies and unified/specified commands were provided extensive training in the new system, and participated in the development and fielding of computer software to facilitate preparation of the messages on available Automated Data Processing (ADP) equipment.

Effective data distribution is a key aspect of our theater and tactical C^3 architecture. To provide for reliable and survivable data communications, the Joint Tactical Information Distribution System (JTIDS) is being developed to provide a high-capacity, secure, jam-resistant, digital information exchange system for a wide variety of tactical forces.

Progress in modernizing our theater and tactical C^3 systems can be measured not only by these initiatives and technology efforts, but by our success in producing and fielding new equipment. For example, the Position Location Reporting System (PLRS), a joint program, provides combat commanders with automatic, near real-time identification and location of their forces on the battlefield. Another program, the TRI-TAC Joint Tactical Communications program, replaces obsolete ground communications equipment with more modern digital systems. The new digital switched systems will provide secure, high-volume links between land force commanders, wing operations centers, and the tactical air control system. Troposcatter radios, circuit switches, message switches, and control equipment have already been fielded by U.S. and allied forces.

Our tactical C^2 capabilities are also being substantially improved with the fielding of the Maneuver Control System (MCS), and Tactical Air Operations Module/Modular Control Equipment (TAOM/MCE). The MCS is an automated tactical C^2 system which provides a network of computer terminals to process combat information for battle staffs. The MCS equipment is currently in production, and fielding of the equipment is expected to continue to 1990 and beyond. Improved air command and control is the aim of the joint Air Force/Marine Corps TAOM/MCE acquisition program. The TAOM/MCE is a transportable, automated air command and control system capable of controlling and coordinating the employment of a full range of air defense weapons, interceptors, and surface-to-air missiles. It will enter production during the coming year.

Capitalizing on available technology provides opportunities to improve our systems, while minimizing investment costs. By applying nondevelopmental items to military use, the cost and acquisition time for major procurements can be reduced. An example of this approach is the multibillion dollar Mobile Subscriber Equipment (MSE) radio communications system. The MSE will improve communications to our tactical forces with much less development time, at a life-cycle cost savings of $7 billion.

4. Defensewide Communications and Information Systems Overview

Defensewide communications and information systems support both nuclear and conventional force management. Efforts to improve these systems address navigation/warfare C^2, defensewide C^3, and information security.

a. Navigation / Warfare C^2

The major program for worldwide navigation and position fixing, the space-based Navstar/Global Positioning System (GPS), will provide a revolutionary improvement in our capabilities for navigation, weapon deliveries, force control, precision surveys, and many other applications. The GPS satellites also carry sensors to detect nuclear detonations as part of the Nuclear Detonation (NUDET) Detection System (NDS). Satellite production is continuing, and full deployment of user equipment is planned for completion by the late 1990s.

b. Defensewide C^3 Systems

Defensewide C^3 systems include the capabilities required for information processing, storage, retrieval, and display for command and control processes; global telecommunications services to DoD; and all DoD support and base communications programs.

The Worldwide Military Command and Control System (WWMCCS) Information System (WIS) is our modernization program for WWMCCS Standard ADP systems. The WIS program replaces obsolete systems to provide modern, worldwide information processing capabilities to support decisionmaking by the National Command Authorities, the Joint Chiefs of Staff, and the Commanders in Chief. The WIS supports mobilization, deployment, employment, and sustainment of conventional forces, providing critically needed capabilities for crisis management and operational planning. The first phase of WIS, which provides the technical foundation for the entire WIS program, is scheduled for operational testing in 1988. Expedited, uninterrupted development of the WIS is particularly important to overcome the serious shortcomings of our present C^3 capabilities for directing conventional forces.

The Defense Communications System (DCS) provides global long-haul telecommunications service to the DoD. To improve the capabilities of the DCS, we are pursuing major initiatives such as the Defense Switched Network (DSN) and Defense Data Network (DDN).

The DSN is our next generation, long-distance telephone service. We are continuing to acquire, install, and test DSN transmission equipment worldwide. Utilizing commercially available technology, the program will progress toward its goal of replacing the 20-year old Automatic Voice Network (AUTOVON) system.

The DDN is the common-user, long-haul digital communications system which will support all DoD data transmission requirements. The classified and unclassified networks in the DDN program are being enhanced and expanded for reliability, survivability, and maximum availability. Also, the aging Automatic Digital Network (AUTODIN) switching centers and DoD Automated Message Processing Exchanges are being replaced by the Inter-Service/Agency Automated Message Processing Exchange (I-S/A AMPE). With initial fielding projected for 1989, I-S/A AMPE will provide multilevel secure message processing with enhanced performance, using the DDN for the transmission backbone.

In addition, we are modernizing our base, post, camp, and station level communications systems. As a part of this effort, outdated telephone switches are being replaced with state-of-the-art electronic switching systems. New copper wire and higher speed fiber optic local area networks are also being installed. The result will be more reliable and less maintenance intensive base communications systems.

c. Information Security

Communications Security (COMSEC) is directed at providing the cryptographic principles, techniques, and technologies required to maintain and enhance the secure receipt of U.S. communications. We continue to implement protective measures to deny unauthorized

persons access to national security information from U.S. telecommunications. As a part of this effort, we will begin the acquisition of low cost and secure telephones, known as STU-III's, for use throughout the federal government. Other COMSEC improvement efforts include initiatives to increase the embedding of COMSEC in host systems, with the added benefits of space and cost savings. Another effort, known as TEMPEST, studies possible compromising emanations from U.S. telecommunications equipment. The TEMPEST protection in the past has been very costly; however, we have been able to reduce the cost of our TEMPEST efforts by applying a threat-based systems approach.

The DoD Computer Security (COMPUSEC) program is designed to improve the security posture of defense computer systems. We continue to improve and expand the application of security equipment and techniques for computer systems. Moreover, an extensive vulnerability reporting program aimed at correcting security weaknesses in our computer systems has been established. Finally, policy statements have been issued which reflect the intensified emphasis on computer security.

5. Intelligence Overview

The DoD's intelligence activities are accounted for in two separate but related programs: the National Foreign Intelligence Program (NFIP) and in Tactical Intelligence and Related Activities (TIARA). Under Presidential direction, the Director of Central Intelligence provides guidance and manages the overall NFIP with our assistance. The TIARA programs are developed and managed by the DoD in response to commanders' intelligence requirements.

The overall goal for the U.S. intelligence program is to support the requirements of users at all levels. At the national level, we seek to ensure that the warfighting needs of the defense establishment are recognized and satisfied. Within the unified and specified commands, a Theater Intelligence Architecture Program (TIAP) is being designed to serve as a coordinated master plan for future military intelligence structures. Other specific high-priority initiatives are also being pursued, such as imagery integration under the Imagery Acquisition and Management Plan (IAMP), and communications support under the Intelligence Communications Architecture (INCA) program. These planning activities improve our direction of the military intelligence program.

Intelligence support has become increasingly important to the nation as the worldwide threat to U.S. interests widens. Terrorism, in particular, poses a significant threat. As a result, our intelligence capabilities have been expanded to respond to the widening range of threats. For example, the discipline of Human Intelligence (HUMINT) has been given new emphasis and support. In Central America, we have implemented an intelligence capability that has significantly increased the effectiveness of friendly forces. Similarly, the capabilities of U.S. Central Command have been improved through the fielding of an improved intelligence processing/communications interface system.

To enhance our support of field commanders, we are developing capabilities to share tactical intelligence with our NATO allies under the Battlefield Information Collection and Exploitation Systems (BICES) concept. We have also fielded in the European theater an

advanced synthetic aperture radar system (ASARS II) for the TR-1 aircraft. At the same time, the Army has developed the Technical Control and Analysis Center (TCAC) to process signal intelligence (SIGINT) information for tactical units deployed in the field. In support of the AirLand battle concept, the Army and Air Force Joint Surveillance and Target Attack Radar System/Ground Support Module, and the Joint Tactical Fusion Program will provide tactical commanders with deep battle intelligence collection, processing, and targeting capabilities against follow-on enemy forces.

In the coming years, we will develop and field advanced collection platforms and sensors. Jointly developed remotely piloted (RPV) systems will begin entering the inventory. New sensor packages will increasingly give the field commander the ability to see deeper, with greater accuracy, and in a more timely manner. As a result, our ability to support the needs of users of intelligence, from national leaders to military field commanders, will expand over the next several years as these and other programs currently under development enter the military inventory.

6. Special Warfare Systems Overview

a. *Electronic Combat*

Electronic Combat (EC) focuses on the capability to target, disrupt, deceive, and exploit hostile electromagnetic equipment and systems, while protecting friendly forces against such actions. Major EC efforts under way today are directed toward employing integrated EC systems to keep pace with a rapidly changing and expanding enemy threat, and continuing the emphasis on joint service programs to reduce unnecessary duplication.

In the area of self-protection, improvements are being made in the performance and quality of a number of systems. One major new system under development to increase significantly the self-protection capabilities of front-line aircraft is the Airborne Self-Protection Jammer (ASPJ). Another, the Integrated Electronic Warfare System (INEWS)/Integrated Communication Navigation Identification Avionics (ICNIA) effort, focuses on integrating the avionics and electronic combat functions on new and, possibly, inventory aircraft. For surface ships, the primary thrust is to provide self-protection for combatant ships and aircraft carriers. We will continue additional systems improvements as needed for reliable and effective self-protection.

C^3 Countermeasures (C^3CM) address the destruction, disruption, deception, and denial of information to our adversaries' C^3 systems. In this area, we are continuing to deploy COMPASS CALL communications jamming aircraft and have entered full-scale engineering development of the AN/ALQ-149 communications jammer for the EA-6B aircraft. For further information on electronic combat programs, see page III-C-26.

b. *Special Operations*

Specialized C^3I systems capable of supporting the unique needs of our special operations forces (SOF) are crucial to the success of their mission. In this area, the incorporation of new technology in equipment to support special operations is being emphasized. Significant accomplishments include our procuring additional Combat Talon II infiltration/exfiltration aircraft; upgrading additional air refuelable helicopters with adverse weather, night, and terrain following capabilities; and increasing aircraft readiness through a robust spare parts procurement program. We are also continuing to develop new SOF equipment such as lightweight and secure radios, special avionics, and RPVs. Future plans include developing new technology to reduce the weight and volume that SOF teams must carry. New technologies will also be fielded to counter the challenges posed by terrorism. For a full discussion of our SOF programs, see Chapter III.I.4.

7. Conclusion

Comprehensive and integrated C^3I systems are essential for establishing and maintaining a credible deterrent. As such, we are firm in our determination to complete our C^3I systems modernization.

Progress has been made in revitalizing our C^3I systems and, in turn, enhancing the near-term readiness and efficiency of our forces. For the future, the incorporation of new technologies (such as very high speed integrated circuits) into C^3I systems, the fielding of advanced technology systems like Milstar, and enhanced intelligence support to operational commanders will allow us to meet the challenge of remaining militarily competitive. By building C^3I systems that increase the efficiency of our forces and weapons systems, maximum force effectiveness can be realized, thereby providing the strong national defense posture necessary to ensure a peaceful future.

G. PREPARING TOMORROW'S FORCES -- RESEARCH AND DEVELOPMENT

1. Introduction

One of the greatest advantages the United States possesses in its long-term competition with the Soviets is the quality and productivity of its technology base. Even as we enhance our deterrent capability through current improvements in our forces, we must also pursue a vigorous program of research and development (R&D) to preclude any hostile nation from gaining a future advantage over us. Our R&D expenditures are of critical importance to us because they represent our investment in future military capabilities.

The Soviet Union has historically outspent us in R&D, just as they have consistently deployed many more new and upgraded systems. We recognize the unaffordability and impracticality of trying to match the Soviets plane for plane or tank for tank. We have chosen instead to rely on our superior technological capability to produce

Chart III.G.1

Relative U.S. / USSR Standing in the 20 Most Important Basic Technology Areas*

Basic Technologies	U.S. Superior	U.S./U.S.S.R Equal	U.S.S.R. Superior
1. Aerodynamics/Fluid Dynamics		X	
2. Computers & Software	◖X		
3. Conventional Warheads (including all chemical explosives)		X◗	
4. Directed Energy (laser)		X	
5. Electro-Optical Sensor (including infrared)	X		
6. Guidance & Navigation	X◗		
7. Life Sciences (human factors/biotechnology)	X◗		
8. Materials (lightweight, high strength, high temperature)	X◗		
9. Micro-Electronic Materials & Integrated Circuit Manufacturing	X		
10. Nuclear Warheads		X◗	
11. Optics		X◗	
12. Power Sources (mobile)(includes automated control)		X	
13. Production/Manufacturing (includes automated control)	X◗		
14. Propulsion (aerospace and ground vehicles)	X◗		
15. Radar Sensor	X◗		
16. Robotics & Machine Intelligence	X		
17. Signal Processing	X		
18. Signature Reduction	X		
19. Submarine Detection	X		
20. Telecommunications (includes fiber optics)	X		

*1. The list is limited to 20 technologies, which were selected with the objective of providing a valid base for comparing overall U.S. and U.S.S.R. basic technology. The list is in alphabetical order. These technologies are "on the shelf" and available for application. (The technologies are not intended to compare technology level in currently deployed military systems).

2. The technologies selected have the potential for significantly changing military capability in the next 10 to 20 years. The technologies are not static, they are improving or have the potential for significant improvements; new technologies may appear on future lists.

3. The arrows denote that the relative technology level is changing significantly in the direction indicated.

the force multiplier effects that maintain our deterrent or, if necessary, enable us to fight outnumbered and win.

Our R&D efforts make a vital contribution to many of our competitive strategies. We must capitalize on our technological strengths to exploit Soviet weaknesses, be they military, economic, or political. For example, when the breakthroughs of low-observable technologies are fully realized, we will render large portions of the Soviet air defense threat obsolete. In this area of crucial importance to them, the Soviets have already invested hundreds of billions of rubles. To defend against low-observable aircraft, they will have to spend hundreds of billions more. Additional funds spent on air defense will not be available for offensive systems or for other uses. We must continue to maintain a healthy, vital technology base to ensure a long-term competitive edge over the Soviets.

Table III.G.1 illustrates that the United States continues to maintain a lead in 14 of the 20 most important basic technology areas, despite the continuing large Soviet investments in military research and development. We are asking for the resources necessary to maintain or increase this lead. While other sections of this report address R&D efforts by specific mission and individual Services, this section focuses on broad, cross-cutting efforts in science and technology (S&T), advanced research projects, and nuclear weapons development.

2. Science and Technology Program

The Science and Technology (S&T) program is the foundation of our research, development, test, and evaluation (RDT&E) program. The nature and locale of future conflicts is uncertain. Therefore, S&T programs must provide advanced and innovative technology to ensure that future weapons systems will be affordable and operate reliably, efficiently, and effectively in a variety of military contingencies, and across a wide spectrum of environmental conditions.

a. Integrated Circuits

The Very High Speed Integrated Circuits (VHSIC) program continues to develop integrated circuits at the leading edge of technology. State-of-the-art VHSIC circuits are increasing the performance and reliability of military electronic systems while reducing size, weight, and power requirements. Still more advanced integrated circuits are being developed with sizes as small as 0.5 micron. Entire subsystems and systems may soon be realized on single silicon chips; for example, these new chips may provide the computing power of current generation main-frame computers in a subsystem small enough for use in a missile guidance system.

The newly initiated Microwave/Millimeter Wave Monolithic Integrated Circuits (MIMIC) program complements the VHSIC program by providing analog devices for the receiver/transmitter portion of electronic systems. This effort is aimed at developing and producing affordable, gallium-arsenide components that are suitable for signal detection, amplification, phase shifting and other operations performed at microwave and millimeter wave frequencies.

b. Aircraft Propulsion Technology

The Air Force/Navy Joint Technology Demonstrator Engine program is the foundation for the Advanced Tactical Fighter (ATF) and Advanced Tactical Aircraft (ATA) engines. The program is now focusing on achieving a 35 percent increase in thrust-to-weight ratio by 1990. The technical effort on the Army's Modern Technology Demonstrator Engine is complete. In over 500 hours of testing, an engine with 60 percent fewer parts demonstrated 20 to 25 percent lower fuel consumption than existing 5,000 horsepower class helicopter engines.

c. Aircraft Technology

Our Aircraft Technology programs seek substantial improvements in vehicle performance and improved capabilities for rapid sortie generation. A key Air Force initiative in fighter technology is the STOL (Short Take-Off/Landing) Maneuver Technology Demonstration program. This effort, employing a modified F-15 aircraft, is designed to improve maneuver effectiveness and reduce runway requirements. The first flight is scheduled for spring 1988. This technology will be available for transition into the ATF, as well as derivatives of present tactical aircraft.

d. Materials and Structures

In FY 1988 and FY 1989, the Advanced Materials and Structures Technology program will explore new opportunities presented by high-temperature composite materials to develop advanced gas turbine engines. Another emphasis will be on innovative design concepts using metal-matrix, carbon-carbon, and ceramic-matrix composites that enhance systems survivability.

e. Weapons Technology

Weapons technology integrates our efforts in guidance and control, warhead, and rocket propulsion technology. For example, the Fiber Optics Guidance-Missile (FOG-M), a vertically launched rocket designed to engage tanks or helicopters, is guided through a fiber optics television link to the operator, who can remain in a protected environment. The FOG-M will incorporate low-cost infrared seekers, alternate forms of propulsion, and the reutilization of high-cost components on the launch platform.

f. Computers and Software

The Defense Software Initiative is improving our ability to provide reliable, cost-effective computer software for defense systems. The department's standard programming language, Ada, will be used in over 130 defense systems, in the flight software for the NASA Space

Station, and for NATO Command and Control systems. The Software Engineering Institute is working with more than 40 companies and universities to accelerate the application of new software technologies in defense systems.

g. Sensors and Signals Processing Technology

Major improvements have been made to our threat warning and surveillance sensors by using advanced signal processing technology with sophisticated integrated circuits such as those produced under the DoD VHSIC program. The ability to distinguish low-target signals has greatly extended the coverage, performance, and reliability of advanced sensors such as radar, sonar, thermal imagers, infrared search and track systems, and missile seekers. In addition, processing technologies that enable correlation of signals from multiple sensors have enhanced our ability to detect and identify friend or foe on the battlefield.

h. Medical and Life Sciences

The Medical and Life Sciences program encompasses research efforts in several distinct areas. The program focuses on developing vaccines and drugs for diseases not indigenous to the United States; developing improved techniques for combat casualty care; and enhancing protective measures against heat and cold. The program explores promising technologies that maximize human operational efficiency during high-altitude, high-acceleration flight; deep undersea dives; and noise intensive combat.

i. Chemical Defense

Cooperative programs with universities, industry, and our allies are an integral part of the Chemical Defense Technology Program. They are providing new detection and warning devices with improved sensitivity and portability. Developments in decontamination and protection systems are enhancing readiness by improving our ability to continue operations in a chemically contaminated battlefield. Advances in biotechnology have generated breakthroughs in toxin detection, prophylaxis, and treatment for chemical agents. In view of the continuing chemical and biological warfare threat to U.S. forces, this program will continue to receive high priority.

j. Electronic Combat

The content and direction of our electronic combat program has changed dramatically to address the continuing expansion of threat sensor systems into previously unusable frequency bands. Using VHSIC technology, we can now detect, analyze, and react to threat signal formats employing new, highly sophisticated modulation schemes. These advanced processing technologies can be incorporated into

operational electronic combat systems, as well as those still in engineering development.

k. Basic Research

The DoD's basic research program supports fundamental investigations of processes and phenomena in disciplines involving technologies with potential military applications. Researchers at the University of Massachusetts, for example, have developed a method for blending known polymers to form new composite polymer materials. The composites are ideally suited for aircraft, space structures, and other military applications because they are lightweight, strong, and can better withstand higher temperatures, chemical corrosion, or other severe environments.

DoD laboratories, as well as universities and industry, are important contributors to basic research. Scientists at the Naval Research Laboratory have greatly reduced signal losses in optical fibers by substituting extremely pure and homogeneous fluoride glass for conventional silica glass. For longer distance fiber-optics communications, low-loss fibers can eliminate the need for repeating amplifiers, which require power and are subject to costly, time-consuming undersea maintenance and repair. Medical applications for the new fibers include laser surgery and cauterization.

A new multidisciplinary approach to defense research, the University Research Initiative (URI), was begun during FY 1986. Research programs at 70 universities will explore a broad range of defense-related topics, including: biotechnology; mathematical analysis and modeling; ocean remote sensing and oceanography; high-frequency submicron electronics; artificial intelligence; and computer science. As part of the URI programs, universities will be able to purchase major pieces of research equipment to upgrade their facilities. URI programs also provide fellowships and research assistantships to promote graduate education in science and engineering fields that are important to national defense.

l. Summary

The S&T program supports our operational forces by examining a broad range of technologies. The program provides the basis for the qualitative superiority we must have in future weapon systems to offset our numerical disadvantages. Continued emphasis on high-quality science and technology ensures that our military commanders will have the operational capabilities necessary to meet future defense requirements.

3. The Defense Advanced Research Projects Agency

The Defense Advanced Research Projects Agency (DARPA) has two goals: to pursue imaginative and innovative research ideas and concepts offering significant military utility, and to promote advanced research by demonstrating its feasibility for military applications. DARPA programs focus on technology development and

proof-of-concept demonstrations of revolutionary approaches, and include scientific investigations into advanced basic technologies for the future.

The DARPA's research programs cover a broad spectrum of technologies, several of which are discussed below.

a. *Strategic Computing*

The Strategic Computing program is developing a revolutionary machine intelligence technology base for application by the end of the decade. This new technology base will enable us to develop systems that are characterized as intelligent when compared to conventional computing systems. This effort is supported by research into advanced generic artificial intelligence (AI); multiprocessor system architectures; and optical and micro-technology for expert systems, natural language, speech, and vision. The multiprocessor system architecture projects, using advanced Very Large Scale Integration (VLSI) technology, will produce systems that can be configured to provide a wide range of performance more than 1,000 times faster than existing computers. Demonstration of this technology will include the development of an autonomous eight-wheel land vehicle that uses imagery from a television camera to determine its proper path; a pilot associate program that explores the use of artificial intelligence to enhance the combat capabilities of a flight crew -- especially for single-place fighter aircraft; and battle management projects that use artificial intelligence in planning combat actions.

b. *Prototyping*

The Packard Commission Report on Defense Acquisition recommended to the President that we assign the DARPA a specific mission in the conduct of prototyping programs. A Prototype Office has been established to stimulate a greater emphasis in defense systems prototyping. The office will pursue projects embodying technology which might be incorporated into joint programs. Prototyping allows systems to be tested to uncover operational and technical deficiencies and provides a basis for decisions regarding full-scale development (FSD). Projects will consist of "brassboard" and feasibility demonstrations of experimental vehicles. The projects will be characterized by streamlined management with the goal of achieving results in a timely fashion.

c. *Armor / Antiarmor*

The Armor/Antiarmor Technology program is a joint DARPA, Army, and Marine Corps effort that is intended to produce a quantum leap in both Western armor protection and armor penetration systems. This program exemplifies our competitive strategy of pitting enduring American strengths against enduring Soviet weaknesses in areas where the Soviets place high priority. Begun in 1986, the program addresses an area crucial to our security. Heretofore, the United States and NATO have relied on technologically superior weaponry to offset Soviet/Warsaw Pact numerical advantages. However, the relent-

less Soviet modernization rate in armor systems threatens to erode our military posture. To forestall that possibility and retain the qualitative initiative, I have tasked the DARPA to lead this high-technological risk/high-payoff R&D effort. Basic research includes work in penetration mechanics and in hypervelocity requirements. Research is also being performed in advanced reactive and passive armors, made possible in part by new materials processing techniques. Additionally, an active armor defense is being developed to intercept and destroy incoming rounds, such as rocket propelled grenades.

The Armor/Antiarmor Technology program will hold competitive "shoot off" evaluations beginning in 1987. Products of the Armor/Antiarmor program will be directed into the Army's Armored Family of Vehicles and Advanced Antiarmor Weapon System, and the Marine Corps' Advanced Assault Amphibian Vehicle (AAAV) efforts, as well as various product improvement programs.

4. Nuclear Weapons Program

a. *Modernization Program*

The DoD and the Department of Energy (DoE) share statutory responsibilities for managing the U.S. nuclear weapons program. Our goal is to enhance nuclear deterrence by improving the military effectiveness, safety, security, and survivability of our nuclear weapons in all environments. Nuclear testing is indispensible to our meeting this goal. We plan to continue producing and developing previously authorized weapons to modernize our strategic forces, while incorporating modern safety and command/control technology. We will also continue modernizing portions of our tactical nuclear weapons stockpile.

We have made considerable progress in improving the security and survivability of nuclear weapons worldwide. Our NATO allies are contributing substantial effort and resources toward developing an effective storage and transportation infrastructure for our nuclear weapons in Europe. Every effort is being made to expand upon these cooperative programs with our NATO allies.

b. *Program Management and Cost Control*

In response to recommendations of the President's Blue Ribbon Task Group on Nuclear Weapons Program Management, we are working closely with the DoE to emphasize fiscal discipline within and between federal nuclear departments. Concurrently, we are exercising great care to ensure that we do not reduce the high standards necessary for safety and security or cause an unintended reduction in the quality of our nuclear research capability. As directed by the Congress, the Nuclear Weapons Council has been created to emphasize senior-level management of our nuclear weapons program.

We have made much progress and will continue to work closely with the DoE and the Congress to see that the Blue Ribbon Task Group's recommendations are implemented.

5. Defense Nuclear Agency Programs

The Defense Nuclear Agency (DNA) examines technical aspects of nuclear weapons effects and systems vulnerabilities, develops technology to enhance the survivability and security of U.S. forces, and provides timely information allowing DoD planners to predict destruction thresholds of enemy systems. The DNA programs include underground nuclear (UGT) and above ground high explosive testing, radiation and electromagnetic pulse (EMP) simulator testing, and development of sophisticated computer models to assess the effects of nuclear weapons on military systems. The DNA performs technical research and analyses of nuclear-related problems to provide the DoD, the Services, and the CINCs greater understanding of nuclear force employment, structure, size, and basing. The DNA is also our lead organization in exploring the "nuclear winter" phenomenon.

The DNA has recently improved the definition of nuclear environments and their effects on military systems. The results were applied to improve the survivability of our missiles and strategic aircraft, and to permit intelligence assessments of the effect of nuclear environments on Soviet aerospace systems. The DNA developed and evaluated high-altitude measures to protect against EMP and supported the National Communication System on options that would facilitate reconstitution of the National Telecommunication Network after exposure. In addition, the DNA assessed the effects of blast-induced dust ingestion on the performance of military aircraft, and developed new concepts for attacking hardened targets. The DNA executed three UGT events which validated new technology for conducting lower cost UGTs, provided new cratering and air-blast phenomenology, and supported validation testing of the Air Force's missile system, the Navy's Trident II D-5 missile system, and the Air Force's Small ICBM.

These tests are important because they support the modernization of our forces and contribute to the reliability and safety of our nuclear deterrent. Soviet propaganda over their test moratorium and recent congressional discussion about limits on testing obscure the overall importance of testing to our defense strategy and our need to be more confident of verification procedures before we undertake additional testing limitations.

In the coming year, the DNA will investigate innovative approaches to enhance the survivability of theater nuclear forces against nuclear, conventional, and terrorist threats; assist the Services in the implementation of nuclear weapons effects protection for all critical C^3 assets by producing standards and specifications for fixed ground-based C^3I facilities and the DoD's high-altitude EMP environment; develop new hardening techniques for tactical and strategic aircraft, missiles, and communications systems; produce new space environment models to predict performance of SDI systems; develop techniques to determine weapon effectiveness against super-hardened targets; and complete preparation for a series of underground tests to study cratering and ground shock phenomenology.

In FY 1986, DNA technology development efforts were set back because of congressional reductions in our defense budget. Among other things, these reductions delayed underground nuclear tests supporting system validation and cratering experiments, slowed electronics vulnerability/hardening research, and set back efforts to consider terrorist threats to nuclear arsenals. If these reductions continue, vital test and development programs will be curtailed or

canceled, affecting the entire range of our nuclear deterrence programs.

6. Conclusion

The R&D agencies and programs I have described in this section are the foundation of our future deterrent. They merit the full support of the Congress. We have structured our FY 1988-92 programs to probe for the technological "high ground." In the past, with congressional support, our quest for technological excellence has paid handsome dividends; indeed, our technological superiority is one of our key competitive advantages -- we must maintain it. To neglect our investment in R&D in response to budgetary pressures is to mortgage our nation's future. We simply cannot afford to do that.

H. ALLIANCE STRATEGY

1. Alliance Strategy

a. *Introduction*

Owing to America's worldwide commitments and interests, and the magnitude of the Soviet threat to peace, our alliance strategy enables us to husband our limited resources, meld them with those of our allies, and employ them effectively to deter aggression or, should deterrence fail, defend our interests and restore peace on terms acceptable to us and our allies. It does not, however, exclude the possibility of our taking unilateral action when necessary to protect interests that are uniquely our own.

b. *Factors Influencing Our Alliance Strategy*

(1) Regional Security and Security Assistance

Security assistance is an integral component of our worldwide alliance strategy. Past experience indicates that security assistance programs enhance our strategy by developing strong, self-sufficient, and reliable allies. Security assistance directly supports our national defense goals by helping us retain access to foreign bases and training areas for our forward-deployed forces, gain critical overflight privileges, and promote equipment standardization and interoperability. However, the Congress' FY 1987 appropriation bill reduces funding for the military component of our security assistance program levels by 14 percent below FY 1986 levels and 26 percent below the President's FY 1987 request. Additionally, 85 percent of the appropriated funds are targeted for only five countries. The result is a 40 percent reduction in funds available for other countries, which may eliminate some bilateral programs and, at a minimum, severely compromise our ability to support the efforts of many of our allies and friends. The Soviets and their proxies are not at all reluctant to exploit any strains which may arise between us and our friends and allies over these cutbacks.

(2) International Armaments Cooperation

International armaments cooperation promotes interoperability of forces, reduces costs by capitalizing on production economies of scale, and provides mutual access to the most efficient and effective technologies available. Our cooperative effort ensures that first-rate weapons systems reach our own forces, and those of our allies and friends, quickly and economically.

(3) Humanitarian Assistance

Humanitarian assistance programs abroad serve both U.S. and allied national security interests by promoting our common values and concerns. Since approval of the DoD Task Force Study on Humanitarian Assistance in June of 1984, our involvement in this worthwhile endeavor has steadily increased beyond the numerous medical treatment and small infrastructure programs carried out worldwide by our unified commands.

For FY 1987, I asked for and the Congress passed legislation to broaden DoD's mission and allow us to conduct humanitarian and civic assistance activities in conjunction with authorized military operations, provided the activities promote our security interests and the specific readiness skills of our armed forces. Given this amendment, I am developing a program, in close cooperation with the Department of State and the Agency for International Development (AID), that will serve the basic economic and social needs of the people in the countries concerned.

(4) Interdiction of Illegal Drug Trafficking

Illegal narcotics traffic threatens international security and our alliance strategy. This threat emanates from the drug traffickers who establish networks that may become shadow governments with paramilitary forces of their own. The result is often internal instability in their countries and the region where they operate. In some instances, low-intensity conflicts have been financed by international drug trafficking. Continuation of this flow of illegal narcotics threatens the moral, social, and economic well-being of the United States, as well as that of our friends and allies. For a full discussion of this important issue, see Section III.I.10.

c. The Future of Alliance Strategy

Our alliance strategy involves the active participation of our regional allies to meet the common threats of Soviet expansionism, low-intensity conflict, and illegal trafficking in narcotics. It is an evolutionary strategy which allows us to join with our allies to deter threats to our shared values and interests. It protects members' national freedoms while bolstering regional stability. We have made significant progress in international armaments cooperation, technology security, and through cost saving acquisition improvements. Our collective security is further enhanced through our humanitarian assistance efforts. The strength of our alliance strategy is being strained, however, by the inconsistencies of congressional support for our security assistance efforts.

Our alliance strategy has worked for over 40 years. It will continue to work as long as we share those basic values of democracy upon which our common defense is founded with our allies around the world.

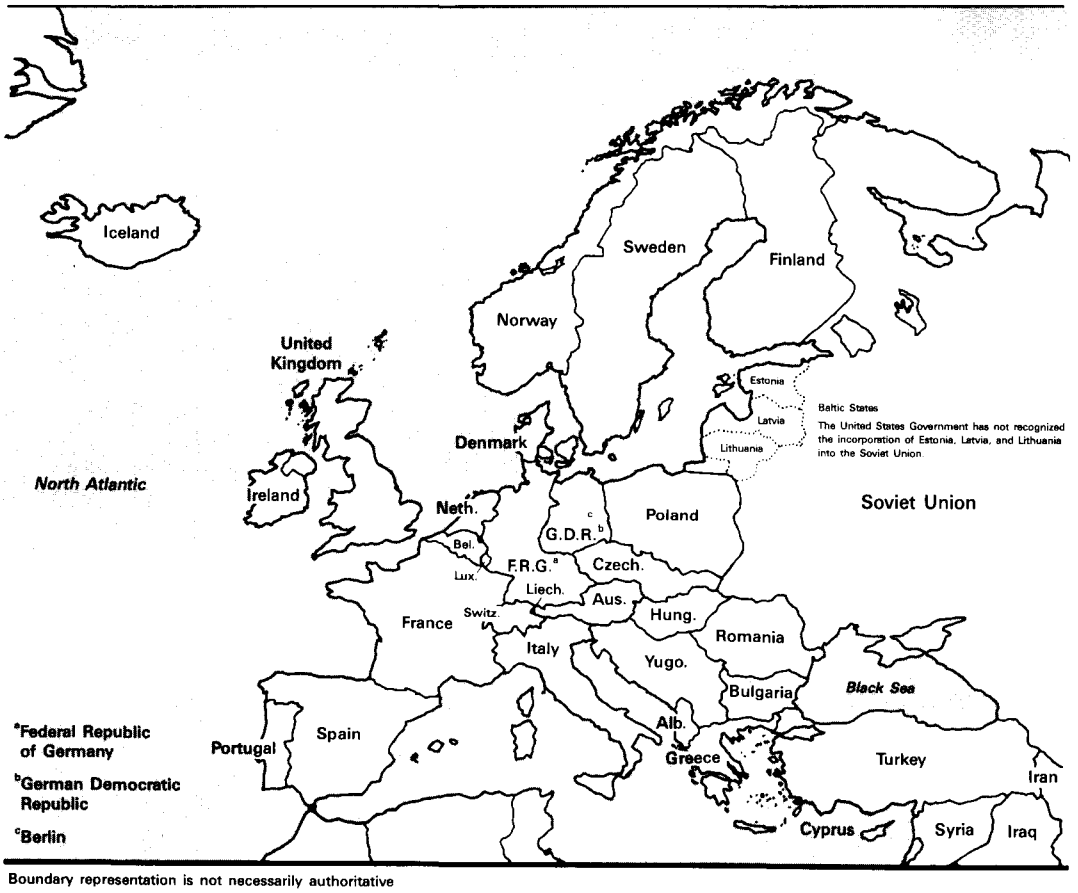
2. Regional Security

Maintaining regional security is a major goal of our alliance strategy. For convenience, our discussion of regional programs is organized by geographic area.

a. *Europe / The North Atlantic Treaty Organization (NATO)*

NATO has served as an essential guarantor of our freedom for almost two generations. It remains our principal hope for preserving the basic shared values of Western civilization.

Chart III.H.1
Western Europe -- NATO Area



Boundary representation is not necessarily authoritative

(1) *Challenge and Risks*

The Warsaw Pact maintains a significant quantitative advantage in forces over NATO, and is rapidly improving the forces' quality. To meet this challenge and to ensure effective deterrence, all NATO nations -- including the United States -- must make a sustained

effort to increase their defense capabilities. The NATO alliance cannot afford the risks of complacency and increasing pressures for reduced defense expenditures that are being voiced in many of its member nations.

(2) U.S. Forces

The United States has significant forces deployed in Europe as part of its NATO commitment. Geographic proximity gives the Soviet Union a major competitive advantage in the region. To counter that advantage, and to defend our own vital interests, we must maintain U.S. forces forward deployed.

Our troop strength in Europe is currently constrained by a congressional ceiling. In my view, this ceiling tells our friends and enemies alike that we have a political cap on our commitment to NATO that is not responsive to any change in the threat. Modest, but important, growth above this ceiling has been included in our FY 1988/FY 1989 budget to facilitate the introduction of new capabilities. I urge the Congress, as part of its action on the budget, to eliminate the ceiling on European troop strengths.

(3) Burdensharing

Our NATO allies make a greater defense contribution than is generally recognized. As my 1986 Report on Allied Contributions to the Common Defense pointed out, on the basis of all relevant indicators, the allies are generally bearing a fair share of the common defense burden. In fact, their efforts are particularly significant in a number of key categories. For example, the non-U.S. NATO members maintain three-and-one-half million personnel on active duty, compared to a little over two million for the United States. In ground combat strength (expressed in armored division equivalents) and tactical air power (numbers of combat aircraft), they would contribute roughly 60 percent of NATO's total combat power in a war.

(4) Conventional Defense Improvements

The NATO alliance is engaged in a major effort to improve its conventional defenses. This effort responds to the need to strengthen deterrence, as well as to public and congressional urging to raise the nuclear threshold in Europe. It also should lead to more effective burdensharing by focusing allied efforts on agreed deficiencies in conventional defenses.

Key improvement measures were included in the NATO Force Goals for 1987-1992, approved in May 1986. Significant progress has been made toward achieving these goals. In addition, all relevant NATO committees are working on measures to supplement the goals. An important example is the work of the Conference of National Armaments Directors (CNADs) to improve NATO armaments cooperation.

(5) Nuclear Planning

For the last 20 years, NATO's Nuclear Planning Group (NPG) has provided a forum for NATO defense ministers to discuss the alliance's nuclear policy and posture. The NPG and its subordinate body, the High-Level Group (HLG), worked to help formulate NATO's December 1979 dual-track decision under which the United States is deploying Pershing II and ground-launched cruise missiles (GLCMs) in Europe in response to Soviet deployments of the SS-20 missile. Deployment of 108 Pershing II missiles was completed in 1985, and 464 GLCMs will be deployed by the end of 1988 unless an acceptable arms-control agreement is reached in the interim.

In 1983, the NPG, based on an analysis conducted by the HLG, decided to reduce NATO's nuclear stockpile in Europe by 1,400 warheads, while taking steps to ensure that the remaining warheads and their delivery systems are more responsive, survivable, and effective. The reductions are well under way and, in conjunction with an earlier reduction of 1,000 warheads, will bring the stockpile to its lowest level in 20 years. The Soviet Union has not exhibited comparable restraint.

(6) Host Nation Support and Cooperative Logistics

We have host nation support arrangements with several European countries. During peacetime, these countries perform essential services, such as providing surface transportation, maintaining fuel distribution networks, and operating ports. In wartime, we would depend on these and other support functions, such as airfield repairs, installation security, and ammunition handling.

The United States participates with its NATO allies in support arrangements for various weapons systems, including Patriot, through the NATO Maintenance and Supply Agency. We also are working toward consolidated procurement of common NATO munitions.

(7) Infrastructure

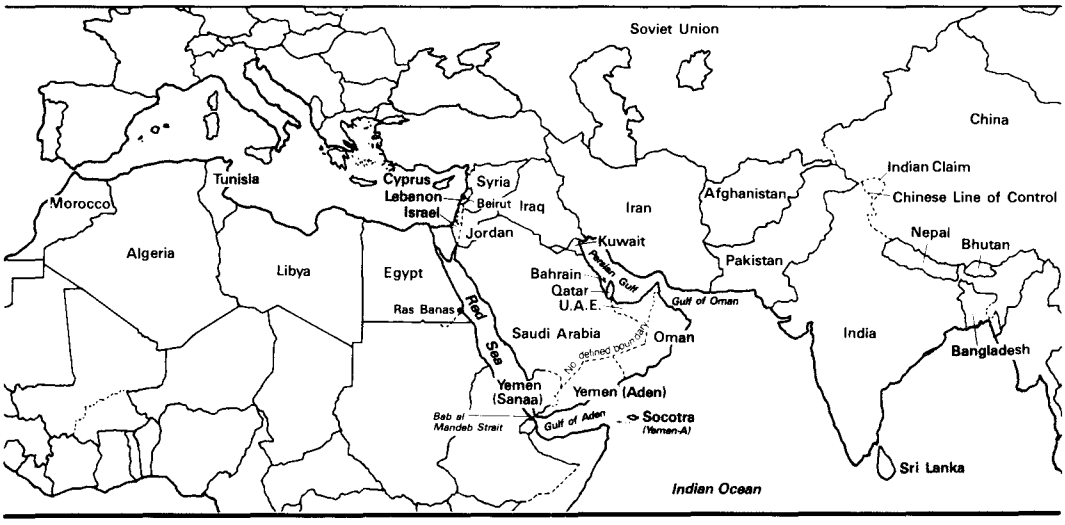
Under the NATO Infrastructure Program, alliance members share the costs of building and maintaining facilities and equipment needed to deploy and operate allied forces during wartime. The infrastructure program contributes enormously to the effectiveness of NATO's forces and considerably reduces the cost of maintaining our forces in Europe.

This program is a prime example of effective allied burdensharing and is an unprecedented success in long-term defense cooperation. While the United States contributes 27.8 percent of total program funding, a full 35 to 40 percent of the programmed projects support U.S. forces. This support includes essential operating facilities and protective shelters for U.S. reinforcing aircraft. Congressional limitations on our participation in this common-funded program could result in the delay or loss of these and other projects that support our forces. The net effect would be reduced burdensharing and increased costs for the United States.

b. Southwest Asia, the Middle East, South Asia, and North Africa

Political and military instability continue to plague Southwest Asia (SWA), the Middle East, South Asia, and North Africa. Our objectives in the region are to deter and, if necessary, defend against Soviet aggression; preserve free world access to resources, particularly energy resources; reduce opportunities for subversion or destabilization of friendly states; prevent the spread or escalation of armed conflicts; and reach a peaceful settlement of the Arab-Israeli dispute.

Chart III.H.2
Southwest Asia, the Middle East, South Asia, and North Africa



Boundary representation is not necessarily authoritative

(1) The Challenge and Risks

In the Eastern Mediterranean, we seek to diffuse tension between Syria and Israel and support a peaceful resolution of the Arab-Israeli conflict. As long as this dispute remains unresolved, we will continue to face the possibility of a major conflict directly involving the United States and the Soviet Union.

In the Persian Gulf, the Iran-Iraq war threatens maritime trade routes, central to the economic viability of friendly regional states and their Western trading partners. In addition, Iranian support for subversion threatens the stability of the entire region. Our challenge is to help our friends in the region preserve their freedom and to ensure free world access to Persian Gulf oil, if need be by countering threats from the Soviet Union.

Throughout Southwest Asia, the Middle East, South Asia, and North Africa, we are confronted by the willingness of several nations (in and outside these regions) to use terrorism as an instrument of

national policy. Not only must we counter the terrorist threat; we must also discourage certain states from supporting such activity.

(2) U.S. Forces

The Commander in Chief of the United States Central Command (USCINCCENT) has geographic responsibility for SWA. Responsibility for certain Eastern Mediterranean countries and North Africa rests with the Commander in Chief, United States European Command (USCINCEUR). Chart III.H.3 shows the general purpose forces potentially available to USCINCCENT in the event of a crisis. Forces allocated to other unified commands could also be made available, as could U.S. unconventional warfare forces.

Chart III.H.3

Combat Forces Potentially Available to USCINCCENT

Army	Air Force
1 Airborne Division	7 Tactical Fighter Wings[b]
1 Airmobile/Air Assault Division	2 Strategic Bomber Squadrons[c]
1 Mechanized Infantry Division	
2 Infantry Divisions	
	Navy
	3 Carrier Battle Groups
Marine Corps	1 Surface Action Group
1 ⅓ Marine Amphibious Forces[a]	5 Maritime Patrol Air Squadrons

[a] A Marine Amphibious Force typically consists of a reinforced Marine division, a force service support group, and a Marine aircraft wing (containing roughly twice as many tactical fighter/attack aircraft as an Air Force tactical wing, as well as a helicopter unit.)

[b] Includes support forces. Does not include 3½ tactical fighter wings available as attrition fillers.

[c] These bombers would be accompanied by reconnaissance, command and control, and tanker aircraft.

(3) The Recent Record: Improving Our Posture

In recent years, we have improved our capability to respond to threats in Southwest Asia, the Middle East, South Asia, and North Africa. The readiness of forces who could be called on to operate in the region has improved. Those forces are continuing to receive more modern equipment. Our capability to deploy them rapidly continues to grow, and we are in the final stages of a comprehensive revitalization of our Special Operations Forces (SOF).

Improvements in our ability to defend regional interests hinge on access to friendly territory and facilities during crises. Negotiations to reach agreements for access and mutual support of forces, and arrangements for the prepositioning of essential supplies, have been under way and are continuing.

(4) Exercises and Training

The keystone of our training program in this region is the BRIGHT STAR/ACCURATE TEST exercise series. (BRIGHT STAR is conducted in odd-numbered years and ACCURATE TEST in even years.) Of late, deteriorating economic conditions throughout the region have affected the ability of our security partners to commit forces to these exercises.

We have established several bilateral consultation groups to improve defense cooperation between the United States and friendly states in Southwest Asia, the Middle East, South Asia, and North Africa. These groups meet periodically to consider issues ranging from combined planning for joint exercises to prepositioning of U.S. military equipment.

(5) Special Programs

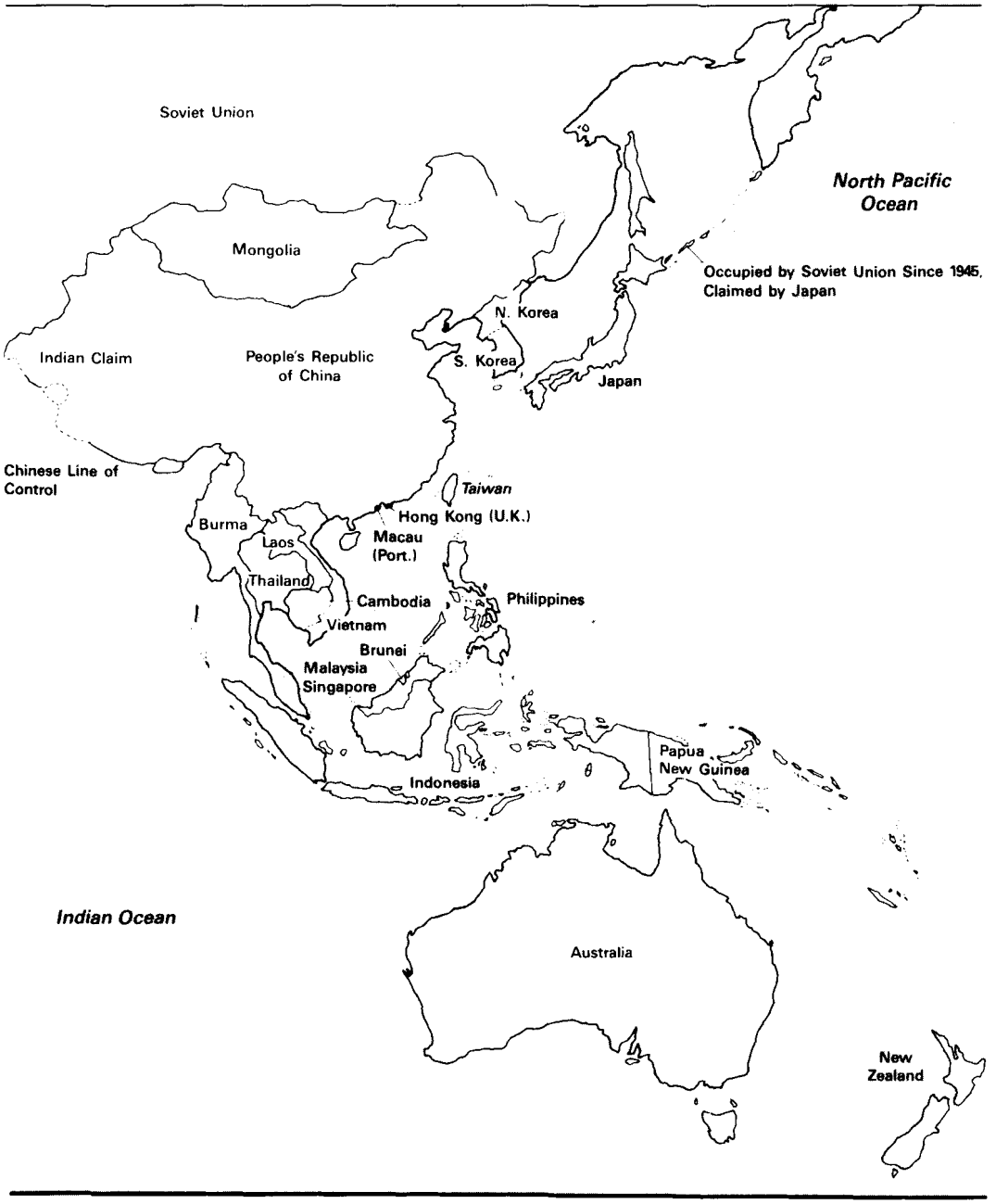
Outside the Foreign Military Sales (FMS) program, we are cooperating with several regional states such as Saudi Arabia, Oman, Jordan, Morocco, Pakistan, Egypt, India, and Israel to improve their defense capabilities and enhance the ability of U.S. forces to respond to contingencies. Examples of such cooperation are the continued deployment of E-3 AWACS aircraft in Saudi Arabia to support regional stability and freedom of navigation in the Persian Gulf; an agreement with Oman that allows us temporary access to its facilities in the event we are asked to respond to a regional crisis; and defense industrial cooperation programs with Egypt and Pakistan. With Israel, we have the Free Trade Area Agreement, which guarantees Israeli access to U.S. markets, and the U.S.-Israeli Memorandum of Agreement, which allows Israel to compete with U.S. firms for DoD contracts and U.S. firms to compete for Israeli government contracts. U.S. personnel also contribute directly to the preservation of peace in the Middle East by serving as members of the multinational force in the Sinai. To improve India's defense production capability, we have agreed to assist its efforts to develop a light-combat aircraft, antiarmor systems, and a national test range. We have also agreed in principle to allow for the transfer of advanced computers, subject to certain safeguards.

c. East Asia and the Pacific

Events in East Asia and the Pacific over the past year have focused attention on important U.S. security and economic interests in the region. The change of government in the Philippines emphasized our determination to support the popular wishes of that democratic nation. On a negative note, the strength of the ANZUS

treaty was weakened by New Zealand's actions leading to its suspension from U.S. security obligations under the treaty.

Chart III.H.4
East Asia and the Pacific



Boundary representation is not necessarily authoritative

(1) The Challenge of Preserving Independence and Stability in East Asia and the Pacific

The Soviet Union continues to extend its power and influence in the region. Over 50 Soviet divisions are deployed in the Soviet Far East, along with about 2,000 tactical aircraft and one-third of the SS-20 mobile missile force. Modernization of Soviet naval forces in the region continues with the addition of Kirov cruisers to the expanding Soviet Pacific fleet. The Soviets have also built up their forces in Vietnam and the South China Sea. More than 2,500 Soviet military advisors are supporting efforts in Vietnam, and approximately 30 Soviet ships routinely patrol the South China Sea. This buildup is clearly aimed at the United States and its allies and friends in the region.

Since North Korean President Kim Il-Song's visit to Moscow in 1984, the Soviet Union has expanded its military assistance to North Korea. In exchange, the Soviets have received overflight rights for both strike and reconnaissance aircraft. These improvements in Soviet-North Korean military cooperation clearly threaten security in Northeast Asia. Our support to the Republic of Korea (ROK) under the Mutual Defense Treaty of 1954, and in particular, the presence of U.S. forces in Korea, have played a key role in deterring North Korean aggression. North Korea's military modernization, reorganization, and repositioning of forces nearer the DMZ has seriously reduced attack warning time for U.S. and South Korean forces. We are, however, committed to meeting the challenges to regional security in Northeast Asia both by maintaining U.S. strength in the region and by aiding South Korea in its self-defense efforts.

Our developing defense relationship with China is based on a commonality of security interests. A secure, modernizing China can be a force for peace and stability in East Asia and the world. During my recent visit to China, I reaffirmed our willingness to play a positive role in China's defense modernization. We will continue to pursue high-level dialogues, functional military exchanges, and military technological cooperation in areas that will enhance China's ability to defend itself against external threats.

The Cambodian people continue to suffer under a brutal Vietnamese military occupation. At the same time, the large Vietnamese force in Cambodia threatens our ally Thailand. We will continue to help the Thai Government meet regional threats and defend its borders against Vietnamese aggression.

(2) U.S. Forces

A strong and visible U.S. presence in the region is necessary to deter the Soviet Union, North Korea, and Vietnam from interfering with the independence and stability of our allies and friends.

The U.S. Commander in Chief for the Pacific (USCINCPAC), with headquarters in Hawaii and forces spread across the western Pacific and Indian Oceans, has responsibility for U.S. military operations in a region covering more than 50 percent of the earth's surface. Chart III.H.5 shows the forces allocated to the Pacific Command.

Chart III.H.5

Forces Stationed in PACOM

Army	Air Force
1 Infantry Division (Korea)	1 Strategic Bomber Squadron
1 Infantry Division (Hawaii)	11 Tactical Fighter Squadrons
	5 Tactical Support Squadrons
Marine Corps	**Navy**
Portions of 1 MAF (Japan)	6 Carriers with Air Wings
1 Marine Brigade (Hawaii)	89 Surface Combatants
1 MAF (California)	32 Amphibious Ships
	40 Attack Submarines
	12 Maritime Patrol Aircraft Squadrons

(3) Fulfilling Our Security Commitments in the Region

The sheer size of the East Asian and Pacific region and the limited availability of U.S. forces necessitates close cooperation with our friends and allies to meet threats posed by potential adversaries.

Japan -- Japan's importance to security in the region cannot be overestimated. Though limited to a defensive role, the Japanese Self-Defense Forces are improving their capabilities. The Japanese defense budget has grown, albeit from a low base, during the past 16 years, rising by more than 5 percent in real terms annually despite a slowdown in overall government spending. This continuation of sustained real growth in defense spending is one in a series of encouraging steps that demonstrate Japan's recognition of its responsibility as a member of the democratic community of nations, an obligation formally accepted by Prime Minister Nakasone. Other positive steps include the acceptance of the defense of sea lines of communications to 1,000 nautical miles (forces for which are addressed by Japan's 1986-1990 Defense Plan) and, most recently, the decision to permit commercial participation in the Strategic Defense Initiative research effort.

Republic of Korea (ROK) -- The primary threat to the ROK remains North Korea. Even though the presence of American troops gives the ROK important military advantages, North Korea today could launch a massive attack with minimal warning. Together with the ROK and our

United Nations partners, we must continue to strengthen U.S. and ROK capabilities on the Korean peninsula. To this end, U.S. and ROK forces are modernizing steadily and participate jointly in five annual training exercises in Korea. Stability on the peninsula will enhance the success of international events, such as the 1988 Olympics, that are being held in the ROK, and sustain the growth in national pride and confidence that results from such successes.

The Philippines -- Our security relationship with the Philippines rests on several interrelated factors. U.S. military facilities in that country permit us to maintain a continuous air and naval presence in the region. We are committed under the Mutual Defense Treaty of 1951 to assist in the defense of the Philippines in the event of attack. Finally, we share an interest in the maintenance of a friendly, democratic government in the Philippines, which is critical to the stability of Southeast Asia. Last February, the Philippine people took control of their own destiny through a peaceful, democratic revolution. Communist insurgents, however, have been quick to capitalize on the economic hardships of the Marcos era. As a result, their insurgency has grown rapidly over the past few years and now constitutes a grave threat to Philippine democracy. The United States has moved since last February to provide substantial additional amounts of economic and military assistance to the Philippines. Continued assistance will be required in order to ensure that the Philippine Government has sufficient economic and security resources to complete the transition to permanent democratic government.

Thailand -- While Thailand, a member of the Association of Southeast Asian Nations (ASEAN), has pledges of support from several of its neighbors in the event of an attack by the large Vietnamese forces in Cambodia and Laos, the Thais still consider the United States their primary defense ally. Under the Manila Pact, the United States has supported Thailand with a broad range of programs to improve and modernize the Thai armed forces. Our efforts have included joint participation in combined exercises, provision of equipment and training, and improved cooperative logistics support through the U.S. security assistance program and negotiation of a U.S.-Thai war reserve stockpile agreement. These robust, ongoing programs are enhancing both Thailand's security and world peace.

Australia and New Zealand -- The ANZUS treaty, which until recently joined us with both Australia and New Zealand in common defense efforts, now operates in a practical sense as a bilateral mutual-security pact with Australia. While our commitment to security in the South Pacific remains as strong as ever, the New Zealand Government's unyielding position on port access forced us to drop New Zealand from formal U.S. security obligations. Bilateral cooperation with Australia, under ANZUS, will continue, however, as the cornerstone of our security efforts in the South Pacific. We look forward to New Zealand's early resumption of normal allied cooperation.

d. Western Hemisphere

The highest priority in U.S. defense planning is accorded to the defense of North America, the contiguous Caribbean Basin, and the adjoining sea and air routes that are the lifeline of American trade. In North America itself, we coordinate our defense efforts with Canada -- with whom we share the world's longest unfortified border -- under the auspices of the Canada-U.S. Basic Security Plan. Our

programs for Latin America are planned within the structure of the Rio Treaty and the Charter of the Organization of American States.

Chart III.H.6
Western Hemisphere

Boundary representation is not necessarily authoritative

(1) The Challenge

U.S. policy in the Western Hemisphere seeks to deter strategic attack on North America, promote democracy and freedom, foster economic development, support dialogue and negotiations, and together with our friends and allies, maintain the security of the region. Latin America remains an attractive Third World target in Moscow's pursuit of its global ambitions. Soviet military aid and training assistance have made Cuban military and paramilitary forces the second largest in the hemisphere. Eastern-bloc equipment and large numbers of Russian and Cuban advisors support Nicaragua's armed forces, which are the largest in Central America. The forces of Cuba and the Soviet Union could hold our Caribbean lifelines at risk in times of global crisis, as well as form a base from which the Soviets and client states could support guerrilla wars and intimidate other nations in the region. U.S. policy and programs therefore seek effective ways to reduce Soviet presence and influence in the region, constrain Soviet- and Cuban-supported destabilization and insurgency, and support democracy and economic development.

(2) Risks

To the north, the threat to the United States and Canada has been steadily increasing as a result of Soviet advancements in ballistic missiles, missile-carrying submarines, bombers, and long-range cruise missiles. Continuation of the United States-Canada combined military command of NORAD, prudent surveillance and air defense modernization, and progressive research in advanced technologies for aerospace defense are required to maintain the security of North America.

Traditionally, Latin America has been an area in which we have maintained a limited military presence to meet our treaty commitments for defense of the Panama Canal. Economic and military assistance have been the primary vehicles for pursuing our security objectives in the area. If left unchecked, the massive Cuban and Nicaraguan buildup of conventional military forces, and the spread of communist-backed insurgency, could eventually force the United States to reorient substantial forces to protect its interests in the region. To preclude this possibility, the United States is pursuing a strategy of: increased foreign assistance, to promote regional self-defense capabilities and economic stability; a stepped-up tempo of exercises and training, to demonstrate our ability and resolve to assist friendly nations directly threatened by aggression; and support of the Nicaraguan Democratic Forces, to maintain pressure on the Sandinista regime to cease its support of regional subversion and make good on its guarantee to the Nicaraguan people of a fully democratic government. We have made substantial progress toward these objectives in Central America over the past year, but have fallen behind in South America, where insurgencies, drug trafficking, and Soviet efforts at destabilization threatened both established and fledgling democracies. Future progress is threatened by continued reductions in foreign assistance and defense resources targeted for the region. The funding required for these programs is relatively modest, but it is imperative that the full required amount be provided. The alternative would be much more costly, and would greatly increase the risk to U.S. security worldwide.

(3) U.S. Forces

The Commander in Chief of the North American Aerospace Defense Command (CINCNORAD), headquartered in Colorado Springs, Colorado, is responsible for aerospace defense and surveillance of the North American continent. Some 800 United States and Canadian personnel are assigned to his command.

Responsibility for the 10,000 U.S. military personnel stationed in Central and South America is held by the Commander in Chief of the United States Southern Command (USCINCSOUTH), who has his headquarters in Panama. The Commander in Chief of the United States Atlantic Command (USCINCLANT), headquartered in Norfolk, Virginia, is responsible for the Caribbean and waters adjacent to Central and South America. U.S. Forces Caribbean, a subunified command under USCINCLANT, with headquarters in Key West, Florida, coordinates all matters of joint Service concern in the Caribbean and discharges the unified commander's security assistance responsibilities.

(4) Exercises and Training

NORAD's training and exercises during 1986 consisted of VIGILANT OVERVIEW, which were space, missile warning, and air defense command post exercises by NORAD and supporting commands, and AMALGAM CHIEF, which included flying for air defense training.

Our SOUTHCOM training and exercise program in 1986 consisted of several combined exercises in Central and South America, including AHUAS TARA 86, BLAZING TRAILS, and KINDLE LIBERTY, together with similar smaller deployments for training. In the Caribbean, USCINCLANT conducted several joint and combined exercises, including UNITAS (which is held annually), UPWARD KEY, and OCEAN VENTURE. The department's training program in the hemisphere has also provided extensive support to federal narcotics interdiction efforts. During FY 1986, Army, Air Force, Navy, and Marine Corps aircraft flew more than 10,000 hours in surveillance training missions looking for drug-laden ships and aircraft approaching our southern borders. The department also provided large-scale support to HAT TRICK II, a four-month interagency interdiction operation coordinated by the Vice President's staff.

e. Sub-Saharan Africa

In Africa, our principal objectives are to support the independence and stability of friendly governments; to preserve free access to mineral resources needed by Western nations; to reduce Soviet influence in the region, with a concomitant increase in our own; and to complement our existing security/economic assistance efforts with those of our Western allies. The goals are threatened by endemic unrest compounded by Soviet-bloc and Libyan adventurism in the region. The presence of about 35,000 Cuban combat troops in Angola continues to stall negotiations on Namibia and contributes to regional instability. Libya, supplied primarily by Moscow and its allies, continues its subversive campaign against neighboring countries and its military occupation of northern Chad.

Chart III.H.7
Sub-Saharan Africa

Boundary representation is not necessarily authoritative

(1) The Challenge and Risks

Over the last 20 years, protracted civil wars and insurgencies have plagued a number of African countries, most notably Ethiopia, Chad, Angola, Mozambique, and the Sudan. Many nations have been devastated by natural catastrophes, primarily droughts. The rains last year brought infestations of locusts and grasshoppers. All Sub-Saharan African nations -- even the oil producers -- face a doubtful economic future caused not only by the failure of their own policies but also by global inflation and uncertain oil and primary commodity markets.

The United States will continue to respond to threats against friends and legitimate U.S. interests in the region, as we did in

FY 1986 and FY 1987 when we shipped emergency arms to Chad. At the same time, we will continue to work for political resolution of the underlying tensions that have long troubled this region, and for the improvement of the economic conditions and welfare of all its people.

(2) U.S. Forces

Sub-Saharan Africa possesses important natural resources and is strategically located, with deep-water ports, good airfields, and controlling positions near major waterways and air corridors. Ongoing conflicts make the subcontinent a potential arena for superpower rivalry and confrontation. Recognizing this, we have assigned Sub-Saharan Africa as a military area of responsibility to three separate unified commands. The U.S. European Command (USEUCOM) has responsibility for most of the continent, while the U.S. Central Command (USCENTCOM) is responsible for the Horn of Africa (Sudan, Ethiopia, Djibouti, Somalia, and Kenya). Additionally, the U.S. Pacific Command (USPACOM) is assigned responsibility for the four Indian Ocean island states adjacent to Africa.

(3) Host Nation Support

Kenya, Sudan, Somalia, Djibouti, and the Seychelles have allowed us to use facilities in their countries in support of military operations in the Indian Ocean and SWA.

(4) Burdensharing

To avoid duplication of effort and to build on the extensive experience of other countries outside the region, we are working closely with friends and allies, including the United Kingdom, France, West Germany, and Italy, in carrying out security assistance and other programs in Africa.

f. Conclusion

Shared democratic values and combined economic strength provide a firm basis for maintaining collective security among U.S. allies and friends worldwide. My proposed defense program for FY 1988 and FY 1989 will further improve our regional security posture. The continued support of the Congress and the American people is critical to the success of our national defense strategy.

3. Security Assistance

a. The Record

(1) Purpose

Security assistance is a major pillar of U.S. security and foreign policy. Our security assistance programs bolster the U.S. military defense posture and support other foreign assistance efforts. As countries become better able to assume the burden of their own defense, we can concentrate our defense resources in areas of critical security concern. Thus, security assistance plays a major role in our alliance strategy. The military portion of our security assistance program is comprised of the following:

-- Foreign Military Sales Credit Financing (FMSCR), which provides direct credits to countries, either at prevailing interest rates or a concessional rate, allowing the purchase of equipment or services from the U.S. Government or directly from U.S. contractors;

-- Military Assistance Program (MAP), which provides, on a grant basis, financing for the acquisition of defense articles and services to eligible governments;

-- Foreign Military Sales (FMS) program, which sells defense articles, services, and training to foreign governments on a direct cash basis; and

-- International Military Education and Training (IMET) program, which allows DoD to provide training and training support to foreign military personnel as grant assistance.

(2) Objectives

Security assistance and associated planning supports our foreign policy goals by contributing to the development of physical and economic security for foreign nations. Democratic institutions and values are menaced by political instability. Such instability results as much from economic threats as from externally inspired aggression. Security assistance consequently strives to balance economic and military concerns with programs designed to be sensitive to the future impact of debt burdens, as well as to ongoing requirements to deter threats through force-structure modernization.

Our individual country programs support national development through self-sufficiency and better self-defense capability; enhance U.S. force-projection capability through base and facility access; promote interoperability of U.S. and allied forces, thereby strengthening the collective security framework; and encourage meaningful economic reform and development.

(3) Accomplishments

Prior to FY 1986 and FY 1987, this Administration and the Congress worked together to increase security assistance funding levels and expand concessionality for both military assistance and economic aid programs. Moreover, numerous statutory amendments have clarified and expanded foreign assistance legislation. Considerable progress was made in Central America, the Middle East, NATO's southern flank, and other areas of U.S. interest. We have worked closely with friendly countries to: create and expand meaningful dialogues; increase mutual planning; implement programs responsive to countries' defense needs; and address economic difficulties worsened by those needs. This effort, to the extent feasible, developed military and economic assistance programs uniquely tailored to each country's situation. The number of countries receiving assistance grew -- from 32 in 1981 to 46 in 1986.

(4) Initiatives

We have worked closely with the Congress to develop an effective security assistance program through new funding instruments and other legislative changes. These changes, such as a reinvigorated MAP program, a small support program for non-U.S. manufactured equipment, and streamlined handling of country requests have improved our management of security assistance programs. We have used this funding, in conjunction with legislative and management improvements, to expand and improve bilateral relations and meet the threat to recipient countries. For example, we have established a new assistance program in Pakistan, and expanded our programs in Central America, Tunisia, NATO'S southern tier, Israel, and Egypt. We have also expanded our program planning to ensure balance and optimal use of funds. Finally, these efforts have combined to improve bilateral relations, while promoting professionalism within friendly military establishments, thereby contributing to peace and democracy throughout the world.

(5) Soviet Military and Economic Assistance

Our programs, like our national defense strategy, are designed to provide friends and allies with a defensive capability to thwart aggressors. Over time we have found that our security assistance programs respond to Soviet-supported or other radical challenges around the world. In the past, whenever they have sought to exploit a potentially unstable situation, we have tried to assist the threatened states. The Soviet Union has increased its military assistance and arms sales ties to several Third World countries, just as it has continued its military buildup. Its provision of military assistance and advice supports a policy of fueling the fires of radicalism and aggression. Unlike the United States, the Soviet Union emphasizes military over economic assistance. Moscow prefers to use its military production and logistics system to create and exploit instability around the world.

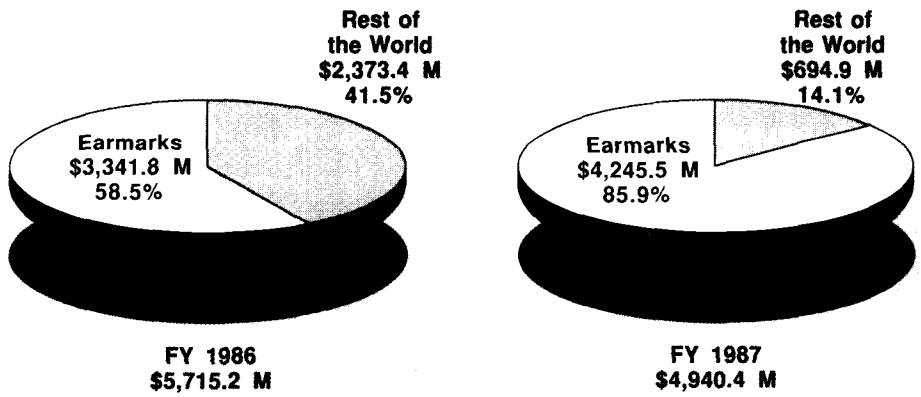
b. The Risks of FY 1987 Cuts

(1) Cascading Effect of Cuts in FY 1986 and FY 1987

With the goal of deficit reduction overshadowing the entire legislative branch of the government, the 99th Congress did not perceive the damage that severe budgetary cuts would inflict on current and future security assistance programs. In FY 1986, the Congress decreased funding for security assistance twice; the Gramm-Rudman-Hollings deficit reduction cut of 4.3 percent followed an earlier cut of 10 percent. The Congress again reduced security assistance funding in FY 1987, decreasing the Foreign Military Sales Financing program by 28 percent from the President's budget request. This reduction -- combined with congressional earmarks to five country programs -- resulted in $694.9 million, or only 14 percent of all FY 1987 appropriated funds, being available to address U.S. security assistance interests throughout the rest of the world (see Chart III.H.8).

Chart III.H.8

Impact of Earmarks and Reductions on FMSCR / MAP Budget



FY 1986 Earmarks (after sequester); Israel ($1,722.6 M), Egypt ($1,244.1 M), Pakistan ($311 M), Tunisia ($64.1 M).

FY 1987 Earmarks; Israel ($1,800M), Egypt ($1,300 M), Pakistan ($312.5 M), Turkey ($490 M), Greece ($343 M).

Security assistance plays a vital role in U.S. national strategic objectives. The potential impact of FY 1987 security assistance funding cuts is far-reaching and long term, with serious implications for U.S. military forces and U.S. defensive postures worldwide. Funding reductions in FY 1987 may complicate current and future base-rights negotiations with several countries. Many supporting countries link DoD operations at overseas bases and facilities to ongoing U.S. security assistance funding levels. Front-line countries such

as Thailand, Chad, Tunisia, El Salvador, and Honduras rely on U.S. security assistance to bolster their defensive capabilities in the face of challenges from neighboring states. Strong allied and friendly forces reduce the need for potential U.S. military force involvement in troubled regions.

Access countries such as Oman, Somalia, Kenya, and Morocco also relate security assistance funding levels to bilateral agreements permitting transit, landing, and port use by U.S. military forces. The low level of financing available this year will call into question our ability to fulfill commitments. Loss of these vital access points would multiply U.S. logistical challenges and seriously impede our DoD operations in peace and war.

(2) FY 1988 Request

Once more, our FY 1988 request attempts to maintain program continuity of defense relationships with countries despite Gramm-Rudman-Hollings constraints. For many countries, failure to provide the assistance required to meet their legitimate defense requirements will force them to turn elsewhere. For other countries, the equipment they have will fall into disrepair as their military professionalism declines and infrastructure development comes to a standstill. FY 1988 provides an opportunity to make the difference between real defense self-sufficiency and destabilizing weaknesses.

(3) The Need for Continuity

Mindful of the damage done to our security assistance program and, by extension, our national security interests, our FY 1987 request was designed to restore the program levels achieved in FY 1985. Our intent was to recover continuity in our foreign policy and defense posture from FY 1986 cuts. The Administration developed an austere but responsible continuity budget for security assistance framed within an overall budget responding to the requirements of the Gramm-Rudman-Hollings Act. Without continuity, many of the advances of the past few years -- such as deterrence and containment of conflict -- are threatened. Other advances in very key areas -- such as base rights and access -- may incur severe setbacks.

c. Special Problem Areas and the DoD Response

Given the dramatically reduced funding in the FY 1987 budget, it is essential that the Congress understand the opportunities foregone -- and the problem areas left unaddressed -- resulting from inadequate resources for security assistance. Two particularly critical problem areas are drugs and terrorism.

(1) Drugs

The Andean countries have been buffeted by economic problems and insurgencies. U.S. interests include helping these countries to maintain their democratic systems, to defend against insurgencies, and to destroy narcotics cultivation and trafficking. Several countries have expressed a desire to begin serious, balanced drug interdiction and eradication programs, but the lack of adequate funding keeps these critical security assistance programs from going forward. Since in these countries the military is centrally involved in drug eradication, our security assistance program is the logical avenue for encouraging the kind of broadly based, coherent programs the drug situation demands.

(2) Terrorism

International terrorism represents a threat of increasing magnitude that is growing in intensity and sophistication. Its prime practitioners and sponsors are groups and nations that espouse Marxism-Leninism or some other radical philosophy. Terrorism has been traditionally handled outside security assistance channels, but the recent terrorist epidemic argues for greater military involvement for some countries. This, in turn, dictates the need for security assistance involvement. Other U.S. agencies combat terrorism with special units and special equipment, but the regular military forces of friendly nations need antiterrorist training, mobility support, and support for civic action provided by a well-balanced security assistance program. We have taken limited initiatives in this area by using IMET funds to provide antiterrorist courses for foreign military personnel.

d. Other Efforts

There are several areas where we are developing innovative programs to help meet our objectives. These include: enhanced management and forward planning; reduction of lead-time acquisition through the Special Defense Acquisition Fund (SDAF); incorporation of allied cooperative efforts; and financing alternatives, namely better terms of private financing. Additionally, we have launched a new program to upgrade U.S.-made equipment already in the inventories of our security partners. The first undertaking involves the Army's fully funded 106mm Recoilless Rifle Upgrade, which will provide an inexpensive, effective antiarmor system for nations unable to afford expenditures for costly, state-of-the-art military weapons. Other candidate systems are being evaluated. With scarce resources and the need for simpler equipment in low-intensity conflict situations, the program has potential for continued growth. We need to stretch our dollars as far as possible; simple equipment may be the key if it is appropriate to the threat environment in which it operates.

e. *Conclusion*

Security assistance is not a panacea for addressing all the threats to our security we face around the world, nor is it a substitute for other elements of foreign policy. But when used in conjunction with other instruments of defense and foreign policy, it can be an extremely valuable policy tool.

We know that the security assistance program incurs two costs. First are the program costs; second are the opportunity costs. These costs are part of the price of defending this country's interests around the world. Security assistance is but a small portion of the total cost we must pay to defend our national security interests.

But there are benefits as well. Not only does our economy benefit from sales, but our security assistance program has been one of our most important vehicles for generating constructive change. We have assisted countries in coping with both their defense needs and economic problems in a balanced manner. This progress would not have been possible without the past close cooperation between the legislative and executive branches. We must remember that the United States cannot avoid its global responsibilities nor its own defense needs. Thus, we must bear the cost of security assistance or place our vital national interests at risk.

4. International Armaments Cooperation

a. *Objectives and Emphasis*

Armaments cooperation is integral to better acquisition management and to allied conventional forces modernization within our alliance strategy. Our objectives are to develop, field, and support -- through equitable burdensharing -- the most effective and interoperable conventional military equipment for our forces and those of our allies and friends.

To gain the benefits of technological advances elsewhere, we have instituted practices and organizational changes throughout the department to assure that allied developments and products are thoroughly considered in our acquisition strategies and decisions. We already have a strong network of technical expertise to identify militarily critical technologies and determine foreign availability. We are using this expertise to determine promising cooperative opportunities. We have increased technological exchanges with our allies, and augmented our overseas offices. We have instituted JRMB processes whereby cooperative opportunities are an essential component of all new start decisions.

Another benefit is a greater commitment to force modernization by our allies. The tangible returns from their investments in defense technology and industrial base also fulfill military needs. Joint developments and reciprocal defense trade are key elements to this end. The economic burden is shared and technological futures are enhanced. The result is more modern and common equipment delivered

sooner to all allied forces -- which makes coalition strategy more feasible.

b. Regions

(1) NATO and Europe

The Alliance is politically committed to a "Conventional Defense Improvement." Emphasis is placed on redressing critical deficiencies in NATO's conventional force capabilities. Armaments cooperation is recognized as an essential element in this effort.

The $125 million provided by the Congress in FY 1986, and $190 million in FY 1987 for cooperative research, development, and testing have proven a real incentive for NATO cooperative projects. These new funds provide venture capital. R&D projects are now under way as cooperative projects as a result of this legislation. Examples include a standoff airborne radar demonstration, development of an advanced sea mine, and demonstration of advanced VSTOL engines. Agreements are now being negotiated to pursue a family of modular stand-off weapons, and an autonomous (fire-and-forget) 155mm precision guided antiarmor projectile.

Concurrently, our European allies have taken steps to combine their efforts to develop major weapons systems. There are multinational NATO-European efforts to develop a short-range air-to-air missile, a fighter aircraft, and a new antitank guided missile. We support these actions to combine acquisitions for economies of scale, to consolidate European defense industries for better efficiency, and to increase investment in defense research and development. We recognize that such actions create new competition for U.S. industry; thus we are working with our defense industry to ensure these arrangements result in effective use of the combined industrial potential of all NATO nations.

(2) Southwest Asia and the Middle East

We are working with major friendly countries in these critical regions to take advantage of combat experiences as well as innovative technological developments, and to bolster the indigenous capabilities of these countries toward more economical and effective military modernization. Combined operational and technical dialogue with Israel on a wide range of weapons systems provides valuable benefits for our Services. Bilateral programs for a counter-obstacle vehicle prototype, improvement of the M109 Howitzer, and remotely piloted surveillance vehicles are in progress. Test and evaluation of Israeli precision-guided missile systems is also under way.

Our programs with Egypt and Pakistan focus on developing their industrial base so that they can more effectively and economically support their security needs. We are advising them on development of an indigenous capability to evaluate military equipment and to adapt or upgrade existing equipment to better meet their needs. Egypt is undertaking radar and communications switch production. Both have initiated ammunition production programs. Bilateral

cooperation in aircraft and tank production and support programs is under consideration.

(3) East Asia and the Pacific

The focus of our armaments cooperation efforts with Japan is to achieve a genuine two-way flow of technology. In 1983, Japan modified its policy prohibiting exports of military technology and agreed to permit military technology to be transferred to the United States. Procedures for transfers were published in early 1986 for use by U.S. industry and the Military Services. Transfers, including surface-to-air missile and shipbuilding technology, have been processed and approved. Importantly, both United States and Japanese industry are now more aware of the Japanese Government's commitment to transfers to the United States of defense-related technology. We have established working contacts on a government-to-government level in the specific areas of air defense systems, communications systems, electro-optics/millimeter wave technologies and advanced manufacturing technologies.

Elsewhere, our approach emphasizes military missions; that is, a full understanding between both parties of the military mission to be fulfilled and the significance of the development/production of military hardware to that mission. We are expanding cooperative programs with the Republic of Korea, with heightened cooperation between our industries as we reduce Korean dependence upon U.S. assistance funding. Work toward defense modernization of the People's Republic of China in defense logistics and production infrastructure is maturing to neither threaten our national security nor that of our allies and friends. We recently concluded our first collaborative development program with Australia -- an antiship missile defense system using electronic technologies. As a result of Presidential initiatives, we have sent technical teams to India to define areas for potential cooperation; i.e., development of light-combat aircraft, antiarmor ammunition, and test range instrumentation.

(4) Western Hemisphere and Africa

Latin American and African nations view technical growth to be an integral component of future economic growth and well-being. We are exploring opportunities for technical exchanges at a level appropriate to the needs and capabilities of these countries. We expect to reinforce mutual security interests through the exchange of oceanographic information; vehicle overhaul/maintenance techniques; weapons evaluation techniques; and adaptations of fielded equipment.

I. ITEMS OF SPECIAL IMPORTANCE

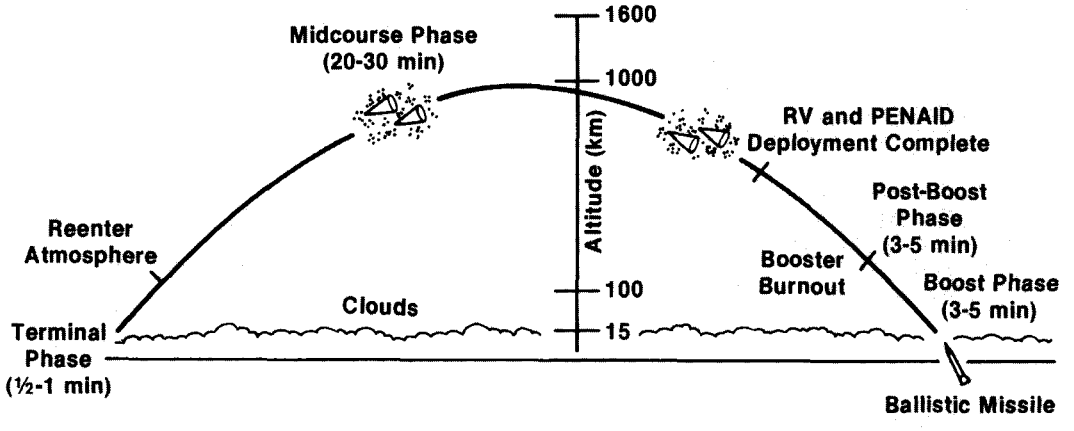
1. The Strategic Defense Initiative

a. *Introduction*

The goals of our Strategic Defense Initiative (SDI) have not changed since the President first presented his plan in 1983. We seek to provide the basis for an informed decision in the early 1990s on whether or not to develop and deploy a strategic defensive system for the United States and its allies. The mission of our SDI Organization (SDIO) is to identify the widest set of technology options for our defense system that time and resources will permit. Through our efforts, we hope to reduce the probability of nuclear war by providing strategic defenses capable of eliminating the threat posed by ballistic missiles. We believe strategic defenses, if feasible, would provide a better basis for deterring aggression by strengthening strategic stability, thereby increasing our security and that of our allies.

In his address to the nation on March 23, 1983, the President described his vision of a world free of the threat of nuclear war. The SDI is a broad-based research program investigating many technologies that may help to realize the President's vision. We believe that advanced technologies may some day provide us with a layered defense, capable of destroying ballistic missiles at all

Chart III.I.1
Defensive Intercept Phases



points throughout their trajectory. Although it is premature to identify the specific architecture of an effective strategic defense system, it is likely that complementary ground- and space-based assets could be incorporated into a series of five to seven defensive layers to intercept ballistic missiles during their flight. A multilayered defense, beginning with the boost phase and lasting through to a terminal-phase atmospheric intercept, could enhance the system by decreasing the enemy's prospects of defeating it (see Chart III.I.1).

In evaluating options generated by SDI research, an important consideration is the degree to which certain types of defenses, by their nature, discourage an adversary from attempting to overwhelm them with additional offensive weapons. Any defensive system we might employ must not allow an adversary to degrade its effectiveness less expensively than we can restore it.

Preserving peace and freedom is, and always will be, this country's fundamental goal. For over 20 years, assumptions of how nuclear deterrence can best be assured have been based on our ability to retaliate against any attack and impose on an aggressor costs clearly out of balance with potential gains. The President's SDI simply asks -- Would it not be better to deter aggression by defending people against attack rather than by threatening retaliation? The President is seeking to replace offensive ballistic missiles with defensive systems, and do so in a phased manner that provides increasing stability in each stage of the process.

It should be noted that over the last 25 years the Soviet Union has shown little interest in maintaining purely a balance of offensive forces. Instead, Moscow has increased both its active and passive defenses in an effort to negate the effectiveness of U.S. and allied retaliatory forces. The Soviets maintain around Moscow the world's only operational antiballistic missile (ABM) system, now being upgraded to a two-layered defense. In addition, they are now constructing a network of new phased-array radars that can track more ballistic missiles with greater accuracy.

Let us also not forget the many advancements made by the Soviets in their own strategic defense research efforts. For several years they have been involved in a variety of research programs to explore the feasibility of strategic defenses. Advancements in Soviet ballistic missile defense efforts, in conjunction with offensive force developments, pose a serious challenge to the West. If this challenge is left unanswered, our vital national security interests could be threatened. The SDI seeks a more stable form of deterrence by providing a hedge against dramatic Soviet advances.

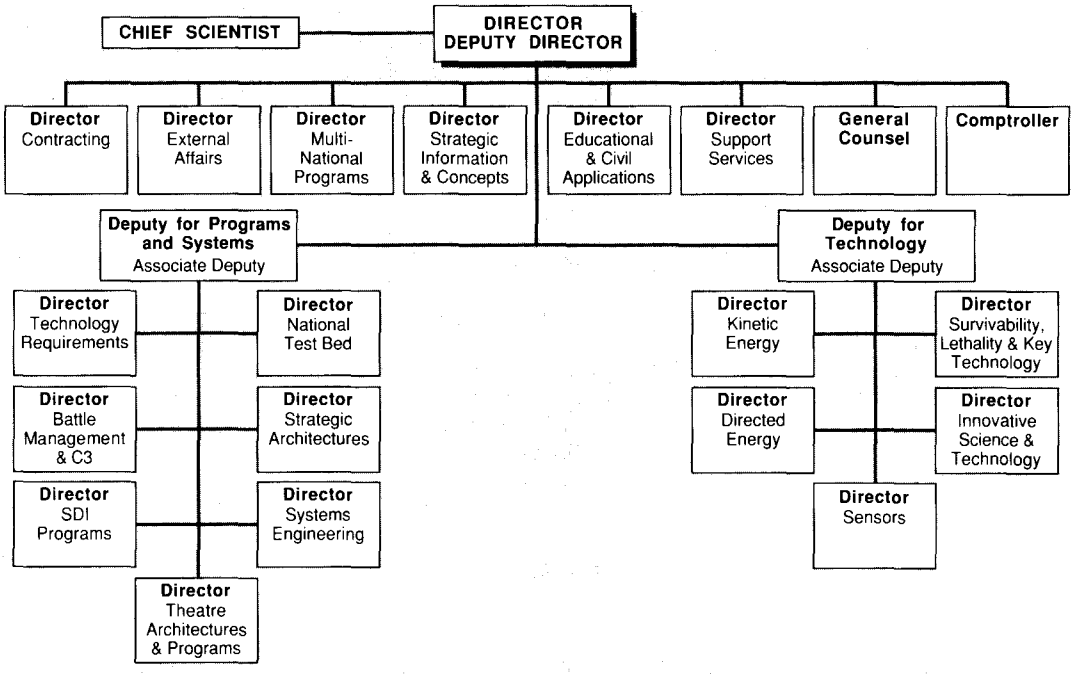
I have requested funds from the Congress to support the broadly based research efforts suggested by the bipartisan group which recommended the SDI program's original structure. It is a multifaceted program, and it is critical that all its elements be properly supported. Research on all the relevant technologies must be vigorously pursued to provide a future President and Congress with adequate information for an informed decision on development of strategic defenses. At this stage, the most serious threat to the ultimate success of the SDI remains congressional budget reductions. If the program is budgeted in accordance with the Fletcher Panel's recommendations, I am convinced we will meet our goal of an early 1990s decision.

b. Strategic Defense Initiative Organization

In the past year, the SDIO has been reorganized as shown in Chart III.I.2. The essential changes have been the appointment of a Deputy for Technology and a Deputy for Programs and Systems. This new organizational structure consolidates the five Program Elements in one group and improves communications between the technology directorates and the system integration and architectural efforts.

Chart III.I.2

Strategic Defense Initiative Organization



c. Program Overview

The SDIO has established an integrated program around the five key areas of: Surveillance, Acquisition, Tracking, and Kill Assessment (SATKA); Directed Energy Weapons (DEW); Kinetic Energy Weapons (KEW); Survivability, Lethality, and Key Technologies (SLKT); Systems Analysis and Battle Management (SA/BM); and has established the Innovative Science and Technology Office (IST) to manage fundamental research. Each represents an essential component in the development of a robust strategic defense system. Descriptions of each are given below.

(1) Surveillance, Acquisition, Tracking and Kill Assessment

The Surveillance, Acquisition, Tracking and Kill Assessment (SATKA) program involves research to identify and validate various sensor concepts for performing surveillance, acquisition, tracking,

discrimination, and kill assessment of enemy ballistic missiles. The various sensor systems must be capable of working together to detect Soviet missile launches and track the warhead through the reentry phase. No single-system concept has been identified which can perform all the surveillance tasks required to support the various weapons systems in each defense layer.

The SATKA program contains a number of experiments to determine the capabilities of the various proposed concepts. Advanced sensor technology efforts focus on improving the capabilities and production of the devices shown to be effective, and providing other data necessary for future development decisions. These experiments include the Boost Surveillance and Tracking System (BSTS), Space Surveillance and Tracking System (SSTS), Optical Airborne Surveillance System (AOS), and Terminal Imaging Radar (TIR). Most of these experiments are in their early design phases. We have made progress, but our ability to follow through on the successes of FY 1986 are seriously hampered by the FY 1987 budget cuts; our program will be further compromised if the Congress fails to provide the necessary support.

Important advances have been made in all of the SATKA technologies. Particularly noteworthy are the increased capabilities demonstrated in the areas of infrared (IR) detectors and signal processors. During the last year, a new program was established with a German firm to collect IR background and plume data.

FY 1987 efforts will continue the progress made in both the experiment and technology areas. Several critical SATKA programs to be tested in FY 1987 include those aboard the Optical Aircraft Measurement Program (OAMP), with the phased-array radar Cobra Judy, and Queen Match. Fiscal constraints will delay some of these efforts to provide radar and optical data bases required to identify and discriminate real reentry vehicles from decoys.

(2) Directed Energy Weapons

The application of Directed Energy Weapons (DEW) technology to strategic defense architectures focuses on two capabilities: interactive discrimination of decoys from reentry vehicles; and boost- and post-boost phase intercept.

There are four promising approaches under consideration for realizing these capabilities: space-based lasers (SBL); ground-based lasers (GBL); space-based neutral particle beams (SBNPB); and nuclear-directed energy technologies (NDEW). In a reduced budget environment, the DEW program is emphasizing three major technological thrusts -- free electron laser (FEL) technology; neutral particle beam (NPB) technology; and acquisition, tracking, and pointing (ATP) technologies.

The FEL potentially has both ground- and space-based applications. Our research focuses on technology integration experiments that integrate FEL devices and beam control systems on the ground for experiments in propagation through the atmosphere. Small-scale research to establish the feasibility of the space components of ground-based lasers, as well as supplying the supporting technology base, is also included.

The NPB is a major candidate for mid-course interactive discrimination and could intercept booster and post-boost vehicles. Our

technology integration experiments focus on establishing the feasibility of propagating and controlling a beam in preparation for future precision pointing and tracking experiments. Research that provides the required technology base is also included in this approach.

Our ATP efforts are designed to establish the feasibility of performing acquisition, tracking, and pointing to exacting accuracies and providing the required beam agility -- capabilities fundamental to realizing all DEW concepts. The ATP research also includes background- and target-signal collection, as well as early experiments on the relay of laser beams from ground sites.

In addition to emphasizing the three areas above, we are pursuing a more limited effort on space-based chemical lasers. We are maintaining this concept as a viable alternative to the GBL and the NPB for boost-phase intercept and mid-course discrimination. Potential use of chemical laser technology for early deployment options will be addressed. Finally, limited, specific research in the areas of x-ray lasers and excimer lasers, and experiments conducted at White Sands Missile Range on laser lethality and target vulnerability will also be pursued as resources permit.

(3) Kinetic Energy Weapons

Kinetic Energy Weapons (KEW) technology development focuses on the physical intercept and destruction of ballistic missile and/or space-based non-nuclear weapons. As such, these weapons are a logical extension of present weapons systems and, at present, are the most mature technologies available for the SDIO mission. These kinetic energy interceptors or projectiles may be guided or unguided and launched by rocket boosters, missiles, or hypervelocity electromagnetic guns. Both space- and ground-based kinetic kill vehicles (KKV) are being investigated, and are suited for employment during boost, post-boost, mid-course, and terminal phases of ICBM flight.

The KEW technology program has been grouped into six projects: spaced-based rocket-launched kinetic kill vehicles (SRKKV), for ballistic missile and satellite defense; ground-launched exoatmospheric interceptor development; ground-launched endoatmospheric interceptor development; miniature projectile development for use in ground- or space-based modes; test and evaluation of initial concepts, using hardware for functional technology validations; and general support of KEW technology development, especially as related to allied defense and the antitactical ballistic missile.

KEW sponsored two successful flight tests in FY 1986. The first experiment conducted a hit-to-kill intercept on a missile target at low altitude, using a millimeter wave active radar seeker in the interceptor. The program, called Flexible Lightweight Agile-Guided Experiment (FLAGE), made three successful intercepts in three attempts, the last of which destroyed an actual air-launched reentry vehicle simulation target traveling at a velocity of more than 3,000 miles per hour. In the second experiment, critical space observation data were obtained, and an actual space intercept was conducted.

(4) Survivability, Lethality, and Key Technologies

The Survivability, Lethality, and Key Technologies (SLKT) program addresses the potential survivability and lethality of strategic defense. In addition, SLKT examines key technologies associated with space-power and ground-power and power conditioning, materials and structure developments, space transportation and support, and countermeasures.

Lethality testing against hardened targets will be conducted to validate our technical understanding of the vulnerability of Soviet ballistic missile post-boost vehicles and reentry vehicles to directed and kinetic energy concepts. Lethality testing is a crucial element in designing and developing an effective defense.

Budget reductions have affected our ability to conduct research on advanced technologies for low-cost space transport, lightweight electronics, and power options to support space-based experiments. Further reductions will frustrate our efforts to explore key system design and performance issues.

(5) Systems Analysis and Battle Management

Our systems analysis efforts define the performance required from individual systems that may comprise our overall defense. Battle management efforts define the operational environment of decisions, rules, constraints, and directions in which individual systems must perform. We must have a clear understanding of system performance requirements and operational environments if we are to achieve cost-effective defenses.

Plans are under way to develop a National Test Facility at Falcon Air Station, Colorado. This facility will be used as the central control and coordinating point for a National Test Bed, which will integrate a number of geographically distributed developmental, experimental, and simulation facilities.

If a future President and Congress are to make an informed, responsible decision on whether to develop and later deploy a strategic defense system, they must have reasonable confidence that the system will work. The National Test Bed and National Test Facility will enable the SDIO to study the integration of various components of a strategic defense system and simulate its operation.

(6) Innovative Science and Technology Office

The Innovative Science and Technology (IST) Office is tasked with seeking new and innovative approaches to ballistic missile defense through fundamental research. It pleases me to note that over 600 research contracts have been awarded involving hundreds of scientists, engineers, and more than 90 universities and academic institutions. Moreover, 70 private industry and business firms and

laboratories, including those in three allied countries, have joined our IST fundamental research effort. Of the 600, more than 190 contracts have been negotiated with small businesses under the Small Business Innovative Research Program.

d. Conclusion

Recent severe congressional budget cuts have required us to review our approach and our plans on how to proceed in FY 1987 with one-third fewer resources than we requested. The Congress must realize that we incur unacceptable risks both politically and militarily if our FY 1988/FY 1989 SDI budget requests are not fully honored. Politically, we will be undermining the progress made in Geneva and Reykjavik; militarily, our nation and our allies will face the prospect of remaining hostage to the terrors of mutual assured destruction. Let me again stress that we must never abandon our right to defend ourselves against the threatening and ever-growing Soviet offensive missile force. We desire security, not only for ourselves, but for all nations. The SDI offers us an opportunity to rid the world of the nuclear ballistic missile threat, thereby providing the basis for a more stable, enduring deterrence.

2. Space Systems Operations

It is clear that in certain critical support areas we are becoming increasingly dependent on space systems. We rely on them more as we understand their capability and improve their dependability and reliability. Over the years we have moved from ground-based toward space-based systems in the areas of strategic warning, surveillance, communications, and navigation support to deployed forces. At the same time, the Soviet Union has intensified its already formidable national commitment to the military exploitation of space. It has significantly improved both the quality and the scope of its military space activities. Soviet efforts are clearly oriented on achieving dominance of space.

Our activities in space are predicated on the principle of free access and use of space. The functional support and global access provided by space systems, together with their operational efficiency and effectiveness, reflect our primary reason for space activities.

During the past year we have experienced a number of significant space events, some of which have caused us to step back and reassess our space programs. The tragic loss of the Shuttle Challenger on January 28, 1986 and the loss of two Titan launch vehicles resulted in serious setbacks to our space launch schedule. To assure continued access to space in the wake of these accidents, we formulated a Space Launch Recovery Plan. The plan calls for production of both a Shuttle-equivalent expendable launch vehicle and a new medium expendable launch vehicle. We are continuing to work Titan recovery, both by repairing the damaged launch pad and by implementing quality-control procedures for solid-rocket motor production, resulting in a vehicle available for launch by early 1987. To maximize the nation's space launch efficiency, we made a decision to place the Vandenberg Shuttle Launch Facility in a caretaker status until 1992, when we believe a four-orbiter fleet will be available.

We are continuing with the development of a U.S. antisatellite (ASAT) capability and in FY 1986, consistent with public law, conducted two successful infrared phenomenology tests against the radiant energy of a star. With the extension of the congressional ban on testing against objects in space through FY 1987 and the denial of ASAT production funds, the program will focus on making system improvements. When the test ban is ultimately removed, the F-15 ASAT miniature homing vehicle will be ready to go into final flight test and evaluation prior to a production decision.

With regard to new initiatives, we are focusing our attention in three principal areas: space commercialization, the National Aerospace Plane, and space technologies. In space commercialization, we issued a directive on the DoD's support to commercial launch activities. This directive implements a Presidential directive to provide support to commercial space ventures.

The National Aerospace Plane is a major new technology initiative that could provide enormous benefits to our civil, commercial, and military establishments. Our current effort with the National Aeronautics and Space Administration (NASA) is a follow on to the successful concept exploration effort completed during 1984 and 1985. We are in the technology development phase. It consists of the maturation of key technologies, propulsion module development, and airframe design needed for an experimental flight research vehicle. In 1986, we awarded a total of seven contracts with a potential total contract value in excess of $450 million over a 42-month period. At the end of that time we expect to make a decision on whether to proceed to the next phase -- building a research vehicle.

The increasing requirements for space missions challenge us to develop broader and more capable space resources. We are expecting to continue our efforts despite severe congressional budget constraints. During 1986, in conjunction with NASA, we completed the Space Transportation and Support Study. This study considered the nation's space mission needs and requisite technologies in the 1995 through 2010 timeframe and derived possible space-related architectures to support those needs. Some of the generic technologies identified will be funded in the FY 1987 budget. During FY 1987, we will be developing a technology investment plan that will address future spending responsibilities and levels for both the DoD and NASA.

Space is rapidly being recognized as a medium of equal importance with land, sea, and air, from which military missions can be satisfied by both manned and unmanned systems. The reestablishment of an expendable launch vehicle capability, together with other related shuttle recovery efforts, will provide us a more robust and responsive launch capability, thereby hedging against future situations similar to the post-Challenger period. We will also actively explore roles for military man-in-space ventures, either with the space station or shuttle, focusing on unique or cost-effective contributions to operational missions.

3. Chemical Deterrence

a. *Introduction*

The threat of chemical warfare (CW) is a continuing U.S. national security concern. Although we focus primarily on Soviet and Warsaw Pact chemical warfare capabilities, we are increasingly troubled by CW developments in other parts of the world, such as Korea, Southeast and Southwest Asia, and the Middle East. The reason is simple. Despite 17 years of U.S. unilateral restraint on the production of chemical weapons, we have witnessed a nearly threefold increase in the number of countries possessing chemical weapons. At least 16 nations have or are seeking to acquire a CW capability. This means that in nearly any theater where our forces may be committed, they face a chemical threat. In the last five years, chemical weapons have been used in at least three areas where we have national security interests.

The objective of the Department of Defense Chemical Warfare and Biological Defense Program is to prevent the use of chemical and biological agents against members of the U.S. Armed Forces. Our program objectives are to make the use of chemical weapons less attractive to our potential adversaries, and contribute to our national policy goal of a complete and verifiable global ban on chemical weapons.

There are signs at the Conference on Disarmament that our consistent chemical deterrence policies are finally getting the Soviets' attention. This past year, for the first time since the chemical negotiations began, the Soviets reduced their polemics against our binary chemical modernization and are adopting a more serious attitude toward some aspects of the negotiations. Nevertheless, major obstacles, especially concerning verification, remain.

History has taught us that chemical weapons are most effective when used against forces with little or no capability to survive the attack and retaliate. An adequate defensive capability carries with it the penalties of sustaining the logistics burden associated with a protective posture, and conducting battlefield operations in cumbersome protective equipment. Speed, efficiency, and effectiveness are reduced to the point where our success depends on our ability to put the enemy in a similar posture. Therefore, as we seek a worldwide ban, we also recognize the need to maintain our capability to deter the use of chemical weapons against us. We must equip our forces with the best defensive chemical warfare equipment available to ensure their survival and effective operation should any adversary use chemicals against us. We must also maintain a sufficient chemical retaliatory capability; should our deterrent fail, we must be able to use our own chemical capability, as appropriate, to stop the enemy from further use of chemical weapons against us and our allies. In Europe, an inadequate chemical retaliatory capability would force us to rely on the threat of nuclear retaliation to deter Soviet chemical attack, thus lowering the nuclear threshold.

Since the Reagan Administration took office, we have made significant improvements in our chemical deterrent posture. Our seriously neglected chemical defense programs have been revived with considerable congressional support. Indeed, a recent General Accounting Office (GAO) report on our chemical defense posture

necognizes advances in many areas. Where our ability to survive and operate in a chemical environment used to be measured in hours, it is now measured in days. However, we are still not at the point where we can conduct sustained combat operations in a chemical environment. We are constantly exploring ways to improve and field better protective equipment to reduce the inevitable degradation caused by having to operate on a hostile chemical battlefield. At the same time, we are exploring novel methods of detecting and avoiding battlefield chemical contamination so we can further reduce the impact of chemical protective measures on military operations.

Unfortunately, our chemical retaliatory stockpile has been seriously neglected since we stopped producing chemical munitions in 1969. Of the total stockpile, only about 10 percent has any military utility, and even that portion poses the problem of an outdated chemical capability that averages some 27 years in age. Furthermore, the existing stockpile is comprised of highly lethal unitary weapons which require elaborate safety procedures for storage and transportation.

In acting last year to approve production of the 155mm binary chemical projectile and procurement of production facilities for the BIGEYE binary chemical bomb, the Congress clearly demonstrated its support for our chemical warfare policy and binary modernization. The Congress charted a cautious approach that incorporated provisions to ensure allied support, as well as time for arms control progress. A key provision included a prohibition on final assembly of a complete binary chemical munition until after October 1, 1987, thus giving our arms-control negotiators more time to reach an agreement.

Our prudent approach to modernization prescribed by the Congress also called for the President to certify to the Congress that:

-- NATO has adopted a force goal calling for U.S. chemical modernization;

-- The United States has developed, in coordination with the Supreme Allied Commander Europe, a contingency plan for deploying of binary weapons; and

-- The United States has consulted with the allies on the contingency plan.

All of these provisions were met and the President submitted his certification to the Congress on July 29, 1986.

In conjunction with our chemical stockpile modernization, last year's legislation linked destruction of the existing unitary stockpile to production of binary weapons. As the program progresses, the destruction program will comprise a larger portion of our chemical program.

It is essential we maintain a consistent course on the modernization program. We must continue our efforts to deter chemical warfare and protect our armed forces. At the same time, we must also maintain the momentum of our arms-control efforts.

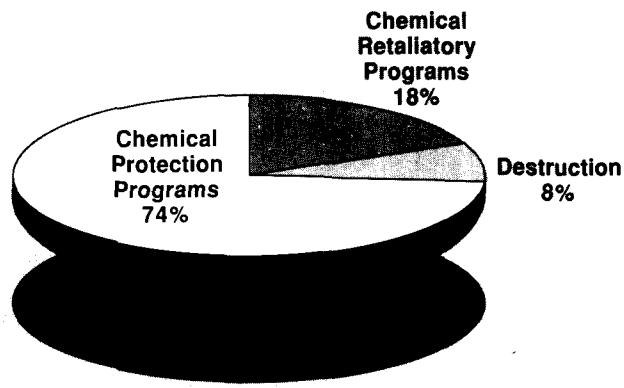
b. FY 1988-92 Programs

(1) Chemical Warfare Protection

The funds requested for our chemical program are slightly greater than last year, reflecting the increased requirements of our retaliation and destruction programs. However, as shown in Chart III.I.3, our defensive equipment request still constitutes the major portion of the total program.

Chart III.I.3

FY 1988 / FY 1989 Funding for Chemical Programs



Research and development efforts started at the beginning of this Administration aimed at improving individual and collective protection equipment, detection and alarm systems, decontamination systems, and medical treatment are beginning to pay off. As in previous years, emphasis on chemical warfare training, exercises, and doctrine also plays an important role in our defensive programs.

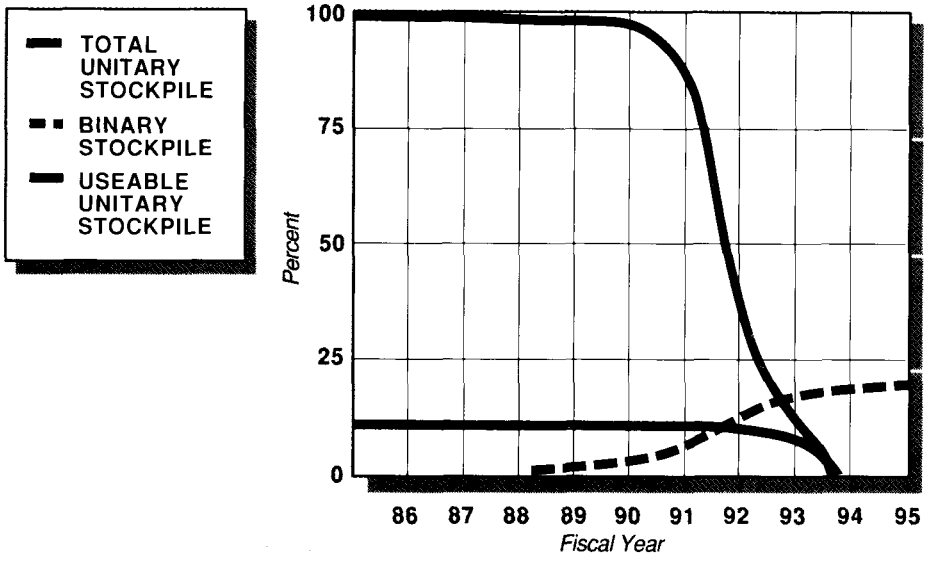
(2) Chemical Retaliatory Capability

Although it is necessary to improve our chemical defensive posture, merely improving our defenses is not enough; we require a corresponding modernization of our chemical retaliatory capability. These two elements go together to provide a strong deterrent to chemical warfare. Our request for retaliatory systems comprises

about one-fifth of the total chemical program. The link between modernization with binary weapons and the destruction of the existing unitary stockpile is portrayed in Chart III.I.4.

Chart III.I.4

DoD Chemical Program



If the United States has not entered into a mutually verifiable international agreement concerning binary and other similar chemical munitions by October 1, 1987, we expect to assemble the first complete 155mm binary chemical projectile soon thereafter.

Furthermore, the BIGEYE bomb has successfully completed the first phase of operational testing, and both the Air Force and the Navy have approved it for limited production. The second phase of operational testing is under way under the close scrutiny of the Director of Operational Test and Evaluation. Satisfactory completion of this phase of testing should lead to a decision to go ahead with full production. We anticipate the first complete BIGEYE bomb entering the inventory in the late 1980s.

We will continue research and development on both chemical defensive and chemical retaliatory programs. A strong research and development program is a hedge against new or unknown Soviet agents which could render our current and planned chemical programs ineffective.

(3) Destruction

As depicted in Chart III.I.4, our commitment to modernize also carries a corresponding commitment to destroy our existing, lethal stockpile of unitary munitions and agents. The Department of the Army will execute this program. A draft Programmatic Environmental Impact Statement for this destruction was published on July 1, 1986. The Army's preferred alternative calls for on-site disposal of the

stockpile at the eight storage sites in the continental United States. We are proceeding with plans for complete destruction of the stockpile by September 30, 1994, as mandated by the Congress. In order to keep pace with this very tight schedule, we are requesting a supplemental appropriation of $500 million in FY 1987.

c. *Conclusion*

Congressional support for our chemical program has been very gratifying. We have embarked on a course leading to a credible chemical deterrence posture. Our defensive programs have been improved immensely and we are close to the production of binary chemical munitions. Furthermore, the production of new retaliatory munitions clears the way to destroy our entire existing stockpile of lethal chemical agents and munitions. We will then have a signifi-cantly smaller, more easily deployable, and much safer stockpile of binary chemical weapons. In the interim, these actions will provide a solid incentive for the Soviet Union and others to enter into a meaningful, comprehensive, and verifiable worldwide ban on chemical weapons. The ultimate result should be what we all want -- an end to chemical warfare.

4. Special Operations Forces

Special Operations Forces (SOF) provide the United States a highly flexible, specialized capability to pursue national objectives during peace or war, either independently or in conjunction with conventional forces. In peacetime, SOF, in conjunction with other military forces and federal agencies, participate in security assistance, civic action, and humanitarian assistance operations. They also contribute to combatting terrorism.

SOF can play a key role in crises through the use of forces, psychological operations, and the employment of civil affairs units. The importance of these capabilities was clearly demonstrated in 1983 in Grenada. SOF's unique skills as trainers, derived from cultural orientation and language training, also make them an essential element in counterinsurgency operations. If called upon, these same skills can be employed in support of guerrilla warfare.

At higher levels of conflict, the SOF can delay, divert, and disrupt enemy operations, thereby gaining a critical edge for conventional defenses.

When the Reagan Administration took office in 1981, our Special Operations Forces were in a debilitated state. After a decade of neglect, force structure had dwindled to dangerously low levels, units were under-equipped and ill-prepared to meet their commitments, and the vital contribution these forces make to our national security was poorly understood.

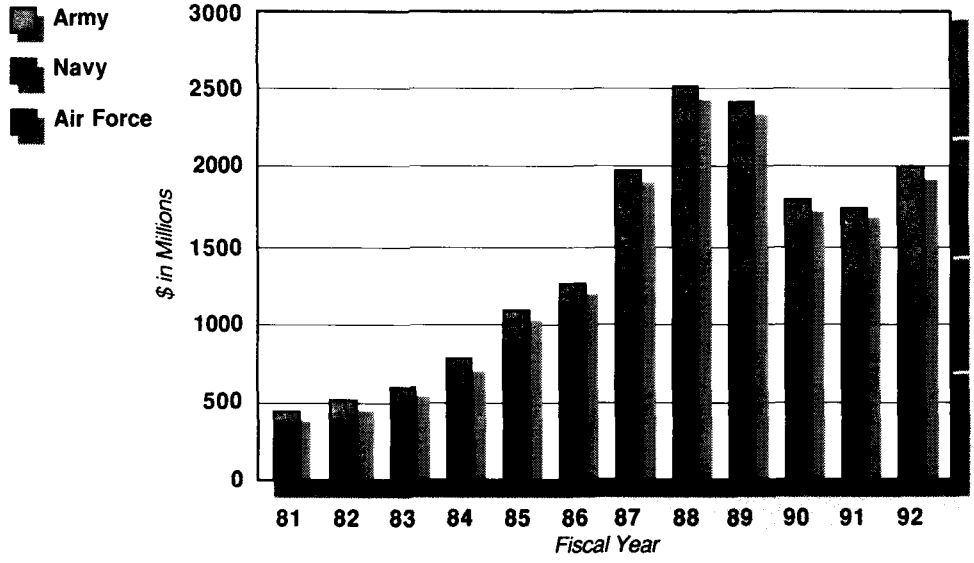
Our goal was to restore a global SOF capability to perform both their peacetime mission of deterring the escalation of violence by countering ambiguous aggression, and their contingency mission of

operating in conjunction with conventional forces in the event of conventional or nuclear war. Our SOF revitalization effort was structured to avoid sacrificing quality for quantity and to lay a solid foundation for long-term force sustainment. This measured approach, spanning the decade of the 1980s, has resulted in substantial improvements, and remains on track.

In 1981, funding for SOF totaled about $440 million. As shown in Chart III.I.5, this level has risen steadily in the intervening years. Our request for FY 1988 is $2.5 billion.

Chart III.I.5

SOF Funding*



* Includes requested $332M supplemental for SOF airlift.

The most visible result of our revitalization effort has been an increasing force structure, as shown in Chart III.I.6. By FY 1991, we will have eliminated most of the shortfalls that forced us to assign multitheater tasks to our SOF units. Further expansion, based on new technologies such as those embodied in CV-22 Tilt-Rotor aircraft, will complete the revitalization process in the early-to-mid 1990s.

Chart III.I.6

Special Operations Expansion

MAJOR SOF UNITS	FY 1981	FY 1988	FY 1992
Special Forces Groups[a]	7	8	9
Ranger Battalions	2	3	3
Psychological Operations Battalions	3	4	4
Civil Affairs Battalions	1	1	1
SEAL Teams	2	5[b]	6[b]
SEAL Delivery Vehicle (SDV) Teams	0	2[b]	2[b]
Special Operations Wings	1	1	3
Special Operations Aviation Brigade	0	0	1
Total	**16**	**24**	**29**
PRIMARY AIRCRAFT			
Air Force			
MC-130E/H Combat Talons	14	14	38
AC-130A/H/U Gunships[c]	20	20	22
MH-53H/J Pave Low Helicopters	9	19	41
CV-22 Ospreys[d]	0	0	6
EC-130E Volant Solos	4	4	4
HC-130 Tankers (SOF-dedicated)	0	8	31
C-141s Special Ops Low Level II (SOLL-II)	0	0	13
C-130s SOLL-II	0	0	11
Total	**47**	**65**	**166**
Army			
MH-60X Helicopters	0	0	23
MH-47E Helicopters (Pave Low equivalent)	0	0	17
MH-60 FLIR (SOF-dedicated) Helicopters	0	16	21
M/UH-60 (SOF-dedicated) Helicopters	0	29	17
CH-47D (SOF-dedicated)(10 with FLIR) Helos	0	16	0
UH-1 (SOF-dedicated) Helicopters	0	23	23
A/MH-6 (SOF-dedicated) Helicopters	29	54	29
Total	**29**	**138**	**130**
PRIMARY NAVAL EQUIPMENT			
Seafox (Special Warfare Craft, Light)	12	36	36
Sea Viking (Special Warfare Craft, Medium)	0	0	19
High Speed Boat	0	0	7
Dry Deck Shelters (DDS)	0	2	6
Submarines modified to acommodate DDS	0	5	7
SEAL Delivery Vehicles (SDVs)	18	19	19
Advanced SDVs	0	0	1
Total	**30**	**62**	**95**

[a]Includes four Reserve Component Groups.
[b]Includes two Underwater Demolition Teams redesignated in 1983.
[c]Includes ten AC-130A Air Force Reserve gunships in FYs 1981-87. FY 1992 number reflects decommissioning of AC-130As and addition of 12 AC-130U aircraft.
[d]Includes programmed procurement through FY 1992. Actual deliveries will not begin until FY 1994. Total to be procured for SOF will be 55.

Less apparent are enhancements in readiness. In particular, Army SOF units are now manned at high levels consistent with their heavy peacetime utilization and early wartime deployment. Their equipment is being modernized, especially in the field of communications. Similarly, Air Force SOF units have benefited from enhanced maintenance as well as systems upgrades. Naval Special Warfare units have received excellent resource support, as illustrated by accelerated dry-deck shelter procurement, and weapons and communications acquisitions.

These improvements have been accompanied by increased management attention to SOF requirements. The Defense Resources Board (DRB) has undertaken frequent, detailed reviews of SOF policy and programmatic issues, and Secretary of Defense Performance Reviews (SPRs) are conducted on a regular basis to ensure our revitalization effort stays on course. Within the Service staffs, the Army has established a General Officer Steering Committee for SOF, the Navy has established a Special Warfare Directorate, and the Air Force has

created a separate SOF Panel and designated a general officer to coordinate research and development activities.

In addition to expanded coverage in the Defense Guidance, we have outlined our objectives in SOF Master Plans, issued in 1984 and updated in 1986. We have recently created a major force program category (Program 11) for SOF as well as a separate issue book for use during review of the Service programs.

In the past year, we have resolved the most crucial SOF issue -- airlift support -- and are resolving our organizational structure. For some time, both the Administration and the Congress have recognized that airlift constitutes our most serious special operations deficiency, and our FY 1988-92 program requests the increased funding needed to begin to meet the requirements. In the near-term, we are increasing the readiness of the force, procuring additional fixed- and rotary-wing aircraft and, for the first time, incorporating dedicated SOF tanker support. For the longer term, we have accelerated procurement of the CV-22, the next-generation SOF aircraft, again with dedicated tanker support. For the FY 1988-92 period, we have programmed a total of $6.8 billion for SOF airlift enhancements, new aircraft, and systems upgrades.

With regard to SOF organization, the unique nature of these forces imposes unusual requirements for command and control and resource proponency. Recognizing the need for change as part of our revitalization effort, we have undertaken, with strong bipartisan congressional support, a major restructuring of our SOF organizations.

First, we are establishing the U.S. Special Operations Command (USSOC), a unified command which will enhance SOF readiness. The conduct of special operations will remain the responsibility of the theater unified commands, but the USSOC may also conduct special operations if so directed by the National Command Authorities (NCA).

We are also establishing an Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict. This Assistant Secretary will be responsible for both policy and resource oversight; will supervise preparation of SOF programs and budgets based on requirements identified by the USSOC; and will represent SOF interests within the decisionmaking councils of the Department of Defense.

We believe these changes will institutionalize SOF as a vital element within our armed forces and assist us in meeting our revitalization goals. They will also ensure that effective, joint SOF will be available when needed to attain national security objectives.

In sum, we have a solid record of achievement in our SOF revitalization program, and are committed to completing the progress. Meeting our objectives remains one of the highest priorities within the Department of Defense. Success will, of course, depend on the continued strong support of the Congress and the American people. Such support has been critical to the success of our efforts to date, and we look forward to continuing this partnership.

5. Test and Evaluation

a. *Introduction*

Realistic and thorough test and evaluation (T&E) continues to be the basis for our procurement decisions. While our primary focus has been to enhance major weapons systems testing, other activities are ongoing to improve the entire test and evaluation process. The Test and Evaluation Policy Directive, reissued in March 1986, defines more stringent management policies in line with our emphasis on operational test and evaluation (OT&E) and upfront development and qualification testing. Initiatives to enhance the overall quality of our methodology and resources have moved forward under the leadership of the Director, Operational Test and Evaluation (DOT&E) and the Deputy Under Secretary of Defense for Test and Evaluation (DUSD(T&E)).

A major challenge facing our T&E community is the need, as noted in the Packard Commission report, to address operational questions earlier in the acquisition cycle. Another challenge is assuring we have proper and adequate test resources in place to test our new technology systems. We are meeting these challenges head-on and are focusing increased attention on electronic combat and space systems testing. Also, the evaluation of foreign weapons for potential use with U.S. armed forces increased significantly in FY 1986 with the implementation of the NATO Comparative Test Program. The FY 1988 program will continue to stress foreign weapons evaluation under both the Foreign Weapons Evaluation Program and the NATO Comparative Test Program.

b. *Weapons Systems Assessment*

The DUSD(T&E) weapons systems assessment group evaluated and provided formal assessment on one-third of the 151 major weapons systems designated for OSD oversight. During the year, 90 visits to contractor and DoD locations were made to discuss and/or witness the conduct of development testing of 21 programs. Our evaluation of the development testing process supported Joint Requirements and Management Board principals in making decisions at major acquisition milestones. Equally important, we have achieved a consistent methodology for the preparation and annual review of Test and Evaluation Master Plans. The DOT&E's observers were present or participated in over a dozen tests and program reviews. The DOT&E's assessments of test adequacy, operational effectiveness, and suitability were provided to me and the Congress for the following programs proceeding beyond low-rate initial production: the E-6 TACAMO, the IR Maverick, the Army's Helicopter Improvement program, and the AV-8B Harrier.

c. *Enhancing Defense Systems Test Capabilities*

As part of our emphasis on realistic testing earlier in the acquisition cycle, efforts are under way to ensure the appropriate equipment is available as needed. For example, the Tri-Service threat simulator program analyzes advanced threat tactical missile

radar systems and provides detailed designs for threat simulator development. Using data provided by this program, we are developing a multiple-engagement emitter threat prototype for simulating advanced multiple-objective tracking air defense radars at a lower cost than reproducing the complete system.

Two programs currently under way will enhance the ability of the Major Range and Test Facility Base (MRTFB) to support a broad range of testing on a worldwide basis. The Cruise Missile Mission Control Aircraft program will convert two C-18 (Boeing 707) aircraft into airborne mission control centers. The Global Positioning System Range Applications program will allow testing in a more realistic environment not constrained by fixed ground support systems of existing test ranges.

As a result of a joint DOT&E/DUSD(T&E) symposium and other efforts, long-range planning studies are under way to examine the impact of new technologies on our current test facilities and test resources. The testing environment for space systems and future electronic combat systems will place heavy demands on our ability to create realistic testing conditions. We expect that a major investment in facilities and capabilities will be required.

d. Operational Test and Evaluation Activities

Operational T&E activities continued to increase during FY 1986. The office continued to review numerous programs for adequacy of the OT&E program, and to assess the projected effectiveness and suitability of weapons systems.

Several key T&E resource issues were surfaced by the DOT&E during the department's FY 1988/FY 1989 budget review process. Two -- OT&E test capability and space systems test capabilities -- were of such importance and the shortfalls so significant that we established the permanent DoD Test and Evaluation Council (DTEC), chaired by the DOT&E, to examine T&E management and resource issues. The DTEC was tasked to revalidate the issues (technically and fiscally) to ensure adequate funding is included in the five-year defense program (FYDP). The critical requirements require total funding over $2.3 billion for FY 1988 through FY 1992.

e. Joint Test and Evaluation Programs

In FY 1987, the DUSD(T&E) will manage several programs examining the capability of developmental and deployed systems to perform their intended missions in a joint environment. The command, control, and communications countermeasures (C^3CM) joint test program is scheduled to conduct two major field tests in FY 1988 and complete final testing and reporting in FY 1989. The Electro-Optical Guided Weapons Countermeasures and Counter-Countermeasures Test program is scheduled to perform from 25 to 30 evaluations/analyses on various weapons systems to determine vulnerability and susceptibility. The Joint Live Fire program has been established with a permanent director and staff and will continue to evaluate major weapons systems using live ammunition. Starting in FY 1988, the Joint T&E programs sponsored by the DUSD(T&E) will focus on tests requiring short-term/quick response to address issues of immediate interest to the DoD and the Congress.

f. International Test and Evaluation

The FY 1986 Authorization Bill created a new international T&E program called the NATO Comparative Test. This program supports the test and evaluation of NATO nations' weapons systems, equipment, and technology, and also evaluates their suitability for use by U.S. forces, avoiding unnecessary duplication in R&D costs. Adoption of military equipment produced in NATO countries greatly enhances standardization and interoperability and promotes international cooperation. Under the program, 25 separate projects were funded to test and evaluate such items as a German mine reconnaissance and detection system for the U.S. Army, a United Kingdom designed receive-only Link II system for the U.S. Navy, and the Norwegian Penguin missile system for the U.S. Air Force. This program has sparked considerable allied interest and has become a major mechanism promoting armaments cooperation within NATO.

This program is an expanded version of the Foreign Weapons Evaluation (FWE) program, which has been in existence since 1980. The FWE also funds the evaluation of foreign nations' military equipment for possible use by U.S. forces. This program is not restricted to NATO nations, although approximately 80 percent of the funds expended in prior years have been for equipment produced within the Atlantic Alliance.

g. Summary

Our T&E program is aimed at getting operational testing into the acquisition cycle as early as possible. It seeks to provide the sophisticated equipment necessary to test the next generation of military hardware and software, and it provides for the test and evaluation of other nations' equipment in an effort to enhance cooperation and to achieve cost-effective solutions to our military requirements. I remain committed to enhancing the depth and scope of our T&E programs to assure we are buying the most effective, reliable weapons systems possible.

6. Technology Security and Export Control

a. Introduction

Technology security is a critical element underlying our alliance strategy. U.S. efforts to maintain a stable deterrent depend on our having a technological edge to offset Soviet numerical advantages in manpower and equipment. How much of an edge we have depends not only on maintaining strong R&D programs, but also on the effectiveness and comprehensiveness of our technology security and export control system. This technological edge is especially critical to negotiating genuine arms reductions from a position of strength.

In this era of heightened cost-consciousness ushered in by enactment of the Gramm-Rudman-Hollings legislation, our Technology Security Program (TSP) is one of the most cost-effective programs in government. It saves money for the taxpayer because it lowers the level of future defense budgets. Also, the more effectively our multinational system of export controls is enforced, the more American exporters will benefit, since they will be able to compete more equitably in the world's marketplace.

Heightened awareness of technology security is essential as we cross new frontiers in our defense partnerships. We are ensuring that control over Western technology is an integral part of every agreement being entered into within the framework of the President's Strategic Defense Initiative, in other cooperative ventures in military technology, and in civilian technologies with military application.

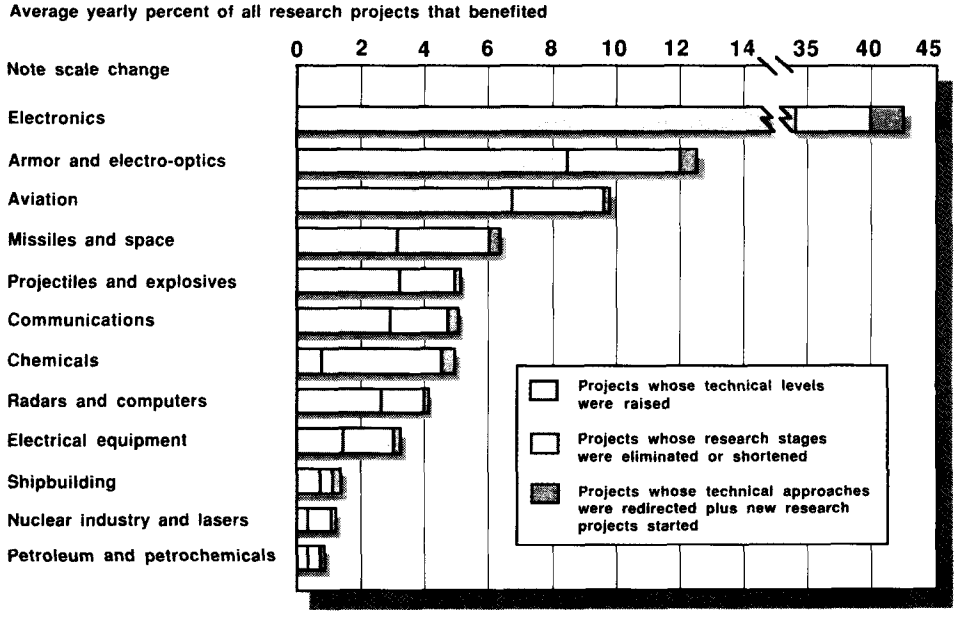
b. The Soviet Threat to the West's Technological Lead

In recent years, we have learned a great deal about the Soviet Union's massive, well-organized campaign to acquire Western technology legally and illegally for its weapons and military equipment projects. Indeed, their assimilation of Western technology has been so broad that the United States and other Western nations have been, in effect, subsidizing the Soviet military buildup.

Recent studies have outlined the structure of Soviet technology acquisition programs and provided examples of their requirements and

Chart III.I.7

Soviet Military Research Projects Benefiting From Western Technology, Early 1980s
(Rank Order of Industries)

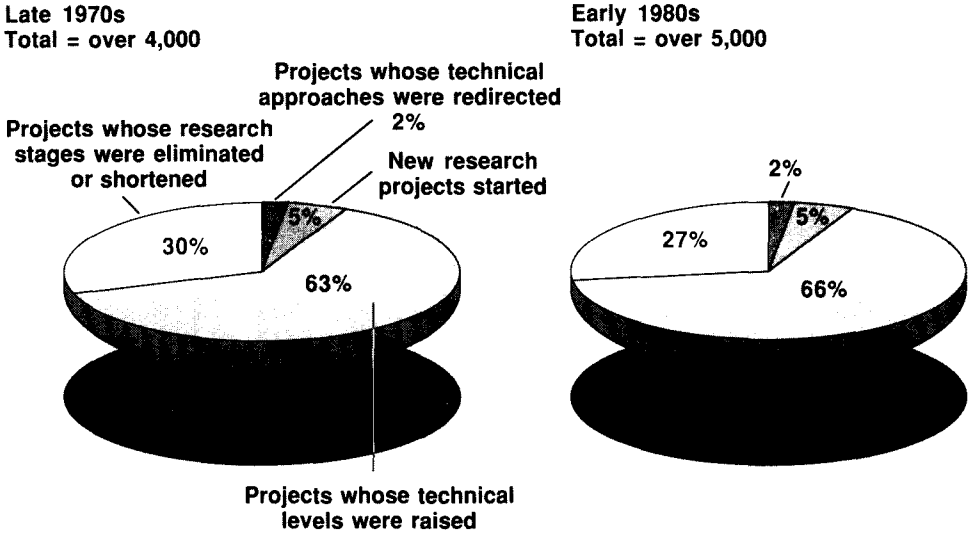


successes. Our general evaluation of Soviet military benefits from those programs, and information regarding targeted industries, can be seen in Charts III.I.7 and III.I.8.

Not only has the Soviet threat to the West's technological lead been growing -- it has also been broadening. Soviet technology acquisition efforts are increasingly aimed at countries other than the United States -- at both industrialized and industrializing nations -- highlighting the need for multilateral and cooperative efforts in technology security.

Chart III.I.8

Benefits to Soviet Military Research Projects From Western Technology



c. DoD Programs

As part of a governmentwide effort to control the flow of militarily significant Western technology to the Soviet bloc, we have been consolidating a series of domestic and international initiatives begun in 1981.

(1) Domestic

The export control function is the foundation of our domestic Technology Security Program (TSP). While we do not have the U.S. Government lead in administering either the Export Administration Act or the Arms Export Control Act, our national security mandate makes us a key player in decisions made under those two laws. Since 1981,

we have taken a variety of steps to make the export licensing process less burdensome for the exporting community while making it more effective in safeguarding our technology.

In the first full year of its existence, our new Defense Technology Security Administration (DTSA) has made substantial progress on these fronts. DTSA is the focal point of our efforts to ensure that international transfers of defense-related technology, goods and services, and munitions items are consistent with U.S. foreign policy and national security objectives. Its establishment reflects the great importance we attach to technology security.

The DTSA has undertaken a myriad of initiatives to process export license applications more efficiently. It has eliminated institutional redundancies and improved day-to-day coordination, and ensured that both technical and policy considerations were introduced into export control cases at the outset. The DTSA is also implementing an ambitious automation program to speed up the completion of routine administrative tasks, opening new possibilities for governmentwide cooperation. Consequently, our average processing time has now been cut from two to three months to 15 to 20 days for export license applications submitted for "dual-use" items (having both civilian and military application) and Munitions List items (defense articles). Not only does the business community benefit from a more expeditious review of its proposed exports, but our country's national security is also well served by licensing decisions made on the basis of licensing history, reliable intelligence, solid technical assessments, and well thought-out policy positions.

Our streamlining and efficiency gains have occurred during a period of substantial increase in the number of applications we receive for review. We have set up a highly successful system of automated data linkage with the Department of Commerce in order to manage the increased application flow. A new system for status checks on export license processing has also become operational. This "electronic bulletin board" known as "ELISA" (Export License Status Advisor) provides a means for exporters to conduct their own status checks on munitions and dual-use export license applications referred to DTSA by the Departments of Commerce and State. DTSA also uses ELISA to transmit a variety of information to its users. The information may include such items as system changes, technology security tips, export regulation changes, and lists of available publications. Similarly, users send information, requests, and questions to DTSA through the ELISA mail system.

In general, interagency cooperation and coordination has been significantly enhanced during the last year. This is resulting in an increasing number of initiatives to simplify procedures for exporters. An example is the proposed "Certified End-User" license currently under administrative review at the Department of Commerce. This would allow U.S. exporters to ship to pre-certified foreign parties a large variety of high-technology commodities without any requirement to apply for a license. Liaison with enforcement agencies, such as the U.S. Customs Service, is also being strengthened, thereby enhancing their efforts to combat attempts at export diversion.

We are continuing to refine the detailed guidance for export licensing officials on potential military applications of dual-use technologies. For example, the congressionally mandated Military Critical Technologies List (MCTL) has been updated in all areas, with considerable input from industry. Extensive revisions in connection with the current Coordinating Committee for Multilateral Export

Controls (COCOM) List review were accomplished in a variety of specific categories, including Biotechnology, Carbon-Carbon Composites, Coatings and Surface Modifications, Communication Network Central Subsystems, Advanced Graphics Workstations, and Kinetic Energy Systems.

(2) International

(a) Coordinating Committee for Multilateral Export Controls

The effectiveness of our technology security program is inseparable from multilateral efforts with the same objective. This Administration is firmly committed to strengthening the existing multilateral export control system known as COCOM. Based in Paris, COCOM is the only organization through which the NATO nations (except Iceland) and Japan speak with one voice on the exportability of Western goods and technology to Warsaw Pact countries and several other proscribed destinations. It has become increasingly effective due to a variety of factors, including our substantial contributions for modernizing and automating the Paris facility, and a revamping of the list review process. COCOM's efforts are being taken with increased seriousness by all member countries. It has established a new mechanism through which the organization can benefit from timely information and analyses of technologies whose export may pose significant strategic risks for the Western Alliance.

(b) Initiatives with Non-COCOM Countries

Since not all technologically advanced countries are members of COCOM, we have entered into or are negotiating arrangements with various governments to establish a COCOM-level of protection for technology they receive from us and indigenous technology they produce. This effort is increasingly important as the United States continues to increase its trade with industrializing countries, particularly in the Far East. The Soviet military presence and influence in this part of the world is rising dramatically, making technology security efforts increasingly important.

d. Conclusion

Our TSP has been, and will continue to be, focused on protecting the applied technologies that are incorporated into systems needed to perform our national security missions. Technology security controls are not intended to thwart our traditions of free expression and academic freedom in basic research. Nor are they designed to distance us from our allies and other friendly countries when it is in our national interest and in the interest of our mutual security to share militarily significant technology.

We must continue to encourage our allies and our friends to strengthen their technology security programs. Many of them must give greater political emphasis to export controls, set tougher

penalties for violators, and tighten export enforcement procedures. The United States must work with COCOM and with other governments to gain information on how the Soviets are trying to acquire our technology and to plan joint strategies to stop them.

Also, we must refuse to compromise our technology security for ephemeral and illusory political gains. To pursue such gains would be to repeat the mistakes of the 1970s, when the United States unwittingly sacrificed true security for the illusion of security. During those years, we traded extensively with the Soviet Union in "civilian" goods -- in the hope of enhancing security through better relations -- only to find true security sacrificed as those "civilian" technologies provided an indispensable element in the Soviets' unprecedented military buildup.

Holding firm to our present course will make us a more secure nation in the 1990s. America's dynamic technology has provided us with an enduring advantage over the Soviet Union, and constitutes an important element in many of our competitive strategies. We must not let this advantage slip away. If we can keep our lead in technologies with military applications, we can blunt the Soviet drive for military superiority. This will, hopefully, force the USSR to adopt a more restrained and responsible role in world affairs. Sustaining a maturing and effective technology security program can help bring about this result.

7. Counterintelligence and Security Policy

a. DoD Security Program Objectives and Initiatives

Espionage is an active weapon in the arsenal of our adversaries. Our interests require that certain national security and foreign relations information be protected against unauthorized disclosure. Safeguarding our nation's defense secrets has been and will remain an enduring challenge that must be addressed with vigor and determination.

Challenging our security systems are the intelligence services of the Soviet Union, its surrogates, and other countries whose interests are contrary to those of the United States. These intelligence services, alone or in combination, conduct well-organized collection operations targeted against all information of military value. While a variety of technically sophisticated methods are used, human collection activities continue to pose the most significant threat. Unfortunately, there are all too many examples of enemy counterintelligence operations in the United States.

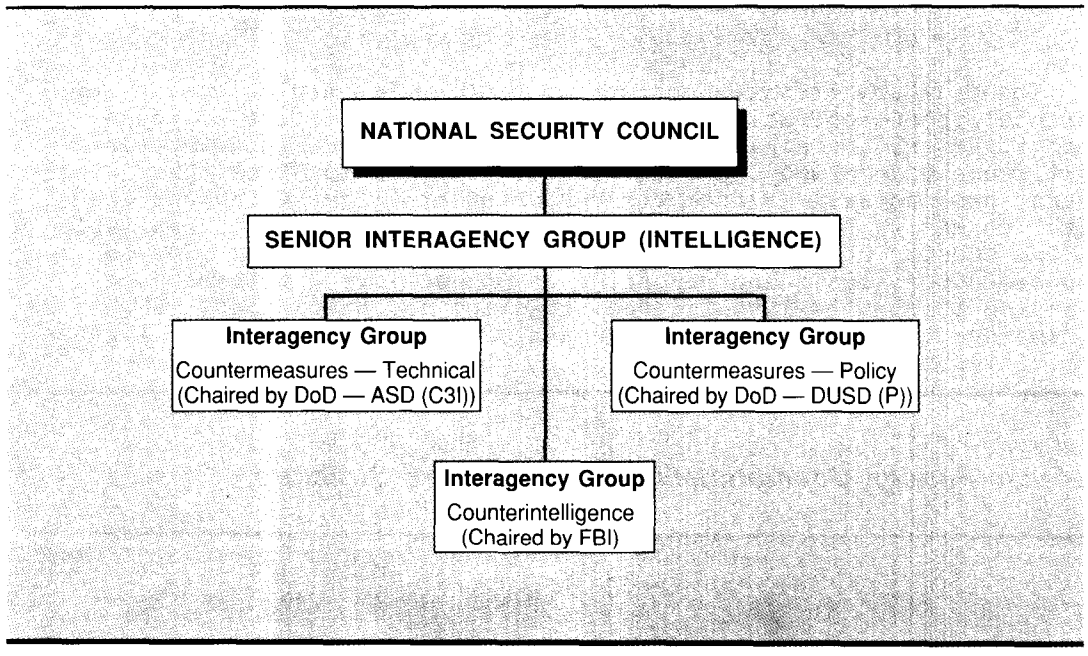
The 1981 Bell/Zacharski espionage case details the activities leading to the compromise of classified Low-Probability of Intercept Radar (LPIR) data. In 1984, two Americans were convicted for handing over to Moscow, through Poland, over 100 pounds of classified material pertaining to the survivability of the Minuteman missile system and U.S. defenses against attack by ballistic missiles. The cryptographic material passed to the Soviets by Walker and Whitworth enabled the Soviets, according to a KGB defector, to read over a million of our coded messages. Other cases that surfaced in 1985 -- Howard, Pelton, Chin, and Pollard -- compromised high-priority U.S. intelligence collection efforts. These cases, combined with many

others -- Cavanagh, Cooke, Forbich, Miller, Smith, Koecher, and Scranage -- leave little doubt that recent acts of espionage have resulted in billions of dollars of actual and potential damage to U.S. military and intelligence programs.

Within the National Counterintelligence and Security Organization Structure (Chart III.I.9), we have taken a number of steps to strengthen our security and counterintelligence capabilities. We are improving our counterintelligence analysis and reporting capabilities, while reducing access to classified information by curtailing the number of security clearances granted to personnel in both the DoD and the defense industry. Furthermore, we are adopting improved safeguards to increase the physical security of our weapons and support equipment, and our security training is being expanded.

Chart III.I.9

National Counterintelligence and Security Organization Structure



b. DoD Security Review Commission

In June 1985, following the arrests in the Walker espionage case, I established a DoD Security Review Commission to review and evaluate the department's security policies and procedures, including an analysis of lessons learned from recent espionage incidents. The commission directed its efforts primarily at identifying systemic weaknesses and vulnerabilities to the human intelligence threat, and concluded that our security program is reasonably effective considering the potential for compromise. While no security system is totally foolproof, it can make espionage more difficult to accomplish and minimize the inadvertent compromise of national security information.

Toward that end, the commission made 63 recommendations to strengthen our security programs. These include an expansion of the

background investigations done for "Secret" clearances, special requirements for persons requiring access to cryptographic information, and more stringent limits on access by non-U.S. citizens and recently naturalized citizens from hostile countries.

The commission also recommended expanded requirements for reporting foreign travel and unauthorized contacts with foreign representatives, and for annual security evaluations of military and civilian employees. Also, new procedures for reporting information of possible security significance outside command channels and a requirement for all DoD components to conduct a one-time, top-to-bottom command security inspection at every level of their organizations were recommended.

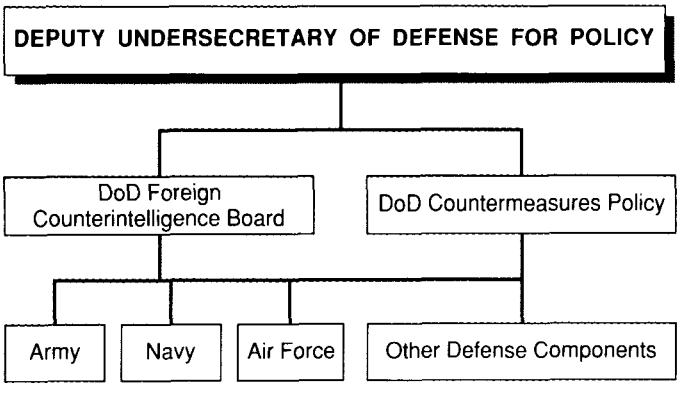
Within existing resources, 49 of the commission's recommendations will be implemented by the end of 1986. The remainder will be studied to assess further their impact on resource and program requirements.

c. Counterintelligence Operations and Analyses

The Military Services conduct both offensive and defensive counterintelligence operations. Policy guidelines relative to these activities are coordinated through the Defense Foreign Counterintelligence Board (see Chart III.I.10). Information from these operations, as well as from other counterintelligence reports, is vital to making the "lessons learned" from our operations available to the counterintelligence community. Efforts are being made to improve our analysis and reporting and to achieve a better understanding of hostile intelligence targeting and operations, as well as to improve the security effectiveness of our own counterintelligence activities.

Chart III.I.10

Defense Foreign Counterintelligence and Board Structure

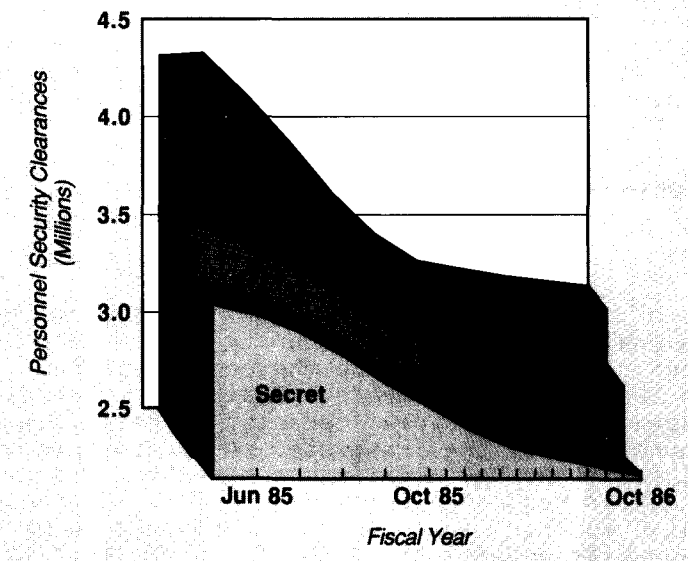


d. Security Clearance Reductions

A security clearance is not a license for access to all classified information, nor is it a substitute for security measures to preclude unauthorized access. Our personnel security program is structured to grant clearances only to those with a bona fide requirement. In June 1985, I instituted the DoD Personnel Security Clearance and Investigative Reduction program, and set a goal of reducing the number of security clearances by 10 percent. We not only achieved that goal, we have gone well beyond it. As of October 1, 1986, we have reduced the number of security clearances in the DoD and the defense industry by over 20 percent -- some 900,000 clearances (see Chart III.I.11).

Chart III.I.11

Personnel Security Clearance Reduction Program



Additional efforts taken as a result of the Security Review Commission recommendations, such as requiring more justification for clearances in industry, should lead to even further reductions in the future. Our objective is to eliminate all unjustified security clearances.

e. The Defense Personnel Security Research and Education Center

The Defense Personnel Security Research and Education Center, located at the Naval Postgraduate School, has been established to provide research and analytical resources to increase the body of knowledge on such personnel security issues as human reliability, scope of background investigations, frequency of reinvestigation, and the effectiveness of current programs. This center stimulates joint

personnel security research with Defensewide applications. In the past not enough attention has been given to the proper role of research and its integration into the development of personnel security policy and practice. Such research is expected to provide valuable insight for use in developing practical and effective personnel security programs.

f. Security of Arms, Ammunitions, and Explosives

As a result of a comprehensive review of in-transit security requirements undertaken through the DoD Physical Security Review Board, we are upgrading security safeguards for the movement of all categories of sensitive conventional arms, ammunition, and explosives. Examples of such enhanced security measures are adding (complementing existing armed-guard surveillance) separate security vehicles to escort our most sensitive munitions, such as complete conventional missile rounds, and extending dual-driver protective service to additional classes of explosives. Moreover, I have designated the Commander, Military Traffic Management Command, as the department's focal point for monitoring the security of classified or sensitive shipments in the custody of contract carriers. Shipments by commercial carriers are being observed en route without notice by Transportation Safety and Security Teams to ensure compliance with security procedures.

g. Defense Security Institute

Training has a direct bearing on the quality of performance by security professionals. The Defense Security Institute's responsibilities have been expanded to include the coordination of all DoD security program training requirements. Training of Defense Investigative Service agents and industrial security representatives will continue to be conducted by the Institute. Added to this will be training support for other DoD civilian, contractor, and military personnel whose duties require specialized training in security. The institute will also monitor, coordinate, and support DoD programs for attracting high-quality applicants to the field of security, developing career patterns for professional security personnel, and encouraging their effective utilization.

h. Conclusion

I am determined to develop and implement a comprehensive, rational set of security policies and procedures to protect national security information from hostile intelligence collection efforts and inadvertent disclosure. Our efforts are being maximized within allocated resources, operational considerations, and the protection of individual rights. Much has been accomplished. But we must sustain this level of effort and direction in strengthening our programs to counter effectively persistent hostile intelligence collection. In the final analysis, safeguarding national security information relies on the supervision, training, and motivation of

those entrusted with such information. Here is where much of our effort is being focused.

8. Installations

a. *Introduction*

The quality of the installations where our people work and live is of primary importance to me. I remain personally committed to providing our people with excellent facilities and support services. There is no such thing as a bad investment in excellent facilities, because excellent facilities engender pride -- the fuel of human accomplishment. I want to discuss four subjects which show what we are doing and where we are going in installations: Budget, Management Initiatives, Model Installation and Graduate Programs, and Facilities as Force Multipliers.

b. *Budget*

Approximately 7 percent of our DoD budget is invested to replace or modernize obsolete facilities; operate, maintain and repair existing facilities; and construct new facilities. Our FY 1988/FY 1989 Military Construction Appropriation request maintains the progress we have made since 1981 and continues to redress the neglect of our facilities caused by inadequate funding in the 1970s. Of special importance are programs that continue the modernization of our physical plant and improve working and living conditions for our people. We are placing special emphasis on modernizing our existing family housing inventory and on providing critically needed additional housing, primarily at overseas locations.

We are again requesting appropriated funds for Community Support facilities at our new bases overseas, even though last year the Congress denied funding for these facilities. The congressional oversight committees directed that we use nonappropriated funds instead. This, in effect, asks military personnel -- the source of these funds -- to pay a significant portion of the costs for support facilities on installations being built at national direction.

Because more emphasis is being placed on the role of reserve forces, a 21 percent funding increase is scheduled for FY 1988 for major and minor construction programs for the Reserve Components. Approximately 30 percent of our Military Construction program supports new missions or weapons systems, leaving 70 percent for existing DoD facilities worldwide which are valued at over $400 billion. Last year I said my goal was to invest at least 2 percent of our total plant value in construction each year. The budget authority we requested last year met that goal. But, even though the Congress voiced its support for improved facilities, the FY 1987 appropriation for military construction, including family housing, provided only 80 percent of the budget authority requested. The need for reasonable growth to build better facilities and improve productivity is a perennial issue. I am deeply concerned over the reductions to the military construction account. Congressional action reduced the program to a level which is not sufficient to sustain,

maintain, and revitalize our facility plant base. There is a serious need to, at minimum, maintain budgeted levels of funding to get these programs back on track. Our requests for military construction funding of $10,115 million in FY 1988 and $10,604 million in FY 1989 are the minimum required to meet our immediate facility needs. They deserve full congressional support.

The FY 1988/FY 1989 Military Construction program, including family housing, continues our efforts to upgrade deteriorated facilities. Table III.I.1 summarizes our military construction program for FY 1985 through FY 1989. The shares of military construction in the United States and overseas are depicted in Chart III.I.12. A breakout of the program by type of facility is provided in Chart III.I.13.

Table III.I.1

Military Construction Funding

(Dollars in Millions) TOA

	FY 1985	FY 1986*	FY 1987	FY 1988	FY 1989
Army	2,925	2,849	2,855	3,154	3,367
Navy	2,192	2,229	2,077	2,641	2,649
Air Force	2,457	2,350	2,051	2,426	2,696
Defense Agencies/NATO	442	228	803	1,315	1,370
Guard/Reserve	408	370	480	579	522
DoD Total	**8,424**	**8,026**	**8,266**	**10,115**	**10,604**

*FY 86 adjusted for GRH and Recissions

Chart III.I.12

Military Construction by Geographic Area

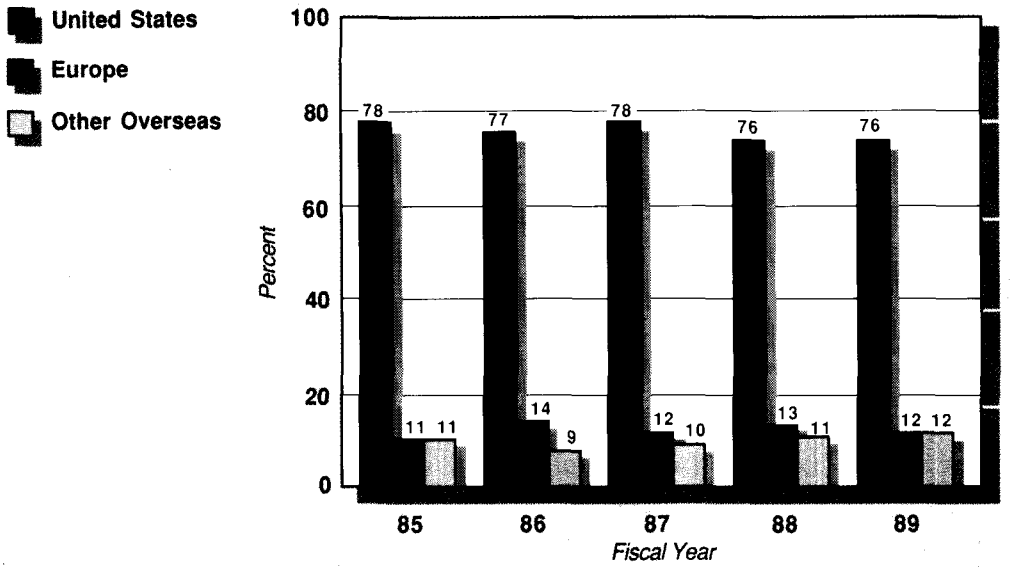
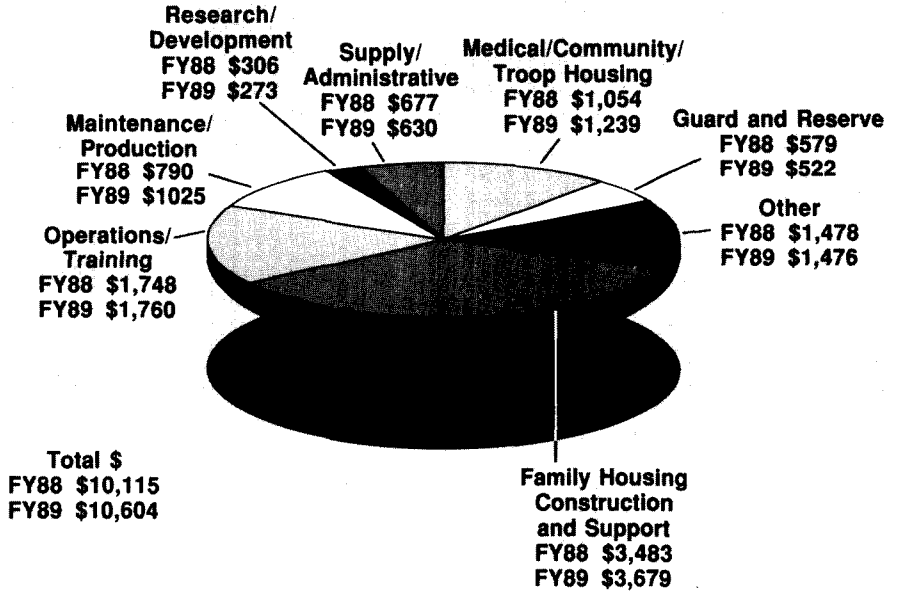


Chart III.I.13

FY 1988 / FY 1989 Military Construction Program

(Dollars in Millions)



c. *Management Initiatives*

We constantly seek innovative ways to improve our installations, both the facilities themselves and the services we provide our customers -- the soldiers, sailors, airmen, and marines who defend America, and their families.

Our goal is to provide excellent, not merely adequate, facilities and services. To achieve this goal, we intend to emphasize quality -- in new construction, renovation, and base services. Historically, quality has been the hallmark of American service and products. In recent years, this image has been tarnished. Too often management in the United States has relied on the concept of "minimum acceptable level of quality" to remain competitive. This concept of minimal quality must be replaced by a philosophy that espouses high quality at a fair price. For our part, the "award to the low bidder" mentality has been too pervasive. We will now emphasize bidders' quality history in the source-selection process, and continue competitive awarding of DoD contracts to gain the highest quality product at a fair price. Paying a fair price for high-quality work is not an expense, but an economy that pays dividends later on.

Competition among our in-house work forces and private contractors (the A-76 program) generates significant savings each year. More importantly, it often results in improved services. We are still seeking to improve our A-76 program by giving installation commanders authority to decide when to use the program and what functions to compete, and by stressing the "quality factor" described above when awarding contracts.

With quality as our primary objective, increased emphasis is being placed on value engineering in the design of our military facilities. Value engineering in the early stages of design involves examining functional alternatives to satisfy the basic requirements for a facility. There is frequently a better way to design a facility, making it less costly or, more importantly, of better quality. A recent study done on a $28 million tank range at Fort Polk doubled the training capability of the range while reducing the cost by more than $4 million. Concentrating on selected projects, value engineering is producing a return on investment of as much as 30 to 1.

There are several areas where the private sector can furnish needed facilities and services cheaper, better, or faster than the government. For years the private sector has provided banking and credit union services, recreational opportunities, and housing on our bases in privately built facilities. In most cases these were provided under special legislation. However, standing authority in Title 10 of the U.S. Code permits Service Secretaries to lease nonexcess government land to private parties as long as it is in the public interest. Using this authority, the Army leased 60 acres of land at Fort Ord to a developer with the provision that he construct and maintain 220 units of family housing with rents affordable to the soldier. Thus a critical housing need was met in nine months. Indeed, the housing was in use for over a year while a parallel government-funded project had yet to break ground. We are encouraging other base commanders to explore this avenue for meeting critical support needs for our people.

d. Model Installation and Graduate Programs

Our most successful management initiative is the Model Installation program. The program, which we began several years ago, gives our people the chance to combat over-regulation by identifying and implementing innovative, more effective ways to do their jobs. This program vests selected installation commanders with broad authority -- previously held at higher headquarters -- to improve the operation of their facilities by making it easy for them to cut through existing "red tape" and experiment with new ways to accomplish their missions. Under this program, installation commanders have waived over 20,000 regulations and devised numerous ways to improve or streamline their operations. One of our earliest successes showed the extent of our over-regulation. We used to require that our people get a government driver's license to drive a government car on base -- even though they had a valid state license. By giving installation commanders the opportunity to change a situation like this -- to originate and implement a "better idea" -- we encourage creativity and foster enthusiasm for the mission.

People, our most important asset, are the key to the success of the Model Installation program. Here are some examples:

-- Through the Model Installation Program, a young airman at Whiteman Air Force Base obtained approval to fix Minuteman missile test equipment himself, rather than send it to a depot in Utah. As a result, down-time because of broken test equipment was reduced from an average of one week to less than three hours. This is one example of increased defense capability that came about not through an infusion of dollars, but by the encouragement of innovative and creative thinking. A young airman told us how we could do the job "smarter," and we listened.

-- A captain at Fort Sill, Oklahoma, noticed that soldiers' training time was being wasted on bus rides from their barracks to the classrooms. He had the classes moved to the barracks, and is saving 200,000 hours of training time and $60,000 in bus service each year.

Last year, taking the lessons we learned from the Model Installation Program, we established the Model Installation Graduate Program to provide all installation commanders the flexibility that has enabled those at model installations to accomplish their missions more effectively and efficiently. Additionally, key lessons learned from the Model Installation Program are being implemented throughout the department.

DoD Directive 4001.1, Installation Management, is the Graduate program's keystone. It gives more authority to the doers, linking responsibility and authority. It frees installation commanders to purchase goods and services wherever they can get the best combination of cost, quality, and responsiveness. It also provides commanders with the freedom and incentives they need to get the most defense from every dollar they invest, returning a portion of the savings to the activity.

The installation commanders are responsible for accomplishing the assigned mission. Therefore, they should be delegated broad authority to decide how to accomplish the mission, and held accountable for

all resources applied to it. Headquarters' efforts are being directed away from restricting and toward facilitating the ability of the installation commander to accomplish the mission.

The Model Installation Graduate program will test a unified budget at six installations. We anticipate that a unified budget, which does not subdivide the money needed to accomplish the installation's mission into minute categories, will show that micromanagement of installations' budgets leads to diseconomies and reduces mission accomplishment. Giving commanders control and responsibility for their resources promotes creativity, enthusiasm, and innovation.

e. *Facilities as Force Multipliers*

Facilities are peacetime force multipliers because they have a positive effect on peoples' performance. Excellent installations increase readiness by improving equipment availability and motivating people. An investment to fix up an office, or to reconfigure an old electronics maintenance shop for a new mission or weapon system, can have a positive effect on personnel productivity. Most facilities are force multipliers because they allow our military forces to increase their mission capability without increasing their size. Having a properly equipped, well constructed, tactical equipment maintenance facility increases the combat-ready equipment a technician can turn out in a given time period. This increased productivity translates to improved warfighting capability. Indeed, the lack of modern facilities can preclude operation of our expensive, highly technical weapon systems. We must recognize that excellent facilities are force multipliers, and an essential contribution to our overall defense mission. With creative management, and the involvement of all personnel, excellent facilities can help bring about dramatic results.

f. *Conclusion*

We will continue to encourage and foster excellence in facilities and services. Our management policy is to place responsibility and authority in the hands of those at the working level who have the knowledge and enthusiasm to do the mission. Giving people the authority, the responsibility, and the resources to do their jobs, maintaining short lines of communication, and holding people accountable for results will help provide excellent facilities. Through the Model Installation and Graduate programs, we are doing exactly that. These management initiatives, coupled with increased congressional support in military construction, including family housing construction and operations and maintenance appropriations, ensure that our forces will have the excellent facilities and support services they so richly deserve.

9. Military Health Care

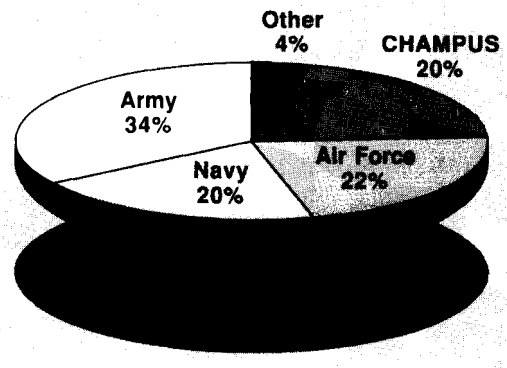
a. *Introduction*

Our military health care system is dedicated to two vitally important missions. Its primary mission is to ensure that we are medically ready, in the event of a conflict, to provide life-saving care; to evacuate casualties requiring more definitive care; and to fully support the operational and environmental medical aspects of theater operations. The system's other equally critical mission involves the day-to-day care for all active duty and retired members of our armed forces and their dependents.

These critical responsibilities require us to manage a complex system comprising over 800 medical and dental facilities worldwide, including 168 hospitals. Over 170,000 physicians, nurses, dentists, biomedical specialists, administrators, medical corpsmen, and other support personnel are required to ensure quality care for over nine million beneficiaries. Health care which cannot be provided through our own military Medical Treatment Facilities (MTFs) is obtained from the private sector under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Over $12 billion a year is devoted to military health care; Chart III.I.14 reflects the percentage of distribution of these funds.

Chart III.I.14

Military Health Care



Resources invested in the military medical system have produced some outstanding results. For example:

-- The conversion of two oil tankers into our first post-World World II hospital ships is nearing completion.

-- Illegal drug use has been dramatically reduced. The President has commended the military for reducing drug abuse among our armed forces by over 67 percent.

-- With an eye towards becoming medically ready for war, we have taken action to curtail the growth of medical personnel in specialties not critical in wartime, and increase those in critical specialties in both the Active and Reserve Components.

-- Our very ambitious CHAMPUS Reform Initiative is one example of our continual efforts to improve the management and cost effectiveness of our medical programs.

-- The first Joint Military Medical Command, located in San Antonio, Texas, is being organized.

b. FY 1988-92 Programs

(1) Medical Readiness

As part of our efforts to improve medical readiness, the Services will have acquired $2.5 billion worth of deployable medical systems by FY 1992. We now have in place teams of highly skilled, completely equipped emergency medical personnel who are prepared to respond, on a moment's notice, to medical emergencies in Europe, the Middle East, or the Pacific. The Army now has a rapidly deployable 100-bed unit that can be picked up, relocated, staffed, and assume full operations within 24 hours. The Air Force has four air-transportable hospitals in Europe, and three in the Pacific. To manage these quick-response assets effectively, a joint-Service control team, such as the one at U.S. European Command Headquarters, is prepared to activate whenever a crisis develops.

We are developing a DoD Worldwide Medical Master Plan as the benchmark for military medical readiness. Its primary goals are to ensure medical readiness initiatives proceed in synchronization with effective mobilization in time of war or other national emergency; to promote integration of the wartime mission with the peacetime entitlement mission; and to identify those priorities and strategies needed to achieve maximum medical readiness by 1992.

We have developed a series of innovative initiatives to redress medical manpower shortages in the reserves. For example, we have begun preassigning certain critically needed physicians and nurses to reserve units. Recruitment efforts for reserve medical personnel are also being significantly increased.

While our two hospital ships, USNS MERCY and USNS COMFORT are considered vital wartime assets, we have assigned to them an equally vital peacetime mission of serving as research, education, and

training facilities. In fact, USNS MERCY will begin its first training mission in March 1987.

This Administration's dedication to the elimination of illegal drug use has resulted in a highly successful testing program for military personnel. We also are implementing the President's Executive Order governing testing of civilian employees. Health promotion and education efforts are being directed toward reducing alcohol abuse and smoking among our armed forces.

A recent major challenge to the military medical system involves how best to address the devastating Acquired Immune Deficiency Syndrome (AIDS). We are vitally concerned with protecting all military personnel from the risk of infection with the Human T-Immunodeficiency Virus (HIV) associated with AIDS. Screening measures have been established to: identify AIDS-infected individuals before they are administered other duty-related live virus vaccinations which may harm them; protect individuals deployed to areas with minimum medical support and severe endemic diseases; and protect the buddy blood donor system which would be relied upon in battlefield or emergency conditions. An integral part of our comprehensive approach to control HIV infection is a focused research program. This program will address how personnel identified with early infections will progress toward illness and what effect military environments will have on their disease progression.

(2) Quality Health Care

We continue to expand and improve our quality assurance efforts to make certain that the health care our beneficiaries receive is the best available. New directives have been issued regarding credentialing and licensure of health care providers, restricting Service medical personnel off-duty employment, and standardizing emergency medical room procedures. A contract for civilian peer review of care in all DoD hospitals was awarded in January 1986. This comprehensive contract will provide us with the information needed to help military hospitals identify and correct any quality-of-care problems and, to the extent that similar data become available elsewhere in American medicine, provide a data base for comparison between military medicine and other sectors of American medicine. The Automated Quality-of-Care Evaluation Support System (AQCESS), a state-of-the-art microcomputer system, provides all military inpatient treatment facilities with an interactive data base capability for monitoring the quality of hospital care.

(3) CHAMPUS Reform Initiative

Our greatest medical challenge today is to continue improving our medical-readiness capability and to provide quality peacetime care to our over nine million beneficiaries, while containing the cost of care provided. Efforts continue on several fronts to control costs in our military health care system. However, one new and completely innovative initiative deserves special mention.

In recent years, the CHAMPUS program has been the major focus of our cost-containment efforts. Nevertheless, the federal government's

financial obligation in connection with CHAMPUS continues to escalate, while beneficiary dissatisfaction with the program continues to grow.

To address these problems, we will proceed with a demonstration project to determine the viability of purchasing care in the private sector through a network of fixed-price contracts.

Our CHAMPUS Reform Initiative is designed to correct serious problems with the current program. These involve issues of access to care; the price of that care to both the beneficiary and the government; the quality of care received by our beneficiaries; and the ability of our current system to serve our medical-readiness needs. The ultimate goal of this initiative is to maximize our nationwide buying power by establishing six regional umbrella contracts covering the entire United States. The contractors, for a fixed sum, would become responsible for providing for the approximately 25 to 30 percent of DoD beneficiary health care which is purchased from the civilian sector, through the CHAMPUS program.

I must emphasize that there will be no substantial shift in the total proportion of care provided in-house to dependents and retirees. However, to relieve the overload at our military treatment facilities and to help us be better prepared in the event of a national emergency, we may need to shift the kinds of services provided in-house at some locations. This will increase the availability of surgical and more complex medical treatment services in military facilities.

(4) Joint Military Medical Command

We are organizing the first Joint Military Medical Command, located in San Antonio, Texas. This jointly staffed teaching command will consist of a referral center, a general hospital, and three free-standing ambulatory clinics. This approach will enhance military health care education and training and streamline the health care management structure. We believe that this venture will serve as a model for future joint service health care innovations.

(5) Strengthening Management of the Military Health Care Budget

Last year, we described the deliberations of the Blue Ribbon Panel on Sizing Military Medical Treatment Facilities, and this distinguished group's recommendations for improving the management of our medical system. This year we can identify concrete improvements resulting from these suggestions. In October 1986, a new Defense Medical Facilities Office (DMFO) became fully operational. The value of centrally consolidating the review and selection of military medical construction projects, as recommended by the Blue Ribbon Panel, is already evident. Difficult cross-Service decisions are being made to ensure that those facilities with the most critical readiness missions receive the highest priority for funding.

During this past summer, a group of high-level officials in the department participated in a detailed review of the current system of oversight and management of health care resources. The decision was made that the system of cross-Service review of the total DoD medical

budget needed to be strengthened. As a result, a Medical Program Review Committee was created as a complement to the Defense Resources Board. This new body will meet throughout the year to provide a balanced and integrated review of the medical portions of our defense program and will provide a means to address wartime and peacetime medical program issues across the Military Departments and Defense agencies.

We continue efforts to streamline our medical-information system. In FY 1986, efforts to procure a totally integrated hospital information system continued on schedule. Contract awards were made in September 1986 to four vendors to develop prototype systems for a Composite Health Care System (CHCS). Based on the outcome of this process, a contract award to a single vendor for installation of the CHCS in our military treatment facilities will be made in FY 1988.

c. *Conclusion*

Because of the efforts of thousands of dedicated men and women who serve the military medical system around the world, much has been accomplished to improve our system. We are correcting our wartime medical-readiness deficiencies. We continue to provide a quality of care that rivals care received in the civilian sector. We continue to find innovative ways to strengthen our management of the military health care system. While we know that our task is not complete, we take pride in the excellence of health care service in the department.

10. Anti-Drug Abuse Programs

a. *Introduction*

The Department of Defense has long realized the physical and moral dangers of drug abuse. The President's recently announced program to end drug abuse in America has further encouraged long-established DoD efforts in this area. We are proud to be leaders in the Administration's war on drugs and will continue to fight drug abuse and assist in drug-interdiction programs.

b. *Drug-Free Workplaces*

Drug abuse in the military has decreased by 67 percent since President Reagan first came into office. Latest testing and surveys suggest the majority of our Servicemembers consider use of illegal drugs to be incompatible with the privilege of serving our country. This attitude, together with our education, rehabilitation and urinalysis testing programs, forms the basis for creating a drug-free workplace for our Service men and women.

We are also in the final process of developing a departmentwide civilian urinalysis testing program to comply with Executive Order 12564. The Army is the only Service that has an ongoing civilian

testing program; other Services' programs are in the final stages of development. Education, rehabilitation and counseling programs are already under way. In addition, we are working with the Department of Justice in developing guidelines for government contractors for drug-free workplaces.

c. Drug-Free Schools

More than 150,000 students attend DoD schools; consequently, our priority for removing drugs from the schools is high. Our overseas dependents schools already have drug abuse education and information programs in place. These programs are available throughout the year to students, parents, and teachers. In order to enhance our efforts in this area, we are consulting with the Department of Education on a Model Schools program for our defense schools. The Model Schools program will include comprehensive classroom education; teacher training; parent education; community involvement; and student assistance programs, including counseling and resources for training student peer helpers. The program will enable school personnel to provide knowledgeable assistance to students in the area of drug abuse education and prevention.

d. Expanded Drug Treatment and Research

Each of the Services has implemented programs to prevent and discourage drug abuse. The programs vary somewhat among the Services, but all emphasize education, detection, and rehabilitation. The Services have 400 nonresidential and 52 residential facilities for alcohol and drug treatment. Our considerable efforts to deter drug use have had positive results and will be continued.

e. Increased Public Awareness and Prevention

Health education pamphlets and films on drug and alcohol abuse and smoking have been produced and used by the DoD. The Armed Forces Radio and Television Service has produced many radio and TV spot announcements. A total of 175 drug and alcohol audiovisuals are available for use in the department.

f. Improved International Cooperation

We are taking steps, in conjunction with other countries, to deal with the drug production problem at its source. Operations are conducted with the agreement and full cooperation of the host countries, and the Departments of State and Justice. From July to November 1986, the DoD provided, at the request of the Government of Bolivia, a task force of six Black Hawk helicopters and approximately 175 support personnel. These elements assisted the Government of Bolivia in its campaign to find and destroy coca leaf-processing laboratories in remote areas. Our assistance included mobility and communications support; intelligence gathering and analysis; operational planning

advice; logistical planning assistance; and assessments of resources required by the Bolivians to continue the effort after our departure. In cooperation with the Drug Enforcement Administration and the Department of State, the Services and selected unified commands are providing advice and assistance to Colombia, Venezuela, Panama, the Bahamas, and Jamaica.

g. Strengthened Law Enforcement

The DoD provides substantial assistance to the civilian law enforcement agencies under Title 10 of the U.S. Code. The law has codified procedures for loaning military equipment and sharing criminal information with civilian law enforcement agencies. Further, it allows the military to assist civilian agencies by monitoring suspect air and sea traffic outside the United States. However, the direct participation by military personnel in activities such as the apprehension of individuals, search, and seizure is prohibited by law.

Annually, the department honors nearly 8,000 individual federal, state, and local law enforcement agency requests for assistance, and has loaned nearly $140 million in equipment. Military support has been provided as a by-product of mission and training activity.

The Military Services provide extensive air, land, and sea surveillance along our border areas. This assistance enables the Coast Guard, Customs Service, and the Drug Enforcement Administration to be more effective in their law enforcement missions. For example, we flew over 15,827 hours of aerial surveillance in FY 1986.

h. Conclusion

We are strongly committed to supporting the President's program for a drug-free America. We share the nationwide concern regarding the threat that drugs and drug trafficking pose to our society. We are working, and will continue to work, to do our part to end drug abuse in America.

Appendix A

Table 1

Department of Defense - B/A by Appropriation[a]

(Dollars in Millions)

	FY 1983	FY 1984	FY 1985	FY 1986[b]	FY 1987	FY 1988	FY 1989
Current Dollars							
Military Personnel	45,688	64,866	67,773	67,794	73,761	78,308	81,559
Retired Pay	16,155	*	*	*	*	*	*
Operation & Maintenance	66,540	70,950	77,803	74,888	78,536	86,563	91,460
Procurement	80,355	86,161	96,842	92,506	85,174	83,974	94,624
Research, Development, Test and Evaluation	22,798	26,867	31,327	33,609	35,994	43,749	44,287
Special Foreign Currency Program	4	3	9	2	4	—	—
Military Construction	4,512	4,510	5,517	5,281	5,131	6,599	6,903
Family Housing & Homeowners Assistance Program	2,712	2,669	2,890	2,803	3,121	3,485	3,682
Revolving & Management Funds	1,075	2,774	5,088	5,235	651	1,201	1,132
Trust Funds, Receipts & Deductions	−365	−650	−447	−729	−675	−726	−742
Proposed Legislation	—	—	—	—	—	142	384
Total—Direct Program (B/A)	**239,474**	**258,150**	**286,802**	**281,390**	**281,695**	**303,295**	**323,290**
Constant FY 1988 Dollars							
Military Personnel	54,252	74,868	75,321	72,588	77,148	78,308	78,366
Retired Pay	19,154	*	*	*	*	*	*
Operation & Maintenance	75,541	79,433	84,420	81,296	83,425	86,563	88,266
Procurement	94,502	97,918	106,678	98,698	87,935	83,974	91,876
Research, Development, Test and Evaluation	26,912	30,595	34,549	36,046	37,354	43,749	42,855
Special Foreign Currency Program	4	3	10	2	4	—	—
Military Construction	5,333	5,157	6,103	5,668	5,320	6,599	6,699
Family Housing & Homeowners Assistance Program	3,137	2,997	3,153	2,987	3,236	3,485	3,562
Revolving & Management Funds	1,267	3,149	5,587	5,586	673	1,201	1,094
Trust Funds, Receipts & Deductions	−430	−768	−491	−777	−698	−726	−717
Proposed Legislation	—	—	—	—	—	142	371
Total—Direct Program (B/A)	**279,671**	**293,383**	**315,331**	**302,094**	**294,397**	**303,295**	**312,372**

a Numbers may not add to totals due to rounding.
b Lower Budget Authority in the Military Personnel Accounts in FY 1986 reflects the congressional direction to finance $4.5 billion for the military pay raise and retirement accrual costs by transfers from prior year unobligated balances.
* Retired Pay accrual included in Military Personnel Appropriation.

Table 2

Department of Defense - B/A by Component [a]

(Dollars in Millions)

	FY 1983	FY 1984	FY 1985	FY 1986[b]	FY 1987	FY 1988	FY 1989
Current Dollars							
Department of the Army	57,529	68,664*	74,270*	73,128*	74,525*	80,102*	84,747*
Department of the Navy	81,854	87,365*	99,015*	96,113*	95,345*	102,343*	108,693*
Department of the Air Force	74,074	90,851*	99,420*	94,870*	93,833*	100,437*	107,235*
Defense Agencies/OSD/JCS	9,256	10,746	13,126	15,520	16,641	19,070	20,919
Defense-wide	16,761	524	970	1,759	1,352	1,342	1,696
Total—Direct Program (B/A)	**239,474**	**258,150**	**286,802**	**281,390**	**281,695**	**303,295**	**323,290**
Constant FY 1988 Dollars							
Department of the Army	68,293	79,046*	82,446*	78,911*	78,037*	80,102*	81,851*
Department of the Navy	95,341	99,137*	108,774*	103,105*	99,598*	102,343*	105,070*
Department of the Air Force	85,028	102,112*	108,388*	101,322*	97,926*	100,437*	103,551*
Defense Agencies/OSD/JCS	11,141	12,493	14,656	16,876	17,413	19,070	20,260
Defense-wide	19,868	596	1,068	1,880	1,399	1,342	1,640
Total—Direct Program (B/A)	**279,671**	**293,383**	**315,331**	**302,094**	**294,397**	**303,295**	**312,372**

a Numbers may not add to totals due to rounding.
b Lower Budget Authority in the Military Personnel Accounts in FY 1986 reflects the congressional direction to finance $4.5 billion for the military pay raise and retirement accrual costs by transfers from prior year unobligated balances.
* Includes Retired Pay accrual.

Table 3

Federal Budget Trends

(Dollars In Millions)

Fiscal year	Federal Outlays as a % of GNP	DoD Outlays as a % of Federal Outlays	DoD Outlays as a % of GNP	Non-DoD Outlays as a % of Federal Outlays	Non-DoD Outlays as a % of GNP	DoD Outlays as a % of Net Public Spending*
1950	16.0	27.5	4.4	72.5	11.6	18.5
1955	17.6	51.5	9.1	48.5	8.6	35.6
1960	18.2	45.0	8.2	55.0	10.0	30.3
1965	17.5	38.8	6.8	61.2	10.7	25.2
1970	19.8	39.4	7.8	60.6	12.0	25.5
1971	19.9	35.4	7.0	64.6	12.8	22.4
1972	20.0	32.6	6.5	67.4	13.5	20.6
1973	19.1	29.8	5.7	70.2	13.4	19.0
1974	19.0	28.8	5.5	71.2	13.5	18.3
1975	21.8	25.5	5.6	74.5	16.2	16.5
1976	21.9	23.6	5.2	76.4	16.7	15.4
1977	21.1	23.4	4.9	76.6	16.2	15.5
1978	21.1	22.5	4.7	77.5	16.4	15.2
1979	20.5	22.8	4.7	77.2	15.8	15.4
1980	22.2	22.5	5.0	77.5	17.2	15.3
1981	22.7	23.0	5.2	77.0	17.5	15.8
1982	23.7	24.5	5.8	75.5	17.9	16.7
1983	24.3	25.4	6.2	74.6	18.2	17.3
1984	23.1	25.9	6.0	74.1	17.1	17.5
1985	24.0	25.9	6.2	74.1	17.8	17.7
1986	23.8	26.8	6.4	73.2	17.4	18.1
1987	23.0	27.0	6.2	73.0	16.8	17.8
1988	21.7	28.2	6.1	71.8	15.5	18.1
1989	21.1	28.4	6.0	71.6	15.1	18.1

* Federal, State, and Local net spending excluding government enterprises (such as the postal service and public utilities) except for any support these activities receive from tax funds.

Table 4

Defense Shares of Economic Aggregates

	DoD as a Percentage of Public Employment		DoD as a Percentage of National Labor Force		National Income Accounts Percentage of Total Purchases		
Fiscal Year	Federal	Federal State & Local	Direct Hire (DoD)	Including Industry	National Defense*	Total Federal	State & Local
1965	71.3	29.3	5.0	7.8	7.3	9.8	9.8
1966	73.0	30.6	5.6	9.0	7.5	10.0	10.0
1967	74.1	31.5	6.0	10.0	8.7	11.0	10.4
1968	74.0	31.3	6.1	10.0	9.0	11.4	10.8
1969	73.2	30.1	5.9	9.4	8.5	10.8	11.0
1970	72.3	27.7	5.3	8.1	7.9	10.1	11.4
1971	68.3	24.3	4.6	7.0	7.1	9.3	12.0
1972	66.0	21.5	4.0	6.2	6.6	9.0	12.0
1973	65.0	20.4	3.7	5.8	6.0	8.2	11.8
1974	63.8	19.4	3.5	5.5	5.6	7.7	12.0
1975	62.9	18.6	3.4	5.3	5.7	8.1	12.8
1976	62.5	18.1	3.3	5.0	5.4	7.8	12.7
1977	62.5	17.5	3.2	5.0	5.1	7.6	11.9
1978	61.9	17.0	3.1	4.8	4.9	7.3	11.8
1979	61.1	16.5	2.9	4.7	4.8	7.1	11.5
1980	61.3	16.5	2.8	4.7	5.1	7.5	11.8
1981	62.4	17.1	2.8	4.7	5.4	7.8	11.4
1982	63.2	17.4	2.8	4.9	6.0	8.4	11.5
1983	63.5	17.6	2.9	5.1	6.3	8.7	11.6
1984	63.5	17.6	2.8	5.3	6.2	8.1	11.2
1985	63.3	17.5	2.9	5.5	6.4	8.7	11.5
1986	62.9	17.2	2.8	5.5	6.6	8.9	11.7
1987	63.1	17.2	2.8	5.5	6.6	9.0	11.8

*Includes Department of Defense—military, atomic energy defense activities, and other defense-related activities, such as emergency management and maintenance of strategic stockpiles and the Selective Service System.

Appendix B

Table 1

Department of Defense
General and Flag Officer Strengths

Actual	General & Flag Officer Strengths	General & Flag Officers Per 10,000 Total Military
1961	1,254	5.0
1962	1,303	4.6
1963	1,292	4.8
1964	1,294	4.8
1965	1,287	4.8
1966	1,320	4.3
1967	1,334	4.0
1968	1,352	3.8
1969	1,336	3.9
1970	1,339	4.4
1971	1,330	4.9
1972	1,324	5.7
1973	1,291	5.7
1974	1,249	5.8
1975	1,199	5.6
1976	1,184	5.7
19TQ	1,174	5.7
1977	1,159	5.6
1978	1,119	5.4
1979	1,119	5.5
1980	1,118	5.4
1981	1,073	5.2
1982	1,073	5.1
1983	1,073	5.1
1984	1,073	5.0
1985	1,073	5.0
1986	1,073	5.0
Programmed		
1987	1,073	4.9
1988	1,073	4.9
1989	1,073	4.9

Table 2

Department of Defense
Officer Strength - In Thousands

Actual	Officer Strengths*	Enlisted to Officer Ratio
1961	315	6.9
1962	343	7.2
1963	334	7.1
1964	337	7.0
1965	339	6.8
1966	349	7.9
1967	384	7.8
1968	416	7.5
1969	419	7.3
1970	402	6.3
1971	371	6.3
1972	336	5.9
1973	321	6.0
1974	302	6.2
1975	292	6.3
1976	281	6.4
19TQ	279	6.5
1977	275	6.5
1978	273	6.5
1979	273	6.4
1980	276	6.3
1981	283	6.3
1982	290	6.2
1983	299	6.1
1984	303	6.0
1985	309	5.9
1986	311	5.9
Programmed		
1987	313	5.9
1988	314	5.9
1989	315	5.9

*Includes all active forces officers on extended active duty

Table 3

Military and Civilian Personnel Strength[a]

(End Fiscal Years - In Thousands)

	Actuals							Programmed			
	FY 1976	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989
Active Component Military											
Army	779	777	781	780	780	780	781	781	781	781	781
Navy	524	527	529	542	558	565	571	581	587	593	603
Marine Corps	192	188	191	192	194	196	198	199	200	200	200
Air Force	585	558	570	583	592	597	602	608	607	599	601
Total	**2,081**	**2,050**	**2,071**	**2,097**	**2,123**	**2,138**	**2,151**	**2,169**	**2,174**	**2,172**	**2,184**
Reserve Component Military (Selected Reserve)											
ARNG	362	367	389	408	417	434	440	446	453	459	465
Army Reserve	195	213	232	257	266	275	292	310	319	330	339
Naval Reserve[b]	97	97	98	105	109	121	130	142	149	157	162
MC Reserve	30	36	37	40	43	41	42	42	43	44	45
ANG	91	96	98	101	102	105	109	113	113	117	118
Air Force Reserve	48	60	62	64	67	70	75	79	80	83	86
Total	**823**	**869**	**917**	**975**	**1,005**	**1,046**	**1,088**	**1,130**	**1,157**	**1,190**	**1,213**
Direct Hire Civilian											
Army[c]	329	312	318	321	332	344	359	354	351	350	350
Navy	311	298	310	308	328	332	342	332	338	335	334
Air Force[c]	248	231	233	235	238	240	250	250	250	252	253
Defense Agencies	71	75	79	80	81	85	91	92	96	98	99
Total	**959**	**916**	**940**	**945**	**980**	**1,000**	**1,043**	**1,027**	**1,036**	**1,035**	**1,036**

[a]Numbers may not add to totals due to rounding.

[b]Navy Training and Administration of Reserves (TARs) personnel are counted in the Selected Reserve from FY 1980 on. Prior to FY 1980, TAR personnel are included in the Active Military.

[c]These totals include Army and Air National Guard technicians, who were converted from State to Federal employees in FY 1979.

Table 4

U.S. Military Personnel in Foreign Areas[a]

(End -Year - In Thousands)

	FY 1976[b]	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
Germany	213	239	244	248	256	254	254	247	250
Other Europe	61	61	65	64	67	70	73	75	75
Europe, Afloat	41	25	22	25	33	18	25	36	32
South Korea	39	39	39	38	39	39	41	42	43
Japan	45	46	46	46	51	49	46	47	48
Other Pacific	27	15	15	15	15	15	16	16	17
Pacific Afloat (Including Southeast Asia)	24	22	15	25	33	34	18	20	20
Miscellaneous Foreign	8	11	42	39	34	41	38	32	38
Total	460	458	489	502	528	520	511	515	523

[a] Numbers may not add to totals due to rounding.

[b] September 30 data used for consistency.

Appendix C

Table 1

Department of Defense Strategic Forces Highlights

	FY 1980	FY 1984	FY 1986	FY 1987	FY 1988	FY 1989
Strategic Offense						
Land-Based ICBMs[a]						
Titan	52	32	7	—	—	—
Minuteman	1,000	1,000	998	973	954	950
Peacekeeper	—	—	2	27	46	50
Strategic Bombers (PAA)[b]						
B-52D	75	—	—	—	—	—
B-52G/H	241	241	241	234	234	234
B-1B	—	—	18	58	90	90
Fleet Ballistic Launchers (SLBMs)[a]						
Polaris	80	—	—	—	—	—
Poseidon (C-3 and C-4)	336	384	320	336	368	400
Trident	—	72	144	192	192	192
Strategic Defense Interceptors (PAA/Squadrons)[b]						
Active	127/7	90/5	76/4	54/3	36/2	36/2
Air National Guard	165/10	162/10	198/11	195/11	216/12	216/12

[a] Number on-line.
[b] Primary Aircraft Authorized.

Table 2

Department of Defense General Purpose Forces Highlights

	FY 1980	FY 1984	FY 1986	FY 1987	FY 1988	FY 1989
Land Forces						
Army Divisions:						
Active	16	16	18	18	18	18
Reserve	8	8	10	10	10	10
Marine Corps Divisions:						
Active	3	3	3	3	3	3
Reserve	1	1	1	1	1	1
Tactical Air Forces						
(PAA Squadrons)[a]						
Air Force Attack/Fighter						
Active	1,608/74	1,734/77	1,764/78	1,812/81	1,762/79	1,774/79
Reserve	758/36	852/43	876/43	900/44	894/43	888/43
Navy Attack/Fighter						
Active	696/60	616/63	758/65	752/67	758/67	758/67
Reserve	120/10	75/9	107/10	101/10	120/10	117/10
Marine Corps Attack/Fighter						
Active	339/25	256/24	333/25	331/25	346/25	351/26
Reserve	84/7	90/8	94/8	96/8	96/8	90/8
Naval Forces						
Strategic Forces Ships	48	41	45	43	43	44
Battle Forces Ships	384	425	437	445	450	463
Support Forces Ships	41	46	55	59	61	66
Reserve Forces Ships	6	12	18	22	28	32
Total Deployable Battle Forces	479	524	555	569	582	605
Other Reserve Forces Ships	44	24	21	21	20	16
Other Auxiliaries	8	9	7	5	5	5
Total Other Forces	52	33	28	26	25	21

[a] PAA—Primary Aircraft Authorized.

Table 3

Department of Defense Airlift and Sealift Forces Highlights

	FY 1980	FY 1984	FY 1986	FY 1987	FY 1988	FY 1989
Intertheater Airlift (PAA)[a]						
C-5A	70	70	66	66	66	66
C-5B	—	—	5	14	32	44
C-141	234	234	234	234	234	234
KC-10A	—	25	48	57	57	57
C-17	—	—	—	—	—	—
Intratheater Airlift (PAA)[a]						
Air Force						
C-130	482	520	504	559	521	513
C-123	64	—	—	—	—	—
C-7A	48	—	—	—	—	—
Navy and Marine Corps						
Tactical Support	97	85	88	88	92	92
Sealift Ships, Active						
Tankers	21	21	24	20	20	20
Cargo	23	30	40	41	41	41
Reserve[b]	26	106	122	135	144	151

[a]PAA = Primary Aircraft Authorized

[b] = Includes useful National Defense Reserve Fleet ships and the Ready Reserve Force

Appendix D

ACRONYMS

AAW:	Antiair Warfare
ABM:	Antiballistic Missile
AC:	Active Component
ACM:	Advanced Cruise Missile
ACMR:	Air Combat Maneuvering Range
ACS:	Artillery Computer System
ACIP:	Aviation Career Incentive Pay
ADCAP:	Advanced Capability (torpedo)
ADDS:	Army Data Distribution System
ADP:	Automated Data Processing
AFATDS:	Advanced Field Artillery Tactical Data System
AFQT:	Armed Forces Qualification Test
AFR:	Air Force Reserve
AFSATCOM:	Air Force Satellite Communications
AGR:	Active Guard and Reserve
AID:	Agency for International Development
AIM:	Air-Intercept Missile
ALCM:	Air-Launched Cruise Missile
ALMV:	Air-Launched Miniature Vehicle
AMRAAM:	Advanced Medium-Range Air-to-Air Missile
ANG:	Air National Guard
ANZUS:	Australia-New Zealand-United States (Treaty)
AOCP:	Aviation Officer Continuation Pay
AOE:	Multipurpose Stores Ship
ASAT:	Antisatellite
ASPJ:	Airborne Self-Protection Jammer
ASROC:	Antisubmarine Rocket
ASW:	Antisubmarine Warfare
ATA:	Advanced Tactical Aircraft

ATACMS:	Army Tactical Missile System
ATB:	Advanced Technology Bomber
ATF:	Advanced Tactical Fighter
ATM:	Antitactical Missile, Automated Teller Machines
AUTOVON:	Automatic Voice Network
AWACS:	Airborne Warning and Control System
BA:	Budget Authority
BCS:	Battery Computer System
BFV:	Bradley Fighting Vehicle
BICES:	Battlefield Information Collection and Exploitation System
BMEWS:	Ballistic Missile Early Warning System
C^3:	Command, Control, and Communications
C^3CM:	Command, Control, and Commmunications Countermeasures
C^3I:	Command, Control, Communications, and Intelligence
CDE:	Conference on Disarmament in Europe
CDI:	Conventional Defense Improvements
CDIP:	Combined Defense Improvement Projects
CELV:	Complementary Expendable Launch Vehicle
CEM:	Combined-Effects Munitions
CHAMPUS:	Civilian Health and Medical Program of the Uniformed Services
CINC:	Commander in Chief
COB:	Collocated Operating Base
COCOM:	Coordinating Committee for Multilateral Export Controls
COMSEC:	Communications Security
CONUS:	Continental United States
CRAF:	Civil Reserve Air Fleet
CSOC:	Consolidated Space Operations Center
CY:	Calendar Year or Current Year

DARPA:	Defense Advanced Research Projects Agency
DCA:	Dual-Capable Aircraft, Defense Communications Agency
DCAA:	Defense Contract Audit Agency
DCIMI:	Defense Council on Integrity and Management Improvement
DCS:	Defense Communications System
DD/EFT:	Direct Deposit/Electronic Funds Transfer
DDG:	Guided Missile Destroyer
DDN:	Defense Data Network
DDT&E:	Director, Defense Test and Evaluation
DEERS:	Defense Enrollment Eligibility System
DEW:	Directed-Energy Weapons
DGSC:	Defense General Supply Center
DIA:	Defense Intelligence Agency
DLA:	Defense Logistics Agency
DMSP:	Defense Meterological Support Program
DNA:	Defense Nuclear Agency
DoD:	Department of Defense
DoE:	Department of Energy
DOT&E:	Director, Operational Test and Evaluation
DPA:	Defense Production Act
DPACT:	Defense Policy Advisory Committee on Trade
DPC:	Defense Planning Committee
DRB:	Defense Resources Board
DSB:	Defense Science Board
DSCS:	Defense Satellite Communication System
DTSA:	Defense Technology Security Administration
EC:	Electronic Combat
ECM:	Electronic Countermeasures
ELF:	Extremely Low Frequency

EMP:	Electromagnetic Pulse
EPA:	Environmental Protection Agency
ESF:	Economic Support Fund
EW:	Electronic Warfare
FAASV:	Field Artillery Ammunition Support Vehicle
FEMA:	Federal Emergency Management Agency
FFG:	Guided Missile Frigate
FLIR:	Forward-Looking Infrared Radar
FMC:	Fully Mission Capable
FMFIA:	Federal Managers' Financial Integrity Act
FMS:	Foreign Military Sales
FMSCR:	Foreign Military Sales Credit (Financing)
FSS:	Fast Sealift Ships
FTS:	Full-Time Support
FY:	Fiscal Year
GAO:	General Accounting Office
GLCM:	Ground-Launched Cruise Missile
GNP:	Gross National Product
GPS:	Global Positioning System
GS:	General Schedule
GWEN:	Ground Wave Emergency Network
HARM:	High-Speed Antiradiation Missile
HEMTT:	Heavy Expanded Mobility Tactical Truck
HF:	High Frequency
HLG:	High-Level Group

HMMWV:	High Mobility Multipurpose Wheeled Vehicle
HMO:	Health Maintenance Organization
HNS:	Host Nation Support
I-S/A AMPE:	Inter-Service Agency Automated Message Processing Exchange
IAMP:	Imagery Acquisition and Management Plan
IBP:	Industrial Base Program
ICBM:	Intercontinental Ballistic Missile
IFF:	Identification Friend or Foe
IG:	Inspector General
IIR:	Imaging Infrared
IL:	International List
IMA:	Individual Mobilization Augmentees
IMP:	Internal Management Control
IMET:	International Military Education and Training
IMC::	Internal Management Control
IMIP:	Industrial Modernization Incentives Program
INCA:	Intelligence Communications Architecture
INEWS:	Integrated Electronic Warfare System
INF:	Intermediate-Range Nuclear Forces
ING:	Inactive National Guard
IR:	Infrared
IR&D:	Independent Research and Development
IRR:	Individual Ready Reserve
IRS:	Internal Revenue Service
JCS:	Joint Chiefs of Staff
JCSE:	Joint Communications Support Element
JSTARS:	Joint Surveillance/Target Attack Radar System

JRMB:	Joint Requirements and Management Board
JROC:	Joint Requirements and Oversight Council
JTDE:	Joint Technology Demonstrator Engine
JT&E:	Joint Test and Evaluation
JTFP:	Joint Tactical Fusion Program
JTIDS:	Joint Tactical Information Distribution System
KEW:	Kinetic Energy Weapons
LAMPS:	Light Airborne Multipurpose System
LANTIRN:	Low-Altitude Navigation and Targeting Infrared System for Night
LAV:	Light -Armored Vehicle
LAV-AD:	Light-Armored Vehicle, Air Defense
LCAC:	Landing Craft, Air Cushion
LF:	Low Frequency
LHX:	Light Helicopter Experimental
LIC:	Low-Intensity Conflict
LRINF:	Longer Range Intermediate-Range Nuclear Forces
LVS:	Logistics Vehicle System
LVT:	Assault Amphibian Vehicle
MAB:	Marine Amphibious Brigade
MAF:	Marine Amphibious Force
MAP:	Military Assistance Program
MAW:	Marine Aircraft Wing
MBFR:	Mutual and Balanced Force Reductions
MC:	Mission Capable, Military Committee
MCC:	Military Coordinating Committee

MCE:	Modular Control Equipment
MCS:	Maneuver Control System
MCTL:	Military Critical Technology List
MFO:	Multinational Forces and Observers
MiG:	Mikoyan-Gurevich (aircraft)
MILCON:	Military Construction
Milstar:	Military Strategic and Tactical Relay System
MIP:	Model Installation Program, Management Improvement Plan
MIRV:	Multiple Independently Targetable Reentry Vehicle
MLRS:	Multiple-Launch Rocket System
MMP:	Master Mobilization Plan
MMWG:	Military Mobilization Working Group
MNC:	Major NATO Commander
MOA:	Memorandum of Agreement
MOB:	Main Operating Base
MOU:	Memorandum of Understanding
MP:	Military Personnel
MPS:	Maritime Prepositioning Ship
MRT:	Miniature Receive Terminal
MSE:	Mobile Subscriber Equipment
MSO:	Military Service Obligation
MYP:	Multiyear Procurement
NAF:	Nonappropriated Fund
NATO:	North Atlantic Treaty Organization
Navstar:	Navigation Satellite Timing and Ranging
NCA:	National Command Authorities
NCS:	National Communications System
NDS:	Nuclear Detonation Detection System
NEACP:	National Emergency Airborne Command Post

NFIP:	National Foreign Intelligence Program
NIS:	NATO Identification System
NMCC:	National Military Command Center
NORAD:	North American Aerospace Defense Command
NPG:	Nuclear Planning Group
NPS:	Nonprior Service
NRF:	Naval Reserve Fleet, Naval Reserve Force
NSA:	National Security Agency
NSDD:	National Security Decision Directive
NTPF:	Near-Term Prepositioning Forces
O&M:	Operation and Maintenance
OJCS:	Organization of the Joint Chiefs of Staff
OMB:	Office of Management and Budget
OSD:	Office of the Secretary of Defense
OSIS:	Ocean Surveillance Information System
OTH:	Over-the-Horizon
OTH-B:	Over-the-Horizon Backscatter (radar)
P3I:	Preplanned Product Improvement
PARCS:	Perimeter Acquisition Radar Attack Characterization System
PAVE PAWS:	Phased-Array Radars
PCS:	Permanent Change of Station
PECI:	Productivity Enhancing Capital Investment
PGM:	Precision Guided Munitions
PIF:	Productivity Investment Fund
PLRS:	Position, Location, and Reporting System
PLSS:	Precision Location Strike System
POL:	Petroleum, Oil, and Lubricants
POMCUS:	Prepositioning of Materiel Configured to Unit Sets

POP:	Paperless Ordering Placement System
PRC:	People's Republic of China
R&D:	Research and Development
RC:	Reserve Component
RDT&E:	Research, Development, Test, and Evaluation
ROK:	Republic of Korea
RO/RO:	Roll-on/Roll-off
RPV:	Remotely Piloted Vehicle
RRF:	Ready Reserve Force
RSI:	Rationalization, Standardization, and Interoperability
S&T:	Science and Technology
SA/BM:	Systems Analysis/Battle Management
SAC:	Strategic Air Command
SALT:	Strategic Arms Limitation Treaty, Strategic Arms Limitation Talks
SAM:	Surface-to-Air Missile, Sea Air Mariner
SASC:	Senate Armed Service Committee
SATKA:	Surveillance, Acquisition, Tracking, and Kill Asssessment
SCG:	Special Consultative Group
SDAF:	Special Defense Acquisition Fund
SDI:	Strategic Defense Initiative
SDIO:	Strategic Defense Initiative Organization
SEAL:	Sea-Air-Land
SHORAD C^2:	Short-Range Air Defense Command and Control
SINCGARS-V:	Single-Channel Ground and Airborne System, VHF
SLBM:	Submarine-Launched Ballistic Missile
SLC:	Submarine Laser Communications
SLCM:	Submarine-Launched Cruise Missile

SLEP:	Service Life Extension Program
SLKT:	Survivability, Lethality, and Key Technologies
SLOC:	Sea Line of Communications
SM:	Standard Missile
SNA:	Soviet Naval Aviation
SNF:	Short-Range Nuclear Forces
SOF:	Special Operations Forces
SRAM:	Short-Range Attack Missile
SSBN:	Ballistic Missile Submarine, Nuclear-Powered
SSGN:	Cruise Missile Attack Submarine, Nuclear-Powered
SSN:	Attack Submarine, Nuclear-Powered
START:	Strategic Arms Reduction Talks
Su:	Sukhoy (aircraft)
SUBROC:	Submarine Rocket
SURTASS:	Surveillance Towed-Array Sonar System
SWA:	Southwest Asia
SWS:	Special Warfare Systems
T&E:	Test and Evaluation
TACS:	Auxiliary Crane Ship
TACTAS:	Tactical Towed-Array Sonar
TAOC:	Tactical Air Operations Center
TCAC:	Technical Control and Analysis Center
TDAC:	Training Data and Analysis Center
TFW:	Tactical Fighter Wing
TGSM:	Terminally Guided Submunitions
TIAP:	Theater Intelligence Architecture Program
TIARA:	Tactical Intelligence and Related Activities
TOA:	Total Obligational Authority
TOW:	Tube-Launched, Optically Tracked, Wire-Guided (antitank missile)

TRI-TAC:	Joint Tactical Communications Program
UCA:	Undefinitized Contractual Actions
UHF:	Ultrahigh Frequency
USCENTCOM:	United States Central Command
USCINCCENT:	Commander in Chief, United States Central Command
USCINCEUR:	United States Commander in Chief, Europe
USCINCLANT	Commander in Chief, United States Atlantic Command
USCINCPAC:	Commander in Chief, United States Pacific Command
USCINCSOUTH:	Commander in Chief, United States Southern Command
USSR:	Union of Soviet Socialist Republics
VA:	Veterans' Administration
VHA:	Variable Housing Allowance
VHF:	Very High Frequency
VHSIC:	Very High Speed Integrated Circuit
VLA:	Vertical Launch ASROC
VLF:	Very Low Frequency
VLS:	Vertical Launch System
VLSI:	Very Large Scale Integration
V/STOL:	Vertical/Short Take-Off and Landing
WARMAPS:	Wartime Manpower Planning System
WHNS:	Wartime Host Nation Support
WIS:	WWMCCS Information Systems
WWMCCS:	Worldwide Military Command and Control System