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ANNUAL REPORT to the PRESIDENT and the CONGRESS

Dick Cheney
Secretary of Defense

The Annual Defense Report fulfills the requirements of Section 113(c) and (e) of Title 10 of the United States Code and Section 405 of the Department of Defense Reorganization Act of 1986 (Public Law 99-433).

The Department of Defense spent $23,875 in taxpayers' resources to produce this report, as compared to $26,750 last year. This cost reduction of over 10 percent can be attributed to tailoring the report directly to the statutory requirements and using less expensive graphics and production techniques.

Report of the Secretary of Defense to the President and the Congress

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MESSAGE OF THE SECRETARY OF DEFENSE

In the year that has passed since the Department's last Annual Report, momentous events have continued to reshape the world. The United States fought and won a major war in the Persian Gulf. Thousands of miles away, the dissolution of freedom's most powerful adversary, the Soviet Union, brought an end to the Cold War that dominated the international security environment for more than a generation.

Both of these events demonstrate the importance of America's commitment to deploy the military capability needed to defend freedom and preserve security. That capability has now put us in position to help shape a new security environment for the post-Cold War era. We must take advantage of these new opportunities to reduce and restructure our military, as well as to ensure we remain able to maintain our security and interests.

In the Gulf, more than half a million servicemen and women, both active-duty and reserve, carried out an historic campaign to liberate Kuwait and stop a ruthless aggressor from dominating this region and its global energy lifelines. The high quality of our forces and their superb training, advanced weapons technologies, well-organized logistics and support, and outstanding military leadership and planning contributed to a swift victory with unprecedentedly low casualties. Our commitment to leadership won us the confidence and support of the world. More than 30 nations provided forces for the Gulf Coalition, and many others gave financial and diplomatic support.

Now, less than a year later, the Gulf War is long past. Saddam Hussein has been discredited, and his nuclear weapons program cannot blackmail the world. Instead, Kuwait is independent, the Gulf is at peace, American hostages in Lebanon have been returned, and a new Middle East peace process has begun. Across the world, our leadership is respected, and nations from every continent honor their veterans of Operation DESERT STORM. All those developments are the direct result of America's ability and willingness to marshal the forces needed to defeat aggression and protect the interests of freedom.

The Gulf War sends a powerful message to potential aggressors that belligerence will not pay. Lessons learned from Operation DESERT SHIELD/STORM are provided in a separate report pursuant to title V of Public Law 102-25.

The second momentous event of the past year — the collapse of the Soviet Union — closes out a critical period in history. After more than 40 years of tension, the East-West confrontation is over. For decades, expansionist Soviet foreign policies, combined with a massive build-up of Soviet military power, had forced America and its allies to maintain a significant commitment to defense. Our refusal to be intimidated by the Soviet military build-up, our willingness to match that build-up, and our deployment of forces forward in Europe and the Pacific, all provided a shield against Soviet aggression that allowed democracy to develop and flourish in many parts of the world.

As this Annual Report attests, our capable defense in the Cold War and in the Persian Gulf — the first conflict of the post-Cold War era — has earned us a position of unprecedented security

and strength. There is no country capable of mounting a global military challenge to our security, except with respect to strategic nuclear forces. No country is our match in conventional military technology and the ability to apply it. There are no significant alliances hostile to our interests, and the strongest and most capable countries in the world are our friends. No region of the world critical to our interests is under hostile, nondemocratic domination. With the defeat of Saddam Hussein, near-term threats in these regions are small, relative to our capabilities and those of our allies.

The success of our defense investment over the years has given America's strategic position significantly greater depth than at any time in the postwar era. We have a longer time before serious threats could arise, strong alliances in every region to help keep the peace, and the quality forces and technological edge to prevail over potential aggressors.

The years ahead still pose significant uncertainties. We have already seen that regional tensions, such as the conflict in the Gulf, can pose serious threats to our national interests. In the former communist countries, the road to stable democratic institutions and prosperous free markets will not be an easy one. People are struggling with the communist legacy of economic failure and political stagnation. Without democratic traditions for the peaceful resolution of political conflict, some new democracies have been threatened with civil violence, unrest, and war.

Massive Soviet nuclear arsenals, including some 30,000 tactical and strategic weapons, also remain a serious concern. A loss of central control, or the proliferation of these and other weapons of mass destruction beyond the borders of the former Soviet Union, would pose great threats to peace and stability.

Today, some 15 nations have ballistic missiles — in less than a decade, as many as 20 countries may possess these systems. Nuclear, chemical, and biological weapons, as well as advanced conventional systems, can make distant conflicts a worldwide concern. Other threats, including terrorism, illegal drugs, and low-intensity conflict, can weaken the fabric of democratic societies.

The uncertainty of those developments is the essence of the defense challenge in the years ahead. That uncertainty requires us to plan carefully if we are to take advantage of current opportunities for a less costly defense while preparing for the new security environment.

Long before the collapse of the Soviet Union, the United States had already begun to shape its military planning on the assumptions of a sharply reduced Soviet threat. Those assumptions, which events have borne out, have enabled us to adjust our strategy and force structure to meet near-term threats, like regional contingencies, as well as enabling us to focus our resources on high-priority long-term investments.

With the former Soviet Army pulling out of Eastern Europe, with the end of the Warsaw Pact, and with the dismantling of the Soviet Union, we no longer have to focus on global war originating in Europe. We can adjust our posture for the range of regional contingencies we most expect in the years ahead.

The new defense strategy has been successful, not only in responding to Soviet change, but in positioning the United States to meet the demands of the new world order — from dealing with regional contingencies to managing the global transition out of Cold War.

The new strategy rests on four basic requirements. First, an effective strategic deterrent, including a diverse mix of survivable, highly capable strategic nuclear weapons, is still essential to national security. In addition, it is clear that in a world of increasingly sophisticated arsenals, the need for strategic defense is greater than ever.

Second, we must also retain a forward U.S. military presence, in smaller numbers, to enable us to act quickly to meet crises that affect our security. Such a forward presence enables us to support our security interests and continues to be critical to stability and world confidence in America's leadership. We do not and cannot stand alone. Our alliances remain essential. American freedom and security are best protected when other nations share our democratic values and join us in defending these principles.

Third, U.S.-based contingency forces are needed to ensure we can respond rapidly to crises that affect our security.

Lastly, we can safely reduce total forces only if we are prepared to reconstitute the force structure as necessary to meet a newly emerging global threat. A decade ago, in 1981, no one predicted the kind of change we saw last year, and no one can comfortably predict what the world will look like 10 years ahead. Yet today, due to the length of time it takes to build a credible defense capability, we are creating the force we will have to rely on at that future time.

For near-term requirements, we must maintain an effective Base Force — the minimum required to ensure our security against a broad array of potential threats. But we must also maintain the ability to reconstitute our forces in future years, should changes in the international security environment make that necessary. Reconstitution means preserving those elements of our security that take a long time to establish or build — from defense infrastructure, to large weapons platforms, to the highly trained personnel on whom our military depends.

Our new strategy provides the guideposts by which we can safely restructure and reduce our military forces. As this Annual Report makes clear, we are now in the midst of one of the most profound defense reductions in American history.

Last year, even given the need to meet Operation DESERT STORM requirements, the long-term force structure cuts were already well under way. Today, in many areas, we are at or below pre-Cold War levels. The U.S. military has fewer active-duty personnel than at any time since before the Korean War. In the past year, more than 40 ships have been decommissioned. The number of Navy battle force ships is now below 500 and is planned to drop below 450. We have inactivated four Army divisions, including two in Europe, and are in the process of inactivating two more. Over the past three years, we have cut more than 1,000 aircraft from total Air Force inventories. The number of aircraft in the active duty force is lower now than at any time since before the Korean War.

With a smaller force, we need fewer bases and military facilities. We are therefore in the process of closing or withdrawing from more than 700 worldwide. With a restructured force, we can also reduce weapons procurement. In the past two years, we have canceled or terminated more than 100 military systems and weapons programs.

In addition, a new acquisition strategy has resulted in significant changes in our weapons production programs. The value of our technological edge was clearly demonstrated in the

Persian Gulf, where our advanced systems made our forces more effective and saved American lives. However, the need to produce new systems quickly is less urgent now than in the past. With the collapse of the Soviet Union, we no longer face a global adversary able to field large quantities of increasingly advanced weapons. As a result, we can afford to take more time before we move new weapons systems to production. We can concentrate on research and development, operational testing, and the upgrade of existing systems, to ensure we maintain the technological edge we require.

In addition to these changes, President Bush announced two unprecedented initiatives to reduce nuclear forces. In September, following the failure of the hard-line coup in the Soviet Union, the United States' strategic bomber force and Minuteman II missiles were taken off alert and steps were begun to make massive cuts in tactical nuclear weapons. We invited the Soviets to join us in taking similar steps, as well as measures to ensure the security of their nuclear arsenals, and to encourage the development of nonnuclear strategic defenses.

In January 1992, President Bush proposed a second historic initiative affecting strategic nuclear forces. This initiative would make both unilateral and reciprocal cuts in strategic nuclear forces, which, combined with the Strategic Arms Reduction Talks (START) limits, would result in reducing U.S. strategic warheads 60 percent over 1990 levels.

The President's initiatives will bring about an historic shift in the world's nuclear posture. They reduce the global stockpile of nuclear weapons, making the world more safe and secure. They also encourage the kind of international developments we seek most, by giving the leaders of the new Commonwealth of Independent States the incentive they need to turn away from the business of producing nuclear weapons and devote their resources to building democracy and a productive civilian economy. Such a shift will increase the security of all nations.

The changes we have made in U.S. force structure allow sharply reduced defense spending. Just five years ago, defense spending was 27 percent of the federal budget. Next year, it will be 18 percent — less than one in every five federal dollars — and this percentage is decreasing. By 1997, national defense will account for just 16 percent of the federal budget, compared to 61 percent of federal spending which will then be devoted to payments to individuals.

All told, in the decade between 1985 and 1997, defense spending will have dropped 37 percent in real terms. At that point, it will be only 3.4 percent of the gross national product — lower than at any time since Pearl Harbor.

These reductions are profound, but they have been made with care. While we have taken advantage of an unprecedented opportunity to reduce defense structure safely, we also recognize the importance of preserving the essence of the quality force that let us win so decisively in the Gulf War.

Our strong defense has enabled us to preserve our freedoms and exercise a leadership role in shaping the course and direction of world affairs. We must maintain that capability in the years ahead.

We were resolute in the Cold War, and we have gained greater security because of that commitment. We were resolute in the Persian Gulf, and we have forestalled what would have been a much larger danger there. Now, as we reduce our military, we must not forget the importance of highly capable although smaller forces. If we fail to maintain the necessary level

of military power, we are likely to find that a hostile regime will once again fill the vacuum and challenge our peace and security. And this in turn will force us to higher levels of defense expenditures, at a higher level of threat to our security, and a greater risk to American lives.

We face a fundamental choice. We can make the investment required to maintain the strategic depth we have achieved, or we can fail to secure our advantages, and watch threats grow while our capabilities weaken.

America's defense cannot be rebuilt overnight. It takes years to produce an effective arsenal of ships, tanks, aircraft, and weaponry. It takes an ongoing commitment to maintain strong alliances. And most important, it takes great care to preserve the most important asset of our defense, the well-trained, top-quality soldiers, sailors, airmen, Marines, and Coast Guard members on whom our security depends.

As we honor the accomplishments of the young Americans who fought in Operation DESERT STORM, we must commit ourselves to an equally capable force of the future. When, in later years, we ask ourselves if we have prepared well enough to support the next generation of servicemen and women who go into harm's way to protect our freedoms, our answer must be yes.

Dick Cheney

Part I
Defense Policy

NATIONAL SECURITY CONCERNS AND DEFENSE POLICY PRIORITIES

Introduction

A year ago, the United States was at war in the Middle East, communist hard-liners in the Soviet Union had cracked down violently on Baltic independence movements, and the USSR continued its strategic modernization program. Even so, the Department of Defense announced plans to reduce dramatically America's armed forces pursuant to a new defense strategy. The new defense strategy recognized that fundamental changes were already taking place in the international security environment and therefore focused on regional rather than global threats. Despite the turbulence of global events at that time, we believed that we could reduce defense spending and force structure safely.

With the passing of the traditional Cold War threat planning assumption — a global war beginning on short notice in Europe — it became possible to identify some missions and forces that were no longer needed. The new, regionally focused defense strategy (also referred to as the new regional defense strategy) and the Base Force to implement it were built by judging what would be needed to further democracy and our national security interests in a post-Cold War world. We took a completely fresh look at our defense requirements rather than just building a smaller version of the Cold War military.

Accordingly, last year the Department proposed a multiyear, 25 percent cut in U.S. forces. By 1995 those cuts would reduce our active duty Army force structure by roughly one-third of its 1990 level, from 18 divisions to 12; our Air Force by a quarter, from 36 fighter wing equivalents to about 26, including a cut of 9 active and 1 reserve fighter wings; our Navy by a fifth, from 547 ships to only 451; our reserves and civilians by over 200,000 each. We announced plans to cancel 100 weapons programs and to close or realign well over 200 facilities worldwide. These cuts and the additional $50 billion in reductions proposed this year will reduce the U.S. military to its lowest end strength since before the Korean War. These reductions would also cut the defense share of the federal budget, once as high as 57 percent, to 18 percent, the lowest level in 40 years. By 1997 the defense budget will fall to roughly 3 1/2 percent of the gross national product, by far the lowest level since before Pearl Harbor.

The reductions were based on the promise of change symbolized by the fall of the Berlin Wall 15 months earlier, and on the new defense strategy announced by President Bush in Aspen, Colorado, on August 2, 1990. That strategy was designed not simply to react to probable reductions in the Soviet threat and other changes around the world, but also to help shape the future global security environment.

Shaping our future security environment means more than simply accounting for changes in anticipated threats. The ability to predict events and strategic changes in the world is extremely difficult as clearly evidenced by recent events and the entire history of the 20th century. Because our forces take many years to build, a proper appreciation for uncertainty is a critical part of our regional defense strategy. It gives us the flexibility to maintain or reconstitute forces that may be needed in times of future crises.

Shaping the Strategic Environment

There are many factors that account for the favorable changes of the last three years, including communism's fundamental flaws. However, a necessary foundation for the liberation of Eastern Europe and the phenomenal changes under way in the former Soviet Union was the steadfastness of the United States and its allies through more than 40 years of Cold War. Our refusal to be intimidated by the enormous build-up in Soviet military power during the Cold War, our willingness to match that build-up, and our deployment of forces forward in Europe and the Pacific that allowed democracy to develop and flourish in so many parts of the world, all contributed to the very substantial peaceful changes that are now occurring in the world. The containment strategy pursued by the United States and our sustained commitment to democratic values over more than 40 years significantly influenced the global strategic environment.

The United States can now reduce the overall size of its forces and defense budget in light of those changes. But future peace and stability in the world will

continue to depend in large measure upon our willingness and ability to deploy forces overseas — in Europe, Southwest Asia, the Pacific, and elsewhere — and to retain high-quality forces here at home. These forces are critical to allow us to defend our national interests and to come to the aid of our friends should they be threatened. Others' perceptions of our will and capability to reconstitute forces and to defend against strategic attack will also be critical. Maintaining that posture, maintaining the U.S. presence around the world, and maintaining the capacity to respond in a crisis — and thereby deterring crises — are at the core of the regional defense strategy.

The regional strategy has already shaped the international environment for the better. Our success in organizing an international Coalition in the Persian Gulf against Saddam Hussein kept a critical region from the control of a ruthless dictator bent on developing nuclear, biological, and chemical weapons. Instead of a more radical Middle East under Saddam's influence, our ties with moderate Arab states are stronger, and Arabs and Israelis are for the first time in many years sitting down to discuss peace. Instead of Saddam holding Kuwait hostage, American hostages in Lebanon have been freed.

The United States can help shape the future strategic environment and hedge against both anticipated threats and uncertainty.

Strategic Depth

The events of the last three years have provided the United States with strategic depth — threats to our security have become more distant, not only physically but in time as well. Today we face no adversary capable of posing a global challenge, except with respect to strategic nuclear forces. No country is our match in conventional military technology or the ability to apply it.

During the Cold War, the United States lacked strategic depth. We anticipated only one or two weeks of warning of a Warsaw Pact offensive in Europe that could push us to the brink of nuclear war. Now, an adversary intent on challenging the United States and its allies would have to overcome our formidable alliances and the qualitative advantages that were displayed so impressively by Coalition forces during Operation DESERT STORM.

Because the United States now has strategic depth, we can respond in a graduated manner to preclude the reemergence of a global threat. Our tools include political and economic steps, as well as security efforts to prevent the domination of critical regions by hostile, nondemocratic aggressors. On the security side, through forward presence, sustained crisis response capabilities, and a continued technological edge, we can work to preclude potential aggressors from initiating regional arms races, raising regional tensions, or dominating critical regions.

It is important that we exploit our advantageous position and preserve capabilities needed to keep threats small. If we do not maintain sufficient military power, we are likely to find that a hostile power fills the vacuum and once again presents a regional challenge. This in turn will force the United States to accept higher levels of defense expenditures at a higher level of threat to our security and a higher risk of war.

Today, the United States faces a fundamental choice. We can make the investments required to maintain the strategic depth that we have won — a much smaller investment than we made to secure it. Or we can fail to secure these advantages, and eventually the threats will not be remote, they will not be vague, and we will not have the alliances and the capabilities to deal with them. The cost of waiting until then to respond would likely be much more expensive, and the outcome much riskier, than the cost of sustaining adequate military capabilities now.

The Security Environment in the Mid-1990s

The transformation of the former Soviet Union and Eastern Europe, the continuing risk of regional conflict, the evolving capabilities of U.S. allies, and changes in the nature of future warfare are fundamentally altering global relationships and activities. These four developments, along with many other political, economic, technological, and social changes in the world, will continue to change the international security environment and affect U.S. interests.

END OF THE SOVIET UNION

The collapse of the Soviet Union and the dissolution of the Warsaw Pact have transformed the international security environment. What was once a heavily-armed superpower, casting a menacing

shadow over Europe and Asia and possessing global power projection capabilities, has ceased to exist.

In its place 12 independent states have emerged, 11 of which have formed a Commonwealth of Independent States. Its fate is still uncertain. The political and economic futures of the independent states are unclear. The nature of the Commonwealth is still being defined and its long-term prospects rest in the balance.

The new states of the Commonwealth have begun difficult negotiations to sort out their political relationships, including future military arrangements. For example, there have been some tense moments as a result of the competing claims by Russia and Ukraine to the Black Sea Fleet and the military forces stationed in Ukraine. But there have been some successes as well.

The Commonwealth states have agreed to take steps to place the former Soviet nuclear arsenal under unified control.

- The four states of the Commonwealth where nuclear forces remain — Russia, Ukraine, Belarus, and Kazakhstan — have all declared their intent to observe and implement the Strategic Arms Reduction Talks (START) Treaty obligations.
- Ukraine and Belarus have expressed their intention to become nuclear-free states, and all nuclear weapons will be removed from Ukraine by the end of 1994. While the record is less clear, it appears Kazakhstan may also in the end become a nuclear-free state. If so, all strategic systems in the end will be deployed on Russian territory. However, the ultimate disposition of strategic nuclear weapons will take some time to resolve, and a deterioration of relations among the new states could affect its outcome.
- In response to President Bush's September 1991 initiative to destroy or withdraw U.S. battlefield and sea-based tactical nuclear weapons, it appears that the states of the Commonwealth plan for all tactical nuclear weapons — which are clearly the most vulnerable to improper seizure — to be consolidated in Russia by July 1992 with large numbers scheduled to be dismantled.
- The Commonwealth leaders have unanimously agreed to retain unified control over nuclear weapons, perhaps the most important step of all. While final launch authority is vested in the President of Russia, the Minsk Agreement specifies that he act only with the agreement of the leaders of the other three republics where nuclear forces remain and in consultation with the remaining Commonwealth leaders.

These commitments to keep nuclear weapons of the former Soviet Union under secure and responsible control are important to the United States and other countries around the world. So far the nuclear command and control mechanisms appear to be more robust than many would have anticipated. Overall, the Commonwealth has proved to be a valuable forum for resolving outstanding differences among the newly independent states, especially nuclear command and control and the fate of the former Soviet military.

The dissolution of the USSR as a state and the demise of communist ideology have spelled the end of the threat of direct, large-scale conventional military attack on Europe that drove our security policy for more than 40 years. We are no longer engaged in a global ideological confrontation with an aggressive, expansionist state that pursues policies inimical to our basic values. For the moment, the new leaders of the former Soviet republics are looking to the West for assistance and advice. As Russian Foreign Minister Kozyrev recently put it: "The developed countries of the West are Russia's natural allies. It is time to say firmly that we are not adversaries . . .."

It is improbable that a global conventional challenge to U.S. and Western security will reemerge from the Eurasian heartland for years to come. Events are having a sweeping and dramatic impact on the capabilities of the former Soviet military. Readiness and force levels are falling significantly; conscription is being widely ignored; units are being withdrawn from eastern Germany and from Eastern Europe; and a large amount of military spending is being diverted from operations and procurement expenditures to personnel costs to prevent a wholesale collapse of living standards for the troops and their families. Troop loyalties are divided and uncertain.

Implementation of arms control agreements will further reduce any threatening military capabilities, as will anticipated transfers of significant resources from military to civilian purposes.

Finally, former Soviet modernization programs appear to be slowing down or in some cases coming to a halt. In the current confusion, the system will continue under its own momentum for some time to come until

national authorities redirect, stop, or convert it, or the system simply runs out of necessary parts or inputs.

This slowdown has been true even of strategic modernization. We expect, at least in the near term, continued deployments of land-based intercontinental ballistic missiles (ICBMs), albeit at a slower pace. President Yeltsin has announced the completion of the Blackjack and Bear H programs, and no new ballistic missile equipped nuclear submarines are likely to become operational within the decade. Whether this slowing down is due to political will, economic collapse, or both, it represents a further encouraging sign that significant, positive change has occurred in Moscow's defense policy.

Despite all the good news, there are some more troubling trends. The former Soviet Army, still one of the largest and most heavily armed in the world, is now an army facing a crisis of identity. It remains the only intact, functioning institution of the former USSR. Yet it has no clear mission, an ill-defined chain-of-command, and its traditional means of life support are increasingly drying up. The officer corps has become a cauldron of discontent, frustrated by the sudden fragmentation of the force, the loss of social prestige, precipitously declining living standards, and the lack of social welfare and protection programs. A popular slogan at the recent all-army officers' conference in Moscow sounded an ominous tone: "If the politicians do not decide the fate of the army, the army will decide the fate of the politicians."

Several republics are moving to take over the military forces and equipment on their territory, despite resistance from Moscow. Some units on their own are switching allegiance to republic or even local authorities. In some areas, particularly the Transcaucasus, military units have come under attack by locally armed groups looking to seize weapons and equipment. In the Baltics, the slowness of the withdrawal of former Soviet forces has led to tension between military units and local authorities over logistical support and housing. At this point, we cannot be certain what the ultimate disposition of the former Soviet armed forces will be. While Commonwealth leaders have agreed on central direction of nuclear forces, they have been unable to resolve the status of general purpose forces. Some former republics will want their own military forces, while others may participate in Commonwealth forces.

A major concern about the demise of the USSR is the potential for the further spread of nuclear, biological, or chemical weapons technology and the technology underlying missiles and advanced conventional systems. With the cutbacks in former Soviet weapon programs and the rapid deterioration of the Soviet economy, there will be a strong temptation for unemployed Soviet scientists, accustomed to prestigious careers and superior standards of living, to seek employment abroad. Soviet scientists with expertise in nuclear weapons design, plutonium production or uranium enrichment, or chemical or biological weapons design pose a significant security problem.

Third World countries attempting to acquire nuclear, biological, and chemical weapons will undoubtedly attempt to take advantage of economic distress in the former Soviet Union. The diffusion of advanced conventional technologies developed by the Soviets could tilt regional balances against our interests.

The Congress and the Executive Branch have focused on the problem in connection with recent legislation designed to provide up to $400 million to address, among other concerns, proliferation. Realistically, however, we must face the fact that despite our best efforts, some of this technology will be transferred to hostile countries.

While the United States has been repeatedly assured by authorities of the Commonwealth of Independent States that all former Soviet nuclear weapons are currently being properly safeguarded and controlled, we will be more assured when their levels have been significantly reduced. In addition, the enormous stocks of chemical and biological weapons must be destroyed. As Russia's destruction capabilities are in some ways limited, particularly for its chemical weapons, we are investigating how the Department of Defense can best assist efforts to destroy weapons of mass destruction.

The outcome of the transition in the former Soviet Union remains profoundly uncertain. The economic situation, particularly in Russia, will be decisive in this regard, and no one has yet successfully transformed a command-administrative system into a free market economy. That profound challenge confronts Russia, which alone will remain a major European power, and Ukraine, which has the potential to become one in the long run.

The stakes are enormous. If Russia, Ukraine, and the other states of the Commonwealth of Independent States make the transition to a new political and economic system based on Western values, then the next century is likely to be marked by peace and prosperity. If they fail, we will have to confront a new array of challenges to our security.

Such an outcome would be dangerous not only for the people directly involved but for Americans as well. The United States must do everything that it can to assist them to avoid such an outcome. Experts often speak of the dangers of "Weimar Russia," in which initial advances toward democracy and economic stabilization fail and an authoritarian leader assumes power and rearms. In Weimar Germany, it took more than a decade before democracy failed; we do not know what might happen in Russia. If developments take such a turn, our current defense program will allow us to make the necessary midcourse corrections in the available warning time.

Despite the potential problems, the current trend of events remains positive. This optimism enables us to contemplate changes in the international system which few would have dreamed of even one year ago.

THE GROWTH OF REGIONAL THREATS

The Gulf War taught us that there remain real challenges to our national security interests. These threats are likely to arise in regions critical to the security of the United States and our allies. There are potential threats in each of those regions, and the U.S. must be prepared to deter, or if necessary to defeat, such threats.

The end of the Cold War reduced the danger that a regional conflict could escalate into a global war. The disappearance of the Soviet Union has eliminated that danger altogether in the near term. At the same time, regional conflicts will become increasingly complicated by the proliferation of weapons of mass destruction and sophisticated conventional capabilities in the Third World.

In the future, the United States may have to respond to hostile countries willing to employ weapons of mass destruction. During the Gulf War, we faced an adversary armed with chemical and biological agents. Although Saddam Hussein did not use these weapons, we may not be so lucky the next time. Unfortunately, a number of nations — including Iran and North Korea — are working to develop nuclear or unconventional weapons. As we learned from our experience with Iraq, it can be extremely difficult to know how far such efforts to develop weapons of mass destruction have progressed.

The threat is not limited just to weapons of mass destruction. The global diffusion of military and dual-use technologies will enable a growing number of countries to field highly capable weapon systems, such as ballistic missiles, stealthy cruise missiles, integrated air defenses, submarines, modern command and control systems, and even space-based assets. Unfortunately, there are both governments and individuals willing to supply proliferating countries with both systems and technical expertise. As a result, our regional adversaries may be armed with capabilities that in the past were limited only to the superpowers.

We must, therefore, be prepared to face adversaries who are willing to use weapons of mass destruction and ballistic or cruise missiles. If the use of weapons of mass destruction is threatened, we may need to win even more quickly and decisively than in the Gulf War, and we would still want to retain the advantages necessary to keep our own losses as low as possible.

ENDURING ALLIANCE RELATIONSHIPS

During the Cold War, a coalition effort led by the United States was needed to successfully oppose the expansionist ambitions of the former Soviet Union. That global threat has disappeared, but the need to work closely with other countries to achieve common security objectives continues. NATO remains the focal point for the U.S. security involvement in Europe, our alliances with Japan, Korea, and Australia remain important in Asia, and our security agreements and arrangements in other areas of the world continue to be of considerable importance.

In many respects, this alliance structure is perhaps our nation's most significant achievement since the Second World War. This system of alliances and friendships constitutes a prosperous, largely democratic, market-oriented "zone of peace" that encompasses more than two-thirds of the world's economy. In the long run, preserving and expanding these alliances and friendships will be as important as the successful containment of the former Soviet Union or the Coalition defeat of Iraq.

The end of the bipolar world also has opened opportunities for international cooperation that were impossible only a few years ago. This cooperation will undoubtedly take unexpected forms and ad hoc relationships will be required to deal with specific regional contingencies.

The growing strength of our allies will make it possible for them to assume greater responsibilities for our mutual security interests. More reciprocal and mature security relationships will be more sustainable over time. We will expect our allies to share the burden of leadership, and we will work with them towards this end.

MILITARY TECHNOLOGICAL REVOLUTION

The Gulf War provided the world with a vivid demonstration of the revolution in military technology that is reshaping the nature of warfare. High technology systems vastly increased the effectiveness of our forces. This technological revolution encompasses many areas, including stand-off precision weaponry, sophisticated sensors, stealth for surprise and survivability, night vision capabilities, and antiballistic missile defenses. In large part this revolution has resulted from the development of new technologies, such as our ability to manipulate information through microprocessors, a process that has become familiar in our daily lives. The exploitation of these new technologies promises to change the nature of warfare significantly, as did the invention of tanks, airplanes, and aircraft carriers earlier in this century.

The war tested an entire generation of new weapons and systems at the forefront of this revolution. In many cases these weapons and systems were being used in large-scale combat for the first time. In other cases, where the weapons had been used previously, the war represented their first use in large numbers. For example, precision guided munitions were not entirely new. They were used at the end of the Vietnam War in 1972 to destroy two bridges in Hanoi that had withstood multiple air attacks earlier in the war. However, their use in large numbers in the Gulf War represented a new stage in the history of warfare.

The military technological revolution will continue to pose challenges to our forces both to stay abreast of competing technologies and to extract the greatest potential from our systems. For example, the use of modern precision munitions requires much more detailed intelligence than before. It was not enough for traditional intelligence sources to report that a certain complex of buildings housed parts of the Iraqi nuclear program. Target planners had to know precisely what function was conducted in a specific building, or even in what part of that building.

Despite the end of Soviet competition, the United States must continue to maintain a technological edge over potential adversaries. First, other nations will continue to make advanced systems and there is an increasing likelihood of sales or diversions to hostile countries. Second, the United States must respond decisively to regional crises, and as was demonstrated in Operation DESERT SHIELD/STORM, a technological edge enables us to prevail quickly. Maintaining this technological edge requires a continuing emphasis on technological superiority. Finally, we may require advanced systems to deal with the proliferation of weapons of mass destruction — to destroy them before they are used, to defend against them, or to discourage others from contemplating their use.

The Regional Defense Strategy

The new defense strategy formulated in 1990 recognized that the massive, short-warning threat posed to Central Europe by Soviet military forces, and that could quickly escalate to global war, had been eliminated. But this regional defense strategy also acknowledged that nondemocratic powers might attempt to achieve hegemony in regions that remain critical to U.S. interests, and that such threats could arise with little or no warning. Additionally, the strategy recognized that the United States could confront diverse regional conflicts with great differences in terrain, climate, the nature of the threat, and levels of support from allies and friends.

Threats to our vital interests could arise with little notice in various parts of the world, including Europe, Asia, Southwest Asia, and Latin America. We want to ensure that other powers do not dominate critical regions of the world thereby preventing them from posing a serious global challenge.

The ability of the United States to implement the regional defense strategy will depend on preserving a robust alliance structure, quality personnel, technological superiority, and core competencies — the leadership, doctrine, and skills needed to retain mastery of critical warfare capabilities. Unless these foundations of our

strategy are protected, we will undermine our national security. Should they be lost, the United States will pay a high cost to reacquire them and the effort could require decades of sustained new investment.

The regional defense strategy consists of four essential elements: strategic nuclear deterrence and strategic defense, forward presence, crisis response, and reconstitution.

STRATEGIC NUCLEAR DETERRENCE AND STRATEGIC DEFENSE

The United States will continue to rely on its strategic nuclear deterrent capability, including a survivable command, control, and communications system and the Triad, as modified by treaties and presidential initiatives. Our future forces will give less emphasis to land-based ICBMs and ready bombers, while moving toward early deployment of defensive systems.

The total size of the U.S. nuclear arsenal is shrinking significantly as a result of arms control agreements with the former Soviet Union and the historic unilateral initiatives announced by President Bush. The remaining force will be sufficiently capable to deter future aggression and to demonstrate the commitment to protect our vital interests.

Russian nuclear weapons may no longer pose a threat to the United States and its allies sometime in the future, and when that happens the United States will no longer need to hold at risk what future Russian leaders will hold dear. This would require unambiguous evidence of a fundamental reorientation of the Russian government: institutionalization of democracy, positive ties to the West, compliance with existing arms reduction agreements, possession of a nuclear force that is nonthreatening to the West (with low numbers of weapons, nonmultiple independently-targetable reentry vehicles (MIRV), and not on high alert status), and possession of conventional capabilities that are not threatening to neighbors.

A transformation of Russia along these lines is our goal, but whether it will be possible to achieve this objective is far from clear. As the United States pursues this goal, we must recognize the robust strategic nuclear force that continues to face us, the fragility of democracy in the new states of the former Soviet Union, and the possibility that they might revert to closed, authoritarian, and hostile regimes. Our movement toward this goal must, therefore, leave us with timely and realistic responses to unanticipated reversals in our relations.

Strategic nuclear forces will continue to play an essential role with respect to countries other than the former Soviet Union. Nuclear weapons cannot be disinvented. Other countries — some of them, like Iraq, hostile and irresponsible — threaten to acquire them. This requires the continued reliance on a secure retaliatory capability to deter their use. Strategic forces will also continue to support our global role and international commitments, including our transatlantic links to NATO.

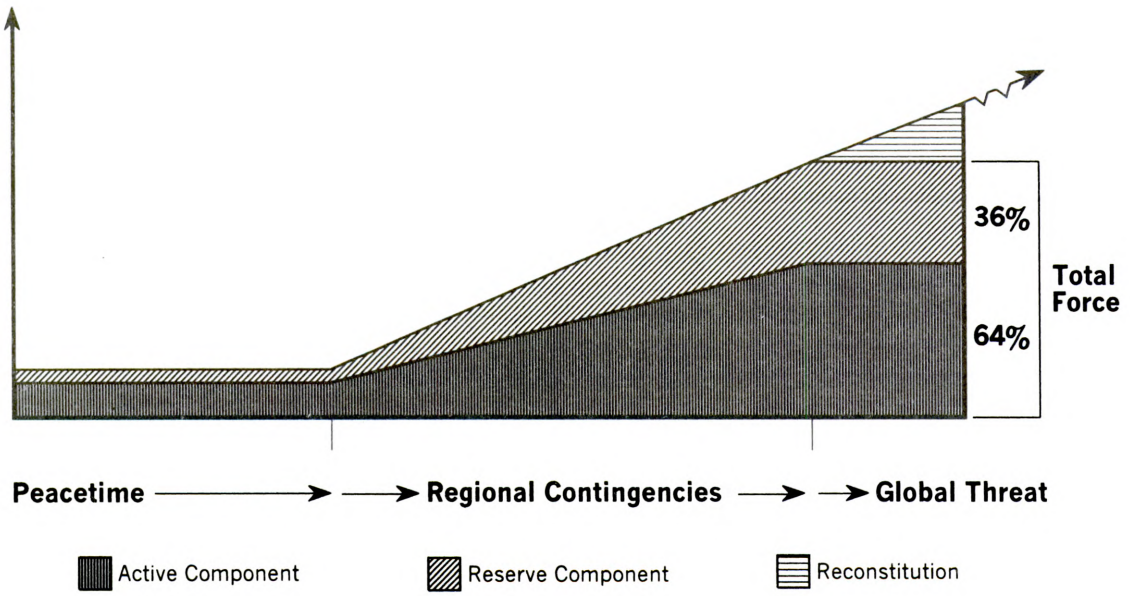
Defense against ballistic missiles also will assume greater importance in the future. With an increase in regional instabilities, the risk of ballistic missile use is growing. Accordingly, the Strategic Defense Initiative (SDI) program has been refocused on Global Protection Against Limited Strikes (GPALS), providing limited defense on a global scale, defending the United States, forward deployed U.S. forces, and allies. The Missile Defense Act of 1991, enacted as part of the fiscal year (FY) 1992 Defense Authorization Act, is an important step in providing for GPALS implementation.

FORWARD PRESENCE

To support our strategy's continuing focus on regional security concerns, U.S. military forces must maintain a forward presence to show U.S. commitment and lend credibility to our alliances, to deter aggression, enhance regional stability, promote U.S. influence and access, and when required, provide an initial crisis response capability. Forward presence is vital to the maintenance of the system of collective defense by which the United States has been able to work with friends and allies to protect our security interests while minimizing the burden of defense spending and unnecessary arms competition.

Under the new strategy, forward presence is an important factor in maintaining global stability and U.S. influence abroad. Forward basing of forces and the prepositioning of equipment facilitate rapid reinforcement and enhance the capability to project forces into vital strategic areas. In regions of the world where we do not have a land-based presence, maritime forces to include maritime and afloat prepositioning of equipment, long-range aviation, and other contingency forces

Force Employment Chart 1



allow us to respond to crises. Our forward-deployed forces provide an initial capability to respond to crises, and can fulfill a variety of regional roles. This requires readily available forces, predominantly from active components.

Although forward presence will continue to be crucial, a reduced global threat and the improving capabilities of allies will permit reductions in the size and frequency of our current forward deployments. The reduced threat and arms control achievements will make it possible to reduce our European troop strength to roughly half its current level by middecade. We anticipate that more than 25,000 troops will be pulled out of bases in East Asia by December 1992. This includes the withdrawal from the Philippines. However, plans to remove additional forces from South Korea have been suspended while we address the problem posed by the North Korean nuclear program. Also, the Panama Canal treaties call for withdrawal of U.S. military forces from Panama by the end of 1999.

The interests of the United States require the continued presence of our military forces in certain regions of the world, including Europe, Southwest Asia, and East Asia. Our forces will remain for as long as they are needed and welcomed by our allies to protect the interests of the United States and its allies. In other parts of the world where we have strong interests, we will demonstrate our engagement through visits, exercises, equipment prepositioning, and security and humanitarian assistance programs. Our purpose remains to deter aggression and assure friends of our commitment by being present and having the credible forces needed for crisis response.

CRISIS RESPONSE

The ability to respond to regional or local crises is a key element of our new strategy and also an important consideration in how we size our active and reserve forces. The regional and local contingencies we might face are many and varied, both in size and intensity. These contingencies potentially involve a broad range of military forces of varying capabilities and technological sophistication, and can occur under an equally broad range of geopolitical circumstances — especially the potential to develop on very short notice. These conditions require highly responsive military forces that must be available with little or no notice.

As we learned from the Gulf War, a regional crisis

can also mean mounting a very large military operation against a well-armed and capable adversary. Proliferating threats of ballistic missiles, cruise missiles, and chemical, biological, or even nuclear weapons heighten the specter of risk. Highly ready and rapidly deployable power projection forces remain key elements of protecting our interests from unexpected or sudden challenges. We must be ready to deploy a broad array of capabilities, including heavy and light ground forces, air forces, naval and amphibious forces, space forces, and special operations forces.

The capability for rapid movement of forces to remote areas is also an essential component of our national strategy. As our overall force levels and forward-deployed forces shrink, we must continue to invest in prepositioning, airlift, sealift, and space capabilities. Over the long term, we must challenge our technology base to develop weapons that are lethal, but more readily deployable and more easily sustained.

Because of the high level of uncertainty in the international environment, U.S. forces must emphasize qualities of versatility, lethality, global deployability, and rapid responsiveness. Readiness and mobility must be among the highest priorities, especially for forces designated to respond to short warning crisis.

RECONSTITUTION

Reconstitution is intended to deter any potential adversary from attempting to build forces capable of posing a global challenge to the United States and, if deterrence fails, to provide a global warfighting capability. In essence, reconstitution is a way of hedging against future unanticipated threats.

When the concept was first incorporated into U.S. defense strategy in 1990, reconstitution planning focused on the possibility that the Soviet Union might seek to restore quickly the reductions it was making in its military forces. Since then, the Soviet Union has ceased to exist, and military forces in the former Soviet Union have been cut even further. Thus, while reconstitution is still an important element of our strategy, the length of time that would be required for Russia, or any other potential adversary, to mount such a challenge is increasing.

The reconstitution concept requires that we take care to preserve the longest-lead elements of our security. This includes our alliance structures, forward deployments, and access arrangements; the technological and doctrinal edge that comes from vigorous innovation and development; our industrial base; and the high quality and morale of well-trained military and civilian personnel.

Timely reconstitution also requires that we retain some elements of the force structure that take relatively long periods of time to produce, or that we remain capable of rebuilding them. This includes weapons platforms with long production or recommissioning times, and highly trained personnel, such as unit commanders and specialized technicians. As time passes, however, we must be able to rely increasingly on our industrial and manpower mobilization base for timely reconstitution.

The Base Force

Implementation of the regional defense strategy has led the Department of Defense to conduct a comprehensive reassessment of force structure. The outcome of this review is the Base Force — the force structure needed to meet our ongoing defense needs. Several key principles guided its formulation and are outlined in more detail in the January 1992 report, "National Military Strategy of the United States." The Base Force provides capabilities that are credible to both friends and adversaries, yet takes into account the financial constraints of a shrinking defense budget. The new structure is tailored for regional contingencies, but makes provisions for reconstitution of capabilities should a global threat emerge. It also takes arms control agreements into account.

Alliance relationships remain integral to our national security strategy, and the Base Force accounts for the contributions that can be made by our allies and friends. Although our contribution may predominate, experience has shown that we can rely on our allies to make important commitments to coalition efforts.

The Base Force is not a blueprint for a command structure, but rather provides a framework within which we can size our forces in an era of uncertainty. It distinguishes four components of our total force: Strategic Forces, Atlantic Forces, Pacific Forces, and Contingency Forces. The Strategic Forces are designed primarily to protect against nuclear threats, either

through deterrence or defense. These forces will include a triad of ballistic missile submarines, long-range bombers, and ICBMs, as well as the GPALS ballistic missile defenses. The Atlantic Forces are configured to support our commitments in Europe, the Middle East, and Southwest Asia, with the ground component consisting primarily of heavy forces. The Pacific Forces support our commitment in the Pacific region to include Southeast Asia, and consist of forward-based, forward-deployed, and reinforcing air, naval, and land forces. The Atlantic and Pacific Forces are supplemented by dedicated crisis response units stationed in the United States. The Contingency Forces provide a crisis response capability for unexpected crises and consist mostly of active component units capable of rapid deployment.

The Base Force will be supported by four capabilities: a logistics network, including transportation to project and sustain military forces; space-based assets to enhance the effectiveness of strategic and tactical forces; research and development (R&D) to ensure technological superiority; and the capability to reconstitute our forces should it prove necessary.

The Base Force relies on both active and reserve components. The active forces will provide the primary capabilities for day-to-day operations, as well as most of the combat and support units needed to respond initially to regional contingencies. The reserve forces will provide essential support units, in increasing numbers for more extended confrontations, as well as combat units to augment and reinforce the active component forces in large or protracted confrontations, and to perform assigned missions including, for example, continental United States (CONUS) air defense, civil affairs, and tactical air reconnaissance.

Reductions in the overall size of our forces have increased the importance of continuing to maintain high quality forces. Recruiting, retaining, and training high quality personnel must remain high priorities.

The effectiveness of our weaponry and support capabilities depends on the quality of the men and women who operate it. It takes time to train people and combat units: the proficiency of our forces is a result of the willingness of dedicated people to devote years of their lives to acquiring the skills needed to operate an effective military force. The stellar performance of the U.S. military during Operation DESERT STORM reflects the long-term commitments of past leaders and decades of investment in defense capabilities.

Implementation of the new defense strategy and the associated Base Force concept will result in significant reductions in the size of U.S. military forces. The reductions in force levels are dramatic, but it will be possible to transition to the new structure if the changes are implemented in a responsible and rational manner. It will be possible to support effective military forces only if we can end programs that are no longer necessary, consolidate bases, streamline procedures, and adjust overall manpower levels without arbitrary restrictions. Force adjustments must also achieve a proper balance between active and reserve forces.

Other Defense Priorities

ARMS CONTROL

The United States continues to engage in arms control as part of a coordinated effort to enhance our security and that of our allies, and not as an end in itself. Arms control agreements have supported our national security policy by channeling force postures in more stabilizing directions, by injecting greater predictability and transparency into military relationships, and by reducing force levels in ways that enhance the national security of the United States and its allies and negotiating partners.

On July 31, 1991, Presidents Bush and Gorbachev signed the START Treaty in Moscow, marking the continuing trend in improved U.S.-Soviet relations. The START agreement imposes equal aggregate ceilings on the strategic offensive arsenals of both countries, with reductions carried out in three phases over seven years after the treaty enters into force. After the seven year implementation period, each country will be allowed 1,600 deployed strategic nuclear delivery vehicles and no more than 6,000 accountable warheads. The limits imposed by the treaty are shown in Table 1. The treaty is now awaiting the advice and consent of the Senate to ratification. Although it was not confirmed by the former Soviet Union, the governments of the Commonwealth of Independent States with strategic nuclear weapons have all indicated that they intend to ratify the agreement and live within its limits.

The United States and the former Soviet Union are proceeding with certain early implementation actions

Agreed START Central Treaty Limits **Table 1**

The United States and the former Soviet Union agreed to the following START central treaty limits:

- 1,600 deployed ICBMs, deployed SLBMs, and deployed heavy bombers
- 154 deployed heavy ICBMs
- 6,000 total accountable warheads
- 4,900 warheads on deployed ICBMs and deployed SLBMs
- 1,540 warheads on deployed heavy ICBMs
- 1,100 warheads on deployed mobile ICBMs
- 3,600 metric ton ceiling on throw-weight

required by the START agreement. These activities enhance confidence in the treaty through greater transparency and provide early experience with the verification provisions of the treaty. ICBMs, submarine-launched ballistic missiles (SLBMs), heavy bombers, and air-launched cruise missiles covered by the treaty have been exhibited by both countries to improve monitoring of the agreement. In addition, both sides have taken steps to make ballistic missile telemetry more accessible, even before START enters into force. This includes implementation of a provisional one year ban on encryption and jamming, as well as demonstration of telemetry tapes and playback equipment.

On September 27, 1991, President Bush announced the largest single change in the deployment of U.S. nuclear weapons since they were first integrated into our forces. The new posture was made possible by the defeat of the Soviet coup in August 1991, which gave us an opportunity to move toward a safer, more stable nuclear relationship with the former Soviet Union. This marked a significant change in our approach to achieving stabilizing reductions in nuclear forces from our traditional approach of time-consuming and detailed arms control negotiations.

President Gorbachev accepted several of the U.S. ideas and offered additional suggestions. As a result, all U.S. and Soviet ground-launched theater nuclear weapons are to be eliminated, and theater nuclear weapons are to be withdrawn from ships, submarines, and land-based naval aircraft. In addition, half of the former Soviet Union's nuclear-armed surface-to-air missiles (SAMs) will be eliminated. These steps reflect the reduced importance of theater nuclear weapons in the current security environment. Our strategic bombers and Minuteman II missiles were taken off alert, and the President indicated that once START enters into force, the elimination of the Minuteman IIs will be accelerated. Several programs were canceled, including the short-range attack missile (SRAM II), the rail-mobile basing mode for the Peacekeeper missiles, and the road-mobile basing mode for the Small ICBM. Although these steps were taken unilaterally, the Soviets were encouraged to take reciprocal actions. The President also proposed the mutual elimination of multiple independently-targetable reentry vehicle ICBMs, that the former Soviet Union limit its ICBM modernization to one, single reentry vehicle ICBM and confine its ICBMs to garrisons where they would be more safe and secure.

In his January 1992 State of the Union address, President Bush announced major reductions in U.S. strategic nuclear modernization programs. These steps are to be taken unilaterally and immediately. The B-2 program will be terminated at 20 aircraft. The Small ICBM program will be canceled entirely. Production of the W-88 warhead for Trident II (D-5) SLBMs will be terminated. Purchases of the advanced cruise missile beyond those already authorized will cease. The President also called upon the leaders of the four republics of the Commonwealth of Independent States with nuclear forces on their territory to join the United States in even more far-reaching bilateral strategic arms reductions. He reiterated his proposal from last September that the former Soviet Union should eliminate all ICBMs with multiple warheads, the most destabilizing weapon systems, and promised in return to reduce significantly the number of our nuclear warheads at sea and on bombers.

If the newly independent states of the former Soviet Union agree to the President's proposals, the United States will make even more dramatic changes to the Base Force. Our 50 multiple-warhead Peacekeeper missiles would be eliminated, and all 500 Minuteman ICBMs would be downloaded to a single-warhead configuration. The 3,456 warheads attributable to our 18-submarine Trident force would be reduced approximately one-third by downloading reentry vehicles from missiles or by removing missiles from submarines. This would cause the level of accountable warheads in our Base Force to decrease by 40 percent. In addition, a substantial number of bombers would be

reoriented primarily toward conventional missions, causing the actual number of warheads to be roughly half the levels that we planned to have under START.

The United States and the former Soviet Union are proceeding with implementation of the Intermediate-Range Nuclear Forces (INF) Treaty. Under the provisions of the INF Treaty, all ground-launched intermediate- and shorter-range nuclear missiles declared by the United States and the Soviet Union were eliminated by May 1991, three years after the treaty entered into force.

Under the verification protocols of the Threshold Test Ban Treaty (TTBT), which entered into force in December 1990, the former Soviet Union conducted an on-site inspection of one U.S. nuclear test in 1991. Planned U.S. measurements of two Soviet tests scheduled for December 1991 were canceled as a result of the Kazakhstan decision to close the Semipalatinsk test site. Thus, U.S. experience with TTBT implementation in the former Soviet Union has been limited to a few preparatory, off-site activities. The United States has not identified any further restrictions on nuclear testing beyond the TTBT that would be consistent with our national security requirements to maintain a safe and credible nuclear deterrent. As long as nuclear weapons play a critical role in U.S. national security strategy, nuclear tests will be required to ensure the reliability and effectiveness of the weapons, and to validate enhanced safety features as they are developed.

The treaty on Conventional Armed Forces in Europe (CFE), signed in November 1990, will enter into force after it has been ratified by all signatories. During 1991, the parties to the treaty worked out a number of data and implementation problems. The U.S. Senate has consented to ratification of the agreement, but it awaits ratification by appropriate states of the former Soviet Union. Negotiations are continuing on a follow-up CFE agreement dealing with manpower limitations and additional measures aimed at further strengthening security and stability in Europe as mandated by the CFE Treaty. In the field of confidence and security-building measures (CSBMs), the Vienna Document of 1990 entered into effect and was implemented during 1991. Negotiations on additional CSBMs are continuing. Open Skies negotiations resumed in 1991 with indications that an agreement may be achieved in early 1992.

On May 13, 1991, President Bush introduced his initiative supporting the global ban on chemical weapons (CW) which called for resolution of all major outstanding issues by the end of 1991 and completion of the Chemical Weapons Convention (CWC) within 12 months. He declared the U.S. intention to become an original party to CWC and called upon all states to do the same and to declare publicly all CW stocks. He announced that the United States would drop its insistence on states retaining the right of retaliation with CW and will forswear use of CW for any reason, effective when the CWC enters into force.

The Department of Defense On-Site Inspection Agency (OSIA) was established in January 1988 to implement the escort and inspection provisions of the INF Treaty. Subsequently, OSIA has been tasked to implement programs for the support of TTBT, CFE, START, the bilateral U.S.-USSR Chemical Weapons Destruction Agreement, and the multilateral CWC. The Vienna Document of 1990, which was included under the auspices of the Conference on Security and Cooperation in Europe (CSCE), was added to OSIA's inspection and escort requirements.

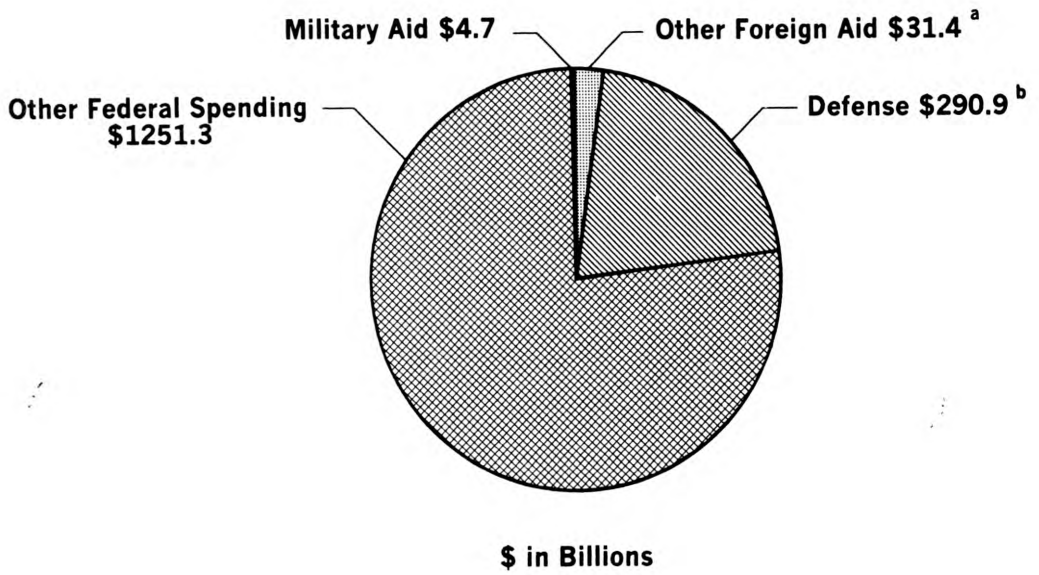
Other ongoing arms control negotiations will further contribute to security arrangements. The United States is involved in a number of talks, including the continuation of Defense and Space Talks, CFE Follow-on Negotiations, CSBM Negotiations, CWC, and regional arms control initiatives. The United States is negotiating a follow-on arms control and security dialogue forum with all states participating in the CSCE. This new forum will contain not only traditional arms control, but new transparency measures, enhanced dialogue among states, and increased military contacts. This new forum and its contents, which are still under negotiation, will be launched after the Helsinki CSCE Review Conference in the spring of 1992.

LOW-INTENSITY CONFLICT

The end of the Soviet Union does not presage the end of low-intensity conflict security concerns for the United States. The continuing disengagement of the former Soviet Union does mean, however, that the United States should be able to counter low-intensity conflict threats with greater selectivity, flexibility, and prospects for favorable outcomes.

As in the past, U.S. forces will be called upon, and

FY 1992 Military Assistance as a Share of the Federal Budget Chart 2



[a] Includes an atypical $12.2B quota increase for the International Monetary Fund.
[b] Includes DoD, Atomic Energy Defense, and Defense-related.

must be trained, equipped, and prepared to respond to conflict challenges such as terrorism, drug trafficking, and insurgencies. We also anticipate that the geopolitical environment of the 1990s will place increased emphasis on the Department's peacekeeping mission and such contingencies as noncombatant evacuation operations. As shown by the experience of recent decades, low-intensity conflict is not just a scaled-down version of conventional conflict. Rather, it often requires specially tailored military capabilities as well as a balanced and integrated application of all elements of U.S. national power. The Department is working to foster this interagency approach and ensure that personnel and forces are trained for employment in the low-intensity conflict environment.

FORWARD PRESENCE OPERATIONS

Forward presence operations of U.S. forces demonstrate our commitment, foster regional stability, lend credibility to our alliances, and enhance our crisis response capability. The Department of Defense undertakes missions such as peacekeeping, disaster relief, nation-building assistance, humanitarian assistance, military-to-military contacts, and security assistance. In all of its operations, DoD cooperates closely with the Department of State. Indeed, the effectiveness of DoD's contribution hinges on a clear translation of our foreign policy objectives into operational tasks for the U.S. military. Hence the Department continues to maintain active liaison with the Department of State and other agencies in developing programs to meet the challenges and explore the opportunities arising in the post-Cold War world.

FIGHT AGAINST ILLEGAL DRUGS

Detecting and countering the production, trafficking, and use of illegal drugs are high-priority national security missions for the Defense Department. The supply and use of illicit drugs in the United States, and the associated violence and international instability, pose a direct threat to our security. The Department of Defense increased its level of funding for counterdrug

operations in FY 1991 to nearly $1.1 billion, not counting equipment, training, and services provided to Andean countries through the Foreign Assistance Act. The Department of Defense provides training for drug law enforcement personnel; support for federal, state, and local drug law enforcement agencies; and leads the ongoing efforts to integrate the command, control, communications, and technical intelligence assets of the federal government dedicated to drug interdiction. The National Guard and Reserves conduct counterdrug missions in the United States in support of drug law enforcement agencies, and have assisted in the seizure of substantial quantities of illegal drugs.

RESEARCH AND DEVELOPMENT (R&D)

The science and technology program of the Department of Defense is one of the foundations for our national defense. The performance of our weapons and other systems during the war with Iraq demonstrated the decisive margin that superior technology can provide. Maintaining a technological advantage is a continuous process. Some technologies advance at an extremely rapid rate and are often quickly diffused throughout the world. Maintaining the technological superiority of our forces will require continuing investments in R&D to produce state-of-the-art capabilities.

Developments during the past three years demonstrated how difficult it is to forecast changes in the international security environment and the nature of future threats. Therefore, changes in our force capabilities must be based on long-term trends and must not depend on the events of the moment. The time required to develop a capable defense posture makes it essential that we take a long-term perspective in developing and acquiring modern weapons systems. Much of the military equipment used in the Persian Gulf resulted from efforts that originated in the 1960s and 1970s. In short, continued investments now in R&D are essential and will provide a prudent insurance policy for future U.S. fighting men and women.

NONPROLIFERATION AND TECHNOLOGY SECURITY

The use of export controls to deny potential adversaries access to advanced strategic technologies, and thus preserve our technological edge, remains an essential element of U.S. defense strategy. Many countries continue to pursue technology needed to produce unconventional and advanced conventional weapons. The United States has adopted multiple approaches to the problems posed by proliferation. International agreements, such as the 1972 Biological Weapons Convention and the 1968 Nuclear Non-Proliferation Treaty are essential elements, although our experience with Iraq has emphasized that treaties alone are not enough to prevent proliferation. The United States, its allies, and other friendly nations also are working to strengthen export control policies, for example, through the Missile Technology Control Regime. In addition, the underlying security concerns that motivate proliferation must be addressed, and contingency planning is needed to deal with these weapons should preventive measures fail.

INTELLIGENCE SUPPORT

The end of the Cold War has not eliminated the importance of effective intelligence capabilities. The challenges of proliferation, technology transfer, terrorism, and illegal drugs are cases in point. The need to respond to the more complex international environment will place a premium on assessments of a wide range of potential adversaries. Also, the need to apply military force with increasing precision will place a premium on timely, in-depth assessment of those adversaries. As the Persian Gulf War illustrated, our intelligence must be able to react quickly to cope with unexpected requirements. Without early warning of political and military changes, we may not be able to anticipate threats to our interests or reconstitute our military forces.

Summary

The end of the Cold War, and the resulting far-reaching changes in the international security environment, led to the formulation of a new defense strategy and the design of a new force for the future. Although the new strategy recognizes that the long-standing global Soviet threat has disappeared, it emphasizes that regional challenges can be serious and potentially threatening to vital national interests. As was demonstrated by the Iraqi invasion of Kuwait in August 1990, regional political leaders may have the will and capability to try to achieve their objectives through the use of military force. The future will require a smaller, but highly trained and well-equipped force with the capabilities needed to respond to such threats.

COLLECTIVE SECURITY

Introduction

As we move into the post-Cold War era, we must recognize that our alliances remain profoundly important. Working with countries that share our fundamental values and security concerns helps to protect vital U.S. national interests, and collective security arrangements are an essential component of the U.S. national security strategy. Our security alliances provide a clear demonstration of our commitments, help to deter potential aggressors, enhance regional stability by lowering the levels of armaments and the potential for conflict, reduce expenditures, and reassure allies that they do not have to rely solely on their own resources in order to protect themselves from external threats. In these ways, our alliance relationships provide an essential underpinning for freedom, democracy, and economic development based on market principles.

Our security relationships take many forms, depending on the nature of the shared interests. They include industrial base and weapon development cooperation, overseas basing and access agreements, demonstrations of military capability to deter regional threats, training to enhance defense capabilities, and where necessary joint or combined deployment of military forces. Such arrangements facilitate communications and interoperability with allied military forces, are essential for forward presence, support our crisis response capabilities, and defend our mutual national interests.

Alliance Agreements and Defense Relationships

The United States has security agreements with many countries around the world including seven formal alliances (See Table 2). In addition, we have other less formal arrangements. The vital importance of these nontreaty relationships was demonstrated by the cooperation and assistance provided to the Coalition during the Persian Gulf crisis, which reflected the positive success of decades of effort to build cooperative security relationships with many countries in the region and around the world.

Cooperation makes it possible to reduce duplication with and among allies and thus conserves scarce defense resources. The U.S. armed forces have unique capabilities, which can enhance the security of our allies. It is equally true that some of our allies maintain assets that can make a significant contribution to a coalition effort. Alliance arrangements have made possible host-nation support and other arrangements to share the mutual defense burden, which reduce the cost of forward presence on the U.S. taxpayer and make it possible to reach agreements on sharing responsibilities and roles with allies and friends.

Formal U.S. Alliances **Table 2**

- The North Atlantic Treaty Organization (NATO) Alliance
- The Australia-New Zealand-United States (ANZUS) Treaty (U.S. obligations to New Zealand currently are suspended as a result of New Zealand's decision to ban U.S. nuclear-powered and nuclear-capable ships from its ports)
- The Treaty of Mutual Cooperation and Security between the United States and Japan
- The Mutual Defense Treaty between the United States and Republic of Korea
- The Mutual Defense Treaty between the United States and the Republic of the Philippines
- The Southeast Asia Collective Defense Treaty (which remains in effect on a bilateral basis with Thailand)
- The Inter-American Treaty of Reciprocal Assistance (the Rio Treaty)

NATO continues to provide an indispensable foundation for a stable security environment in Europe. It is adapting creatively to the revolutionary changes in the European security environment brought about by the demise of the Warsaw Pact and the end of the Cold War. This process, launched at the London Summit in July 1990, reached a new milestone at the NATO Summit in Rome this past November. There, the alliance agreed on a new strategic concept that encompasses both cooperation with the countries of Central and Eastern Europe

and the concept of defense and dialogue. While NATO is maintaining the integrated military force structure to meet the need for collective defense, the new strategic concept calls for those forces to be more flexible, more mobile, and multinational in character.

The United States believes that the emergence of a distinct European security identity within the context of transatlantic relations is compatible with NATO. For this reason, the United States is prepared to support arrangements needed for the expression of a common European security and defense policy. The United States and its alliance partners endorsed at the NATO Rome Summit of November 1991 a complementary European security architecture consisting of NATO, the CSCE, the European Community, the West European Union, and the Council of Europe. Although complementary, the summit declaration confirmed that NATO should remain the primary focus for consultation with our European allies and for the formulation of policies regarding the security and defense commitments of NATO members. In addition, the United States continues to seek agreements with its NATO allies to achieve equity in sharing the costs of roles, risks, and responsibilities of the common defense.

The United States will continue to work with allies in East Asia and the Pacific to sustain bilateral security arrangements. In 1991, the United States and Japan agreed on a new host-nation support arrangement under which Japanese contributions will cover all foreign labor and utility costs. By 1995, Japan will be paying more than 70 percent of our stationing costs, excluding military salaries. The value of the cost-sharing agreement with Japan will be about $17 billion over the next five years. No other ally pays as much as Japan in support of our forward-based forces.

Despite the recent unprecedented "Agreement between North and South Korea on Reconciliation, Nonaggression, and Exchange," the Korean Peninsula remains, for the moment, the most likely scene for the eruption of conflict in Asia. The North Korean nuclear weapons development program poses the most dangerous threat to peace in the region. North Korea remains under the autocratic control of a communist dictator. U.S. forces deployed on the peninsula act to deter North Korea, but should hostilities erupt the United States remains committed to fulfill its treaty obligations for the defense of the Republic of Korea. The Republic of Korea's host-nation support contribution has grown between 1989 and 1992 from $45 million to $180 million. South Korea is also moving to assume the leading role in its own defense.

Following the successful conclusion of the war in the Persian Gulf, the United States has pursued expanded defense arrangements with the Gulf States that will better address the security needs of the region when implemented. The primary objectives of these arrangements are to deter future aggression in the region and, if deterrence fails, to be in a better position to respond to a crisis than we were in August 1990. U.S. interests in the area necessitate international cooperation based on the principle of collective security with the nations of the region, as well as with our Western allies. Towards that goal, the United States recently signed defense cooperation agreements with Kuwait and Bahrain; these agreements are in addition to the long-standing agreement with Oman. We continue to explore similar arrangements with other friendly countries in the region.

Access to facilities in the nations of sub-Saharan Africa made an important contribution to the Coalition effort during Operation DESERT STORM, both for the United States and for the other Coalition forces. Such access would have been even more important had the conflict been prolonged. The nations with whom the United States has formal and informal access agreements (which include Djibouti, the Gambia, Kenya, Liberia, Senegal, and Seychelles) face enormous problems. Failure of the Western nations to promote stability in Africa could result in disruption in the production or distribution of strategically important resources and could reduce access to facilities important to regional contingencies.

The United States cooperates with countries in Latin America to promote our common security and democratic consolidation. Over the past decade, nearly all nations in Latin America have made substantial progress towards democracy and free markets, but a notable exception is Cuba, where an isolated ruler continues to adhere to a discredited communist ideology.

Recognizing that national security and economic security are indivisible, the United States has signed trade and investment framework agreements with the overwhelming majority of Latin American countries under President Bush's Enterprise for the Americas Initiative. In addition, Latin American military officers and civil-

ian executive branch officials are being trained in the United States to plan, program, and organize defense budgets. The United States is working to make the region safer by encouraging full adherence to the Treaty of Tlatelolco (concerning nuclear nonproliferation), International Atomic Energy Agency safeguards, and guidelines of the Missile Technology Control Regime.

The Panama Canal Treaty and the Treaty on Permanent Neutrality of and Operation of the Panama Canal provide for a partnership between the United States and Panama in operating and defending the canal. We are proceeding on a schedule to transition to full Panamanian control of the canal in 1999.

International Defense Cooperation

The Department of Defense considers international defense industrial cooperation to be a significant element of the U.S. acquisition process. By taking advantage of the growing technological capabilities of our allies, we can make more efficient use of scarce defense resources. Allies have unique capabilities of value to the United States and joint projects can provide stability in production through sales, coproduction, cooperative development, and logistic support efforts. This cooperative approach promotes modernization, reduces research and development expenses, improves access to technology, and makes it possible to achieve economies of scale. These economic relationships with allies strengthen the U.S. defense alliance relationships with them.

The importance of cooperative weapon development programs will grow. Tighter alliance defense budgets will reduce the resources available for weapon development and procurement. At the same time, the technological capabilities of our allies should continue to grow. Accordingly, such cooperation will remain an integral aspect of our overall defense acquisition strategy.

Overseas Basing and Access

The United States needs overseas bases to sustain its forward presence and to provide facilities for regional contingency operations during periods of crisis. Our successes in the Persian Gulf were due in no small measure to our access to overseas bases. Foreign bases enhance deterrence, contribute to regional stability, and facilitate rapid response by U.S. forces.

The end of the Cold War and the evolving capabilities of our allies make it possible to significantly reduce our forward-based presence. During the next few years, we will make substantial cuts in the number of personnel now stationed in Europe and the Pacific. For this reason, we have closed many of our overseas bases and will continue this process as we draw down our forward-deployed forces.

The United States also will continue to require access arrangements in key locations around the globe. Maintaining an adequate level of presence overseas is essential to the maintenance of our alliances in Europe and Asia. The United States will continue to develop access arrangements to support deployment of U.S. forces over the full range of conflict. In addition to overseas basing, our naval and long-range air forces provide flexible and responsive access to those regions where basing is not feasible for military, political, or economic reasons.

Although U.S. forces are being withdrawn from the Philippines, the United States will maintain a strong, visible presence in Southeast Asia. The government of Singapore has agreed to permit expanded U.S. military access to existing Singaporean facilities in a move that is indicative of a new approach to maintaining U.S. presence in the region — a network of access agreements in lieu of permanent bases.

Security Assistance

Security assistance directly supports U.S. foreign policy and national security objectives in the dynamic post-Cold War international security environment. The military component of security assistance, implemented by the Department of Defense in accordance with policies established by the Department of State, has as its principal components the Foreign Military Sales (FMS) program, the Foreign Military Financing (FMF) program, and the International Military Education and Training (IMET) program. Also included are special authorities which provide for emergency drawdowns of defense inventories and the Excess Defense Articles program.

The FMS program is the government-to-government channel for U.S. defense sales to allies and friends. Defense sales strengthen collective security by enhancing the self-defense capabilities of allies and friends, promoting interoperability between U.S. and foreign military forces, and establishing close and productive

military-to-military relationships. The FMF program finances defense purchases by more than 50 countries in support of U.S. foreign base and access rights, Middle East peace and stability, counternarcotics efforts, and democratic development.

The IMET program is a low-cost grant aid program that provides military education and training to over 5,000 foreign military and civilian defense personnel from over 100 countries each year. In addition, IMET exposes future leaders of many foreign defense establishments to American values, regard for human rights, and democratic institutions. With the end of the Cold War, IMET has been expanded to provide education for military and civilian officials from some former Warsaw Pact countries. The IMET program is one of the least costly and most effective programs for maintaining U.S. influence and assisting foreign countries with their development of self-defense capabilities.

The contribution of security assistance to the Coalition forces' success in the Persian Gulf War attests to the important role it will play in responding to such threats in the future. In Saudi Arabia, much of the military infrastructure that enabled the rapid build-up of a formidable Coalition was built under FMS programs. Robust and long-standing security assistance relationships helped establish and preserve base and access rights that were highly important to the success in the Gulf.

The United States proceeds with FMS only when they support the foreign policy and national security objectives of the United States, such as regional stability and economic development. Consistent with this long-standing U.S. policy, President Bush launched his initiative to obtain the agreement of four other major foreign supplier nations to establish guidelines of restraint to help prevent destabilizing arms transfers to the volatile Middle East/Persian Gulf region.

The U.S. ability to most effectively utilize security assistance is, however, impaired by declining resources and reduced flexibility. Funding for FMF has declined steadily since FY 1984. At the same time, the percentage of FMF funds earmarked by Congress for particular programs has increased from 49 percent in that year to 86 percent in FY 1991. As a consequence of these two trends, disproportionate reductions must be imposed on the majority of recipients. We are concerned that these trends, combined with other restrictions and requirements which prevent, delay, or complicate the use of security assistance, impede our ability to respond to challenges in particular countries or regions.

Support for Peacekeeping Activities

The changing international security environment and renewed prominence of the United Nations have increased the scope of the U.N.'s peacekeeping efforts and widened the potential for greater U.S. participation and support for peacekeeping operations. U.S. law provides for U.S. armed forces participation in U.N. peacekeeping forces, with the cost of such participation normally borne by the United Nations. U.S. military officers have served in U.N. peacekeeping missions since 1948, but more than half of these officers are in positions created only within the last year with the formation of peacekeeping missions in Kuwait/Iraq, the Western Sahara, and Cambodia. The Defense Department also provides logistic support and planning expertise to the United Nations, and has provided assistance to other peacekeeping operations where the United Nations is not involved in the Middle East and Africa. These activities, undertaken in close cooperation with the Department of State, support U.S. foreign policy objectives for the peaceful resolution of conflict; reinforce the collective security efforts of the United States, our allies, and other U.N. member states; and enhance regional stability.

Humanitarian Assistance

For the past seven years, the Department of Defense has conducted humanitarian and civic assistance programs in support of broader U.S. foreign policy objectives. Our assistance, provided to more than 75 countries worldwide, has enhanced military-to-military relations, improved relations with the people of several countries, and made a major contribution to the relief of human suffering. This assistance takes many forms, including donation of excess food, clothing, and medical supplies, construction of schools and roads by U.S. military personnel, foreign disaster assistance, and the transportation by U.S. military aircraft of privately donated humanitarian cargo.

During the past year, the Department of Defense demonstrated anew its ability to respond rapidly to humanitarian disasters in Africa, Latin America, Asia, Eastern Europe, and even the former Soviet Union.

Operation PROVIDE COMFORT, which provided timely assistance to refugees in northern Iraq, and Operation SEA ANGEL, which facilitated disaster relief in Bangladesh, were examples of the contribution of the Department of Defense to urgent humanitarian needs. These accomplishments were in addition to ongoing activities worldwide, especially in Latin America and the Pacific area. Although the ability of the Department of Defense to provide humanitarian assistance is extremely limited under current law, except in support of the United Nations, the Department has made effective use of its capability to support humanitarian efforts.

Summary

In a dynamic and uncertain world, we will continue to depend on strong alliances and collective security arrangements. The post-Cold War international order will be shaped in part by the collective efforts of the United States and its allies. Alliances provide a framework for long-range planning and crisis response. Ongoing security ties make it possible to develop working relationships critical to successful cooperation in times of crisis. Because it can take years to develop strong security ties among nations, it may not be possible to rebuild or create relationships in times of crisis.

Part II
Defense Resources

BUDGET

Introduction

The Administration's amended fiscal year (FY) 1993 Department of Defense budget request is $267.6 billion in budget authority and $272.8 billion in outlays. This is the second year of a biennial budget request and the second year of DoD's FY 1992-97 Future Years Defense Program (FYDP), spending for which is forecast in Table 3. This budget request reduces the FYDP by $50.4 billion in budget authority below the planned levels, adjusted for inflation revisions and 1991 congressional action, that were in last year's request (See Table 3a) and that were consistent with the 1990 Budget Enforcement Act (title XIII section of Public Law 101-508).

The requested FY 1993 DoD budget authority is, in real terms, 28.8 percent below FY 1985. Under the President's budget, in FY 1997 the cumulative real decline since FY 1985 will reach 36.8 percent (See Table 4). As a share of America's gross national product, DoD outlays are expected to fall to 3.4 percent in FY 1997, well below any time since before World War II (See Chart 3).

The FY 1993 defense request received careful review before it was finalized. The prime goal of the review was to ensure that the request took appropriate account of lessons learned from the Gulf War, continuing changes in the former Soviet Union, congressional action on the defense budget for FY 1992, President Bush's historic scaling back of the U.S. nuclear posture, and other factors that have surfaced in the past year. Our review resulted in some changes to the FY 1993 portion of the

National Defense Topline ($ Billions)* Table 3

	1992	1993	1994	1995	1996	1997
Budget Authority						
DoD 051	270.9	267.6	267.8	269.9	270.4	274.6
DoE & Other	12.9	13.3	13.9	14.5	15.3	16.0
Total 050	283.8	280.9	281.7	284.4	285.7	290.6
Outlays						
DoD 051	282.6	272.8	267.4	267.9	270.9	273.6
DoE & Other	12.6	13.1	13.6	14.1	14.9	15.5
Total 050	295.2	285.9	281.0	282.0	285.8	289.1

* Excludes cost of Operation DESERT SHIELD/STORM.

DoD Budget Authority ($ Billions) Table 3a

	1992	1993	1994	1995	1996	1997	Cumulative 1992-97
President's FY1992 DoD Budget	278.3	277.9	278.2	280.7	282.6	287.4	
Adjusted Summit Level[1]	277.5	275.6	275.8	278.3	279.9	284.6	(-13.4)
Program Adjustments	-6.6	-8.0	-8.0	-8.4	-9.5	-10.0	-50.4
President's FY 1993 DoD Budget	270.9[2]	267.6	267.8	269.9	270.4	274.6	(-63.8)

[1] Defined as January 1991 budget levels extended to 1997 and adjusted for 1991 congressional action, technical corrections, and inflation.

[2] Excludes cost of Operation DESERT SHIELD/STORM.

DoD Outlays ($ Billions) Table 3b

	1992	1993	1994	1995	1996	1997	Cumulative 1992-97
President's FY 1992 DoD Budget	283.0	279.1	273.3	274.6	278.5	283.3	
Adjusted Summit Level[1]	283.2	278.0	271.5	272.5	276.1	281.3	(-9.7)
Program Adjustments	-0.6	-5.2	-4.1	-4.7	-5.2	-7.7	-27.4
President's FY 1993 DoD Budget[2]	282.6	272.8	267.4	267.9	270.9	273.6	(-37.1)

[1] Adjusted for lower inflation projections; FY 1993-95 levels are consistent with the budget summit agreement.

[2] Excludes cost of Operation DESERT SHIELD/STORM.

DoD Budget Authority ($ in Billions) Table 4

Year	Current $	Constant $	Real Growth %
1985	286.8	375.6	
1986	281.4	359.1	-4.4
1987	279.5	345.7	-3.8
1988	283.8	338.5	-2.1
1989	290.8	333.7	-1.4
1990[1]	291.0	324.1	-2.9
1991[1]	276.0	292.9	-9.6
1992[1]	277.5[2]	287.8[2]	-1.8
1993	267.6	267.6	-7.0
FY 1985-1993 real change:			**-28.8**
1994	267.8	258.0	-3.6
1995	269.9	250.4	-2.9
1996	270.4	241.8	-3.4
1997	274.6	237.5	-1.8
FY 1985-1997 real change:			**-36.8**

[1] Excludes cost of Operation DESERT SHIELD/STORM.
[2] Enacted in FY 1992 DoD Appropriations Act. The FY 1992 figure in this year's budget request ($270.9 billion) differs because it reflects a proposed environmental supplemental appropriations and proposed rescission of already appropriated funds.

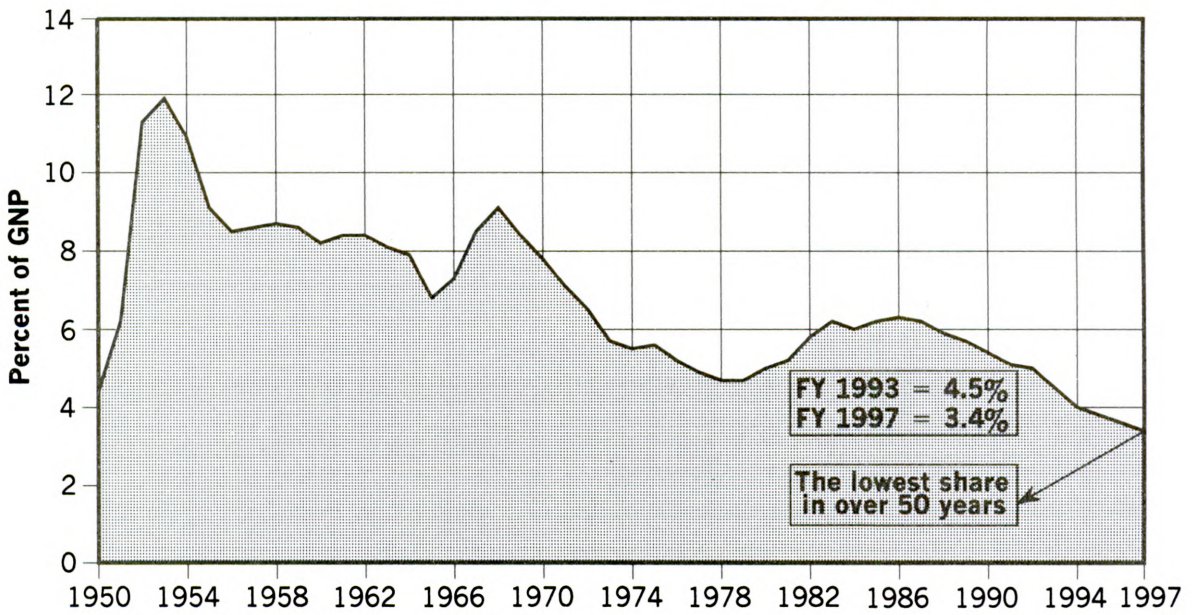
FY 1992-93 biennial budget submitted to Congress in February 1991; but it is important to remember that — from its inception — our FY 1992-93 biennial request assumed that regional contingencies, not Soviet military power, would be our main security concern in the future. Furthermore, the Gulf War overwhelmingly corroborated the spending priorities already programmed into our FY 1992-93 request.

Under the President's defense request, by FY 1997 the cumulative real decline in defense outlays since FY 1985 will be 26 percent. Over the same period, mandatory federal spending is projected to increase in real terms about 33 percent and domestic discretionary outlays to increase about 8 percent (See Chart 5).

Budget Imperatives

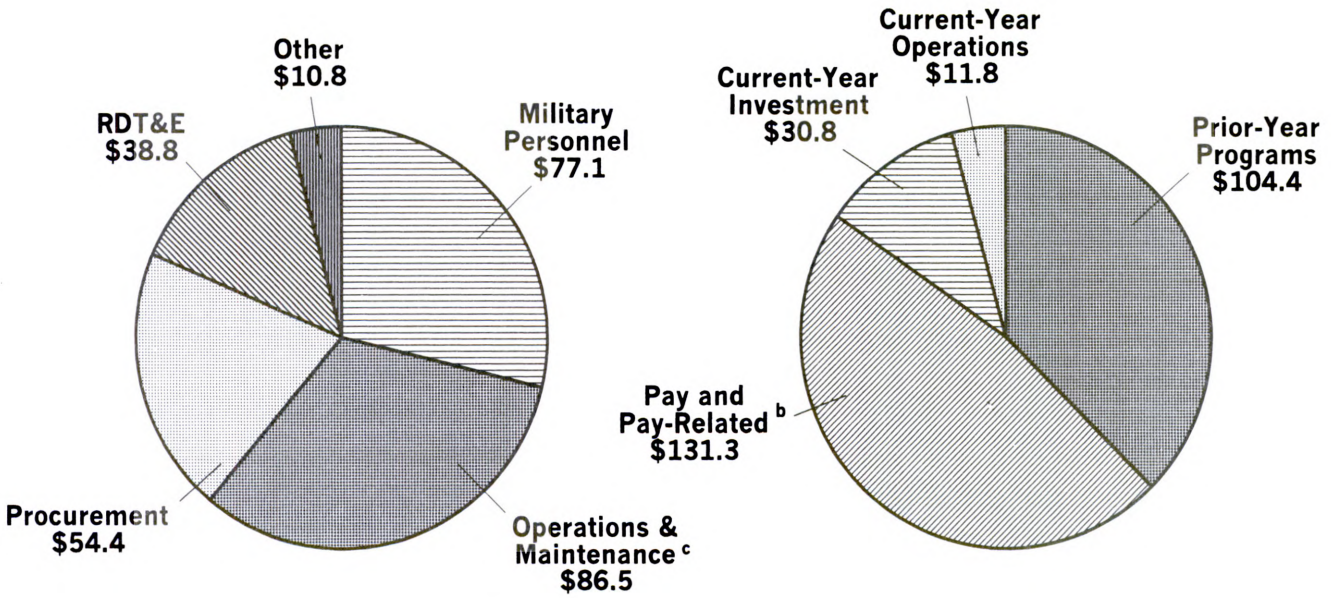
If favorable global security trends continue, America can safeguard its vital interests within the declining defense budgets projected through FY 1997. However, that requires that allocations within those budgets be made wisely, to provide the maximum support for the new U.S. defense strategy.

Defense Outlays as a Share of the Gross National Product Chart 3



Department of Defense Budget Authority and Outlays[a] (Dollars in Billions)

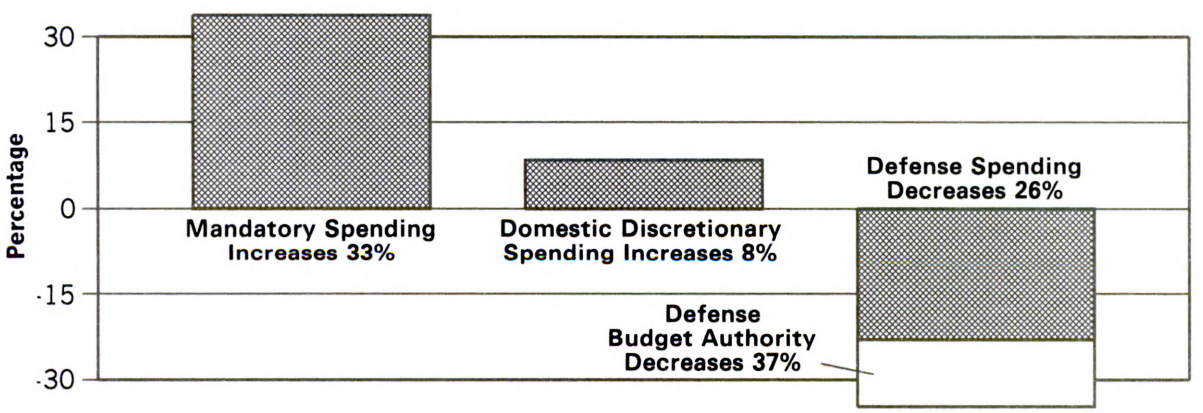
Chart 4



[a] Numbers may not add to totals due to rounding.
[b] Includes retirement pay accrual costs.
[c] Operations and Maintenance includes the cost of DoD civilian personnel.
[d] Includes $5.5 billion in outlays attributed to Operation DESERT SHIELD/STORM.

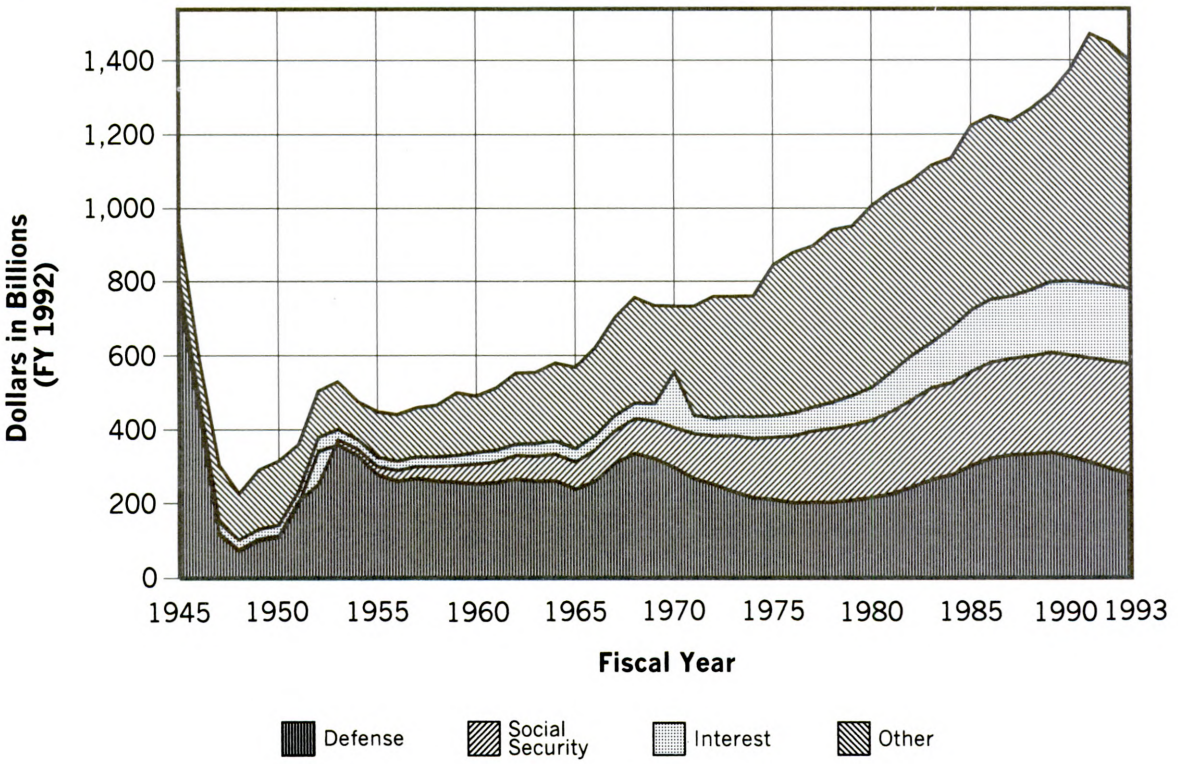
Domestic Discretionary, Defense and Mandatory Outlays Cumulative Real Changes FY 1985-97

Chart 5



Total Federal Outlays

Chart 6



America's defense strategy requires top-quality, versatile forces — ready to respond quickly and effectively to a wide variety of threats to U.S. security interests around the world. To provide maximum support to the strategy within fiscal constraints, the FY 1993 defense budget request was formulated in consonance with the following imperatives:

- People. Policies and programs should reflect that the high quality of U.S. military personnel is the most important determinant of America's military strength.
- Power projection/mobility. The United States must be able to project military power around the globe to safeguard vital U.S. interests.
- Quality of the force. U.S. forces must remain superior in capabilities to possible adversaries in order to deter aggression convincingly and ensure decisive success, with the least possible cost, should deterrence fail.
- Readiness. Effective levels of manning, training, maintenance, equipping, and sustainability ensure that U.S. forces are capable of operating effectively and rapidly.
- Robust strategic offensive and defensive forces. To ensure nuclear deterrence, we must maintain strong offensive nuclear forces. Additionally, we must pursue strategic and theater defenses to provide global protection against limited ballistic missile strikes — whatever their source.
- Technological advantage. Through vigorous research and development (R&D), and timely modernization, our forces must have the benefit of advanced technology required to give them a decisive advantage over possible adversaries.
- Efficient acquisition. To develop and procure military hardware efficiently and in sufficient quantities, we must: fund sustainable production rates for essential programs; emphasize multiyear procurement; terminate lower priority programs; and retain an effective defense industrial base.
- Streamlined modern infrastructure. The United States must reduce and make more efficient its defense infrastructure, closing unneeded defense facilities. We must provide a prudent level of

investment to maintain remaining facilities and infrastructure.

Budget Content

The force structure implications of the new defense strategy are embodied in the Base Force, a force structure that the Department of Defense believes is the minimum required to protect U.S. national interests.

Projected force reductions from FY 1990 to FY 1995 include:

- Army divisions: From 28 (18 active) to 18 (12 active) — the FY 1995 total of 18 does not include 2 cadre divisions;
- Navy aircraft carriers: From 16 to 13 total (including a training carrier);
- Carrier air wings: From 15 (13 active) to 13 (11 active);
- Navy battleships: From 4 to 0;
- Total naval battle force ships: From 547 to 452;
- Air Force fighter wing equivalents: From 36 (24 active) to 26.5 (15.25 active);
- Heavy bombers (primary aircraft authorized): From 268 to 181;
- Nuclear-powered ballistic missile submarines: From 33 to 23.

The Marine Corps will maintain three active and one reserve divisions, three active and one reserve aircraft wings, and associated active and reserve combat service support — although at somewhat reduced levels.

The Gulf War interrupted the streamlining and restructuring of U.S. armed forces, but it is now proceeding smoothly. By the end of FY 1992, we will essentially be back on schedule.

Defense personnel totals will fall more rapidly than planned just a year ago. From its post-Vietnam peak of 2,174,000 in FY 1987, active military end strength in FY 1997 will be 1,626,000 — about 25 percent below the 1987 peak. In FY 1997, reserve personnel levels are planned to be 20 percent below FY 1987. In FY 1997, DoD civilian strength will fall to 904,000 — about 20 percent below its FY 1987 post-Vietnam peak. This planned decrease reflects both the shrinking U.S. military strength and DoD management improvements.

Highlights of our FY 1993 request include spending on training, maintenance, and other relevant accounts at levels sufficient to sustain high readiness for U.S. forces. The request also supports pay and benefits that are essential to preserving force quality.

The FY 1993 request is the first to reflect fully a new approach to defense acquisition. Its distinctive features:

- Heavy emphasis on government-supported R&D, to maintain America's technology base and to keep its military know-how on the cutting edge;
- More reliance on prototypes to demonstrate and validate new capabilities;
- Advancing from prototype to full-scale production on fewer systems, and only after thorough testing;
- Greater attention to the producibility of new systems and to manufacturing processes; and
- Higher reliance on upgrading and inserting new capabilities into existing platforms, rather than fielding totally new systems.

Reflecting this new acquisition approach are numerous adjustments in acquisition programs, including:

- B-2 stealth bomber. Cap production at 20 aircraft, but pursue vigorous research on stealth technologies;
- SSN-21 Seawolf attack submarine. Terminate at one boat, develop lower-cost design, and pursue other antisubmarine warfare (ASW) systems;
- Comanche helicopter. Shift focus from full production to building prototypes and developing its avionics, engine, and other subsystems;
- Small Intercontinental Ballistic Missile (ICBM). Terminate development, but upgrade and extend the service life of Minuteman III missiles; and
- Air Defense Antitank System (ADATS). Terminate the Army's ADATS, but initiate development of aircraft tracking and guidance technologies.

Consistent with U.S. strategy and projected force reductions, America's permanent overseas presence is being reduced. DoD's January 1992 announcement brought to 441 the number of overseas bases and sites that will be returned to host nations, with another 51 that will be reduced or placed in standby status. These announced actions affect about 30 percent of the U.S. overseas base structure. Eventually DoD expects to reduce its overseas base structure by almost 40 percent. The 1988 and 1991 commissions will result in the closure or reduction of 9 percent of domestic bases and facilities. A 1993 commission will consider additional domestic actions.

Operation DESERT SHIELD/STORM

The topline budget figures in this chapter and Table 4 exclude the dollars appropriated to pay the incremental U.S. costs of Operation DESERT SHIELD/STORM. Doing this is consistent with the 1990 Budget Enforcement Act, which mandated that U.S. spending on Operation DESERT SHIELD/STORM be treated as emergency funding requirements and not subject to the defense budget ceilings agreed by the Congress and the Administration.

To understand the budgetary consequences of the Gulf War, it is essential to distinguish between costs and financing. In this context, costs refer to incremental costs, that is, costs that the Department of Defense would not have incurred absent the war. Not all these costs require financing — either from cash contributions from our allies or from the U.S. Treasury.

Incremental Operation DESERT SHIELD/STORM costs are estimated at $61.1 billion.

To offset these incremental costs, U.S. allies pledged to contribute $54.0 billion. As of January 1992, allied contributions are approximately $47.0 billion in cash and $5.6 billion in in-kind assistance (See Table 5).

Subtracting from the estimated incremental costs, the $54 billion in allied commitments, and the $1.2 billion in not-to-be-replaced losses noted above, the net U.S. costs to the U.S. taxpayer for Operation DESERT SHIELD/STORM are expected to be a maximum of $5.9 billion. Of this, about $2.1 billion was already financed in FY 1990, and $1 billion was covered by transfers within the FY 1990 and FY 1991 defense budgets. Thus, the maximum additional costs are expected to be approximately $2.8 billion in FY 1992 and subsequent years.

Looking Ahead

Refinements in America's defense strategy and the restructuring of its armed forces continue in recognition of favorable global developments, especially within the former Soviet Union and Eastern Europe. The force levels and programs in the FY 1992-97 FYDP were based on the assumption that these favorable conditions would continue.

The pace of the planned defense drawdown — reflected in the average 4 percent per year real decline

Operation DESERT SHIELD/STORM Foreign Government Contributions to Offset U.S. Costs (U.S. $ Million) Table 5

Contributor	Cash[1]	Receipts In-Kind[1]	Total	Future Receipts
Saudi Arabia	11,702	3,975	15,677	1,162
Kuwait	16,015	41	16,056	
UAE	3,870	218	4,088	
Japan	9,437	571	10,008	4
Germany	5,772	683	6,455[2]	
Korea	150	100	250	105
Others	8	22	30	
Total	**46,954**	**5,611**	**52,565**	**1,271**

[1] Cash received as of January 23, 1992; In-kind as of January 1, 1992.

[2] Germany's commitment was $6,572 million, but it included over $200 million of ammunition that the U.S. chose not to accept due to the termination of the war.

Description of Incremental Costs	$ Billion
FY 1990 costs financed by FY 1990 supplemental appropriations	2.1
Transfers from already appropriated FY 1990-91 DoD funds (From deferrable maintenance and other nonessentials)	1.0
Goods/services covered by allied in-kind assistance	5.8
FY 1991-92 costs, exclusive of the above categories	47.1
Materiel losses that will not be replaced	1.2
Long-term survivor/veteran benefits	3.9
Total:	**61.1**

in spending projected through FY 1997 — is prudent, from both a security and a budget standpoint.

The level of defense spending we will need beyond FY 1997 depends on many global factors largely beyond our control. However, it also depends on how wisely we allocate scarce defense funds in this and future years. We will continue to work with Congress to adopt budgets that provide optimal support for U.S. defense strategy.

STRENGTHENING DEFENSE MANAGEMENT

Introduction

The Secretary of Defense's July 1989 *Defense Management Report (DMR)* to the President was an all-encompassing review of the defense acquisition system and the management practices of the Department of Defense. The *DMR* set forth the plan requested by President Bush to improve the defense acquisition system and manage more effectively the Department of Defense and our defense resources. It established the framework to make fundamental changes in the way the Pentagon does business through ongoing and long-lasting management improvements within the Department.

The underlying philosophy guiding DoD's management improvements is to centralize policies, procedures, standards, and systems while decentralizing their execution and implementation. Significant progress has been made in reducing the cost of doing business by streamlining management structures, cutting excess infrastructure, eliminating redundant functions, and initiating standard business practices throughout the Department. Consequently, all components of the Department are involved in implementing the *DMR*.

Acquisition Initiatives

Acquisition improvement was a major focus of the *DMR*. The Packard Commission, as well as numerous studies of the acquisition system, has reported that the system is encumbered by overly detailed and confusing laws, regulations, contracting guidance, and specifications. The morass of regulations needlessly complicates the acquisition process and leaves little room for business-like decisions that are so important to enhancing efficiency and improving effectiveness. As a result of the *DMR*, an all encompassing restructuring of acquisition related guidance is under way.

In an effort to identify and eliminate all nonvalue added or redundant guidance, we have examined over 500 acquisition directives and instructions and identified almost 400 for cancellation, consolidation, or revision. Of those chosen for cancellation, over half have already been eliminated. The revisions under way reflect the understanding that managers at all levels are competent, trained, and want to do a good job; accordingly, they should not be overburdened with detailed proscriptions and prescriptions that stifle creativity and individual judgments which are so essential to improving productivity and reducing cost. Finally, they also reflect the belief that DoD level acquisition guidance should be written so that it can be implemented with virtually no supplementation by the military departments.

A notable example of the improvements to the acquisition directives is the new cornerstone directives on acquisition policy and procedures. The revised documents clearly reflect the philosophy and the objectives of the *DMR* while allowing the cancellation of 50 separate directives and 15 policy memoranda. The result is a single source for clear, uniform acquisition system guidance.

In a similar effort to reduce burdensome guidance, DoD completed an initiative that streamlined and totally rewrote the *Defense FAR Supplement (DFARS)*. Every policy in the *DFARS* was analyzed, and any policy determined unnecessarily restrictive or duplicative was deleted. Regulatory burdens that inhibited good business practices, did not add value, or lengthened the procurement process were eliminated. The new *DFARS*, which became effective December 31, 1991, is less than half the size of the previous *DFARS*.

The Department is participating with the General Services Administration, the National Aeronautics and Space Administration, and the Office of Federal Procurement Policy in an effort to determine how the *Federal Acquisition Regulation (FAR)* might more effectively serve the needs of its users. We are evaluating the results of a survey distributed to *FAR* users in government and industry and will develop a plan to implement needed improvements. We are also actively considering a number of recommendations for *FAR* revisions that we have received from industry.

In addition, we have reviewed over 35,000 military specifications and standards, with the intent of replacing as many with commercial item descriptions (CIDs) as possible. As a result, 2,500 have been canceled outright; 1,500 have been replaced with CIDs or industry

standards. As a result of this effort, 14,000 will be canceled, replaced, or revised. We anticipate that the increased use of item descriptions commonly accepted in the private sector will bring suppliers to the DoD industrial base who would not otherwise do business with the Department of Defense.

The Department also submitted a *DMR* legislative package to Congress requesting specific changes in law to expand opportunities for improving defense management. A number of the legislative proposals forwarded by the Department were enacted in the FY 1991 Defense Authorization Act. One of the enacted provisions permits the Department to test private sector management techniques in order to increase efficiency and economy in the management of major defense programs. This proposal permits the Department to test innovative business methods by managing up to six pilot programs.

Lastly, in response to a *DMR* White Paper which reviewed congressional oversight, 30 percent of the recurring reporting requirements were eliminated by the Congress. The report noted that over the years the Congress and the DoD have tried to make improvements through more detailed federal laws and regulations. As a result, the system today is extremely cumbersome.

It is crucial that the acquisition system be streamlined in order to acquire necessary weapons systems at less cost, in less time, and with great assurance of promised performance. To assist in this effort, a panel at the Defense Systems Management College is undertaking a review of defense procurement law. This panel is to provide, by December 1992, proposals for a fundamentally restructured, streamlined, and improved body of acquisition law. It has begun this important task and will focus on limiting statutory provisions to those necessary to ensure financial and ethical integrity of government programs and protecting other fundamental government policies. It is anticipated that this will result in reduced procurement time and acquisition costs.

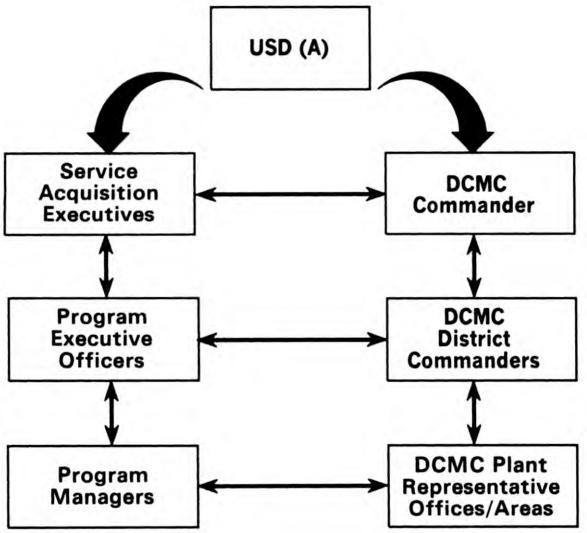
STREAMLINING CONTRACT MANAGEMENT

The Defense Logistics Agency (DLA) established the Defense Contract Management Command (DCMC) and consolidated the preponderance of DoD contract administration services at or near a contractor's plant, under a single organization. DCMC was established on February 26, 1990. The military departments and DLA contract administration services components in the continental United States (CONUS) were consolidated under the DCMC in June 1990. This involved the transfer of 44 service plant offices, 5,400 personnel, and 100,000 contracts valued at $400 billion from the military departments. DCMC International (DCMC-I) was formed on March 21, 1990, using the infrastructure of the Air Force Control Maintenance Center, a worldwide overseas organization, as the core. The majority of overseas contract administration activities were fully integrated into DCMC-I on October 1, 1990, with the workload spread throughout eight geographic area operations offices. DCMC currently administers some 500,000 contracts valued at $750 billion that are performed by approximately 30,000 contractors. As a result of the consolidation, significant savings have been realized. Nine former defense contract administration services regions were restructured into five DCMC districts and the Air Force contract management division was disestablished with projected savings of over $280 million through FY 1995. Through the end of FY 1991, savings of over 2,027 workyears have been realized. The DCMC continues to pursue organizational and functional streamlining initiatives designed to enhance mission effectiveness and efficiency. Chart 7 shows the new customer support relationship between the military service acquisition community and the DCMC.

COMMERCIAL ACQUISITION, SPECIFICATIONS, AND STANDARDS

The cornerstone defense acquisition policy directives have been reviewed and now contain clear guidance on the preferential use of commercial and other nondevelopmental items (NDI) and on techniques to be used in acquiring these items. The Department submitted changes to the *FAR* dealing with specifications and cost/price data, which should make the sale of commercial products to the government easier. The Department also prepared a simplified set of clauses for use in commercial product solicitations and contracts. These directives and clauses simplify the regulations for commercial items to the extent permissible under existing law and executive order. Intended to make procurement of commercial products less complex, it limits the clauses that a prime contractor may include in its contracts. It also limits the acquisition of technical data for commercial items, and precludes the use of overly restrictive government specifications or standards.

System Acquisition Chart 7



The Department issued a handbook, entitled "Buying NDI" (buying commercial products) in October 1990, which has been distributed widely. The handbook is the basis for a 2-day course which we began teaching in January 1991 to help program managers, specification writers, buyers, and others to understand NDI acquisition. The course is taught in two versions: one aimed at system procurements and one aimed at end items (consumables, expendables, etc.).

There are many examples of NDI successes, especially off-the-shelf items that the Navy purchased to provide to the fleet during Operation DESERT STORM. The items included the "jaws of life" or large metal cutters used during rescue operations; a small (flashlight size) infrared detector called "fire finder" used to help determine heat sources in a combat environment; a jelled water impregnated blanket used for protection from fire and to treat burns; a water driven air pump replacement to the electrically driven red devil blower used in fire fighting; an improved aluminum cutting torch; an improved air hammer; and high performance body armor (to replace the standard issue flak jacket). The Navy bought and shipped these items to ships involved in Operation DESERT STORM in a period of 45 days — a period far shorter than the normal supply system would have otherwise supported because of a waiver to the Competition in Contracting Act permitted during time of conflict.

Another notable example of commercial equipment used during Operation DESERT STORM was the small light-weight global positioning system receiver, which was used by personnel to receive navigation information from military global positioning system satellites to pinpoint their location in the desert. Accurate navigation is critical to the successful conduct of complex, multi-Service, fast-moving, land-sea-air operations. This challenge is intensified in a desert environment where terrain features on which to orient are few and far between, and where maps often become meaningless in a matter of days due to blowing sands. Our forces knew their exact location and relative bearing to their targets to within meters. This capability made an enormous contribution to the overall success of Operation DESERT SHIELD/STORM.

DEFENSE ACQUISITION WORK FORCE IMPROVEMENTS

Significant initiatives related to the Department's programs to recruit, train, educate, promote, and utilize key members of the acquisition work force were included in the *DMR*. The thrust of these efforts is to improve the overall quality and professionalism of this vital segment of the DoD population.

The Defense Acquisition Work Force Improvement Act (DAWIA), as contained in the National Defense Authorization Act for FY 1991, further expands the scope of several of the *DMR* initiatives and facilitates their implementation. During FY 1991, the policy instruments necessary to implement DAWIA were developed. As an example, the military departments are working towards establishing an acquisition corps which includes both military and civilian personnel. The Office of the Secretary of Defense and the remaining DoD components are establishing an acquisition corps for their civilian acquisition work force members. Additionally, the military departments and the defense agencies have made significant progress in establishing the structure of their acquisition corps and identifying specific acquisition positions. The implementation of DAWIA provisions began in FY 1991 with some efforts extending through FY 1993.

To ensure the proper emphasis, the Office of the Director, Acquisition Education, Training, and Career Development was established within the Office of the

Under Secretary of Defense for Acquisition (OUSD(A)). This office developed DoD policy directives, implementing instructions, and manuals to formalize DAWIA's provisions and to standardize the policy within the Department of Defense. This office works closely with the Office of the Assistant Secretary of Defense for Force Management and Personnel and serves as the focal point for acquisition work force policy matters for the Under Secretary.

Each of the military departments and defense agencies established positions of director of acquisition career management. These directors assist the Service acquisition executives in the performance of acquisition work force management and related responsibilities.

The Department is developing policies regarding scholarship, intern, and co-op education programs. The Office of Personnel Management is developing regulations to implement student loan repayment and pay for degree programs. The centralized data reporting system for acquisition personnel, which began as a *DMR* initiative, has expanded to meet the information and reporting requirements of the DAWIA. The management information system will undergo test runs during FY 1992.

Finally, in July 1991, the USD(A) announced that the new Defense Acquisition University will be structured as a consortium of institutions. The consortium will include the National Defense University's Industrial College of the Armed Forces (ICAF) and the Defense Systems Management College, as well as other existing educational organizations. ICAF was selected to deliver the senior course for acquisition personnel serving in critical acquisition positions. DAWIA requires that the senior course be equivalent to existing senior professional military educational school courses.

DoD-Wide Management Improvements

In response to the *DMR*, the Department conducted a critical review of DoD business practices. Over time, DoD had initiated and developed many unique practices and policies due to its missions, the diversity of its tasks, or the size of the organizations involved. Within the Department, decentralization was a common theme due to technology constraints, however, the revolution in communications, information technology, and systems integration presented the opportunity to bring together many of the more common business functions under defense-wide organizations. These consolidations ensure common standards and services are achieved system-wide, and provide the greatest opportunity for economies and efficiencies. In many cases, the Department could achieve efficiencies through decentralized execution of centrally established policies and standards.

Initiatives such as the Defense Finance and Accounting Service (DFAS), Corporate Information Management (CIM), the Defense Commissary Agency (DeCA), the DoD logistics system, and the Defense Business Operations Fund provide the necessary business framework for better support organizations.

DEFENSE FINANCE AND ACCOUNTING SERVICE (DFAS)

The DFAS was activated in January 1991 to improve finance and accounting service and reduce costs by adopting standard policies, procedures, forms, data, and systems; streamlining and consolidating operations; and eliminating redundancies. Once fully implemented, savings in excess of $800 million will be realized.

DFAS is composed of six finance and accounting centers situated across the country and a small headquarters located in the Washington, DC, area. It encompasses former Army, Navy, Air Force, Marine Corps, DLA, and Washington Headquarters Services finance and accounting operations. Prior to the establishment of DFAS, each military service operated its own finance headquarters, focused on its own requirements, and used its own unique systems. Initially, the focus of the individual centers did not change. Centers which were created to provide pay and financial management support to a single military department or agency will continue to provide that dedicated support. But as DFAS standardization and consolidation initiatives occur, center missions will expand and change to support functions throughout DoD.

In its first year of operation, DFAS began deployment of the Air Force military pay system, known as Joint Service Software, for active Army service members. This implementation marks the first introduction of a standard finance system since the creation of DFAS. Next year the system will be expanded to the Army Reserve and National Guard. When the project is completed in 1992 — as presently scheduled — a single

payroll system will be used to pay all soldiers and airmen. In addition, the DFAS will pay all military retirees using the system that currently pays retired Navy personnel, and pay all military annuitants using the system that currently pays Air Force annuitants. DFAS intends to consolidate those functions using standardized systems and practices. DFAS anticipates that implementing these retiree and annuitant pay systems across the military community will improve service and yield annual savings of about $9 million, starting in 1995.

DFAS modified the former Army standard accounting and bill paying system, known as STANFINS, to provide accounting for commissary store inventories for the newly created DeCA. Also noteworthy is the development of a standard travel system. This automated system will provide a central repository of travel history and information, and significantly improve the oversight of travel payments.

Under its strategic transition plan, DFAS is actively pursuing a number of near- and long-term initiatives in keeping with *DMR* objectives, to include implementation of standard DoD-wide finance and accounting policies. Key to this effort is adoption of a DoD-wide standard accounting classification code structure. It also entails streamlining approximately 70,000 pages of DoD accounting and finance guidance into a single manual suitable for use at all levels within DoD without further supplementation.

Civilian pay is another area with substantial payoff under review by DFAS. In this regard, the Navy's Standard Civilian Pay System was chosen as the Department's standard civilian payroll system. This complements other DFAS goals of reducing the number of civilian payroll systems.

Accounting continues to be a fertile area for review and will receive increased emphasis to capitalize on economies and efficiencies. The Foreign Military Sales (FMS) accounting system was brought into compliance with the General Accounting Office (GAO) Accounting Standards by the beginning of FY 1992, and the FMS trust fund cash records are now properly balanced with the Department of Treasury. Current feeder systems reporting into the FMS central accounting system should be standardized within the next five years.

Although much work remains, the pattern is clear — DFAS expects DoD finance to be increasingly standardized over the next five years, resulting in substantial savings for the taxpayer. Systems development is now in concert with the CIM initiative which eliminates redundant development efforts.

CORPORATE INFORMATION MANAGEMENT (CIM)

The CIM initiative is aimed at improving the effectiveness and efficiency of business processes in the Department of Defense by integrating and streamlining functional requirements, and by using information technology to implement the improved business operations that result. The objectives are to identify management efficiencies in support of common business areas; improve the standardization, quality, and consistency of data from DoD's multiple business management information systems; and reduce the costs of developing and maintaining these systems. In pursuit of these objectives, several organizational initiatives have been implemented over the past year: the appointment of a Director of Defense Information (DDI), establishment and staffing of the organization, and establishment of the Center for Information Management at the Defense Information Systems Agency (DISA). The plan is to establish a management process allowing for centralized information management policymaking and decentralized information program execution by the components of the Defense Department.

The initial focus was on business areas to be considered for standardized applications including civilian payroll, civilian personnel, contract payment, distribution centers, financial operations, government furnished material, materiel management, and medical. Executive agents for each of these areas were designated and some interim standard systems were selected to facilitate the transition from various individual systems to common standardized systems. Responsibility for developing better ways of doing business, as well as for continued development of standard systems in the initial eight business areas, rests with the chairs of functional steering committees. They are supported by the DDI and are headed by the functional Assistant Secretaries responsible for given business areas.

At the same time, the DDI's office is putting into place the technical infrastructure necessary to support the business managers. We have taken our first steps away from reliance on vendor proprietary systems, and

established a project to assure we develop an open systems architecture based on common definitions of data. We have several efforts under way to improve software development productivity, including establishment of a defense-wide software reuse library. In addition, an interim DoD data dictionary was established, and a DoD data administration operations center was established within the DISA Center for Information Management.

DEFENSE COMMISSARY AGENCY (DeCA)

The DoD commissary system is one of the largest grocery store operations in the United States. There are more than 400 commissary locations worldwide. The decision to unify the separate commissary systems of the Army, Navy, Air Force, and Marine Corps has improved efficiency and enhanced service to authorized patrons. The DeCA, headquartered at Fort Lee, Virginia, became operational on October 1, 1991. DeCA provides the centralized management necessary to achieve the economies available to large grocery store chains and improve service to commissary patrons.

DeCA will achieve major savings by consolidating management overhead functions above the store level (i.e., headquarters, regions, and districts), consolidating support functions (e.g., bill paying, contracting, and automated data processing (ADP) services), and consolidating distribution functions (i.e., central distribution centers and transportation). Total savings will be fully achieved when the new DeCA automated objective business system that is currently under development is implemented. DeCA has improved customer service by expanding store operating hours, lowering prices when possible, and increasing availability and selection of items in commissary stores.

LOGISTICS SYSTEM MANAGEMENT EFFICIENCIES

The logistics system affects every soldier, sailor, airman, and Marine — and their ability to perform their peacetime and wartime roles. Comprehensive system changes are well under way and gaining support as we continue to provide the same level of logistics service at a reduced cost to our customers. These changes represent the integration of three major initiatives: the various *DMR* initiatives which impact logistics management and organization, the CIM initiative which will modernize ADP systems and provide the tools to enable the military departments and DLA to implement the *DMR's* objectives, and the Inventory Reduction Plan which focuses on materiel management policies and business practices. In a time of reduced fiscal resources, no other set of initiatives will have a greater impact on our ability to conduct day-to-day missions.

The combined effect of the various supply and logistics initiatives will generate over $20 billion in savings and efficiencies, while maintaining and improving support to U.S. armed forces. Specifically, the supply depot consolidation initiative will eliminate about 5,000 personnel authorizations. In addition, the ability to use commercial products and practices will save countless manpower hours and dollars.

Reducing Supply System Costs

Through joint DLA and military departments efforts, DoD continues to reduce supply system costs. One significant area of cost reduction is the visibility of stocks at the military base level to overall supply system managers throughout the system in order to achieve greater utilization of supply assets. Policy and programs to achieve Total Asset Visibility (TAV) are scheduled for implementation throughout DoD.

Another significant change within the supply system was the incorporation of costs for inventory control points (ICPs) and depot operations into the stock fund standard pricing effective on October 1, 1990. The result was a surcharge increase in FY 1991 from 11 percent to 32 percent over FY 1990 prices, which more accurately reflected the actual cost of the supply system operations.

An additional means to reduce supply systems costs is the continual review of military specifications which may be converted to CIDs. The objective is to move toward greater use of items and materiel which are commonly found in the commercial market place rather than developing unique military items that often cost more.

Supply Depots

The goal of the supply depot consolidation initiative is to foster a more efficient method of operating and managing the Department's supply depots by eliminating redundant functions and initiating common business practices. Prior to this initiative the 30 supply depots were separately managed and operated by each of the

military departments and DLA. The *DMR* initiative proposed that the management of general supply distribution functions be consolidated under DLA. On April 12, 1990, the Deputy Secretary of Defense approved the consolidation of the distribution functions at all defense supply depots.

The initial step was the establishment of the Defense Distribution Region West and the consolidation of the supply depots in the San Francisco Bay and Sacramento areas under the management of DLA. This action was initiated in June 1990. In addition, the Eastern Distribution Region was established and the New Cumberland Army Depot was transferred to DLA and merged with the Defense Depot, Mechanicsburg, Pennsylvania, in April 1991. By the end of FY 1991, all three regional headquarters were established and 13 of the 30 general supply depots were under DLA management.

Planning for the remaining transfers is on track; transfer of all 17 Service general supply distribution functions is expected to be completed by the end of FY 1992. Although only the initial phase of the implementation plan has been completed, approximately 1,150 personnel have been reduced from the FY 1989 baseline used in the supply depot consolidation study. In addition, the newly consolidated operations maintained or exceeded historical performance levels during Operation DESERT SHIELD/STORM.

Maintenance Depots

A key factor in the overall success of logistics systems management efficiencies is the recommended changes in depot maintenance. As a result of the *DMR* initiative, a depot maintenance consolidation study was performed which culminated in a Deputy Secretary of Defense decision to implement a series of dramatic management improvements throughout the depot maintenance community. These changes will increase utilization of depot maintenance facilities and expand competition among Services and contractors.

The savings plan was integrated into the FY 1993 budget cycle with specific recommendations identified by each of the military departments. Commodity studies were completed to realign depot maintenance workload, generic studies were performed on cost comparability, capacity and performance measurement systems were evaluated, and specific facilities were designated for workload realignments. Pilot programs were developed for depot maintenance competition, and several of the commodity studies performed by the military departments will be expanded. An effort of this magnitude has its difficulties; tracking the cost savings will be challenging due to the overlapping impact of several of the logistics systems management efficiencies initiatives and the impact of maintenance and repair costs associated with Operation DESERT SHIELD/STORM. However, the benefits derived throughout DoD are substantial and will far outweigh the effort needed to overcome the challenges encountered during the implementation process.

Inventory Reduction Plan

The DoD Inventory Reduction Plan was initiated in May 1990 to meet the challenge of resizing defense inventories while maintaining the gains in readiness resulting from the defense strategy of the 1980s. The plan identified 200 specific actions and milestones for improving inventory management and assigned specific responsibility for their accomplishment. The plan also contained measures of success to evaluate its results.

The military departments and DLA developed their own implementation plans, and the Department updated the plans and issued a detailed status report on its implementation in March 1991. This report was provided and briefed to the GAO, the DoD Inspector General, and Congress. As a result of these actions, the total inventory of secondary items was reduced from $109.5 billion at the end of FY 1989 to $87.7 billion at the end of FY 1991, due in large part to a more accurate valuation of inventory. In terms of actual materiel, the inventory decreased by more than $12.6 billion. In addition, inactive inventory — items not expected to be used within the current budget cycle — was reduced within the same period from $34.4 to $21.4 billion.

The success of the Department's efforts to reduce inventory can be measured in several ways. Of the 22 measures of success in the plan, 18 showed positive trends in the first year. At the same time, Operation DESERT SHIELD/STORM demonstrated that our readiness remained at an all-time high.

Inventory Control Points (ICPs)

Within each of the military departments and defense agencies, an enormous logistics management system revolves around the ability to provide support to various

levels of maintenance. The focus of the system is on ICPs, and the *DMR* initiative on ICP consolidation was approved on July 3, 1990. The ICPs are the primary nodes within the logistics system, and the consolidation of ICPs enhances the process of providing support at the right time and place. ICP consolidation had three principal components: the transfer of item management for approximately one million consumable items from the military departments to DLA, the Army's evaluation of its ICP structure for consolidation opportunities, and the consolidation of portions of the federal catalog program within the Defense Department.

New item management coding criteria were developed and implemented to provide a framework for the consumable item transfer. In addition, a policy was established to define how technical data is to be passed from the military departments to DLA. Automation of logistics reassignment management data is in process and approximately one million consumable items are being transferred from the military departments to DLA from 1991 through 1994. Although these are large and ambitious undertakings, uninterrupted and effective customer support will be maintained during the entire implementation period.

In addition, actions are under way to achieve the cataloging consolidations required by the *DMR* initiative; the Navy has completed implementation and the Army is actively working toward its FY 1992 implementation target. Finally, management information system changes are being developed to transfer portions of the cataloging workload to DLA.

REDUCING TRANSPORTATION COSTS

Transportation is the very lifeblood of the logistics system, and the costs incurred constitute an enormous portion of the system's cost. Consequently, opportunities to reduce costs in the transportation arena were plentiful. As an integral part of logistics systems management efficiencies, initiatives to reduce transportation costs were implemented. Programs such as guaranteed traffic, regional freight consolidation centers, issue priority group policy changes, direct shipment from vendors to users, and prepayment audits are high payoff areas for improvement and the accrual of savings. The benefits of these initiatives are reduced transportation costs, improved transit times, and more efficient administrative and operational activities. They are:

- Expand the Guaranteed Traffic Program — Award carriers specific traffic lanes for extended timeframes in return for lower rates;
- Establish Regional Freight Consolidation Centers — Consolidate small shipments from contractor and DoD facilities into larger, more economical shipments;
- Modify Issue Priority Group Policy — Divert air shipments to lower cost surface shipments and separate supply requisition priority from transportation priority to permit shipment of high priority materiel by lower cost modes;
- Expand Direct Shipments from Vendors to Users — Reduce storage, transportation, and packaging and handling costs by bypassing DoD depots or storage facilities; and
- Conduct Prepayment Audits of Transportation Bills — Prevent unnecessary outlays by identifying carrier overbillings prior to payment.

Significant progress was made during FY 1991 to expand the above initiatives.

DEFENSE BUSINESS OPERATIONS FUND

To improve the tools available to the managers of the DoD support establishment, the financial system was restructured to better serve DoD organizations that are appropriately guided by business management principles. This was achieved with the establishment of the Defense Business Operations Fund that provides a structure to identify each business area, the products or services produced, and the total cost of operations.

The new system promises to work successfully for many reasons. The focus on products and costs promotes better communication between the provider, or business producing the products, and the customer, who sets requirements. The producer, in reviewing costs per output, can better identify areas for improvement. Cost per output information can also aid in the negotiations between customers and providers when achievement of new performance levels are desired. Total cost management helps production managers weigh investment needs to achieve optimum results for the resources expended. Therefore, when the manager can determine what investment will help achieve long-term lower costs, there is more of an incentive to make that investment. All capital investments are depreciated and those depreciation costs then become part of the operating cost of producing a product. Benefits accrue to the

business when payback is achieved faster than the depreciation schedule. Overall, the fund provides the structure and information necessary to help decision-makers at all levels of the Department and is expected to improve efficiency and effectiveness.

Military Department Initiatives

Although the *DMR* process has often been described or viewed as a "top-down" review, dramatic changes within the military departments have come from the "bottom-up." Described below are changes initiated by the military departments, which have far-reaching impacts on the manner in which they perform their missions and maintain their combat capabilities. Some changes will result in monetary savings, and others will not. All changes will result in more efficient and effective ways of doing business and establish standards of excellence which will be the foundation for the future.

ARMY INITIATIVES

The Army continues to make steady progress in the implementation of the *DMR*. The *DMR* philosophy is being institutionalized in the Army through the planning, programming, and budget execution system. This process facilitates the integration of *DMR* initiatives with other reshaping efforts. The Army *DMR* review process includes an independent review of the majority of initiatives by the Army staff functional proponent and the Army Audit Agency. They review the management plan, tracking system, and the reasonableness of savings. The Army Audit Agency also provides feedback to the implementing organization, major command, and the Army leadership.

Army Test and Evaluation

In the past, numerous organizations conducted the Army's test and evaluation mission. The *DMR* recommended a consolidation of Army testing and evaluation to streamline management and reduce duplicative functions. Before consolidation, Army test and evaluation executed a $978 million a year operating budget. The reorganization concentrated technical testing in the Army Test and Evaluation Command, headquartered at Aberdeen Proving Ground, Maryland, and consolidated user test and evaluation in the newly established Army Operational Test and Evaluation Command, headquartered in Alexandria, Virginia. In addition, the Project Manager for Instrumentation, Targets and Test Simulators was established to manage the research, development, design, acquisition, fielding, modification, and capability accounting of major instrumentation, targets, and threat simulators required for technical and operational test and evaluation for the U.S. Army. The first year of consolidation was completed by the end of FY 1991 with savings of 598 personnel and $25 million. The second year of consolidation is projected to save 1,307 personnel and $80 million a year by the end of FY 1993.

Army Laboratory Realignments

The Army has undertaken a number of new management initiatives to make the Army's 21st century R&D efforts more efficient and effective. These initiatives are a result of the *DMR* and two other major studies, the LAB 21 Study and the Tri-Service Project Reliance Study.

The LAB 21 Study, initiated in November 1989, focused on consolidating and streamlining the Army's entire laboratory system to meet the Army's future technological needs. One of the key elements of this study was the creation of a corporate "flagship" laboratory, the Army Research Laboratory. It conducts world-class basic and applied research in support of research, development and engineering centers, program executive officers, and project managers to meet the future technological needs of the Army.

The Tri-Service Project Reliance Study focused on achieving efficiencies in our R&D laboratories through interdepartmental consolidation, transfers, and technology sharing. As a result, medical laboratories will be reduced from nine to six, while programs will be collocated as single service sites over a 6-year period. These 6-year programs are designed to improve the quality, productivity, and efficiency of Army R&D organizations, while attracting and retaining quality scientists and engineers.

Army Logistics

The Army logistics community embarked on a major near-term program which will save the Defense Department $1.2 billion by FY 1995. The program's goal is to integrate the wholesale and retail logistics systems into one logistics system. The Army will improve upon existing logistics functions. The Army identified many initiatives under this integration effort, but there are four

key programs:

- Objective Supply Capability. Provides the soldier with the capability to order parts and equipment directly from his computer terminal and receive requisition status within seconds. Reducing the time from days to seconds will lower handling and inventory costs, thus improving efficiency and effectiveness.
- Total Asset Visibility. This provides central and distributed visibility over all Army assets. The TAV provides the "glue" for logistics integration and a capability to ensure we avoid buying what we already have.
- Readiness Based Maintenance (RBM). Provides a flexible capability to respond to readiness conditions. The RBM rapidly identifies and allocates available maintenance resources according to decisionmakers' readiness priorities.
- Usage Based Requirements Determination (UBRD). Provides integration between parts forecasting and usage reporting. UBRD improves initial fielding support packages and provides more accurate sustainment packages. The UBRD will assure accurate requirements while maintaining the necessary inventory.

Another initiative, the Army Computer-aided Acquisition and Logistics Support (ACALS) will enhance the consolidation of wholesale and retail logistics by improving the communication linkages between organizations. The DoD CALS initiative has been under way for several years now. The Army's flagship program, ACALS, which is approaching Milestone II, has now been designated as Joint CALS (JCALS) and has become the central infrastructure program for implementing digital technology in support of weapon system acquisition and logistics support functions. JCALS will provide users more efficient access to weapon system technical information in support of acquisition, design, and manufacturing, as well as logistics support functions.

NAVY INITIATIVES

As a result of the *DMR* implementation process, the Department of the Navy is well on its way to implementing 60 innovative cost-reduction initiatives. Many of these initiatives are focused on consolidation of activities performing similar functions, streamlining organizations, and reducing overhead and maintenance costs. All are ambitious and challenging undertakings. The range and scope of the Navy's *DMR* initiatives and the Department's commitment to reducing costs are exemplified in several Navy-unique programs.

Naval Aviation Depots

The Navy will implement cost reductions in five operating areas at its six naval aviation depots and the Naval Aviation Depot Operations Center (NADOC), Patuxent River, Maryland: all commercial contracts, managed by the NADOC will be recompeted, over 75 percent of existing contracts by the end of FY 1992; ADP enhancements utilizing commercial, off-the-shelf programs will be implemented that will result in productivity increases and management improvements; direct labor and overtime will be reduced via increased worker productivity and reduced product turnaround times; material management will be improved through better inventory control, reduced concurrent rework, and reduced scrappage; and administrative overhead will be reduced through improved worker productivity and elimination of nonvalue added programs and reports. The combination of these efforts is expected to permit a reduction of Navy industrial fund rates charged to customers.

The implementation of the naval aviation depot management ADP improvements is expected to be completed by February 1994. Together, these initiatives are forecasted to achieve a 5 percent reduction in direct labor costs, a 3 percent reduction in administrative overhead, and a 5 percent reduction in direct material costs. To date, the Navy has initiated expanded cost center management to create a buyer-seller relationship between production lines and supporting indirect cost centers to reduce support costs. Secondly, precursor systems to Manufacturing Resources Planning II have been initiated to improve front-end material ordering validation, and a shop floor control system prototype has been developed. Finally, an information management architecture and information standards have been developed, and the installation of an automated material management control system has been initiated. The Department of the Navy predicts that the projected savings will be achieved on schedule.

Consolidation of the Naval Telecommunications Command and the Naval Data Automation Command

Another aggressive Navy *DMR* initiative is the merger of Navy ashore communications resources and tactical information resources for command, control,

and administration of the Navy and those elements of the defense communication system assigned to the Navy. This initiative will disestablish two Navy field commands by consolidating operations and headquarters personnel, and by combining the operations of 42 assigned activities. In October 1990, organization consolidation was implemented and initial reductions in headquarters personnel were effected. Meanwhile, the comprehensive and challenging task of equipment installation, review, and revalidation was initiated and is proceeding in accordance with the Navy's schedule, with an expected completion date of early 1992.

Shore Facility Infrastructure

The Navy has identified four overseas shore activities to be inactivated by the end of FY 1992: Navy support activities at Holy Loch, Scotland; Naval Facility (NAVFAC) Midway; NAVFAC Bermuda; and NAVFAC Guam. These inactivations are a direct result of the elimination of duplicative naval support functions and the consolidation of activities into 8 naval facilities, down from 11.

The vast technological improvements that have been realized in the area of strategic missile systems, coupled with the associated reliability/maintainability enhancements, have allowed reductions in submarine and support requirements at Holy Loch, Scotland. NAVFAC Midway ceased operations in October 1990, and all associated equipment and personnel were removed by December. Operations at NAVFAC Guam ceased effective September 1991. The final disposition of land and facilities and departure of all military personnel will take place in early 1992. Concurrently, the Navy will begin the deactivation of NAVFAC Bermuda, with decommissioning planned for September 1992. The savings generated by this initiative in both operations and personnel is significant, on track, and expected to be fully realized by the end of FY 1997.

AIR FORCE INITIATIVES

The Air Force is in various stages of implementing over 100 *DMR* initiatives of which 75 are Air Force specific. This effort is guided by the strategic planning framework of global reach-global power. In response, the Air Force will streamline and flatten its organizational structure by removing unnecessary layers, pushing power down the organization, and ensuring that responsibility and authority are aligned while strengthening accountability. The *DMR* changes are indicative of the dramatic steps being taken by the Air Force to ensure the United States retains the capability to respond to any threat worldwide — global reach-global power.

Air Force Logistics Command (AFLC) and Air Force Systems Command (AFSC) Restructure - Materiel Command

The restructuring of the Air Force Logistics Command (AFLC) and the Air Force Systems Command (AFSC) under the *DMR* eliminates over 12,000 manpower positions and saves over $1.3 billion. As part of this effort, AFLC realigned its Air Logistics Centers to product and service orientation. Similarly, AFSC consolidated its laboratory activities. Restructuring was the forerunner of merging AFLC and AFSC into a single command — Air Force Materiel Command (AFMC) by July 1992. The AFMC merger incorporates the AFLC realignments and AFSC laboratory consolidations and creates a single organization responsible for cradle-to-grave system management.

Air Force Communications Command (AFCC) Restructure

The restructure of the Air Force Communications Command (AFCC) eliminated over 2,300 positions through actions to reduce layering, divest functions, consolidate management of related activities, and take advantage of savings resulting from technology investments. A follow-on action disestablishes AFCC as a Major Air Command (MAJCOM) and redesignates it as a Field Operating Agency (FOA). Base level communications personnel now work directly for their installation commander rather than for AFCC. A single integration and interoperability function was created within AFCC by combining similar activities from the 1842nd Electronics Engineering Group, the Operational Test and Evaluation Center, AFCC staff, and the Air Force Communications Computer Systems Integration Office. AFCC headquarters and intermediate headquarters were streamlined by eliminating and consolidating similar functions and by relying on the host MAJCOM staffs for assistance. Finally, recent advances in technology such as increased automation and digital telecommunications have provided improved service to Air Force users while decreasing the number of operational and maintenance personnel required to support this capability.

Organizational Restructuring

Following the *DMR* actions to restructure AFLC, AFSC, and AFCC, the Air Force is streamlining its organization structure from the top-down — Headquarters U.S. Air Force (HQ USAF), FOAs, MAJCOMs, numbered air forces (NAFs), and air divisions.

- HQ USAF — A comprehensive, self-imposed review led to a major refocusing and restructuring of HQ USAF. This effort brought elements with policy responsibilities into the headquarters, while moving operational and administrative functions to the field. Through streamlining actions, flattening the organization, and redesigning the resource allocation process, the HQ USAF will downsize by over 700 positions (22 percent) by the end of FY 1995.
- FOAs — Integral to the HQ USAF restructure was the review and alignment of functions and responsibilities of the Air Force's redesignated FOAs. The redesignation from Separate Operating Agencies and Direct Reporting Units more accurately reflects their operational/implementation mission. The realignment of functions and responsibilities along with internal streamlining, delayering, and other management efficiencies resulted in a savings of approximately 2,400 positions.
- MAJCOMs — Streamlining resulted in a net savings of over 3,700 manpower positions spread across all Air Force MAJCOMs. These savings will be achieved by eliminating duplicate functions, streamlining, and delayering the organizations.
- NAFs — Total *DMR* reductions in active and reserve components NAF strength exceeds 850. The management functions currently performed by NAFs duplicate higher headquarters functions and will be eliminated. For peacetime management functions, wings will work directly with their respective MAJCOMs. Following the restructure, the active NAFs will become the nucleus of a wartime control center and the reserve NAFs will be dedicated to the operational employment of reserve forces.
- Air Divisions — The Air Force will eliminate an organizational layer as it deactivates all of its air divisions. Savings exceed 100 positions.

Air Force Intelligence has also been restructured, highlighted by the recent activation of the Air Force Intelligence Command. This move strengthens management and direction by consolidating intelligence missions and functions previously found in several commands. It will also result in resource savings, with some 200 manpower positions being eliminated over time.

Conclusion

The *DMR* serves as a road map for new, better ways of doing business that will bring about lasting efficiencies in the Department of Defense through the 1990s and beyond. Implementation of *DMR* is an integral part of the Department's overall effort to streamline and restructure the armed forces with the goal of preserving essential defense capabilities through more efficient use of declining defense resources. Significant savings have already resulted from streamlined management structures and improved business practices throughout DoD. *DMR* efficiencies will result in almost $70 billion in savings through FY 1997. As reductions are made in the defense budget, the *DMR* management improvements allow critical defense capabilities and military assets to be retained even with fewer resources.

PERSONNEL (MANPOWER AND HEALTH)

Introduction

High quality people are the key to successful military operations as was clearly demonstrated by the war in the Persian Gulf. Highly qualified, well-trained, and educated personnel with the requisite motivation will continue to be the centerpiece of our readiness, and personnel programs will constitute the foundation of the Department's budget. As we transition to a smaller military force, we must assure that the force remains ready to support our new strategy's focus on the regional threats we still face, many of which arise with little notice.

The Future Total Force

Shaping the Base Force involves balancing the requirements for forces against available resources and acceptable risks. The smaller but highly-trained, well-educated, and well-equipped forces of the future will meet the requirements dictated by national security policy, military strategy, and overseas commitments. Additionally, the future total force will integrate the capabilities and strengths of active and reserve component forces in a cost-effective manner.

As we draw down the forces in response to political change in Eastern Europe, the former Soviet Union, and the rest of the world, we plan to maintain a balanced total force. The active force will be focused predominantly on the conduct of worldwide contingency operations in response to regional crises and will continue to form the backbone of our strategic forces. Our reserve forces will be full partners with the active forces as they have been in the past. They will continue to maintain a high degree of readiness and play important combat and support roles. They will also continue to play important administrative and support roles where job continuity and specialized skills are required.

Our recent experience and success in the Persian Gulf have shown the wisdom of continuing to have a fully integrated total force consisting of active and reserve military personnel and civilians. High-quality reserve and civilian personnel worked side-by-side with our active military personnel in deploying the troops during Operation DESERT SHIELD and achieving victory in Operation DESERT STORM.

Retired military personnel also play an important role in the total force. These personnel, especially the recently retired, possess critical skills that can be of great value during crisis or war. In Operation DESERT SHIELD/STORM, many retirees were recalled to active duty to fill critical medical billets and jobs requiring language skills. For the total force, military retirees will remain an important source for manpower and special skills.

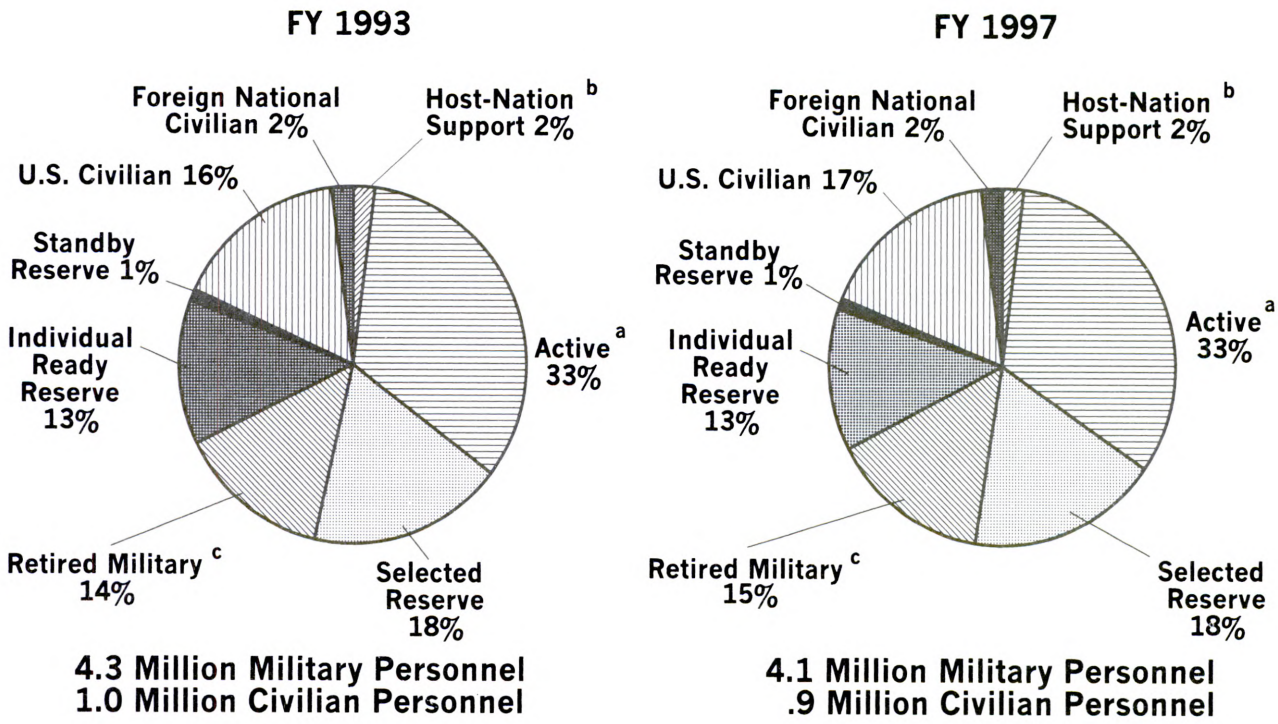
The total force will also be structured to provide the foundation for the reconstitution of additional forces, if needed, to help deter or, if necessary, counter any potential global military challenges. With dramatically increased warning and preparation time for such a threat, the United States will have the flexibility to reconstitute forces. Timely availability of such forces will require an early decision to create additional units from cadres, the Individual Ready Reserve, and untrained manpower. To maintain an adequate force reconstitution capability, the United States will continue to focus on long lead-time manpower training requirements to support force structure and industrial base skill requirements.

Our vision of the future total force is one that builds on the personnel and force management strengths of our current force. As we reshape the total force, we must judiciously apply personnel policies and programs which ensure that these strengths are carried forward into the new force.

Reshaping the Total Force

The Department's challenge is not simply to shrink the force, but to shape it so that our personnel inventories are aligned with our new smaller force structure. In 1991, our plans to reshape the military were temporarily delayed by the war in the Persian Gulf. To meet war needs, we postponed the scheduled separation of over 29,000 active duty members and ordered over 245,000 Guardsmen and reservists to active duty. After the Gulf War, the drawdown efforts resumed. We have already reached an active military strength level 190,000 below the build-up peak of 2,174,200 in 1987 and as we began

Composition of the Total Force FY 1993 and FY 1997 Chart 8



[a] Does not include the U.S. Coast Guard.
[b] Germany only; includes military and civilian personnel.
[c] Does not include disabled or above age 60.

FY 1992, active duty military strength was below 2.0 million — the lowest level since 1951. In addition, the civilian end strength at the start of FY 1992 is approximately 90,000 below the FY 1987 peak of 1,133,100.

The Department's policies for achieving the drawdown emphasize the need to continue to recruit and retain quality personnel at levels which will sustain the future force. Therefore, while some of the strength reduction will be achieved by constraining new entries, we must be careful not to mortgage the future by underrecruiting now — too few qualified recruits today will mean too few skilled, seasoned noncommissioned officers 10 to 15 years from now. It is also essential that we continue to provide challenging opportunities for professional development and career advancement for our service members. Maintaining promotions at or near normally expected points in a service member's career is also critical to retaining our best performers.

By 1995, the number of active duty personnel will be smaller by about 400,000 reaching an end strength of 1.6 million. Compared to FY 1989, the Department's civilian force in FY 1995 will be reduced by approximately 205,000, reaching a year-end level of approximately 912,000. Our overarching objectives, as we reduce and reshape our forces, are to maintain personnel quality and a high state of readiness, and to treat our people fairly — both those who stay and those who leave — while remaining sensitive to fiscal constraints. We are also very mindful that the recruiting, retention, and separation decisions we make today will have a significant impact on our future force.

Recruiting

Tomorrow's skilled and seasoned noncommissioned and petty officers are today's quality recruits. In attempting to attract these quality individuals into the

armed forces, we will face a set of complex issues during the 1990s. In particular, recruiting and processing young people for military service will be performed during an era of restructured military requirements, reduced resources, changing demographics, and revised personnel policies — as well as a changed world that may affect individual motivation to serve.

While there were some initial concerns over recruiting during Operation DESERT SHIELD/STORM, the Services ultimately met their objectives with high quality enlistees. We must ensure that resources for FY 1993 and beyond provide a balanced mix of recruiting personnel, enlistment incentives, and funds for recruiting support and advertising to sustain recruit quality and provide nationwide exposure to military opportunities.

We know that force reductions will have a collateral effect on the recruiting environment and resources, but we must ensure the Services have adequate recruiting and retention assets to acquire and retain the necessary number of high-quality personnel in a cost-effective manner. We will accomplish this through sensitivity to changes in manpower needs, market conditions, and public attitudes towards the military, and through the use of research and analysis models that relate resources to recruiting performance.

We expect that the Services will be able to overcome the challenges of recruiting active duty personnel for the foreseeable future. Research will continue on how best to link military enlistment standards to job performance and the impact this linkage will have on recruiting and training programs.

Except in a few regions of the United States, the reserve components have been successful in recruiting and retaining sufficient numbers of quality personnel to meet their military manpower requirements. However, the long-term impact of the force drawdown, budget reductions, and Operation DESERT SHIELD/STORM on recruiting and retention for the reserve components is not yet clear.

Using historical forecasting techniques for reserve accessions may yield accurate estimates for the near future. Attitudes and expectations concerning the reserve commitment are dramatically different in the post-DESERT STORM era. In addition, changes in the size and structure of the active forces and recruiting programs will have profound implications for the flow of personnel into the reserve components. The Department is currently conducting research that focuses on these issues.

Retention

Our goal is, and will continue to be, retention of those who are best qualified to serve. To do this, we must continue to offer challenging and viable opportunities for professional development and career advancement. During the last decade, retention patterns have been healthy. The Department has been successful in retaining a quality force. This can be attributed primarily to the dedication, sense of contribution and accomplishment of our military members, a renewed popularity of the military, improved pay and compensation, and improvements in programs designed to maintain a stable living environment for our people. However, we anticipate that there will continue to be retention shortfalls in selected critical specialties, such as pilots, nuclear-trained members, medical personnel, and certain mission-critical and highly technical enlisted specialties. These shortages will still require intensive management to meet future retention goals.

Incentive programs like the selective reenlistment bonus, aviation career incentive pay, aviation retention bonuses, nuclear retention bonuses, and medical bonuses continue to be the most effective and efficient tools available for meeting retention goals in our most critical skills. As we draw down the force, these programs will remain important in allowing the Services to align their personnel inventories with the emerging force structure, to protect extensive training investments in highly technical skills, and to help avoid the substantial accession, training, and readiness costs associated with replacement of seasoned professionals.

Recruitment and retention of a high-quality civilian work force have always been top priorities for the Department. We have continually supported efforts to provide managers with increased compensation flexibilities to improve their ability to attract and keep the individuals necessary to perform quality work. The Federal Employees Pay Comparability Act of 1990 (FEPCA) provides many of the key options, including recruitment, retention, and relocation bonuses. We are working to implement FEPCA in such a way that line managers have maximum decisionmaking authority with a minimum of internal regulations and procedural requirements.

We are further working diligently to institute quality and productivity improvements in the civilian work force. We lead all government agencies in group-oriented gainsharing, under which employees get up to 50 percent of the financial benefit for improved productivity and organizational savings. In a highly successful program, we actively solicit and reward beneficial suggestions which lead to departmental savings. These and other nonmonetary forms of worker recognition will significantly improve our recruitment and retention efforts.

While we are improving the civilian work force-in-being, the future lower level of defense activities also translates into the need for fewer civilian employees. The Department has taken the initiative to meet these lower work force goals while minimizing the need for involuntary separations. In January 1990 the Department instituted a freeze on civilian hiring that resulted in a reduction of almost 88,000 employees through October 1991. The success of the freeze allowed a subsequent liberalization of hiring under which two employees from outside the Department could be appointed for each five who left. In the 1991 work force reduction plan, implemented on March 29, we projected separations from each component and issued "civilian external hiring allocations" that permit hiring in advance of the departures of current employees. This provided flexibility in establishing priorities for hiring and in timing the new appointments. The plan also covers foreign national workers as well as the DoD Senior Executive Service.

Separation

We have developed policies for both military and civilians that are designed to retain those best qualified individuals we need and to treat those leaving fairly and equitably. We will accomplish these two goals and achieve the required drawdown by carefully reducing accessions, encouraging voluntary separations, and managing early retirements. As a last resort, the Services will require involuntary separations. Additionally, for those career fields where grade, skill, and experience inventories exceed requirements, voluntary release and retraining programs are being expanded to the maximum extent practical. We are also exploring other means to increase voluntary separations in overage skills.

The key effort to stimulate voluntary separations in FY 1992 and FY 1993 will be the use of separation incentives authorized in the FY 1992 National Defense Authorization Act. These programs, the Voluntary Separation Incentive (VSI) and the Special Separation Benefit (SSB), will minimize the involuntary separations which would have otherwise been required to align existing personnel inventories to the smaller force structure. These incentives may be offered to service members with 6 to 19 years of service in career fields and year-groups in which existing inventories will exceed future requirements. Individuals offered these incentives will have the option of applying for either VSI or SSB and, if approved, will be separated from active duty and transferred to a reserve component. These incentives will not only ease the transition of service members into the civilian sector but also enhance total force readiness by infusing trained individuals into the reserve components and helping to align personnel inventories with future manpower requirements.

We will continue to use early retirement authorities as a strength-reducing and force-shaping measure. We will take maximum advantage of expanded selected retirement authority provided by the Congress. While these expanded authorities cause us to deviate from normal retirement policies, they are necessary to ensure balanced force reductions and that personnel inventories are aligned with our new force requirements.

While the vast majority of our reductions will be accomplished through voluntary means and early retirements, the timing, scope, and magnitude of the reductions to our current all-volunteer force may require the involuntary separation of some personnel who are not eligible to retire. While the Department prefers not to involuntarily separate members, and will use VSI/SSB to the maximum extent possible to minimize involuntary separations, the consequences of not using this alternative when necessary could be severe. For example, retaining larger numbers of senior people than the new force structure will bear would reduce advancement opportunities for younger service members who stay. This could adversely affect morale and cause many of our brightest and most qualified personnel to choose to leave the military. We intend to mitigate the impact of these involuntary separations by making maximum use of the transition benefits.

The transition assistance process is well under way. Congressional action established a sound package of benefits and services for people who will be separated

during the drawdown. Those benefits and services, as well as others, have been incorporated into DoD policy and implemented by the Services. Service members can visit a family center or, in the case of the Army, an Army Career and Alumni Program location and receive individual counseling and assistance to help ease the transition to the civilian community. Computer systems now link potential employers to resumes of service members planning to leave the military. Other computer programs designed to document work experience and training and compare them to civilian sector job requirements or for college credit are available. Service members are counseled on benefits, employment preferences, health care options, and Montgomery G.I. Bill educational opportunities. Spouses and civilians can also take advantage of most services to include resume writing classes or career counseling to help identify new career options.

Another existing support system in family centers is relocation assistance. Information on relocation allows for informed decisions and a smoother, more successful transition to a new community. Our mission is to provide members and their families with the skills and knowledge to enable them to make successful transitions to civilian jobs and communities.

In FY 1992 and succeeding years, the Department must also manage significant civilian personnel cuts. As the defense budget declines in coming years and as the Department adjusts its operations to changes in the world, more civilian work force reductions, in addition to the almost 88,000 already invoked since January 1990, will be necessary. Many of the civilian reduction goals can be met by voluntary attrition. However, involuntary separations are likely to be required in later years when the pace of base closures accelerates. To assist civilian force workers who lose their jobs, we are taking steps now to ensure that as many as possible find new positions. The priority placement program (PPP) for many years has matched displaced DoD civilians with job openings elsewhere in the Department. To supplement the PPP, DoD and the Office of Personnel Management implemented an automated resume system to refer employees to other federal agencies and the private sector.

Supporting the Force

QUALITY OF LIFE

We have programs designed to maintain a reasonable living environment for our people that is essential in order to recruit and retain top quality personnel. Our first and most important goal is to create stable communities for service members and their families. Reducing conflict with family responsibilities for our service members means more productivity on the job and thus higher readiness rates in military units. Our second goal is to provide a desirable community lifestyle which responds to the unique needs of service members, their spouses, and their children and persuades quality personnel to make a career in the military. As we work to accomplish these goals, we must aggressively reevaluate our programs in light of the new defense strategy and ensure that resource reductions do not adversely affect the quality of life and support necessary for service members who remain.

Operation DESERT SHIELD/STORM represented a turning point in the military's view of the family and its role. The Department learned that families "go to war" in a very real sense and that family readiness is a critical component of overall force readiness. The sudden deployment of some 500,000 troops provided military leaders an opportunity to evaluate the relatively new worldwide family support system at a time when it was most needed. Family centers were severely tested, but met the challenges and enjoyed unprecedented success. As the force for the future evolves, family centers will assume an even larger role in maintaining both our quality of life and our readiness posture. Family center programs also will play an important role in maintaining morale as the force draws down. Even more important, these programs will provide comprehensive family support for a smaller, realigned force emphasizing quick response to worldwide contingencies.

The mobilization and deployment of thousands of reservists and National Guardsmen also challenged family support programs, as these families were suddenly moved into active military life. The challenge was complicated by the geographic dispersion of National Guard and reserve families across America. The military family centers successfully provided a conduit for information and assistance, and our future plans will strengthen the support to families when their sponsor is called to active duty in times of national crises.

The care of children emerged as a paramount issue during Operation DESERT SHIELD/STORM. The mobilization and deployment of troops to the Persian Gulf highlighted the changing family situations and patterns of the military that have evolved over the past decade.

Full-Time Support Personnel[a] (End Strength in Thousands) Table 6

	Actual		Planned	
	FY 90	FY 91	FY 92	FY 93
Army National Guard	55.3	56.1	53.1	48.3
Army Reserve	30.9	31.1	30.4	27.5
Naval Reserve	34.1	35.0	31.2	29.3
Marine Corps Reserve	8.2	8.0	7.0	6.7
Air National Guard	35.2	35.9	36.6	37.3
Air Force Reserve	15.4	16.0	16.4	17.2
Total	**179.1**	**182.1**	**174.7**	**166.3**

[a] Includes active guard and reserve, military technicians, active component, and civil service personnel.

There are more active duty couples, single parents, and married personnel with working spouses increasing the need for child care. The Department increased the number of child care spaces available from 53,000 in 1981 to over 150,000 spaces today. As we expanded this service to meet growing requirements, the focus has been and will continue to be on quality and affordability. Child care is also a critical concern for activated guard and reserve families as well as active duty families when one family member is left to cope with jobs, children, and households. We now must develop a system which enables us to help families with unexpected child care needs during future contingency operations.

Over 55 percent of members of the active component are married, making family advocacy, a parenting support and assistance program for families, an important element of family support services. This program provides services such as parenting aides program, new mothers' outreach efforts, and intensive counseling. This program will continue to place great emphasis on expanding the prevention of abuse and neglect. We consider the family advocacy a key program in developing and retaining quality service members.

DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS

The great challenge of the Department of Defense school systems, both in the CONUS and overseas, is to maintain the quality of education while reducing staffing and closing facilities in line with troop strength reductions. Students in DoD schools consistently score above the national norm on basic skills tests and at, or above, the national average on college entrance examinations. The quality of education and the corresponding high level of student achievement must be maintained through careful annual monitoring of the targets set by the Department for the implementation of the national education goals.

Operating Tempos Table 7

	FY 91	FY 92[a]	FY 93[b]
Flying Hours/Crew Month			
Army Tactical Forces	14.5	14.5	14.5
Army Reserve	6.1	8.1	8.1
Army National Guard	7.1	9.0	9.0
Navy/Marine/TacAir/ASW	26.0	24.0	24.0
USNR/MCR/TacAir/ASW	13.0	13.0	13.0
Air Force TacAir	20.4	21.6	21.2
ANG TacAir	11.7	10.7	10.5
AFR TacAir	12.1	10.7	10.7
Air Force Airlift	30.5	27.8	27.8
ANG Airlift	32.1[d]	14.7	14.6
AFR Airlift	32.4	11.6	11.6
Air Force Strategic	17.0	17.2	17.8
ANG Strategic	21.3[d]	14.2	14.2
AFR Strategic	21.1	15.0	15.0
Navy Steaming Days/Quarter			
Deployed Fleets	56.8	50.5	50.5
Nondeployed Fleets	28.9	29.0	29.0
USNR Nondeployed Fleets	21.0	18.0	18.0
USNR Training Fleets[c]	—	26.0	26.0
Army Ground Miles/Year			
Army Tactical Forces	800	800	800
Army Reserve	200	200	200
Army National Guard	288	288	288

[a] Budgeted
[b] Requested
[c] New NRF training frigates
[d] Increases due to Operation DESERT SHIELD/STORM.

MORALE, WELFARE, AND RECREATION (MWR)

The Department realizes that retaining the best people is tied to the quality of life afforded them and their families throughout a military career. Morale, welfare, and recreation (MWR) activities provide a sense of community for service members away from home, furnish services and activities at affordable prices, and

offer necessary respite from military duties. Quality activities and programs build pride in belonging and contribute directly to combat effectiveness and mission accomplishment. As was so dramatically demonstrated in Operation DESERT SHIELD/STORM, MWR programs are essential elements in maintaining a physically fit and mentally ready force during deployment and preparation for war. Additionally, quality, community programs provide a key factor in the decision to reenlist by providing a lifestyle that career service members seek and rightly deserve.

The Department is looking closely at its MWR plan for the future to effectively utilize resources and provide quality programs to all military members and their families. Through a cooperative effort by each of the Services, the Department is restructuring resource methodologies, the construction approval process, the comparability of programs among and within each of the Services, and the standards of service provided. The comprehensive review of these critically important programs will ensure their efficiency and viability through the period of restructuring and into the next century.

Health Care

The DoD medical mission is first, to provide, and to maintain readiness to provide, medical services and support to the armed forces during military operations; and second, to provide medical services and support to members of the armed forces, their dependents, and others entitled to DoD medical care.

During FY 1990, the Department devoted 157,000 military personnel, 52,000 civilian personnel, and $14 billion to its medical functions. Over the last several years, the Department has faced substantial difficulties in maintaining the affordability of medical care. These difficulties also are reflected in medical care challenges for the nation as a whole. With increasing constraints on the defense budget, the Department must accomplish its medical mission with greater efficiency.

To strengthen the quality and to control the costs of DoD medical care, the Deputy Secretary of Defense directed last fall that medical personnel, facilities, programs, and funding be consolidated and subject to the authority, direction, and control of the Assistant Secretary of Defense for Health Affairs. The Deputy Secretary of Defense also directed that the Department place greater emphasis on training and education in health services administration in the DoD medical care system.

COORDINATED CARE

The Department has embarked upon a coordinated care program within appropriate geographic areas for the provision of medical care in DoD facilities. This is integrated with care in other nondefense federal facilities and civilian facilities based on beneficiary needs, military medical assets, and nearby nonmilitary resources. The program is expected to improve delivery of services and to control the growth of costs. In conjunction with the move toward coordinated care, the Department is also strengthening both central decision-making functions and field operation functions within the military health care system.

The Department must execute programs such as coordinated care to increase efficiency, control cost of DoD medical activities, and provide more uniform access to medical care benefits for DoD beneficiaries. As we reshape the armed forces, retention and recruitment of top quality personnel will be one of the Department's highest priorities. The availability of high quality, better managed, and accessible medical care will continue to be critical to the successful recruitment and retention of highly qualified personnel.

OPERATIONAL MILITARY MEDICINE

While embarking upon innovative improvements to the peacetime, day-to-day operations of the military health care system, we cannot lose sight of the other component of this system's dual mission — medical readiness. In order to care for our troops within a theater of operations, we design our medical support in four tiers, or echelons.

The first tier is emergency care, or the application of basic life-saving measures. Those requiring more definitive care are evacuated to the next tier. At the second echelon, resuscitative care and initial surgery as required to save life or limb are performed at facilities such as the air transportable hospitals of the Air Force, aid stations of the Marine Corps, and at medical companies of the Army. At these locations, patients who may be returned to duty in a few days are retained; those requiring more extensive or complicated care are evacuated to the next level. Medical facilities staffed and equipped for surgery and post-operative care are operated at the third tier. These facilities may provide

Quality and Numbers of Enlisted Accessions (Numbers in Thousands)

Table 8

	Quality Indices		Accessions[a]				
	Percent High School Graduates	Percent Average or Above Aptitude	FY 91 Objectives	FY 91 Achieved[b]	FY 92 Planned	FY 93 Planned	FY 94 Planned
Active							
Army	98	99	78.2	77.8	76.3	83.4	55.7
Navy	96	99+	68.3	68.3	64.3	69.2	55.0
Marine Corps	98	99+	30.0	30.0	31.4	31.5	30.9
Air Force	99	99+	30.0	30.0	39.0	39.0	39.0
Total	**97**	**99+**	**206.6**	**206.1**	**211.0**	**223.1**	**180.6**
Selected Reserve [c]							
Army National Guard	86	90	83.4	68.1	65.2	45.5	45.5
Army Reserve	94	90	75.2	56.8	66.8	27.6	38.3
Naval Reserve	98	93	28.7	29.1	18.3	16.8	16.4
Marine Corps Reserve	99+	92	8.9	9.2	8.4	7.3	7.5
Air National Guard	99+	99	10.5	10.3	10.5	11.3	11.3
Air Force Reserve	99+	96	10.0	9.3	10.4	12.0	12.3
Total	**93**	**92**	**216.7**	**182.8**	**179.6**	**120.5**	**131.3**

[a] Includes prior service and nonprior service accessions.
[b] Based on Service submissions of Enlisted Gains Analysis (Report 1391 under DoDI 7730.56).
[c] Includes equivalency certificate and diploma graduates, as well as high school students who enlisted prior to graduation and were expected to graduate.

additional surgical specialty care as well as laboratory and radiology support. Two hospital ships also have medical capabilities at this third echelon of care. The fourth echelon provides medical care in a facility staffed and equipped for follow-up surgery and rehabilitative therapy for patients in a recovery phase who are expected to return to duty in a limited amount of time. Patients not expected to return to duty shortly are further stabilized for evacuation out of the theater.

Operation DESERT SHIELD/STORM was supported by medical organizations in U.S. Central Command, U.S. European Command, Pacific Command, and CONUS. The medical system was tailored throughout to meet the commands' needs based on the number of troops in the theater and the estimates of casualties expected for various types of combat operations. As the mission of the deployed force evolved from deterrence to offensive operations, the medical support requirements expanded. Deployment of medical units began on August 8, 1990, and units from all Services were involved. In addition, beds were provided by the U.S. European Command and through host-nation support agreements with Saudi Arabia, Bahrain, United Arab Emirates, Qatar, and Oman. The Commander-in-Chief, Forces Command (CINCFOR) was directed to develop a concept of operations for execution of the Integrated CONUS Medical Mobilization Plan to ensure that the Services were prepared to care for casualties evacuated from the theater to the United States. Had it been necessary, DoD and the Department of Veterans Affairs (VA) could have implemented the Department of Defense Health Resources Sharing and Emergency Operations Act. We were also prepared to request activation of the National Disaster Medical System to augment the Department of Defense and VA capacity.

Although the operational situation required the use of only a small portion of the available assets, there were a number of important lessons learned. The Department

is addressing these and is taking necessary action to strengthen its operational medical capabilities.

Force Readiness

Training is the key element that maintains the readiness of our forces. Operating tempo (OPTEMPO) — ground vehicle miles, ship steaming days, and aircraft flying hours — is one of the primary yardsticks used to measure collective training opportunities available to military personnel. The realistic practice available through collective training builds on readiness. We must therefore, at a minimum, sustain OPTEMPO levels as we reduce our forces. In fact, in some areas, such as joint and combined operations, increased OPTEMPO may be required. The Department is committed to maintaining operating tempos at the levels needed to ensure ready forces.

Maintaining a quality force for future contingencies demands continued attention to unit and individual training, and professional military education. Individuals must be qualified to perform their job tasks in order to function as members of teams/crews and accomplish their units' missions. Skill progression training has become increasingly important as we strive to keep pace with and take advantage of new technologies. Likewise, current levels of Service participation in professional education programs must be maintained. The value of our emphasis on these three areas was demonstrated many times during the Persian Gulf War. We will continue to emphasize unit and individual training, and professional military education.

The Department continues to invest in training technology to increase the efficiency and effectiveness of our training programs for both the active and reserve components. Standards have been established to ensure the portability of training course software programs among computer systems, thereby saving development costs. The Department has also established a Defense Modeling and Simulation Office to implement interoperability standards for the networking of simulators and to increase joint-training capabilities through simulation and modeling. This initiative will provide training opportunities not now available and will enhance the investment already made in simulators.

Conclusion

Our goal is to build a future total force that is well-equipped, highly-trained and educated, manned with high quality people, and ready to fight. The manpower and force management challenges we face in achieving this goal are immense, but not insurmountable. One great advantage is that today's total force already consists of high quality people who are ready to fight. As we restructure the force over the coming years, careful, balanced management policies and programs and sufficient funding will enable the Department of Defense to maintain this quality and readiness.

INDUSTRIAL BASE

Introduction

Department of Defense policies relating to the U.S. defense industrial base focus on the capacity of industry to produce goods and services needed to meet DoD missions and requirements. Included in these policies are aspects of the Department of Energy complex upon which we depend for the maintenance of a safe and effective nuclear deterrent. The Department is continuously assessing the nature of the industrial base to determine the plans, priorities, authorities, incentives, and stockpiles of key materials that are necessary to meet DoD requirements. These efforts help to ensure that the U.S. maintains a viable economic foundation for our national defense in peacetime and in war.

Industrial Base Planning

The new defense strategy and the Base Force concept require smaller military forces to meet the challenges of present and projected threats across the spectrum of conflict. An important contribution of the industrial base will be to provide a production response to crises, as a targeted supplement to war reserve stockpiles that provide the initial materiel support to deployed forces. In the aftermath of crises, depending upon the nature and duration of the conflict, prompt action will be required to recover and restore the capability of the Base Force to respond to future crises. A responsive industrial base is essential to the timely restoration of war reserve stockpiles as a critical element of a capable Base Force adequate to deter potential adversaries.

A second key requirement of the new defense strategy is to continue modernization efforts in order to maintain highly capable equipment and weapons systems. The primary means of sustaining quality weapons is through continued investment in new technology. DoD is committed to funding robust levels of research and technology development, through direct technology base funding and through contractor independent research and development.

A critical element of the strategy, and a hedge against the unpredictability of global changes, is the Department's requirement to maintain the capability to reconstitute forces if faced by a greater than expected threat. To meet this challenge, the Department must carefully plan and establish policies that enable the U.S. defense industrial base to support reconstitution requirements. We will use the Graduated Mobilization Response concept, a framework for integrating mobilization actions to respond to either ambiguous or specific warnings, as a mechanism for focusing reconstitution actions.

To help deter or if necessary to counter any future global military challenges, the Department must be able to expand the U.S. force structure from peacetime force levels. The first method is to use stockpiles of retired equipment to form additional units. Another method is production of new combat equipment and sustainment items — calling on the defense industrial base and commercial industry to fulfill new DoD requirements. This increased production increasingly depends on the ability to restore production of militarily unique equipment critical to the Department and capabilities that are not readily duplicated. Existing essential portions of the industrial base can be retained through the production of new equipment, major modifications, and spare parts. Production for foreign military sales can also help preserve the defense industrial base and reduce defense procurement costs.

The achievement of expanded industrial production to meet reconstitution requirements is highly dependent on available warning time, the nature of the threat, and the adequacy of emergency procedures, including provisions of the Defense Production Act (DPA). In the advent of short warning, and consistent with statute and national policy, the Department has maintained an extensive industrial preparedness planning program to mobilize equipment, facilities, and other resources for emergency situations.

The Department has also established policies and programs that help focus industry efforts on technologies of critical importance. The FY 1991 Defense Critical Technologies Plan includes a critical new technology, flexible manufacturing, which is a clear indication of the Department's belief in the importance of integrating technologies for manufacturing.

DoD must also be concerned with the underlying financial health of the defense industry. This, too, is an

important aspect of maintaining our capacity to reconstitute as well as to continue modernization efforts. That health is being strengthened by ensuring that contracts awarded to industry do not inappropriately expose them to the risk of large losses while protecting the taxpayer from contract abuses. In lieu of large fixed-price development contracts on high-risk programs, the Department has shifted to the use of cost-type contracts for high-risk development programs. Service acquisition executives have also been directed to limit the use of fixed-price production options in engineering/manufacturing development contracts. Another element of the effort to ensure a healthy peacetime industrial base is the progress payment policy, which provides for an annual reassessment based on commercial borrowing rates. On July 1, 1991, new progress payment rates went into effect: 85 percent for large businesses; 90 percent for small businesses; and 95 percent for small, disadvantaged businesses.

Additional efforts have been made to improve planning. Industrial base planning guidance has been updated and broadened beyond a traditional focus on surge for full mobilization. Industrial planning is being conducted to provide flexible, graduated options to quickly respond to a range of potential threats from small contingencies to regional or global conflicts. In addition, industrial base issues are now more rigorously addressed throughout the acquisition process as part of new defense management initiatives. Specifically, the new defense acquisition program procedures require a specific focus on the industrial base capability to support all new major system acquisitions.

Another specific improvement in the planning process concerns collecting and analyzing data. The Department has recently developed a new family of surveys to identify the constraints to manufacturing items required to support military operations. This information will be automated, analyzed, and disseminated by the Production Base Information System (ProBase), formerly known as DINET, and is expected to improve the Department's ability to monitor changes in the industrial base.

Because of the increasingly global nature of the industrial base, it is proposed DoD policy to identify and evaluate potential global industrial base and technology base deficiencies and vulnerabilities, and execute, where appropriate, bilateral and multilateral agreements to support surge and mobilization requirements.

Industrial Base Responsiveness during Operation DESERT STORM

Operation DESERT STORM was in many ways an important test of DoD policies, programs, and the defense industrial base. The basic problem is that the United States simply cannot afford to fund and stockpile in peacetime everything we need in a potential war. Instead, the nation must rely on rapid procurement of many new production items from the industrial base. Overcoming the challenges in meal rations and chemical protection equipment cases illustrates how the system worked.

Operation DESERT STORM proved that years of mobilization planning between the Department and industry paid off. While war reserve stocks of operational rations were critical to the deployment stage, the free-market and "warm" industrial base was able to quickly go "hot" and provide our troops in Operation DESERT STORM with up to 1.2 million meals a day. The production base was energized in August 1990 to both feed the troops and to set aside supplies for 60 days of operational rations. Production surged from a peacetime sustained requirement for 3 million meals ready to eat (MREs) a month, to a production rate of 16 million MREs a month. In all, over 108 million MREs were shipped. Similar successes were achieved for the other types of meals we provided to our troops. For example, the industry that produces tray pack rations surged from 1.3 million tray pack meals a month to 4.7 million meals a month.

With the downsizing of our military forces, the peacetime rotation base for operational rations will likewise decrease, posing challenges for maintaining a viable industrial base. We also need to market those stocks excess to peacetime military needs such as through humanitarian assistance. This is essential to providing a warm industrial base for rations production.

One of the biggest challenges came in preparing U.S. and Coalition forces for the threat of chemical warfare. The U.S. inventory of protective chemical suits, gloves, gas masks, and chemical agent antidotes was primarily in war reserves located around the world, most notably in the European theater. Supplies were limited due to cost, shelf life, and limited peacetime demands on the industrial base. Relative to the potential threat, chemical defense industrial base capabilities in August 1990 were inadequate. Chemical protective equipment surge

requirement orders were issued in August and September 1990 for protective suits and antidotes.

The manufacture of chemical protective equipment is a precise and exacting process to assure that there are no leaks thus protecting the wearer from chemical agents. Because the peacetime usage is minimal, it is extremely difficult to sustain an industrial base large enough to surge production effectively. Initial production lead-times for two existing dedicated contractors were 30 days for chemical protective gloves and 120 days for chemical protective suits. Nonetheless, the industry response was excellent, and production was surged from 33,000 suits a month to 77,000 a month.

Chemical warfare agent antidote requirements were extensive. The Department required a vast array of exotic chemical antidotes, as well as thousands of syringes, catheters, tracheotomy tubes, surgical sponges, to name but a few items. The case of atropine injectors illustrates the industry performance. These self-administered injectors of nerve agent antidote have no peacetime usage. Service-provided funds of $8.5 million a year allowed DoD to keep only a small production base of two existing contractors. With appropriate authorities and effective policies, the DoD-industry response enabled production to accelerate, and it quickly surged from 60,000 to 717,000 injectors a month.

Defense Production Act (DPA) Authorities

The DPA provides the policy foundation for industrial preparedness planning and critical statutory authorities for a number of our ongoing industrial base programs. These authorities are essential to maintaining a capability to meet national security production requirements.

Title I of the DPA authorizes the use of priorities and allocations to support defense production needs and is a cornerstone of the defense acquisition process. The priorities authority has been in use for four decades and is well understood and accepted by industry.

The DPA title III program is one of a number of federal activities used to develop industrial production capabilities essential to U.S. defense needs. It does so by encouraging private industry to invest in needed production capacity. The incentive is provided in the form of government purchase commitments that assure the private sector of an initial market for new industrial output. This type of incentive reduces or eliminates the need for more direct and costly government intervention to guarantee timely expansion of domestic capabilities to meet defense needs.

The title III program is an efficient and cost-effective means of addressing two of our most pressing industrial base concerns — foreign vulnerabilities and technology insertion. Foreign vulnerability is reduced by encouraging creation of viable domestic production sources. Technology insertion is accelerated by providing a guaranteed market for newly developed and demonstrated technologies that could otherwise languish due to the high cost of production in laboratory settings. The private sector is frequently reluctant to invest in more efficient production capacity without reasonable expectations concerning the size of the potential market.

Seven title III projects have been undertaken since the mid-1980s. These include:

- Accelerated cooled/direct quenched steel plate (for use in ships and armored vehicles);
- Discontinuous silicon-carbide reinforced aluminum (for potential use in virtually every type of manned aircraft, tactical and strategic missiles, and armored vehicles);
- High-modulus pitch-based graphite yarns (for use as a substitute for steel or aluminum in applications involving higher operating temperatures or requiring greater corrosion or fatigue resistance);
- High-purity quartz yarn (for use in antenna windows, radomes, heat shields, rocket motors, and numerous other applications);
- Intrinsically pure polysilicon (for use in infrared detectors and high-power switching devices);
- Silicon-on-insulator/silicon-on-sapphire wafers (for use in radiation-hardened electronics); and
- High-power, wide-band traveling wave tubes (for use in aircraft electronic countermeasures and radars).

In addition to these projects, title III program interest in expanding capacity for several other materials — such as rhenium metal — has encouraged industry to invest in additional capabilities without government support.

Title VII of the DPA contains a number of additional authorities that both support and complement the other two titles. For example, section 705 provides authorities to gather information about industrial capabilities;

section 708 authorizes establishment of voluntary agreements to promote industrial preparedness; section 710 provides for the National Defense Executive Reserve to augment the federal work force with experienced personnel in an emergency; and section 721 authorizes the President to block mergers, acquisitions, or takeover of U.S. firms by foreign persons if it is determined such actions would threaten U.S. national security.

In 1990, the Congress did not reauthorize the DPA and it lapsed. However, P.L. 102-193 which became law on December 6, 1991, extended the DPA until March 1, 1992. Bills are pending in both the House and Senate to reauthorize the DPA for an additional three years.

Integration of Commercial and Military Technologies

In the development and use of specifications and standards, DoD is purposefully moving away from military-unique requirements and toward standard commercial requirements wherever possible. The use of more commercial items not only capitalizes on economies of scale in peacetime, but it also provides a larger industrial base that can respond to wartime needs. The Department is also moving away from specifying design requirements in contracts and toward functional and performance requirements to allow flexibility in manufacturing and technology. This change is being implemented through training the acquisition corps, revisions to our regulations, and the use of nonregulatory guidance, such as handbooks.

One new training program is a course on buying nondevelopmental items. The objective of the course is to better prepare acquisition personnel to make good buying decisions, and, when that decision is to use a commercial product, to carry it out effectively. In this full spectrum training, the individual is trained on the acquisition process — from the identification of the need to the delivery to the user — while identifying potential impediments to buying commercial items and using appropriate methods to avoid or overcome them.

Regulatory improvements in basic acquisition directives ("Policies Governing Defense Acquisition" (DoD Directive (DoDD) 5000.1) and "Defense Acquisition Management Policies and Procedures" (DoDD 5000.2)) include specific direction on considering commercial alternatives at the beginning of each new procurement, as well as at the subsystem, component, and part levels within a system procurement. DoDD 5000.2 directs that the acquisition strategy be tailored to employ commercial practices to the greatest possible extent: buying the best value, considering suppliers' past performance, accepting commercial operational, maintenance, and safety data, using commercial logistics support, using commercial packaging, and using CIDs in conjunction with a market acceptability requirement. Market acceptability provisions require that a product must have gained market acceptance in terms of volume of sales, length of time in the market, or other appropriate criteria.

In support of the directive, detailed guidance has been issued on the preparation of CIDs and the use of market acceptability. This guidance is aimed at ensuring that these descriptions will be simple, function or performance oriented, generally easy for industry to understand and use, and result in the purchase of quality products.

National Defense Stockpile (NDS)

In the area of raw materials, DoD is reassessing the requirements for maintaining strategic and critical materials in the National Defense Stockpile (NDS). This effort is based on the global conventional war scenario of at least three years duration mandated in the Strategic and Critical Materials Stockpiling Act. DoD is attempting to keep required NDS inventories in the highest form feasible for long-term storage.

Summary

The defense industrial base is key to our ability to support military forces in the event of a future crisis. The Department must carefully plan to meet defense requirements because in many cases the industrial base will not be able to respond in a timely fashion if it is allowed to wither away. Also, DoD's institutionalization of the concept of reconstitution into our defense planning and operating processes has important industrial base implications. As part of the acquisition strategy for major programs, DoD is developing the ability to analyze the industrial base at each decision milestone.

The health of the defense industrial base is closely tied to the overall health of the economy, but DoD policies, plans, and programs make important contributions to both. DoD will continue to encourage the defense base to become more internationally competitive, to rely more on commercially available items when

possible, to seek new technologies by ensuring research and development funding, and to introduce these technologies into our weapons systems in a more timely fashion. These efforts will provide the foundations for success in protecting U.S. national security in peacetime and in times of conflict.

ENVIRONMENT

DoD Environmental Policy

Over the past year, the Department of Defense has increased its attention to environmental issues. Significant advances have been made in environmental planning, compliance, pollution prevention, restoration, and natural and cultural resources. An important advance has been the addition of the Safety and Occupational Health Office and the Explosives Safety Board to the environmental family. This consolidation increases the Department's effectiveness in protecting human health and the environment.

Stewardship of Resources and Defense Lands

POLLUTION PREVENTION

DoD is a leader in pollution prevention, both throughout the federal government and in private industry. The Pollution Prevention Act of 1990 establishes a hierarchy of environmental initiatives starting with source reduction, moving to recycling, then to treatment, and finally to disposal. The Department's source reduction efforts are significant and involve changing the weapon system acquisition process, process improvement and modifications, materiel substitution, and improved materiel management. These efforts have the combined effect of reducing pollution, improving worker protection, reducing long-term liability, providing more efficient use of natural resources, and saving money.

Hazardous waste disposal is one example of our successful pollution prevention efforts. The Department has established a goal of reducing hazardous waste disposal by 50 percent between 1987 and 1992. To date, the military services and DLA have achieved a 40 percent reduction through 1990. We expect to meet the full 50 percent reduction well ahead of schedule. Some examples of numerous efforts include:

- Fort Ord instituted the use of high-pressure spray washers to degrease and clean automotive parts. The use of these washers eliminates the need for dip tanks filled with trichloroethane. This low cost initiative paid for itself in approximately two years.
- At Norfolk, the Navy tested an electroplating treatment unit for plating processes with great success. The unit achieved a 99 percent reduction in cadmium and cyanide and 90 percent reduction in wastewater volume.
- The Air Force has developed a process that reduces the concentration of chromium and removes heavy metals from electroplating and industrial wastewaters. This process reduces chemical treatment costs and generates only 8 percent of the hazardous sludge produced by conventional methods. Implemented in a full-scale system at Tinker Air Force Base, the process will save $655,000 per year.

Now emphasis is moving towards the beginning of the system by focusing on acquisition. Significant advances have been made with the publication of the revised acquisition directive, which integrates environmental impact analysis, system safety, health hazards, human factors engineering, and pollution prevention at the very start of the acquisition process. The goal is to ensure that environmental and safety factors are considered for the entire life of the weapon system. Some of the efforts include identifying hazardous materials that should be avoided, developing a life-cycle cost model, and including hazardous material management as a factor in the criteria for determining award fees.

The Department has begun the lengthy process of reviewing military specifications and standards to eliminate or reduce the use of hazardous materials or other substances, such as plastics. This is an extremely time-consuming process because the numerous uses of each military specification must be evaluated, as well as the impact of the proposed substitute on each weapon system. However, the end result is worth the effort because it will not only improve the Department's protection of human health and the environment, but will also improve the human health and environmental impacts on our suppliers.

TECHNOLOGY

The Department was an early partner with other federal agencies and private industry in developing programs to eliminate the use of chlorofluorocarbons (CFCs) and halons. These ozone depleting chemicals are used for routine refrigeration, solvent cleaning, and fire extinguishing. A significant accomplishment of this

group was the development of eight non-CFC replacement products for cleaning critical electronics circuit boards.

The Strategic Environmental Research and Development Program (SERDP) was established to address environmental matters of concern to the Department of Defense and the Department of Energy. It is conducted as a tri-agency program with the Environmental Protection Agency (EPA). SERDP identifies and will develop cost-effective technology to meet environmental obligations and to foster the exchange of scientific information and technologies among the participants and the private sector.

RESTORATION

This past year has seen steady progress on all fronts of the Defense Environmental Restoration Program (DERP), particularly in the Installation Restoration Program (IRP). In FY 1991, the Department invested over $1 billion in clean up efforts. This represents a 40 percent increase over the previous year.

The increase in FY 1991 DERP funding allowed the Department to continue its evaluation and remediation of sites that have been placed on the national priorities list (NPL) by the EPA. There are approximately 1,800 DoD installations in DERP. Currently only 90 DoD installations are listed or proposed on the NPL. This represents an increase of only one installation from the previous year, the Pearl Harbor Naval Complex on the island of Oahu, Hawaii. The NPL is the EPA's priority sites requiring study and possible clean up. DoD has again made significant progress this year at all NPL installations, as demonstrated in Chart 9. Preliminary assessments for the 90 installations have been completed, and the Department is moving into the remedial investigation and feasibility study phase and to actual remediation and clean up.

Approximately 180 individual remedial actions are being conducted at DoD installations on the NPL. These actions include immediate response actions needed to protect the public health, such as providing alternate drinking water supplies and the immediate removal of contaminants. Other courses of action include the installation of more permanent remedies such as installing ground water treatment facilities.

The Department continues to develop a closer working relationship with the states. Over 30 states and territories have now entered into agreements to support our IRP efforts. Through cooperative agreements, DoD reimbursed states over $14 million for services to expedite the review and approval of studies and clean up decisions. These defense and state memoranda of agreement have been successful in fostering better working relationships between installations and states. This illustrates the emphasis placed on developing workable solutions in cooperation with other involved agencies and the public.

As part of the base closure effort, the Defense Environmental Restoration Task Force was chartered this past year to recommend ways to consolidate and streamline current practices, policies, and administrative procedures for clean up and reuse of installations being closed under the Base Closure Act. The task force is addressing areas such as transferring parcels of installations, flexibility in contracting, and improving interagency cooperation. The recommendations will streamline the normal restoration process at all installations, not just those installations being closed.

ENVIRONMENTAL COMPLIANCE

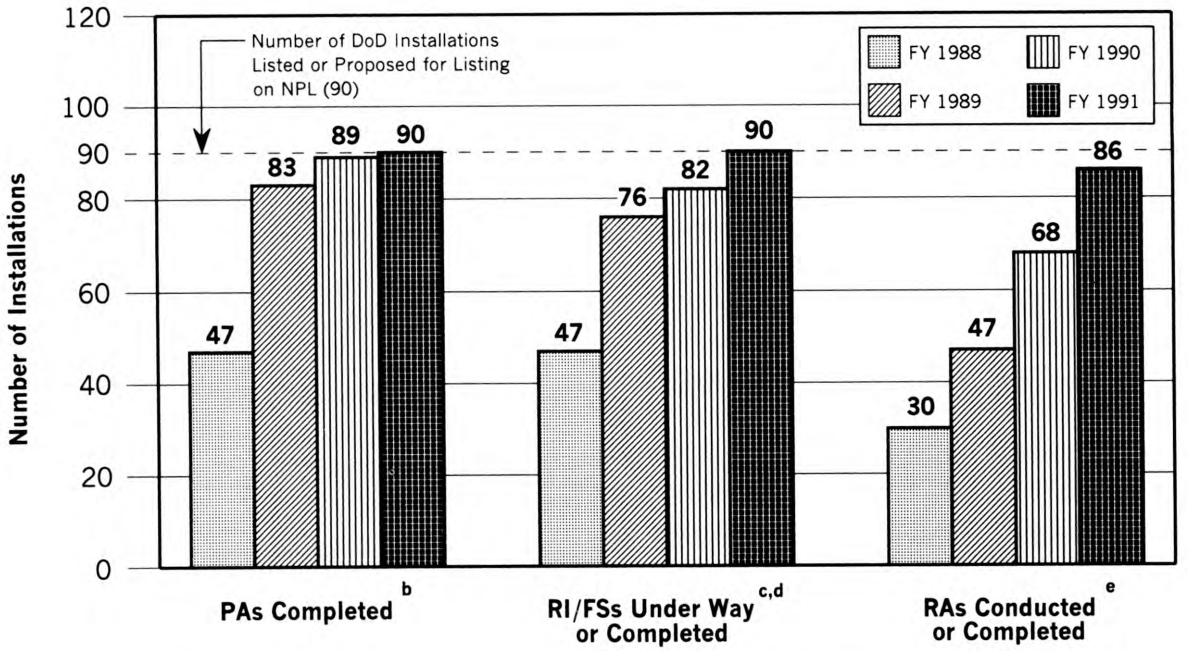
The Department of Defense environmental compliance program encompasses a wide range of budget activities, programs, and appropriations. The Deputy Assistant Secretary of Defense for Environment retains oversight for this program and has taken a highly active role this past year by better identification of the actual costs of environmental programs. Identification of costs increases program visibility and further encourages resource support.

Compliance requirements are being properly identified and budgeted to meet the Department's important environmental requirements. Approximately $1.4 billion has been budgeted for environmental compliance in FY 1992.

One of the cornerstones of the Department's effort to be a leader in environmental compliance and protection programs is achieving and maintaining compliance with applicable statutes and regulations. This policy involves monitoring, planning, and programming to meet new standards on or before their effective date. Each of the components has developed and implemented a comprehensive environmental audit program to highlight problems at each facility before they become violations.

Restoration Progress at DoD NPL[a] Installations as of September 30, 1991

Chart 9



[a] **National Priorities List (NRL)** — The Environmental Protection Agency's compilation of the sites scoring 28.5 or higher using the Hazard Ranking System. Such sites are first proposed for NPL listing. Following a public comment period, proposed NPL sites may be listed final on the NPL or may be deleted from consideration.

[b] **Preliminary Assessment (PA)** — An installation-wide study to determine if sites are present that may pose hazards to public health or the environment. Available information is collected on the source, nature, extent, and magnitude of actual and potential contamination.

[c] **Remedial Investigation (RI)** — The RI includes a variety of site investigative, sampling, and analytical activities to determine the nature, extent, and significance of contamination.

[d] **Feasibility Study (FS)** — The FS is distinct from, but closely related to, the RI and is usually conducted concurrently with the RI. The FS is intended to:

- Establish criteria for cleaning up the site;
- Identify and screen clean up alternatives for remedial action; and
- Analyze in detail the technology and cost of the alternatives.

[e] **Remedial Action (RA)** — Those actions taken at an NPL installation that will be consistent with a permanent remedy. They can include removal actions taken to prevent or minimize the release of a hazardous substance to the environment. They can also include more permanent types of actions such as on-site treatment or incineration of contaminants which will be consistent with the final remedy.

These audits enable installations to effectively plan and budget for necessary environmental projects.

STATE INITIATIVES

The Department continues to demonstrate leadership by volunteering to participate in regional water quality and environmental programs. This approach emphasizes greater cooperation between states and the Department and focuses discussions on real environmental issues. An example is DoD participation in the effort to clean up the Chesapeake Bay.

SAFETY AND OCCUPATIONAL HEALTH

The Safety and Occupational Health Office provided

extensive support to DoD personnel during Operation DESERT STORM, defining health risks and ensuring that DoD personnel were protected. A tri-Service working group was chartered to study the health effects from the Kuwaiti oil well fires. This group is evaluating acute, midterm, and chronic health effects to DoD personnel, recommending policies or special studies to better identify adverse health effects from the smoke, and closely monitoring studies by the Army and the Navy on risk assessment and medical surveillance. Some of the specific activities involved include:

- The U.S. Army Environmental Hygiene Agency health risk assessment team has established sampling sites at all former major fixed troop locations and several specially selected sites in Kuwait and Saudi Arabia. The team is continuously sampling air, soil, and personnel breathing zones to assist in the health risk assessment.
- The U.S. Navy conducted an epidemiological study of 2,700 Marines in theater to see if sick call rates correlated to potentially greater exposure. Results did not show an increase in sick call rates corresponding with proximity to the fires.

DISEASE CONTROL THROUGH PEST MANAGEMENT

The Department of Defense program fielded two new vastly improved repellents just prior to Operation DESERT SHIELD through the combined efforts of the Armed Forces Pest Management Board, the Army Medical Research and Development Command, cooperating U.S. Department of Agriculture research laboratories, and the Defense General Supply Center. Expedited shipment of the new repellents provided deploying units with initial supplies before in-theater supply flow was established. Continuous monitoring of stocks and follow-on shipments ensured unbroken support.

The military services also provided key vector-borne disease control support to other contingency operations, including preventive medicine support for Operation PROVIDE COMFORT for Kurdish refugees in Iraq, post-disaster support after the cyclone in Bangladesh, and post-disaster support after the volcanic eruption of Mount Pinatubo in the Philippines.

Lyme disease is the number one vector-borne disease in the country today. Field troops are routinely exposed to the ticks which transport the disease. The Department has moved to minimize exposure of military personnel to Lyme disease by increasing awareness of Lyme disease and promoting prevention. An important aspect of this program is sharing key information with the civilian community.

AMMUNITION AND EXPLOSIVES SAFETY

In keeping with the Department's policy to provide the maximum possible protection to personnel and property from the damaging effects of accidents involving U.S.-made munitions, the DoD Explosives Safety Board surveyed over 361 U.S. and allied installations worldwide. Working closely with military services and our allies, the Board reviewed explosive operations, to include the production, storage, and maintenance of ammunition for compliance with U.S., NATO, and foreign national standards.

Through sponsorship of several research, development, test, and evaluation programs, the Department developed cost-effective designs for explosive-resistant facilities and criteria for the safe handling and storage of chemical and conventional ammunition. These criteria will ensure the safe consolidation of ammunition stockpiles resulting from base closures and the retrograde of ammunition from Operation DESERT STORM.

In support of the demilitarization of chemical munitions, biennial site surveys were conducted of all chemical demilitarization and storage sites. Over 105,000 pounds of chemical munitions were demilitarized in FY 1991.

NATURAL RESOURCES CONSERVATION AND MANAGEMENT

The legacy resource management program is a comprehensive and long-range program which integrates biological, cultural, and geophysical resources on DoD lands with the dynamic requirements of the military mission. The program gives the highest priority to identifying, conserving, and restoring natural and cultural resources. This is accomplished in partnership with federal, state, and local agencies and private groups. A top priority is educating our decisionmakers and resource managers and providing them the necessary tools and guidance to fulfill their responsibilities. The legacy program goes beyond routine management and legal compliance to support integrated stewardship of our

resources. Under the legacy program, 90 demonstration projects have been funded in 39 states and territories.

The Department has been involved in a number of other stewardship efforts, including developing a volunteer and partnership program to increase awareness and involvement on DoD lands. There have been cooperative efforts with the U.S. Fish and Wildlife Service to implement the North American Waterfowl Management Plan Cooperative Agreement. As a result, 13 fish and wildlife plans have been updated, and work is under way at 8 installations on recommended projects. A feasibility study also was conducted by the EPA on management of DoD forests and lands for energy conservation.

Summary

The Department of Defense has made significant headway toward developing and institutionalizing an environmental ethic. The perseverance and commitment of DoD personnel, from the installation level to the Secretary, have enabled the Department to lead the way among federal agencies in environmental protection. This continuing dedication to duty, both in the defense of our national security and in the protection of the environment, will enable DoD to meet the challenges ahead.

The Department's environmental vision — to take the lead in global stewardship — is more than mere compliance, it means action and commitment. To this end, the Department has made great progress. Pollution prevention programs implemented throughout DoD have played a key role in our commitment to assuring that DoD management practices today prevent pollution problems tomorrow. The environmental course charted for the future is sound and will ensure the achievement of environmental goals.

Part III
Defense Components

NUCLEAR FORCES AND STRATEGIC DEFENSE

Introduction

United States nuclear and strategic defense forces include four basic elements: strategic offensive forces; strategic command, control, communications, and intelligence (C^3I) systems; nonstrategic nuclear forces; and strategic defensive forces. Each force element contributes to the U.S. nuclear deterrent, which for several decades has prevented nuclear attacks against U.S. territory, deployed U.S. forces, and allied nations.

The Role of Strategic Nuclear Forces in a Changing World

Even as emphasis shifts from global war to regional conflicts, strategic nuclear deterrence remains a fundamental element of the U.S. defense strategy. The dissolution of the Warsaw Pact, the dramatic changes in the former Soviet Union, and the possibility that Third World nations may acquire nuclear capabilities have led the Department to make adjustments to nuclear and strategic defense forces and to the policies that guide them. While U.S. strategy has traditionally focused on deterring a unitary, rational actor with full knowledge and respect for the consequences of nuclear war, it must now also encompass potential instabilities that could arise when states or leaders perceive they have little to lose from employing weapons of mass destruction. As the international security environment becomes more complex, so too do the requirements of national defense. Measures that sufficed to answer the Soviet threat are no longer adequate in the face of the wide array of potential contingencies confronting the United States today. Thus, DoD has embarked on an aggressive program of strategic defense — centered on the Global Protection Against Limited Strikes (GPALS) system — to protect U.S. troops in the field and our allies from tactical ballistic missile attack, and to protect the United States itself from a ballistic missile attack.

U.S. NUCLEAR FORCE REDUCTIONS

On September 27, 1991, President Bush set in motion the most fundamental change in U.S. nuclear posture since nuclear systems became an integral part of the U.S. military force structure in the early 1950s. The President's initiative will result in fewer nuclear weapons worldwide.

To begin the process of U.S. reductions, the President ordered the elimination of the entire inventory of U.S. ground-launched tactical nuclear weapons; the withdrawal of tactical nuclear weapons from U.S. ships at sea; the removal of strategic bombers from alert; the stand down of all 450 Minuteman II intercontinental ballistic missiles (ICBMs) slated for deactivation under the Strategic Arms Reduction Talks (START) Treaty and their accelerated elimination once the treaty is ratified; the cancellation of the Peacekeeper Rail Garrison program and the mobile basing option of the Small ICBM program; and the cancellation of the short-range attack missile (SRAM II) program. The Minuteman II missiles and strategic bombers have already been taken off alert, and program cancellations began with the fiscal year (FY) 1992 budget.

In his State of the Union address on January 28, 1992, President Bush took further steps to limit the modernization of U.S. strategic nuclear forces and to encourage a mutual reduction in the number of strategic nuclear weapons to levels substantially below those of START. He canceled the Small ICBM program, stopped production of Peacekeeper missiles and the high-yield warhead for the D-5 missile, capped procurement of the advanced cruise missile (ACM) at 640, and limited B-2 procurement to a total of 20 aircraft.

The President also reiterated his appeal to the republics of the former Soviet Union to join with the United States in eliminating land-based ballistic missiles with multiple independently-targetable reentry vehicle warheads (MIRVed ICBMs). Recognizing that MIRVed ICBMs constitute a large portion of the Soviet deterrent force, President Bush offered on his part not only to retire all Peacekeeper missiles and download all Minuteman III missiles to a single warhead, but also to reduce the number of weapons planned to be carried by Trident submarines by about one-third. Furthermore, a substantial portion of the U.S. strategic bomber force would be oriented to primarily conventional missions. The President continued to support the deployment of a limited nonnuclear defense against ballistic missiles and

urged enhanced safety, security, and command and control of those nuclear systems that remain.

IMPLICATIONS OF START

The START Treaty, signed in Moscow in July 1991, is the first arms control agreement to require a real reduction in the number of strategic weapons, but it is only the first step. If the republics of the former Soviet Union agree to the elimination of land-based MIRVed missiles, mutual reductions could be much larger than those agreed to in START.

The treaty enhances verification by allowing an unprecedented amount of on-site inspection, by permitting the continuous monitoring of certain facilities, by encouraging cooperative measures, and by restricting activities that would deny access to data necessary for verification. Under the treaty, both sides are allowed no more than 1,600 deployed strategic nuclear delivery vehicles (SNDVs) and 6,000 accountable warheads. No more than 4,900 warheads can be carried on ballistic missiles; of these, no more than 1,100 can be deployed on mobile ICBMs. Missile throw weight — that is, the militarily useful payload a missile can deliver to an operational range — is limited to a total of 3,600 metric tons on both sides. START will also place limits and restrictions on the number of nondeployed mobile missiles, and cut the size of the SS-18 silo-based ICBM force by half.

The treaty, however, allows considerable flexibility to substitute weapons within these limits. For example, bomber weapons are counted more leniently than ballistic missile warheads because they are considered more stabilizing and less suitable for use as a first-strike weapon. Under START limits, all of the gravity bombs and short-range attack missiles carried by a penetrating bomber count as only 1 warhead, but 10 reentry vehicles (RVs) carried on a ballistic missile count as 10 warheads. Also, each of up to 150 U.S. heavy bombers carrying cruise missiles counts for 10 warheads (even though each aircraft may carry up to 20 cruise missiles), and each of up to 180 former Soviet heavy bombers carrying cruise missiles counts for 8 warheads (even though each aircraft may carry up to 16 cruise missiles). Each heavy bomber over the specified number is accountable for the maximum number of long-range, nuclear-armed cruise missiles for which a bomber of that type and variant is actually equipped.

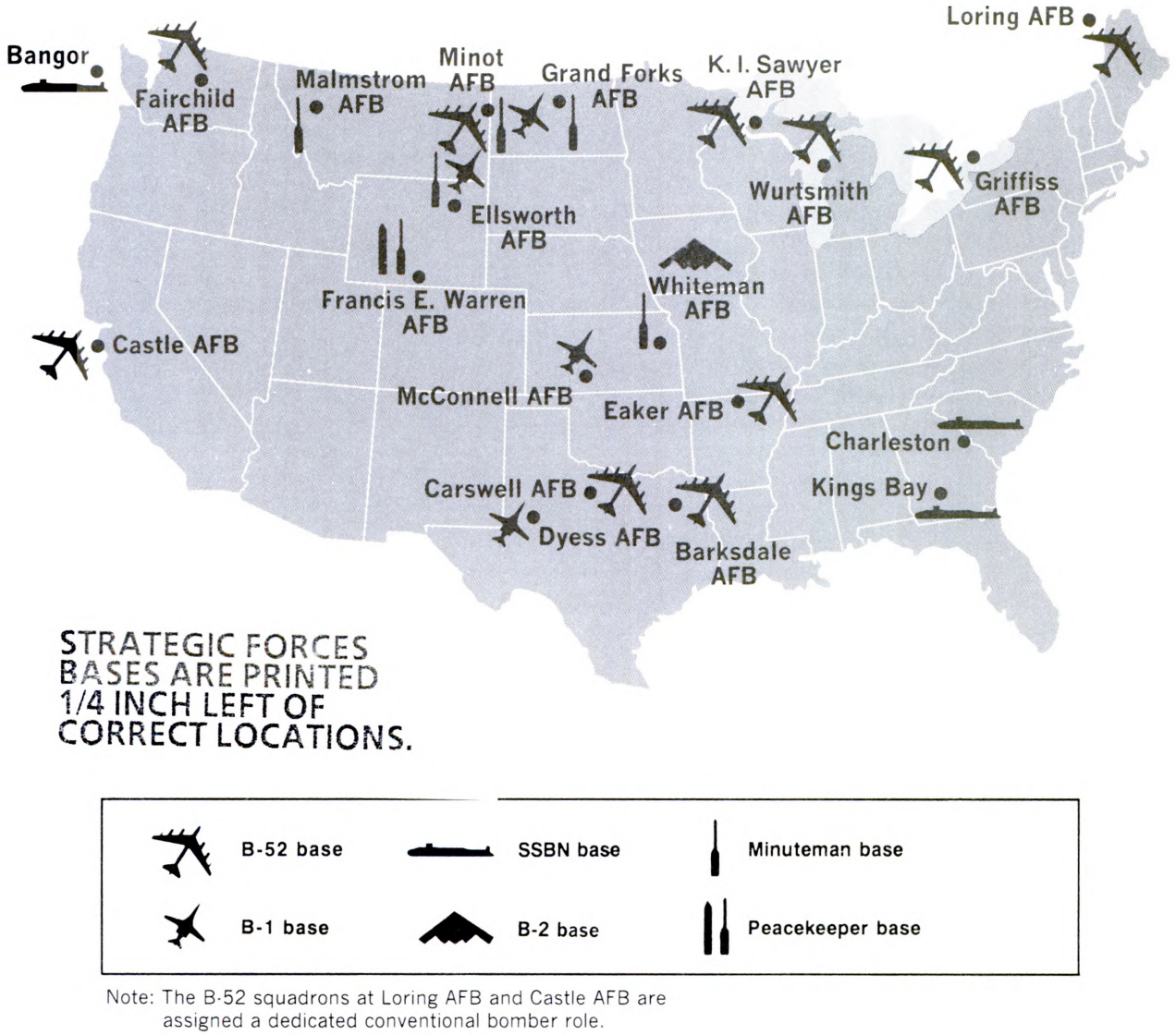
The United States plans to meet START requirements by retiring older systems. Poseidon submarines carrying Poseidon (C-3) missiles have already completed their last operational patrols; the C-3 missiles will be removed from the boats by September 1992. All Poseidon submarines carrying Trident I (C-4) missiles and all Minuteman II ICBMs — which have been taken off alert — will also be retired; all strategic nuclear B-52G bombers will be retired by 1993. The number of weapons on most Minuteman III missiles will decline from three to one RV per missile. Even without further agreement with the republics of the former Soviet Union, the President has gone beyond the requirements of START by accelerating the planned retirements of Minuteman II and Poseidon

U.S. Strategic Nuclear Forces Table 9

	End of FY 1992	START (1999)	President Bush's State of Union Proposal[a]
ICBMs			
MINUTEMAN II[b]	370	0	0
MINUTEMAN III	510	500	500[c]
PEACEKEEPER	50	50	0
TOTAL	**930**	**550**	**500**
SSBNs/SLBMs			
POSEIDON/C-4	10/160	0/0	0/0
TRIDENT I/C-4	8/192	8/192	8/192
TRIDENT II/D-5	4/96[d]	10/240	10/240
TOTAL	**22/448**	**18/432**	**18/432[e]**
Bombers[f]			
B-52G	44	0	0
B-52H	95	95	95
B-1B	97	97	97
B-2	0	20	20
TOTAL	**236**	**212**	**212[g]**

[a] Proposed force levels are contingent upon republics of the former Soviet Union agreeing to reduce strategic nuclear force levels and eliminate land-based MIRVed ICBMs.
[b] No longer on alert.
[c] Warheads would be downloaded to bring the count from three to one per missile.
[d] Excludes fifth Trident II submarine to be delivered in late FY 1992 and deployed in FY 1993.
[e] Warheads would be reduced by about one-third.
[f] Total aircraft inventory, excluding the conventional B-52 force. Because of START Treaty counting rules, the numbers shown are greater than the values for primary aircraft authorized (PAA), combat coded (See Table C-1).
[g] Substantial number of bombers would be reoriented to a primarily conventional role.

Locations of U.S. Strategic Offensive Forces Chart 10



Note: The B-52 squadrons at Loring AFB and Castle AFB are assigned a dedicated conventional bomber role.

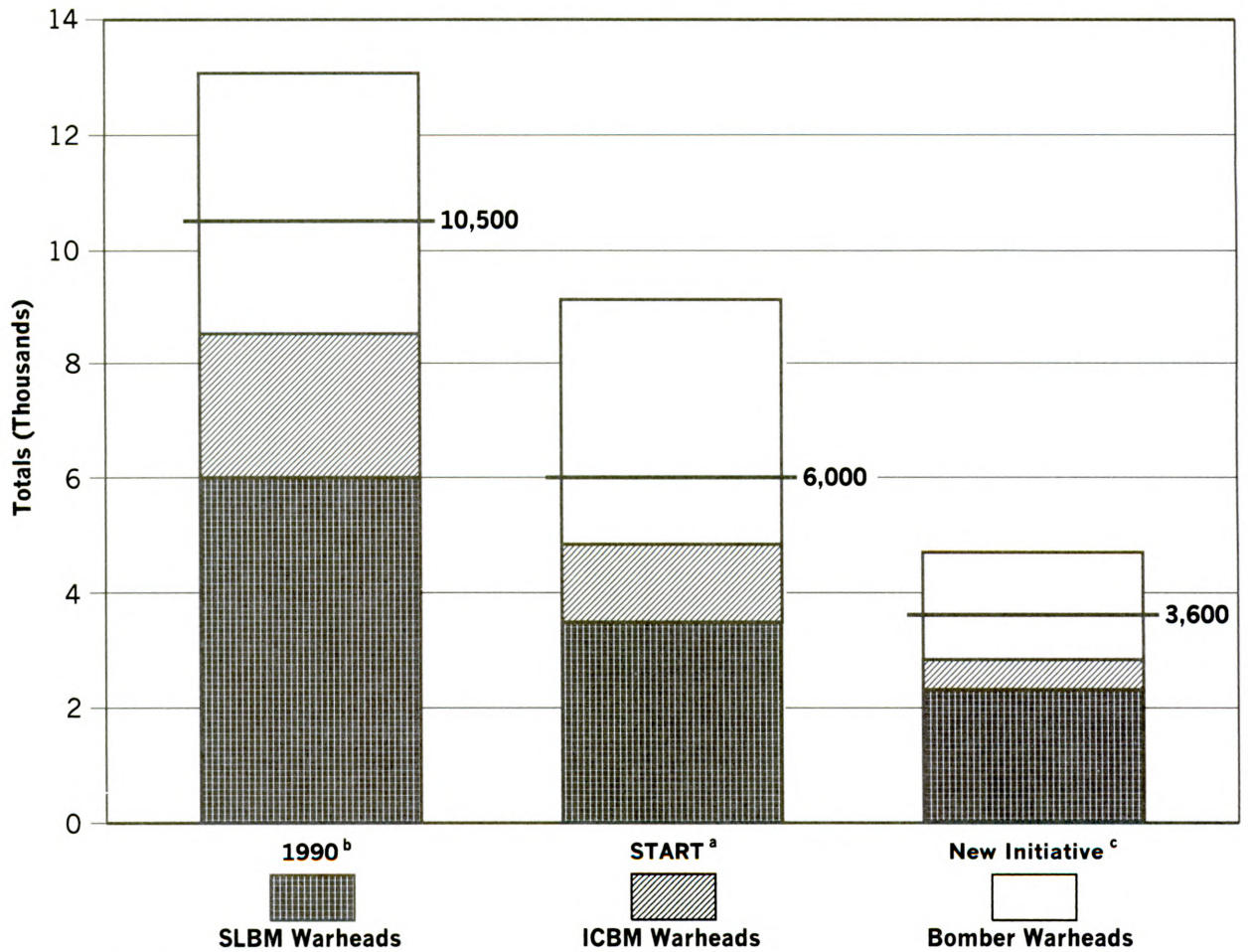
(C-4) submarines and reducing the planned number of strategic bombers. If agreement is reached with the former Soviet republics on the President's proposals, the size of the planned ballistic missile force — both ICBM and submarine-launched ballistic missiles (SLBMs) — will also be substantially reduced.

MODERNIZATION OF U.S. STRATEGIC NUCLEAR FORCES

Although the changes in the international security environment have permitted a dramatic change in the U.S. nuclear force structure, the United States must still

U.S. Strategic Nuclear Warheads

Chart 11



[a] The United States and the former Soviet Union agreed to a sublimit ceiling of 4,900 on the aggregate number of warheads on deployed ICBMs and deployed SLBMs. The START Treaty limits each side to 6,000 accountable warheads, as indicated on the chart. Due to the bomber discount rule, however, the actual number of deployed weapons exceeds 6,000 by approximately 3,500.

[b] Numbers shown are actual warheads. The figure 10,500 is shown for comparison purposes only and indicates the number of warheads that would be accountable under START Treaty counting rules if they were applied retroactively.

[c] Numbers shown are actual warheads. These proposed force levels are contingent upon republics of the former Soviet Union agreeing to reduce strategic nuclear force levels and eliminate land-based MIRVed ICBMs. The figure 3,600 is shown for comparison purposes only and indicates the number of warheads that would be accountable under START Treaty counting rules.

maintain an effective nuclear deterrent. The former Soviet Union has continued to modernize its nuclear arsenal despite other, more positive changes under way in that society, and there remains a possibility that the United States and its allies might be threatened by any of the growing number of countries possessing nuclear weapons or other weapons of mass destruction. Critical to maintaining a credible deterrent is the retention of a diverse mix of survivable and highly capable U.S. offensive nuclear forces, supported by a robust, reliable C^3I network. The United States must be able to identify critical targets within an enemy's heartland and must be able to locate them with sufficient accuracy, precision, and timeliness for forces to be applied to their destruction.

The President has determined that currently deployed U.S. systems can, with minimal further modernization, constitute an effective, credible, and flexible nuclear deterrent for many years to come. Indeed, fiscal

constraints had slowed the pace and reduced the scope of the U.S. strategic modernization program even before the President's September address to the nation. For example, planned procurement quantities for the B-2 bomber and the ACM had been reduced. Similarly, production of Trident submarines was limited to 18. Following the President's September 1991 initiative, the SRAM II and mobile ICBM programs were canceled, alert levels were reduced, and some retirements were accelerated. As a result of the President's State of the Union Address, modernization of all three legs of the strategic Triad has been severely limited.

With the cancellation of the Small ICBM and the offer to retire the Peacekeeper force, the Minuteman III system, which was deployed in the 1970s, will be the United States' primary — and perhaps only — ICBM for the foreseeable future. Stealth technology will be less prevalent in the strategic bomber force, with fewer than one-third the earlier planned number of B-2 aircraft and only about 60 percent of the planned number of ACMs. Hard-target-kill capability in the SLBM force will be reduced to less than half the planned level with the cancellation of the high-yield warhead for the D-5 missile.

Strategic Offensive Forces — the Triad

The U.S. strategic Triad of land-based intercontinental ballistic missiles, SLBMs, and bombers ensures that unforeseen events never threaten U.S. retaliatory capabilities. Each leg of the Triad contributes unique capabilities to the U.S. strategic offensive force, which in turn ensures the credibility of the U.S. nuclear deterrent.

LAND-BASED INTERCONTINENTAL BALLISTIC MISSILE FORCES

The ICBM force is an integral part of the U.S. strategic Triad. Under START, the U.S. silo-based force of the late 1990s would consist of the Peacekeeper missile — our newest and most accurate ICBM, first deployed in 1986 — and the Minuteman III missile system. All Minuteman II ICBMs have been taken off alert; the missiles will be deactivated in accordance with START procedures, but following START ratification on a schedule that is more rapid than the treaty requires.

If the republics of the former Soviet Union agree to eliminate land-based MIRVed systems, the Peacekeeper missiles would also be retired and the entire force of 510 Minuteman III missiles would all be reconfigured to carry one warhead rather than three. The schedule for such a drawdown would have to take into account safety, manpower, storage, equipment handling, and transportation constraints.

The Minuteman III system will be upgraded to ensure its continued viability. Launch control facilities also are being modernized, principally through the Rapid Execution and Combat Targeting (REACT) program.

SEA-BASED STRATEGIC NUCLEAR FORCES

The nuclear-powered ballistic missile submarine (SSBN) force continues to be a key component of the U.S. strategic nuclear deterrent. The ability of this force to remain virtually undetectable at sea makes it the most survivable and enduring element of the U.S. nuclear Triad. The introduction of the Trident II (D-5) missile, with its increased accuracy, range, and lethality, will allow the SLBM force to hold at risk the full spectrum of potential targets far into the future. This leg of the Triad makes up the largest portion of the U.S. offensive nuclear arsenal today; by the late 1990s, about 70 percent of the 4,900 U.S. ballistic missile warheads allowed under START will be sea-based.

By the end of 1992, the U.S. sea-based nuclear deterrent will consist of 10 pre-Ohio-class SSBNs carrying Trident I (C-4) missiles, 8 Ohio-class SSBNs equipped with Trident I missiles, and 4 Ohio-class SSBNs deploying the new Trident II (D-5) missile. Six additional Ohio-class SSBNs, which also will be armed with the Trident II, are in various stages of construction or delivery. The FY 1993 budget supports the continued operation of this force as well as continued production of D-5 missiles to support SLBM requirements for submarine load-out and operational testing.

During the 1990s, as the pre-Ohio-class SSBNs are retired and additional Trident submarines are deployed, the SSBN force will shrink to 18 submarines, all equipped with either Trident I or Trident II missiles. Equipping the SLBM force will be completed with the replacement of the aging Trident I missiles on existing Ohio-class submarines with the more capable Trident II. This upgraded single system fleet will provide the optimum versatility and cost efficiency to meet future strategic deterrence needs. To ensure continued confidence in the smaller submarine force of the future, the defense

program continues to emphasize improvements in SSBN security and survivability.

THE BOMBER FORCE

Bombers are the most versatile element of the strategic Triad, capable of being recalled or redirected while en route to their targets. They can attack fixed strategic targets, assess damage inflicted in earlier strikes, and conduct follow-on missions. Bombers carry a variety of nuclear weapons that complicate enemy air defense operations: air-launched cruise missiles (ALCMs), SRAMs, and gravity bombs. They offer a prompt and powerful means of demonstrating U.S. resolve in crises. In addition to their primary nuclear mission, long-range bombers can perform a variety of conventional missions, including support to theater commanders worldwide. Some B-52Gs are, in fact, dedicated exclusively to conventional missions, and heavy bombers will be increasingly available for these missions.

Traditionally, penetrating bombers and cruise missiles have relied on suppression of enemy air defenses by ICBM and SLBM weapons. Bomber modernization programs have reduced but not eliminated the need for such suppression, and advances in cruise missile and other precision-guided munition technologies offer new ways to accomplish that mission. As a first step in maintaining the effectiveness of the bomber force, DoD procured the ALCM-B, which would allow B-52 aircraft to stand off from enemy defenses when delivering cruise missiles, and deployed the B-1B, whose smaller radar cross section, high-speed, and low-altitude penetration tactics make it more effective than the B-52 in the penetration role.

The key components of the second phase of the bomber modernization effort have been the B-2 stealth bomber and ACM. Both systems are designed to penetrate air defenses using state-of-the-art, low-observable technologies. Initial operational capability of the ACM is expected soon, and flight tests of the first three B-2 aircraft have been successful.

In his State of the Union address, President Bush reduced proposed B-2 procurement from 75 to 20 aircraft and the total number of ACMs from 1,000 to 640. Developments within the Commonwealth of Independent States make it less likely that the future U.S. bomber force will have to counter the sophisticated air defense network fielded by the Soviet Union that motivated the larger force levels once envisioned for these weapon systems. The 20 B-2s will be an essential part of our core capabilities, retaining their potential as strategic nuclear bombers but focused on the weaponry and development necessary to enhance their conventional role in regional conflicts.

While denying the Administration's request to procure four additional B-2s in FY 1992, the Congress affirmed its support of the advanced technology involved by fully funding B-2 development and providing procurement funding sufficient to sustain the contractor base. The final increment of additional B-2s will be requested in FY 1993 to complete the B-2 program at 20 aircraft.

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

While the United States will devote fewer resources to defense in the future, the need to maintain a credible strategic C^3I posture will not diminish. Strategic nuclear forces, even at reduced levels, will still require effective command and control support, as well as accurate, precise targeting data.

The strategic C^3I system provides timely and accurate attack warning and assessment information to U.S. military and civilian leaders, permitting appropriate responses to be developed and communicated to the nuclear forces. Intelligence provides the threat backdrop for the warning and assessment process. A variety of sensor systems collect the information necessary to determine the size, source, and scope of an attack. Communications systems link the sensors to command centers and civilian authorities to military commanders and the forces they control.

In the past, the Navy commanded the sea-based portion of the strategic deterrent, while the Air Force commanded the bomber and land-based elements. As the United States reduces force levels, DoD will consolidate all strategic nuclear forces under one command with the participation of both Services. The new command structure will streamline authority, thus enabling the Department to manage nuclear forces more effectively.

As DoD modernizes the remaining strategic forces, it must continue to upgrade the strategic C^3I systems that allow these forces to be employed effectively. These systems must also be modified to accommodate the new

defensive capabilities developed under the Strategic Defense Initiative (SDI). Pursuing the most cost-effective mix of modernization programs becomes even more important as the resources devoted to defense decline.

Consequently, the Department has assessed its strategic C^3I systems to determine the feasibility of realigning selected elements, to optimize the support provided to U.S. strategic forces, and to validate the need for specific modernization programs. This assessment has led to a restructuring of the airborne elements of the strategic command and control system, and will lead to a reduction in the number of aircraft assigned this mission. The review also confirmed the need to upgrade the communications and information systems aboard the remaining aircraft and to pursue the enhanced satellite communications capabilities offered by a restructured Milstar program, which will enable retaliatory orders to be relayed promptly to U.S. strategic forces in the event of a nuclear attack.

For two decades the Defense Support Program (DSP) has provided the nation's space-based early warning of ballistic missile launch. A follow-on system will replace the current DSP after the year 2000. The improved survivability, worldwide coverage, advanced sensors, and faster reporting of this improved system will enable DoD to detect and accurately assess ballistic missile attacks against the United States as well as shorter-range missile attacks that may arise in a changing world environment.

Nonstrategic Nuclear Forces (NSNF)

Nonstrategic nuclear forces (NSNF) serve as the link between conventional and strategic nuclear forces. Forward deployment of NSNF in Europe demonstrates the United States commitment to the defense of that continent and provides the principal means by which alliance members share nuclear risks and burdens.

The dissolution of the Warsaw Pact and the diminution of the worldwide Soviet threat have allowed the President to restructure the land-based nonstrategic nuclear stockpile, limiting it to only aircraft bombs. Artillery-fired atomic projectiles and nuclear surface-to-surface missile warheads will be withdrawn and eliminated.

Similarly, the United States will withdraw all tactical nuclear weapons, including all nuclear Tomahawk cruise missiles, from its surface ships, attack submarines, and land-based naval aircraft. Some of the weapons will be dismantled and destroyed; the remainder will be placed in storage, capable of redeployment in the event of crisis.

Strategic Defense Forces

The purpose of strategic defense forces is to protect against nuclear attack or coercion. Today the United States maintains defenses only against air attack, and those defenses are limited. As strategic and theater defenses are deployed, we will improve our ability to defend U.S. forces worldwide and U.S. allies against short-range and theater ballistic missile attack. That protection will be extended to include ballistic missile defense of the United States itself.

PROLIFERATION OF BALLISTIC MISSILES AND WEAPONS OF MASS DESTRUCTION

The proliferation of military technology continues to be of utmost concern to the Department. While many nations currently have only short-range surface-to-surface missiles, the requisite technology is becoming available to allow them to increase the range, accuracy, and lethality of these systems. Of paramount concern is the spread of technology that would allow these nations to replace their conventional warheads with chemical, biological, and perhaps even nuclear warheads. Weapons of mass destruction do not need precise guidance systems and sophisticated command and control networks to accomplish their mission of terror.

Operation DESERT STORM and the Iran-Iraq War demonstrated the willingness of some governments to use missiles to attack population centers to advance their political and military objectives. In the Persian Gulf War, Iraq used ballistic missiles to attack Coalition forces and Israeli cities even though the threat of retaliation was large.

By the end of this decade, as many as 9 developing countries could have nuclear weapons, up to 30 could have chemical weapons, 10 could possess a biological weapons capability, and up to 20 or more could acquire missiles through overt or covert channels. Deploying limited defenses to protect against this emerging threat is an important element in the defense strategy that

emphasizes the capability to respond to a wide spectrum of potential challenges and regional conflicts.

The United States seeks to achieve global stability and security through its international alliances and political, economic, and military power. Promoting regional stability and upholding American interests may place U.S. forces at risk from diverse threats, including attack by ballistic missiles. The United States cannot permit its influence to decline due to the proliferation of missile technologies.

BALLISTIC MISSILE DEFENSE

International events have confirmed the wisdom of the decision to refocus the SDI program on global protection against limited strikes by ballistic missiles, whatever their source. The coup in and disintegration of the Soviet Union and the continuing revelations of Iraq's nuclear weapons program underscore the uncertain and threatening international environment which faces the United States, and for which the SDI program has been redesigned.

The Missile Defense Act of 1991, enacted as part of the FY 1992 Defense Authorization Act, established the goals of deploying a highly effective defense of the United States against limited attacks while maintaining strategic stability, and providing highly effective theater missile defense to forward-deployed U.S. forces, and to our friends and allies.

GPALS is the concept that integrates our theater and strategic missile defense programs. The defensive elements encompassed by the GPALS concept can be deployed sequentially. As an initial step, the Missile Defense Act of 1991 calls for deployment by the earliest date allowed by the availability of appropriate technology, or by 1996, an operationally cost-effective Antiballistic Missile (ABM) Treaty-compliant defense located at a single site. This capability could defend most of the continental United States (CONUS) against at most a few tens of RVs launched by ICBMs or long-range SLBMs. Such a defense would not protect the United States against the full range of threats of GPALS concern.

Because the threat of proliferation affects not only the United States but also our allies and the former Soviet Union, and because strategic relations have changed fundamentally, other nations may be increasingly willing to participate with the United States in a cooperative transition to greater reliance on defensive systems. GPALS is such a defensive concept focused on protection against limited strikes and would not threaten to undermine existing retaliatory capabilities.

THEATER BALLISTIC MISSILE DEFENSE

The Strategic Defense Initiative Organization (SDIO) will pursue aggressively the development of a range of advanced technologies to counter theater and tactical ballistic missiles. Emphasis will be placed on deployable and rapidly relocatable advanced theater missile defenses (TMDs).

The TMD program integrates theater and strategic defensive capabilities and incorporates allied contributions to regional defenses. The TMD program will provide a stand-alone capability that can be improved significantly by the deployment of space-based surveillance systems (Brilliant Eyes) and space-based interceptors (Brilliant Pebbles).

The SDIO TMD program involves four military Services and several U.S. allies in the development of technology and the selection of systems to provide an antimissile defense. The program is designed to include missile interceptors, fire control and long-range surveillance radars, and improved battle management systems. The near-term goal is to improve antimissile capabilities, beginning with improvements to existing systems, such as the Army's Patriot missile.

AIR DEFENSE

The mission of U.S. air defense forces is to maintain sovereignty over U.S. airspace, to provide timely warning of a nuclear bomber or cruise missile attack against North America, and to limit damage should such an attack occur.

The modernization of U.S. interceptor forces and surveillance systems is now almost complete. The North Warning System along the Arctic and Labrador coasts will provide reliable warning of bomber attacks along northern approach routes, while Air National Guard F-15 and F-16 interceptor forces (complemented by Canadian CF-18s) will continue to provide a limited defense against penetrating bombers and

cruise missile carriers. The diminished threat of such attacks will permit DoD to reduce interceptor forces to 10 squadrons by 1994 and to reduce operating costs in the near term by maintaining over-the-horizon (OTH-B) radar sites in inactive status following completion of testing.

At the same time, continuing advances in cruise missile technology raise new challenges that the Department may have to confront in the future. It may not be possible to defend against these difficult-to-detect weapons merely by upgrading current systems. Radically improved technologies could be needed in the areas of surveillance, interception, antisubmarine warfare, and battle management. The Air Defense Initiative (ADI) research program is exploring some of the most promising technical approaches. A decision to proceed beyond the ADI to engineering/manufacturing development of a complete active air defense system would be linked to future decisions on ballistic missile defenses. Regardless of those outcomes, it is essential to continue developing the technologies necessary for detecting and engaging low-observable targets, such as cruise missiles.

Conclusions

A strong and effective U.S. nuclear deterrent remains essential to world peace and stability. Consequently, the United States will maintain its Triad of strategic offensive forces — ICBMs, SLBMs, and bombers — supported by an effective C^3I system. As individual components of the U.S. nuclear arsenal are retired to comply with the President's force reduction initiative and START requirements, modernization of the remaining elements will be essential in order to maintain their value as a strategic deterrent.

As more nations acquire weapons of mass destruction, the means to deliver them, and — despite the threat of retaliation — the willingness to use them, the United States is compelled to extend our strategic defenses to protect U.S. forces abroad as well as U.S. allies. U.S. strategic and theater missile defenses, as envisioned by the GPALS concept, will begin to provide defenses against the ballistic missile threat beginning in the mid-1990s. The Air Defense Initiative will continue to explore advanced (low-observable) sensor technologies to counter the emerging cruise missile threat.

LAND FORCES

Introduction

The land forces of the United States, consisting of the Army and Marine Corps, are essential to the nation's defense. Their mission is to deter aggression and protect vital interests around the world. Should deterrence fail, land forces provide unique warfighting capabilities to defeat an aggressor singly or in concert with other Service components and allies. For these purposes, land forces must provide a diverse portfolio of complementary ground combat capabilities — armored, mechanized, infantry, air-mobile, airborne, special operations, and amphibious — equally diverse and responsive logistics support, high-quality personnel, and superb training.

Adapting to a Changing World

The dramatic changes in the global security environment present particular challenges in restructuring U.S. land forces. While significantly cutting the overall size of the U.S. armed forces, the Department must ensure that they retain the capability to provide adequate forward presence and respond to a full range of regional crises. To accomplish their mission, land forces will:

- Provide Forward Presence. U.S. land forces will continue to be based in Europe, South Korea, Japan, and other locations to support alliance commitments and promote regional stability. Land forces based in CONUS, and those afloat, will provide forward presence by participating in joint or combined exercises overseas, training host-nation forces, taking part in nation assistance efforts, supporting counterdrug operations, and performing other tasks as required.
- Maintain a Global Crisis Response Capability. Land forces must be able to deploy on short notice to distant trouble spots. Once deployed, they must be capable of conducting a wide range of operations, from relatively small actions to protect or evacuate U.S. citizens to much larger engagements involving mechanized and armored forces. Meeting these diverse demands requires a mix of light, heavy, amphibious, and special operations forces (SOF) that can be employed as part of a joint or combined force. Stockpiles of prepositioned materiel will be maintained ashore and afloat to ensure rapid and sustainable crisis response.
- Maintain Rapid Reinforcement Capabilities. Bringing additional combat power to bear in support of forward-deployed and power projection forces is essential to this nation's ability to terminate conflicts on terms favorable to the United States. In Operation DESERT SHIELD/STORM, a rapidly deployed deterrent force including the Army's 82nd Airborne Division and Marine air-ground task forces was followed closely by heavy Army divisions based in Europe and CONUS. For major contingencies, timely mobilization of forces is essential.
- Participate in Interagency Operations and Support Civil Authorities. Army and Marine units will continue to support civil authorities in counterdrug operations, disaster relief efforts, emergency assistance measures, and arms control. The post-DESERT STORM restoration of public utilities and other services in Kuwait City by Army engineers and humanitarian assistance provided to flood victims in Bangladesh by Marines in Operation SEA ANGEL are recent examples of this kind of support.
- Contribute to Regional Stability Through Support to Allies and Friends. Land forces will continue to play an important role in fostering cooperative relationships between the United States and other nations. Training missions, peacekeeping, humanitarian and nation assistance, and other similar activities contribute to enhanced mutual understanding, cooperation, and the maintenance of peace.

Land Force Contributions to Operation DESERT STORM

The Persian Gulf conflict saw the largest mobilization and deployment of U.S. ground forces in recent history. The enormous success of this operation is testimony to the professionalism and combat effectiveness of the Army and Marine Corps.

Mobilization efforts for Operation DESERT STORM involved more than 177,000 Army National Guardsmen and reservists from more than 1,000 communities across the United States. These citizen-soldiers joined more than 80,000 active-duty Marines and 140,000 regular Army soldiers in performing a wide range of combat and

support missions. More than 1,500 Army and 25 Marine Corps civilians also served in a variety of positions.

The objectives of the ground campaign were to liberate Kuwait, cut the lines of communication in southeastern Iraq, and destroy threatening Republican Guard formations. The initial assaults were conducted by the First Marine Expeditionary Force (I MEF) and Arab Coalition forces. They were followed closely by the two-pronged main attack by the Army VII Corps and XVIII Airborne Corps. The XVIII Airborne Corps attacked on the VII Corps' extreme western flank, while I MEF conducted assaults against Iraqi defensive formations in Kuwait. Marine amphibious forces, massed along the Kuwaiti coast, prompted the diversion of Iraqi military forces to defend against a potential amphibious assault. Land forces achieved their objectives after 100 hours of offensive operations with minimum casualties to Coalition troops. The ground campaign's contributions to the liberation of Kuwait reinforced the vital role that land forces play.

Force Structure

The FY 1993 amended budget request continues the force structure adjustments introduced in the President's budget last year. A diminished threat and fiscal pressures necessitate reductions in Army and Marine force levels. The challenge facing the United States is to preserve sufficient land forces to deter aggression while enhancing the versatility, deployability, and lethality that enabled U.S. forces to perform with such effectiveness in Southwest Asia. U.S. soldiers and Marines will retain a high level of readiness as their size and structure are adjusted to meet the evolving requirements of the defense strategy.

ARMY

The Army's heavy, light, and special operations forces will be tailored to comply with operational demands, including the retention of forcible entry and crisis response capabilities. The active component of the Army will decrease from 16 divisions with an end-strength of 725,400 in FY 1991 to 12 divisions numbering 536,000 personnel in FY 1995. The 12 active divisions will include 1 airborne, 1 air assault, 2 light infantry, 6 mechanized, and 2 armored divisions. To accomplish this restructuring by the end of FY 1995, one existing light infantry division will be converted to a separate infantry brigade and one will be inactivated.

The Army reserve component will go from 10 National Guard divisions to 6. This restructuring will be accomplished by converting one infantry division to a heavy division and consolidating two infantry divisions and one armored division into a heavy division. The resulting force will include one light infantry, two mechanized, and three armored divisions. Total end-strength in the Army reserve component will decline from 741,200 in FY 1991 to 567,400 in FY 1995.

As part of the force reconstitution effort, two cadre divisions will be formed. Active and reserve component alternatives are being evaluated for these divisions.

The Army will also reduce its civilian work force. Civilian strength levels will go from 365,800 in FY 1991 to 302,800 in FY 1995.

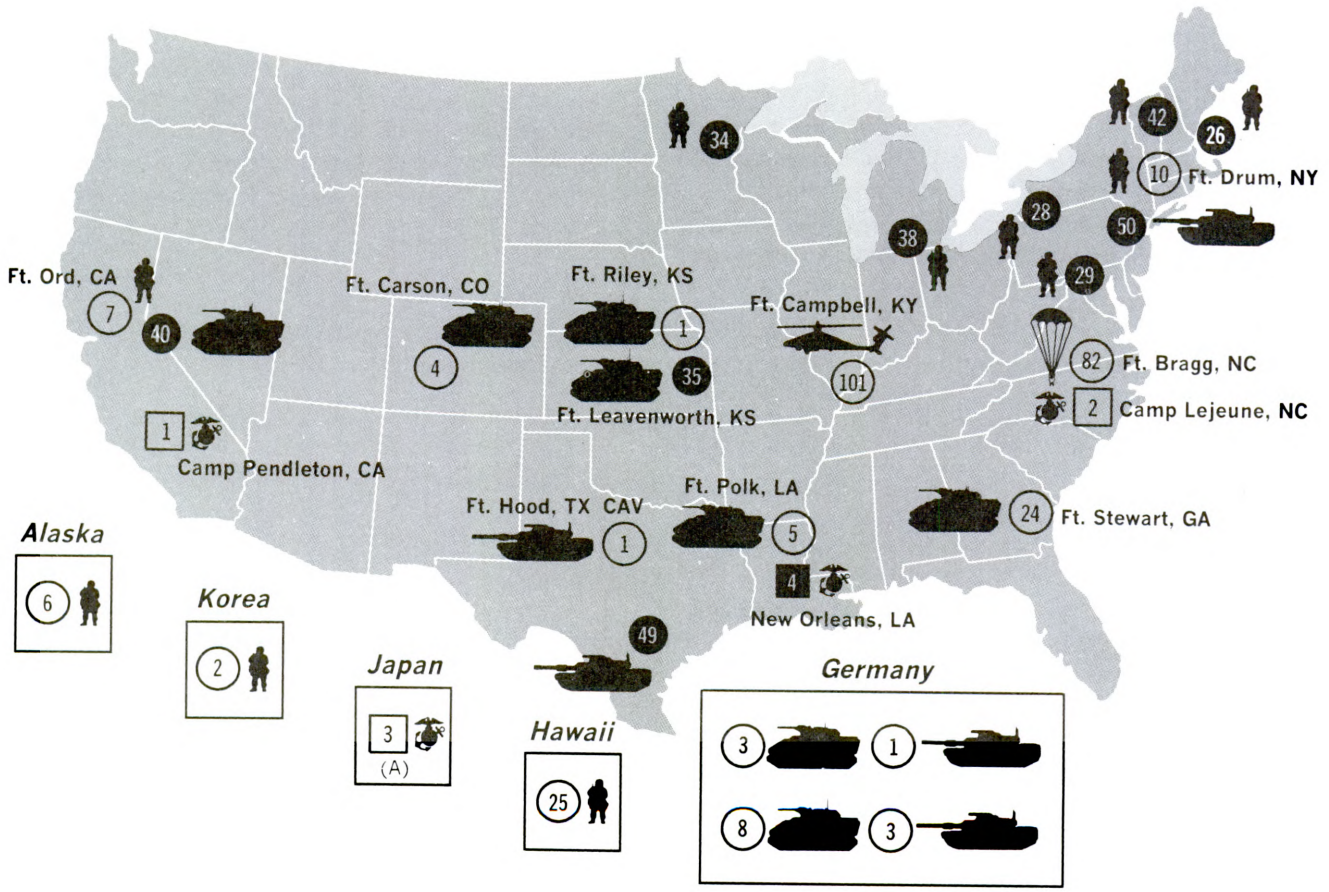
MARINE CORPS

The Marine Corps, as an integral component of naval power projection forces, provides the ability to project sea-based combat power ashore forcefully and supports forward deployments for crisis response and humanitarian and special operations. Although primarily light in nature, Marine forces include light armor infantry assets, heavy tank formations, and tactical aviation elements. When appropriate, Marine forces can draw on equipment and supplies stored for them on Maritime Prepositioning Ships (MPS) to augment the arms they carry with them. The rapid deployability and global reach of the Marines enhance crisis response capabilities in areas where the United States does not maintain a permanent military presence.

The Marine Corps will maintain three active and one reserve divisions, three active and one reserve aircraft wings, and associated active and reserve combat service support — although at somewhat reduced levels. Reductions in Marine force levels will emphasize elimination of overhead and retention of combat power. For example, one regimental headquarters and six Marine expeditionary brigade (MEB) headquarters will be deactivated, but most of their combat power will be retained. Additional forces — including ground combat, aerial combat, and combat service support elements — will be maintained in the reserve component. Active Marine end-strength will decline from 194,040 in FY 1991 to 170,300 in FY 1995, while reserve component force levels will go from 44,900 to 34,900. Civilian strength levels will go from 20,053 in FY 1991 to 17,828 in FY 1995.

Deployment of U.S. Divisions

Chart 12



NOTE: Indicates official activations/inactivations/conversions as of January 1, 1992. One active Army motorized division and one active Army armored division were inactivated in FY 1991. Two active Army divisions are scheduled to be inactivated during FY 1992.

BASE FORCE

The Army and Marine Corps play important roles in the new Base Force announced last year. The Atlantic, Pacific, and Contingency components of the Base Force all contain major ground elements.

The land portion of the Atlantic Force will consist primarily of heavy forces, capable of high-intensity combat in the air, on the ground, at sea, and across the

beach. The Atlantic Force will preserve a strong forward presence designed and postured to preserve an active and influential role in NATO and in the future security framework on the continent. The Army will commit a corps consisting of two divisions to the alliance. Reinforcement forces will come from other CONUS-based heavy Army and National Guard forces and a MEF.

The land force element of the Pacific Force, primarily light in nature, will provide a stabilizing influence in the region. Continued forward presence will be provided by a reduced Army division in South Korea and a reduced MEF in the western Pacific. Reinforcements will be available from an Army division in Hawaii and a brigade in Alaska.

The ground element of the Contingency Force will consist of the remaining five Army divisions, one MEF, and SOF. The force will provide a full range of light, airborne, air assault, amphibious, and heavy armor units for rapid deployment worldwide. Contingency Forces will have larger active component support elements than other CONUS forces and be extremely versatile, deployable, and lethal.

Personnel Quality and Training

Operation DESERT STORM reinforced the wisdom of the Department's past emphasis on personnel quality and training. U.S. land forces will continue to embody these traits. To preserve them, resource priority will be given to units for manning, training, and equipment allocation purposes according to their peacetime role and wartime deployment sequence.

Recruiting and retaining high-quality personnel are national imperatives. The United States has a commitment not only to provide quality equipment and training to its soldiers and Marines, but also to give them a decent lifestyle and meaningful career opportunities.

America's fighting forces will continue to receive tough, realistic combat-oriented training. Familiarity with opposing military doctrine, tactics, and weapons systems must keep pace with the changing environment. Increased emphasis will be placed on joint and combined exercises stressing interoperability and joint warfighting doctrine. U.S. land forces will begin training with units from other NATO countries at the new Combat Maneuver Training Center (CMTC) in Germany. Joint Army-Air Force training will expand as the number of battalion rotations to the Joint Readiness Training Center (JRTC) increases from 9 in FY 1991 to 24 in FY 1994. Other areas of importance include training for mobilization, deployment, and continuous operations in all battlefield environments. Simulators will continue to provide an efficient complement to high-cost field exercises.

Modernization

Research and development (R&D) of critical technologies will continue. These programs provide the Army and Marine Corps with future systems capable of maintaining qualitative superiority on the battlefield. Although many technological advances will be possible over the next decade, fiscal constraints require that only those with the highest combat potential be pursued in our weapon modernization programs.

The materiel development areas that will compete for resources are:

- Deployability. U.S. land forces, based primarily in CONUS, must be able to project combat power rapidly. A modern and ready mobility force will provide our contingency forces with better deployment capabilities.
- Reconnaissance, surveillance, and target acquisition capabilities. From the strategic to the tactical level, U.S. troops must be able to see the battlefield faster and more clearly than their opponents. U.S. forces will increase their reliance on theater and national intelligence-gathering capabilities and pursue advanced technologies to make timely and accurate intelligence information available to military commanders both for targeting the enemy and for protecting friendly forces.
- Command, control, and communications (C^3) support. The speed and accuracy of information flow on the battlefield must be improved to enhance synchronization of forces in fast-moving, integrated operations. The newly fielded Single-Channel Ground and Airborne Radio System (SINCGARS) provided a primary means of command and control for both combat and support units in Operation DESERT STORM. Future investments in modern C^3 systems include the Forward-Area Air Defense Command and Control (FAAD C^2) system, which will alert land forces to a variety of airborne threats, and the Advanced Tactical Air Command Central (ATACC), designed to enhance command and control of Marine aviation forces and coordinate their operations with other Services.

- Battlefield identification systems and procedures. The range and lethality of modern weapons and the value America places on the lives of our personnel require improvements in the ability to identify opposing forces and distinguish friend from foe. First-generation forward-looking infrared (FLIR) sensors used in the Persian Gulf on systems such as the AH-64 Apache helicopter enabled U.S. forces to identify enemy formations quickly, and thus to shoot first in many engagements. In many instances, however, Coalition forces refrained from firing at targets within range of their weapons because they could not positively identify opposing forces. The introduction of second- generation FLIR sensors in systems such as the Advanced Antitank Weapon System-Medium (AAWS-M) will enable U.S. forces to detect and identify enemy formations at increased range in day or night.
- Long-range accurate fire and smart munitions. The ability to disrupt and destroy enemy forces at long range can be key to battlefield success. Attack systems at the operational and tactical level must be precise and responsive, ensuring quick and decisive engagements. During Operation DESERT STORM, Army and Marine Corps field artillery units used radar systems to locate the position of distant Iraqi artillery units and return fire with devastating accuracy. Future combat systems, such as the Multiple-Launch Rocket System (MLRS) armed with Sense and Destroy Armor (SADARM) munitions, will provide increased capabilities against self-propelled artillery and other lightly armored vehicles. Another program under development is the Advanced Field Artillery System (AFAS), designed for greater range, faster response, and improved accuracy.
- Tactical mobility. The rapid pace of modern warfare requires improved tactical mobility. Operation DESERT SHIELD/STORM strained the logistical support systems of the Army and Marine Corps, and placed heavy demands on trucks of all types. Some 1,400 heavy equipment transporters were needed to move tanks and other armored vehicles from Saudi ports to tactical assembly areas. More than 4,400 Army Heavy Expanded Mobility Tactical Trucks and 600 Marine Corps Logistics Vehicle Systems carried ammunition, fuel, and other supplies off-road in support of ground forces. Medium trucks — 5-ton and 2 1/2-ton — carried unit equipment for virtually all Army and Marine Corps units. These vehicles were complemented by more than 20,000 "Humvees" employed in a variety of roles. Operation DESERT

Army and Marine Force Structure

Table 10

	Army Heavy[a]	Army Light[b]	Marine	Total
Army Divisions				
Fully Active (3 BDEs)	4* (*2 Div Flags Only)	4		8
AC Roundup (Brigade) (3 AC BDEs+1 RC BDE)	2	0		2
AC Roundout (Brigade) (2 AC BDEs+1 RC BDE)	4	2		6
RC National Guard	4	6		10
Marine Divisions				
Active			3	3
Reserve			1	1
Total Active Divisions	10	6	3	19
Total Reserve Divisions	4	6	1	11
Total	**14**	**12**	**4**	**30**
Army Nondivisional Maneuver Brigades/Regiments				
Fully Active (3 BNs)	3	0		3
AC Roundout (BN)	2	0		2
AC Special	0	1		1
Reserves				
Roundout				
NG	6* (*Includes 2 RUs)	1		7
USAR		1		1
RC Separate				
NG	5	5		10
USAR	1			1
RC ACR (NG)	2	0		2
RC Other				
NG		1		1
Total Active Brigades/ Regiments	5	1		6
Total Reserve Brigades/ Regiments	14	8		22
Total	**19**	**9**		**28**
Army Theater Brigades				
Active	0	2		2
Reserves				
NG		3		3
USAR		1		1
Total Active Theater Brigades	0	2		2
Total Reserve Theater Brigades	0	4		4
Total	**0**	**6**		**6**

[a] Armored, mechanized
[b] Army infantry, air assault, airborne, light infantry, and motorized divisions

NOTE: Indicates official activations/inactivations/conversions as of January 1, 1992. One active motorized division and one active Army armored division were inactivated in 1991. Two active Army divisions are scheduled to be inactivated during FY 1992.

STORM demonstrated the importance of maintaining a diverse, highly capable fleet of wheeled vehicles. Three types of new trucks — light, medium, and heavy — are being added to the equipment inventory. The Palletized Loading System and family of medium tactical vehicles incorporate new features, such as the central tire inflation system, that will improve the agility and flexibility of future land forces.

- Sustainment of forces and equipment in the field. Combat capability can be improved by reducing the logistics burden and support costs of weapon systems. Innovations being incorporated in new systems such as the Marine Corps family of light armored vehicles will reduce maintenance requirements while saving operating and support costs. Advanced technology must be pursued to provide predictive software for logistics and to automate supply and distribution functions.
- Protection against battlefield threats, environmental extremes, and disease. The well-being of the individual soldier and Marine will not be overlooked in materiel modernization. An adequate defense against indigenous diseases must be maintained to ensure safe deployability of forces. Improved technologies will be pursued to help U.S. forces operate and survive in battlefields contaminated by chemical and biological agents. Supplying land forces in the Persian Gulf with adequate defenses against chemical and biological munitions was a major challenge; for example, the production of chemical protective clothing was increased from 33,000 units per month to 77,000. The fielding of devices such as M-40 protective masks will ensure respiratory, eye, and face protection against chemical, biological, laser, and ballistic threats. The Optical Improvement Program will provide U.S. forces with advanced ballistic and laser eye protection. Improved detection capabilities against a full range of unconventional weapons will be required. These systems must be both effective and easy to use; soldiers must be able to carry what they need to fight.

Summary

The changing world presents new challenges to the enduring mission of deterrence. Land forces will maintain a forward presence in critical locations, respond to crises to defend U.S. interests, and provide continued support for counterdrug, disaster relief, and emergency operations. These forces will be tailored to provide the versatility needed for regional employment. Battle-tested priorities of readiness, training, and high-quality personnel will be preserved. Modernization with an emphasis on maintaining a technologically superior force will be pursued. Through these and other initiatives, U.S. land forces will maintain the capabilities needed to preserve and defend America's security and carry out the national defense strategy in the years ahead.

NAVAL FORCES

Introduction

Maritime forces have always been an essential instrument of U.S. national policy and a key element of the national defense strategy. With the Soviet threat no longer the paramount U.S. security concern, the focus of U.S. strategy has shifted in recent years to regional conflicts. At a time when rapid changes may precipitate new and unexpected threats, U.S. forces must maintain the capability and versatility to respond effectively to emerging demands around the world. While the nature of the challenges the United States might confront cannot yet be known, it is certain that naval forces will bear a large share of our future defense responsibilities.

Adapting to a Changing World

Operation DESERT STORM and the unprecedented turn of events in the former Soviet Union illustrate why our military strategy and force structure can no longer emphasize superpower confrontation. Changes in the former Soviet Union will almost certainly result in further decreases in Soviet naval presence abroad. Furthermore, though technological advances in Soviet weaponry may still proceed in the laboratory, the proliferation of such advances through new, large-scale weapons programs is likely to be limited.

It is still unclear how and when changes in the former Soviet Union will reach an equilibrium, and it is difficult to predict how these changes will affect the international order. What is clear is that, rather than planning against a singular Soviet threat which would, as a corollary benefit, give us the capability to meet lesser challenges, we must structure our military to address threats that are perhaps less severe but more disparate and numerous.

Operation DESERT STORM is an example of the regional contingencies that now dominate U.S. defense planning. Such contingencies present operational environments that differ from those of a global war. Rather than fighting open ocean battles, naval forces employed in regional conflicts could well have to operate in littoral areas, where they could face threats from mines, supersonic cruise missiles, diesel submarines, or maritime terrorism. Additionally, these forces must be prepared to perform a range of peacekeeping and deterrence functions in order to prevent regional crises from erupting into hostilities.

America's overwhelming success in the Persian Gulf conflict is a testament to the capability and responsiveness of her military forces. However, as successful as U.S. forces were, the same fortuitous combination of enemy ineptitude, long mobilization time, regional cooperation, and favorable terrain may never again occur. The United States will need to maintain a diverse set of modern naval forces, able to operate under more demanding conditions than the recent Gulf War, if it is to succeed in protecting its interests in the years ahead.

Force Reconstitution

As part of the transition to a smaller force structure, DoD is refining the force reconstitution concept announced last year. As the military reduces its peacetime strength, force reconstitution will provide a means of creating additional combat capability if necessary to augment the Base Force in deterring, or countering, any potential global military threat. The primary naval components of this plan, as it has evolved to date, are surface ships.

The USS Forrestal, which will replace the USS Lexington as the Navy's training carrier this year, could, with sufficient modification, deploy with a carrier air wing in battle. This objective is reflected in the Navy's carrier air wing plan, which provides for 11 active and 2 reserve air wings.

The Navy's innovative naval reserve concept (INRC) is being implemented as part of DoD's reconstitution program. Eight FF-1052-class frigates will be redesignated as training frigates (FFTs) by the end of FY 1992. These ships will then serve as training platforms for nucleus crews assigned to the other 32 FF-1052-class frigates that are being inactivated as part of the INRC program. Although the eight FFTs will be maintained in a reduced state of readiness, they could be available for deployment in about 30 days, should the need arise. The other 32 inactivated frigates would need more extensive refurbishment, requiring about 6 months of preparation time, plus another 30 days for training, to ready for deployment.

Naval Force Structure (FY 1990-97) Table 11

	1990	1991	1992	1993	1994	1995	1996	1997
Strategic Forces	39	40	33	27	25	26	26	24
Aircraft Carriers*	16	15	15	14	14	13	13	13
Surface Combatants	175	159	134	127	131	136	139	143
Attack Submarines	93	87	87	90	90	89	84	79
Amphibious Ships	60	62	59	55	54	53	50	49
Mine Warfare Ships	6	9	11	15	15	15	15	15
Other Support Ships	127	122	116	115	111	104	98	96
Mobilization Force Category A	31	32	19	19	16	16	16	16
Total Ship Battle Forces	547	526	474	462	456	452	441	435

* All aircraft carriers, including ships in extended overhaul and the training carrier

Naval Contributions to Operation DESERT STORM

The role of maritime power in conventional conflicts was demonstrated vividly in Operation DESERT STORM. The United States deployed 6 aircraft carriers, 2 battleships, 58 surface combatants (cruisers, destroyers, and frigates), 5 attack submarines, 31 amphibious ships, 6 mine-sweeping helicopters, 4 mine countermeasures ships, and 12 maritime patrol aircraft to the Persian Gulf, where many remain on patrol today.

Maritime interceptions in support of the naval interdiction campaign against Iraq were an important contributor to the Coalition's success in Operation DESERT STORM. U.S. surface combatants accounted for over half of the almost 1,000 boardings conducted by Coalition forces in the Gulf. Attack submarines conducted surveillance missions and were prepared to execute mining operations if needed. U.S. mine countermeasures forces, making up roughly 15 percent of the Coalition effort, neutralized approximately 18 percent of all mines destroyed during and immediately after Operation DESERT STORM.

While successfully performing these maritime missions, U.S. naval forces also provided significant support to allied ground, air, and special operations. Carrier-based aircraft were the first U.S. tactical aircraft to respond to Iraq's invasion of Kuwait, and these Navy planes continued to perform important roles throughout the war. Tomahawk land-attack missiles (TLAMs), launched from surface ships and submarines, scored many important successes as well. Finally, 31 amphibious ships carrying the assault echelon of 2 MEBs also played a significant role in supporting ground operations. This 17,000-Marine force provided Coalition commanders with an amphibious assault threat that the Iraqis could not ignore.

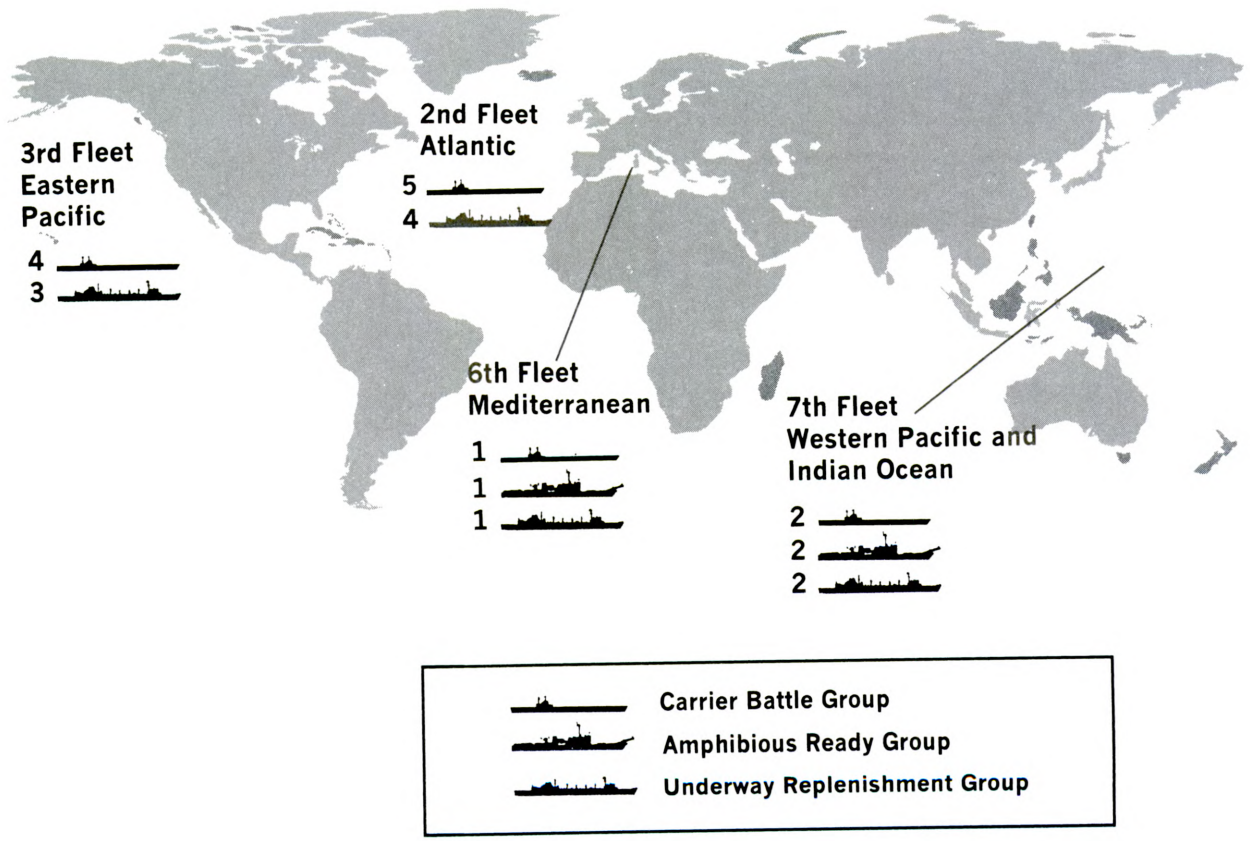
Maritime operations in Operation DESERT STORM also underscored the importance of modern, reliable C^3I systems. The need for C^3 connectivity and interoperability was demonstrated in joint and Coalition operations, pointing to improved speed, capacity, and survivability as primary C^3 objectives.

The FY 1992-97 Program

While we need to remain cautious about the arsenal of strategic weapons that still exists in the former Soviet

Notional Disposition of U.S. Naval Forces, 1995

Chart 13



Union, the rapid pace of change in the former Soviet Union required a reassessment of the threat. That reassessment has resulted in the new defense strategy and the Base Force concept. Additionally, the Department is incorporating the lessons learned from Operation DESERT STORM into its future budget plans. The adjustments it is proposing reflect the changes in the defense strategy, the planned implementation of the Base Force concept, and the changing nature of the threat.

The FY 1993 amended budget request continues the adjustments to the naval force structure that were introduced in the President's budget last year. To meet the goals of the budget summit agreement while also fulfilling the requirements of the new defense strategy, the defense program envisions a 20 percent reduction in ship force levels between 1990 and 1997. The net reduction of over 100 ships by the end of 1997 will bring the U.S. battle force to 435 vessels. To ensure that the smaller force structure can provide the capabilities needed to meet future threats, the defense program emphasizes the acquisition of modern, more affordable naval systems.

Aircraft carriers contribute important naval power projection capabilities in support of U.S. interests. In Operation DESERT STORM, carrier air wings supplemented the large numbers of land-based aircraft deployed by Coalition forces. However, modern airfields

may not always be as accessible as they were in the Persian Gulf, and the United States could well have to rely on carriers to project the bulk of tactical air power in some future contingencies. Thus, while the Department will reduce the aircraft carrier force to 13 carriers by the end of FY 1997, it will continue to take steps to improve the power projection capabilities that the force provides.

Complementing aircraft carriers in the power projection role are MEFs. Marine amphibious assault forces are an integral part of naval power projection forces. They provide an important sea-based capability for responding to contingencies and for augmenting naval battle groups in combined arms operations. While upcoming retirements of older amphibious ships will reduce lift capability to 2.5 MEBs, the Department will continue procurement of selected assault ships in order to maintain a 2.5-MEB lift capability into the next century. These ships will support forward deployments of amphibious ready groups/Marine expeditionary units for crisis response and humanitarian and special operations, sustaining these unique capabilities as an integral part of naval power projection forces.

Surface combatants can project significant power with Tomahawk cruise missiles, providing a versatile supplement to carrier air wings and amphibious forces. Equipped with a vast array of defensive systems, modern surface combatants also protect aircraft carriers and amphibious and support ships from air and submarine threats. The vital DDG-51 program will provide highly capable surface combatants to meet near-term mission requirements.

The attack submarine force will be reduced by 15 percent by 1997. This reduction can be safely accomplished because of the dramatic changes that have taken place in the Soviet threat and world situation. As part of our response to these changes, the SSN-21 Seawolf program has been canceled. The lead ship, SSN-21, is now under construction. Not withstanding the decision to terminate the program, the Department's intent is to complete this ship. The contract for the second ship is currently the subject of litigation. Recoverable funds for this unit and a third FY 1992 ship will be included as a rescission proposal in the amended FY 1993 budget. In the near term, the nuclear submarine industrial base will be maintained at a reduced level by completing the SSN-688-class and Trident submarines already under construction, and through refueling and overhauling existing submarines. The United States must maintain the capability to carry out antisubmarine warfare (ASW), strike warfare, mining, and special operations in the context of future threats and contingencies. Accordingly, the Department is looking at options for a new lower-cost attack submarine that could provide these capabilities, in light of other forces that will be available. Plans for specific new systems have not yet been fully defined, however.

Of all the lessons learned in Operation DESERT STORM, the most important for naval forces may have been in the area of mine countermeasures. The employment of amphibious forces in future operations may well depend on the adoption of more effective countermeasures against enemy mines, including shallow-water mines. This remains a major concern for the Department. The FY 1993 defense program continues procurement of glass-reinforced plastic (GRP) coastal mine hunters (MHCs). The value of these ships was amply demonstrated in the Persian Gulf, where the greater magnetic signatures of current U.S. wooden ships made them less effective in mine clearance operations than their European counterparts. The signature of the new MHC-class ships is expected to be comparable to that of the vessels employed by our Coalition partners. The Navy also is investigating the feasibility of lowering the magnetic signature of its new MCM-1 mine countermeasures ships, the first of which was employed in Operation DESERT STORM.

Based on needs identified in reviewing Operation DESERT SHIELD/STORM, the Navy and Marine Corps have begun a program to examine technologies and provide countermeasures against the full range of naval mines. Further improvements in mine warfare will come through the consolidation of command structures, acquisition of improved systems, and the adoption of more rigorous training programs.

Freedom of Navigation Operational Assertions

The President's United States Oceans Policy Statement of March 10, 1983, states "The United States will exercise and assert its navigation and overflight rights and freedoms in a worldwide basis in a manner that is consistent with the balance of interests reflected in the 1982 Law of the Sea Convention. The United States will not, however, acquiesce in unilateral acts of other states designed to restrict the rights and freedoms of the international community in

navigation and overflight and other related high seas uses."

When nations appear to acquiesce in excessive maritime claims and fail to exercise their rights actively in the face of constraints on international navigation and overflight, those claims and constraints may, over time, come to be considered to have been accepted by the international community as reflecting the practice of nations and as binding upon all users of the seas and superjacent airspace. Consequently, it is incumbent upon maritime nations, such as the United States, to protest through diplomatic channels all excessive claims of coastal or island nations, and to exercise their navigation and overflight rights in the face of such claims. The United States has accepted this responsibility as an element of its national policy, and the Department of Defense conducts an active program of Freedom of Navigation operational assertions.

Freedom of Navigation assertions were conducted against the following countries for the listed excessive maritime claims during the year from October 1, 1990, to September 30, 1991. Countries are listed alphabetically.

Country	Excessive Claim Challenged
Angola	20 nautical miles (nm) territorial sea.
Benin	200 nm territorial sea.
Burma	Prior permission for warships to enter 12 nm territorial sea.
Cameroon	50 nm territorial sea.
Denmark	Excessive straight baselines.
Dominican Republic	Excessive straight baselines.
Ecuador	200 nm territorial sea.
Haiti	Excessive straight baselines.
Liberia	200 nm territorial sea.
Nicaragua	200 nm territorial sea. 25 nm security zone. Clearance required for overflight of 200 nm territorial sea.
Peru	200 nm territorial sea.
Sierra Leone	200 nm territorial sea.
Syria	35 nm territorial sea.

Summary

The changes envisioned for our naval forces in the years ahead respond to the requirements of an evolving international security environment. Qualitative upgrades of these forces are vital if they are to retain essential capabilities as their overall numbers are reduced. Strong U.S. maritime forces have been a constant element of this nation's defense posture, and the amended FY 1993 budget and defense program ensure that they will remain so in the future.

TACTICAL AIR FORCES

Introduction

Tactical air forces give the United States the ability to bring military power rapidly and effectively to bear in defense of vital interests. In times of crisis, the prompt availability of these forces helps to deter aggression and maintain the stability of allied and friendly nations. When conflicts arise, tactical air power provides a versatile, fast, and lethal means of combating hostile forces and neutralizing enemy threats in the air, at sea, and on the ground.

To accomplish their basic mission, tactical air forces must be capable of supporting both land and naval forces, of conducting strikes deep behind enemy lines, and, when necessary, of operating independently of fixed basing. They must be able to accomplish their missions in day or night and in all types of weather. The ability to locate and destroy both fixed and mobile targets is essential to tactical air effectiveness in any military campaign. Likewise, as history has demonstrated, tactical air forces must be able to achieve and maintain air superiority in any combat environment. Air superiority ensures freedom to conduct land and sea operations, air interdiction campaigns, close air support missions, tactical reconnaissance, and battle damage assessments.

Tactical air forces, by virtue of their rapid responsiveness and inherent operational flexibility, are well suited to the demands of the evolving U.S. defense strategy. As the focus shifts from global war to regional contingencies, these forces will continue to provide a strong and effective means of deterring aggression and protecting U.S. interests in diverse areas of the world.

Tactical Air Forces Contributions to Operation DESERT STORM

Operation DESERT STORM demonstrated the vital role that tactical air forces play in the nation's defense. Powerful, versatile, and responsive tactical air forces were tightly woven into a formidable and determined military force. The entire campaign was a triumph for joint and combined operations. Each force element was employed effectively to defeat a common foe, and tactical aviation forces provided decisive capabilities. Notably, reserve and Guard units demonstrated their ability to respond with the great professionalism required for this operation.

Once offensive operations commenced, the Coalition demonstrated how quickly air superiority could be gained, even over a formidable array of air defenses. Working in close harmony, U.S. and Coalition air forces conducted the full range of air missions, from attacks on Iraqi C^3 systems to battlefield strikes against deployed Iraqi forces. During the opening minutes of Operation DESERT STORM, Air Force special operations helicopters led Army attack helicopters on their mission to find and destroy key Iraqi early warning radars. Twenty minutes later, F-117s and air- and sea-launched cruise missiles attacked dozens of critical targets in the heart of Baghdad. Simultaneously, a wide range of U.S. and Coalition aircraft struck targets throughout the theater. While F-15Cs, F-14s, and F/A-18s conducted air superiority sweeps, electronic warfare assets such as F-4Gs, EF-111s, EA-6Bs, F/A-18s, A-7s, and EC-130s jammed enemy radars and attacked enemy air defense sites. E-2Cs, E-3As, E-8s, and RC-135s performed command and control functions as well as strategic deception, communications jamming, and intelligence gathering for the strike forces. A-6s, A-7s, B-52s, F-16s, F/A-18s, F-15Es, and F-111s flew hundreds of sorties against targets in Iraq, while AV-8Bs and A-10s attacked Iraqi forces in Kuwait. Hundreds of aerial-refueling missions were flown by KC-10, KC-135, KC-130, KA-6D, and refueling-store-configured A-6E, A-7E, and S-3B aircraft.

The lessons of Operation DESERT STORM are being applied to future defense planning. While the performance of specific weapons systems is still under study, in general all U.S. aircraft and support systems performed superbly, with stealth and precision-guided munitions (PGMs) providing important advantages. Additionally, Operation DESERT STORM demonstrated the survivability, versatility, and effectiveness of modern, all-digital attack aircraft like the F/A-18, F-16, and F-15E, as well as the advantages of providing a full night-attack capability for all aircraft. The venerable A-10 performed superbly with the Maverick missile, hitting Iraqi targets with tremendous accuracy. Marine

Tactical Air Force Structure (FY 1990-93)

Table 12

	Navy & Marine Corps Active & Reserve					Air Force Active, Reserve, & Guard			
	1990	**1991**	**1992**	**1993**		**1990**	**1991**	**1992**	**1993**
A-4	48	24	24	12	A-7	246	246	126	0
A-6	215	210	232	210	A-10	435	423	249	159
AV-8	140	160	160	160	F-4	258	132	42	18
F-4	24	24	24	12	F-15	510	462	408	396
F-14	296	294	300	268	F-15E	48	72	108	144
F/A-18	414	479	474	472	F-16	888	882	996	1164
Total	**1137**	**1191**	**1214**	**1134**	F-111	174	168	138	84
					F-117	36	36	36	36
					Total	**2595**	**2421**	**2103**	**1980**

AV-8Bs, operating from forward bases, also provided deep and close air support to ground forces.

Just as no one factor determined the final outcome of Operation DESERT STORM, no single factor alone was responsible for the devastating effects of tactical air power. Rigorous training, high readiness, superbly maintained materiel, and above all, the tremendous motivation and capability of combat and support personnel contributed to that success. As the nation draws down its armed forces, considerable care must be taken to preserve an appropriate balance among personnel, materiel, and training and readiness. Tactical air forces must continue to modernize to meet future threats. At the same time, the pace of modernization must be balanced against the need to maintain sufficient forces in the active component and sufficiently trained reserve forces to provide an effective response in future contingencies.

Adapting to a Changing World

The changing nature of the threat and the shift in national fiscal priorities will produce substantial changes in the composition and size of U.S. tactical air forces. Nevertheless, these forces will continue to constitute a powerful and highly versatile component of the U.S. deterrent. However, if deterrence fails, tactical air forces can strike quickly with tremendous power. Their rapid responsiveness and ability to conduct a broad range of missions makes them critical to success at any level of conflict.

The effectiveness of air operations in the Persian Gulf War underscores the necessity of funding tactical air forces at levels that maintain a high state of proficiency. Forward-deployed air forces provide a rapid means of responding to and stabilizing developing crises. If required, additional forces can deploy at a moment's notice to distant trouble spots and sustain themselves for extended periods. Tactical air power has global reach — the defense program ensures that U.S. tactical aviation forces will retain the power projection capability and staying power to respond effectively to future challenges.

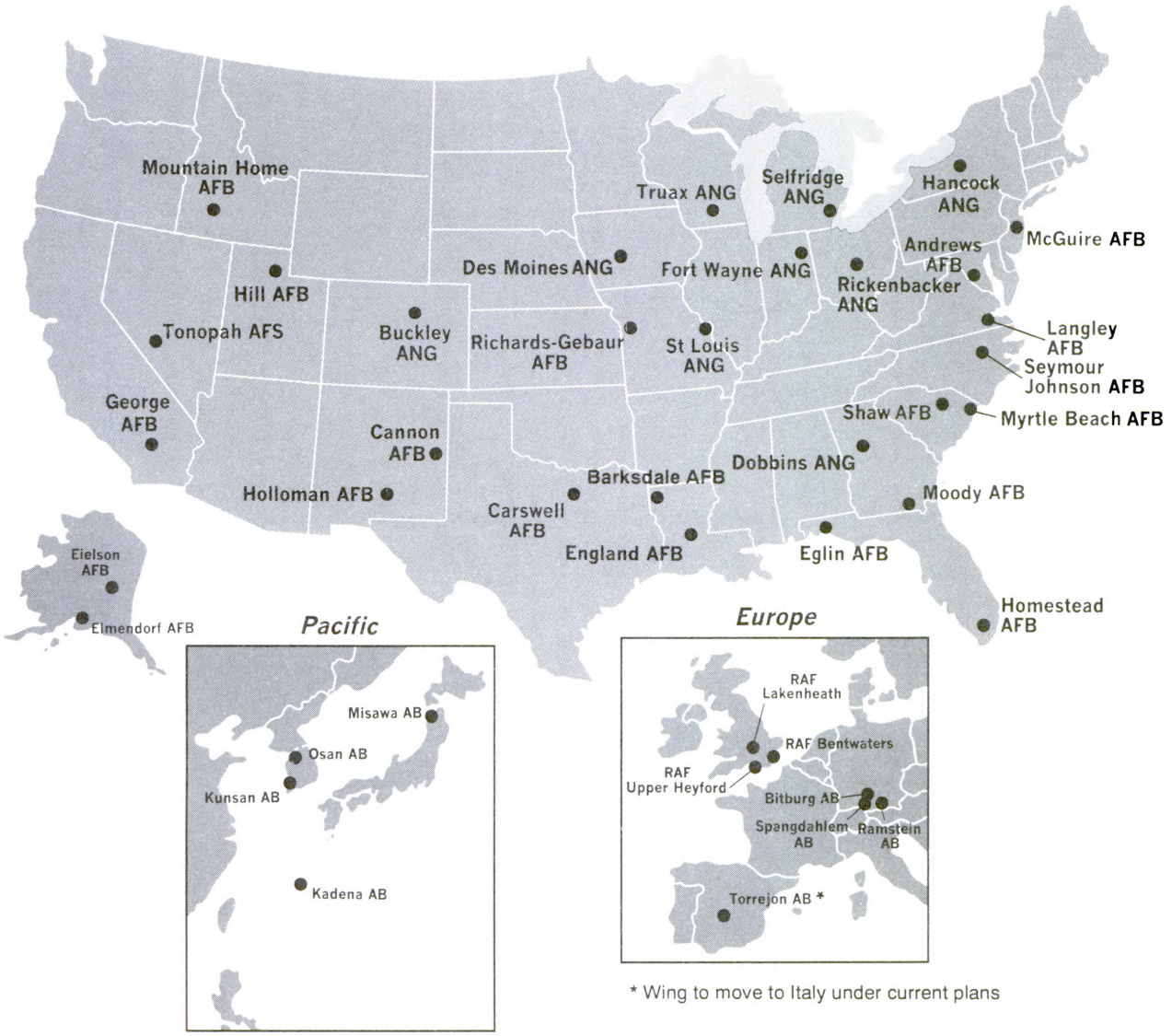
Force Structure Plans

A changing world order requires a changing force structure, and tactical air forces are no exception. The FY 1993 amended budget request continues the force structure adjustments introduced in the President's budget last year.

AIR FORCE

Air Force tactical aircraft — A-7s, A-10s, F-4s, F-15s, F-16s, F-111s, and F-117s — are currently organized into 30.3 fighter wing-equivalents, each containing 72 planes. Air Force wings are dedicated to multirole missions (air-to-air and air-to-ground), close air support for ground forces, air superiority, and

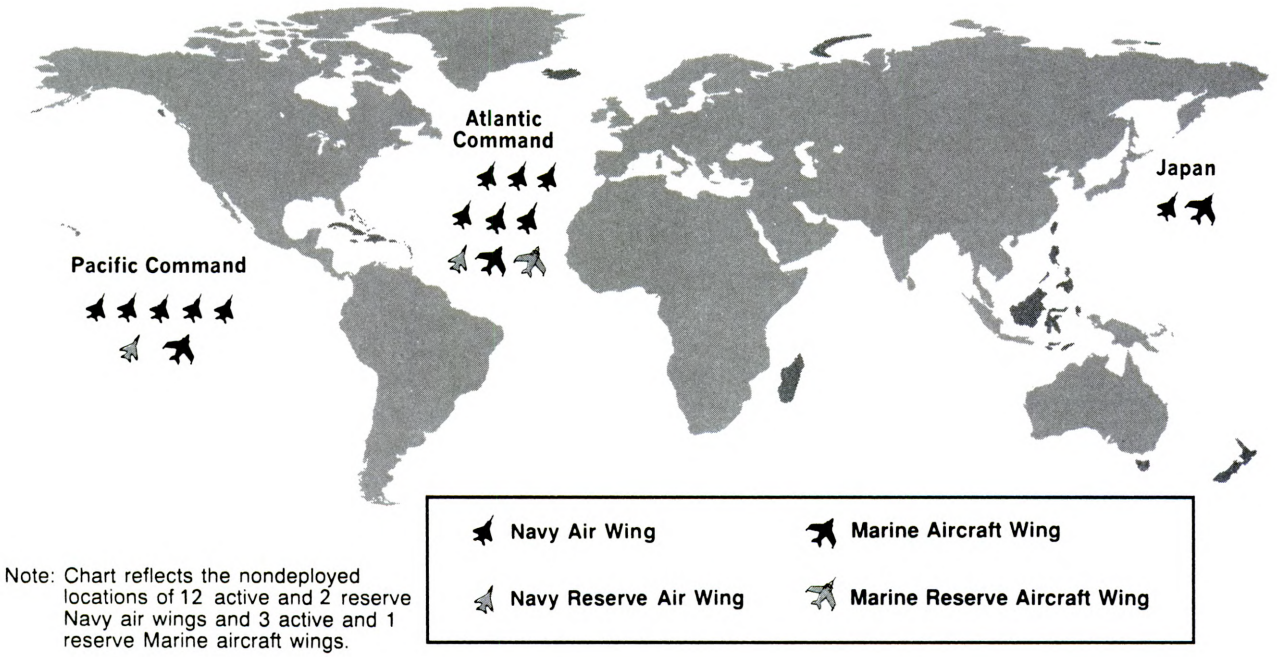
Locations of Air Force Fighter Wings Chart 14



interdiction missions. In addition, specialized support aircraft perform reconnaissance, airborne warning and control, electronic combat, and search-and-rescue functions. Air Force modernization plans include replacing the F-15 with the F-22 Advanced Tactical Fighter.

The diminished threat of superpower confrontation has permitted the Air Force to reduce and restructure its forces. Consequently, the number of Air Force wings will drop from 30.3 to 26.5 (15.25 active). Restructuring will enhance combat capability and improve peacetime efficiency as resource levels decline. Strategic

Disposition of Navy and Marine Corps Air Wings Chart 15



Note: Chart reflects the nondeployed locations of 12 active and 2 reserve Navy air wings and 3 active and 1 reserve Marine aircraft wings.

Air Command (SAC), Tactical Air Command, and Military Airlift Command (MAC) will be restructured into two new commands: Air Combat Command and Air Mobility Command. Air Combat Command will oversee CONUS-based fighters, bombers, ICBMs, reconnaissance aircraft, C^3I aircraft, and some tankers and theater airlift assets. It will provide forces for the new unified Strategic Command, North American Aerospace Defense Command (NORAD), and theater commanders as necessary. Conventionally armed bomber aircraft will be increasingly available for a wide range of operations in support of theater commanders.

Air Force operations will also be better integrated through the formation of composite air wings containing more than one type of aircraft. Most of these wings will be created through the consolidation of multiple wings on a single base under a single commander. In a few cases, the Air Force will assemble special composite wings for purposes such as air interventions as part of a regional Commander-In-Chief's (CINC's) campaign plan. Some Air Force wings will continue to operate only one type of aircraft.

NAVY

The Navy is also reorganizing and streamlining its forces. In contrast to the current structure of 12 active and 2 reserve carrier air wings, the Base Force will include 11 active and 2 reserve wings. Carrier aviation will undergo a significant restructuring as the three primary power projection aircraft — the A-6, F-14, and F/A-18C — are replaced with only two types, the Advanced Strike Aircraft (A-X) and F/A-18E/F.

Though similar to one another in size, naval carrier

wings contain somewhat different mixes of aircraft. This gives them the ability to meet operational demands across the spectrum of conflict. In addition, each carrier wing contains the support aircraft needed for sustained combat operations. From air superiority to antisubmarine warfare, carrier air wings perform the full range of naval tactical air missions, with primary emphasis on offensive strike capability.

MARINE CORPS

The expeditionary tactical aircraft squadrons of the Marine Corps — operating F/A-18s, A-6Es, AV-8Bs, and EA-6Bs — serve as land- or sea-based extensions of naval tactical aviation. Their primary mission is to provide offensive air support to Marine air-ground task forces. Through task organization, aviation and ground combat elements produce the integrated combat power that was demonstrated so effectively in Operation DESERT STORM. Marine tactical aircraft can operate aboard ships as part of carrier air wings or ashore under austere conditions, giving them a unique swing capability. Marine air wings perform a range of combat and support functions, while maintaining a lean enough structure to remain fully expeditionary. Marine aircraft modernization plans include replacing the A-6E with the F/A-18D. The Marine force structure within the Base Force will remain at the current level of three active air wings and one reserve wing, although the wings will be reduced somewhat in size.

Personnel Quality

With the extensive restructuring and modernization of tactical air forces comes another significant challenge: to continue to attract and retain the high-quality personnel who are vital to maintaining a highly technical combat capability. The Defense Department is committed to maintaining a quality force, even as it restructures, and recognizes fully the level of effort entailed in recruiting and retaining good people, and the major investment in training required to gain and maintain difficult and valuable skills.

Meeting Future Requirements

The tactical air forces of the Air Force, Navy, and Marine Corps can effectively support the U.S. defense strategy today. With the shift in focus from Europe — where the threat of a large-scale conventional war has all but disappeared — the United States has been able to reduce its force levels in that region. But at the same time, the proliferation of technologically advanced weapon systems among Third World nations has increased the threat from regional conflicts. Exports of high-technology aircraft and antiaircraft missile systems to Third World countries are continuing, and a number of these nations are pursuing nuclear, chemical, and biological weapons capabilities. The availability of ballistic missiles, cruise missiles, and submarines also is increasing. As the Persian Gulf conflict clearly demonstrated, the end of the Cold War has left a different world, but not necessarily one that is less threatening to U.S. national interests.

The United States will rely heavily on technological superiority to counter these emerging threats, to maintain critical tactical air advantages, and to enhance the survivability of its forces. But at the same time, the Department must remain mindful of other pressing defense needs, and adapt its modernization programs to fit within budgetary constraints. The easing of superpower tensions, and the reduced pace of Soviet modernization programs, will permit corresponding adjustments to next-generation U.S. aircraft programs.

Accordingly, the Department will follow a prudent and deliberate acquisition strategy for the F-22 Advanced Tactical Fighter, the Advanced Strike Aircraft, and eventually, the new Multirole Fighter (MRF). Overall production quantities will be adjusted commensurate with force reduction plans. Given additional development time, new aircraft designs will be more mature when they reach production — that is, we will "fly before we buy."

But until the F-22, A-X, and MRF are introduced, DoD must continue to modernize the existing aircraft inventory. Consequently, the defense program continues several initiatives to enhance the service life, survivability, and effectiveness of tactical aviation systems. A prime example is the F/A-18E/F program, which will introduce a higher-capability derivative design of the successful F/A-18C/D in FY 1998. Further improvements will come with the addition of a night attack capability to the highly successful Operation DESERT STORM veteran, the A-10. Two wings of these aircraft will be retained in the inventory at least through the year 2000. Additionally, DoD will continue to improve air-to-ground precision guided munitions through development of an adverse weather capability.

Typical Composition of Navy and Marine Corps Air Wings

Table 13

Navy				Marine Corps	
	Number of Aircraft				
Type of Aircraft	Conventional Wing	Transitional Wing	"Roosevelt" Wing	Type of Aircraft	Number of Aircraft
F-14	24	20	20	F/A-18	48
F/A-18	24	20	20	A-6	10
A-6	10	16	20	AV-8B	60
KA-6	4	0	0	F/A-18D	12
EA-6B	4	5	5	EA-6B	6
E-2C	4	5	5	KC-130	12
S-3	6	6	6	CH-46	60
SH-3/SH-60F	6	6	6	CH-53	48
HH-60	0	2	2	AH-1	24
Total	**82**	**80**	**84**	UH-1	24
				OV-10	12
				Total	**316**

At the same time, the proliferation of advanced weaponry in Third World nations will require continued enhancements in C^3I capabilities. Accurate intelligence information, global in scope and dimension, must be rapidly available to support not only weapons employment but also force deployments to locations previously considered unlikely. Improvements will come through new or reprioritized collection and analytical capabilities, including expanded human-source and attache collection in the new areas of interest.

Conclusion

Highly capable and survivable tactical air forces with sustainable global reach will be key to this nation's success in meeting future challenges. The force structure and modernization initiatives planned for coming years will ensure that our forces retain the capability and versatility to perform their missions effectively in defense of U.S. security interests worldwide.

SPACE FORCES

Introduction

The ability to respond effectively and quickly to major regional contingencies against foes well armed with advanced weaponry will be fundamental to future military and political successes. Department of Defense space systems already meet a wide range of strategic and tactical requirements of critical importance to the national command authorities and worldwide military forces. Future contingency response operations in distant regions will increasingly rely on support from spaceborne assets. This will be especially true in light of the modernized, but significantly smaller force structure than exists today.

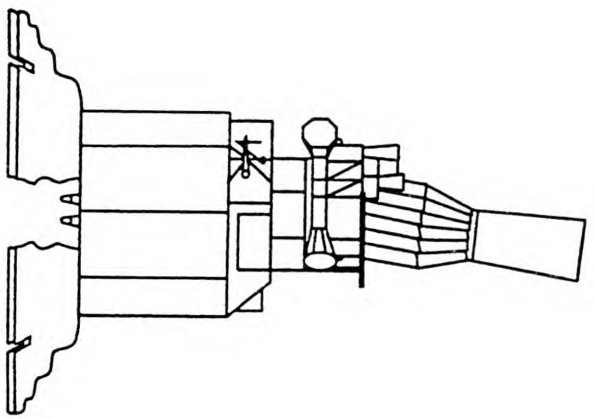
Integrated space systems and operations provide global coverage, high readiness, and rapid response capabilities to U.S. military forces worldwide. Space forces provide real-time and near-real-time support to deployed and en route forces of U.S. ground, air, and sea combatants. In fact, space forces may be the only "on the scene" capabilities in the early stages of future regional conflicts. As illustrated many times during Operation DESERT STORM, space systems provide a force multiplier that reduces casualties and greatly increases effectiveness of our terrestrial forces — a lesson that has not been lost on our allies and potential adversaries.

Space in the Persian Gulf War

Operation DESERT STORM has been recognized as the first "space war." Spaceborne capabilities were a key component of combat operations and vital to the Coalition's success. Many critical support missions, including missile warning, communications, navigation, mapping, and weather observation, were performed primarily from space. Likewise, even as U.S. troops withdrew, space systems continued to provide essential regional information to residual forces that were contributing to post-conflict stability.

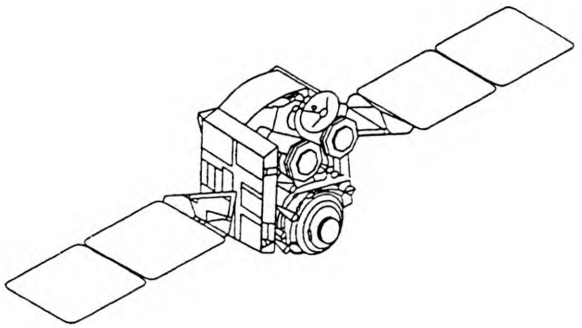
Among the critically important space capabilities that were integral to the operation of Coalition forces was the Defense Support Program. This highly survivable and reliable satellite system provides ballistic missile early warning and other surveillance information and proved to be of immeasurable political, psychological, and military value in detecting tactical missile launches in the Persian Gulf region. During Operation DESERT STORM, the DSP system detected the launch of Iraqi Scud missiles and provided timely warning to civilian populations in Israel and Coalition forces in Saudi Arabia, helping them to protect lives and property. While the DSP system served well during Operation DESERT STORM, limitations and threat changes necessitate improvements. Accordingly, DoD has initiated the Improved Space-based Tactical Warning/Attack Assessment Satellite program to prepare for future needs.

DSP Chart 16



When U.S. forces arrived, the theater of operations had no significant communications infrastructure. Military satellite communications were quickly established as the backbone for command and control and other support operations. One Defense Satellite Communication System (DSCS) satellite and one Leased Satellite (LEASAT) were repositioned in days to optimize communications within the theater of operations. In addition, a second DSCS satellite and other communication assets were reconfigured to support communications between the Persian Gulf and the United States. Intratheater links were used for command and control, early warning, and information dissemination. Intertheater

DSCS-III Chart 17



links enabled United States Central Command (USCENTCOM) connectivity back to its home base in Florida and to the supporting U.S. European Command in Germany. The early deployed 82nd Airborne Division coordinated its supply efforts via satellites, and DSCS satellites were used by the troops for morale calls to their families. When the war began, the DSCS satellites were also employed for near-real-time transfer of pilot reports through a tactical air control center to engaged combat forces. By war's end, DSCS was providing 75 percent of all of the inter- and intratheater communication. More than 120 ground mobile satellite terminals were deployed to support the surge in communications requirements of our deployed troops.

The Department fully recognizes the leverage and flexibility provided by satellite communications to theater and tactical forces. As a result, DoD has extensively restructured the Milstar program to increase its tactical utility. The restructured Milstar program will complement and interconnect with existing tactical communication programs, such as the Army's Mobile Subscriber Equipment, to bring assured global communications to commanders in future conflicts.

Another major problem faced by USCENTCOM forces was navigating in a featureless desert. With 16 of the planned 24 Global Positioning System (GPS) satellites in orbit, more than 20 hours per day (and often 24 hours per day) of extremely accurate, three-dimensional navigation signals were available to ground forces, aircraft, missile systems, special operations teams, and ships. The immediate increased demand for GPS receivers, particularly by the Army, prompted the purchase and distribution of several thousand more units. GPS's very precise positioning signals allowed:

- GPS-configured F-16s, B-52s, and special operations aircraft to conduct all-weather missions with extraordinary accuracy and precision;
- Tank formations to perform precision, war-ending maneuvers in featureless terrain, surprising the Iraqis who considered precise navigation in the open desert to be impossible;
- Minesweeping specialists to navigate safely and effectively through enemy minefields and then to precisely locate enemy mines for later destruction;
- Ration trucks to find and feed soldiers in the desert; and
- Special operations helicopters equipped with GPS, teamed up with Apache attack helicopters, to destroy two key Iraqi early warning radars on the opening day.

Accurate and reliable weather information has long been necessary to any successful military operation. The contribution of Defense Meteorological Satellite Program (DMSP) spacecraft and terminals proved invaluable when bad weather moved in over Iraq and Kuwait throughout the conflict. The DMSPs provided images of cloud cover and other weather conditions that were integrated into sortie and weapon selection planning. When the go-ahead for the ground campaign was under consideration, space system-derived weather data was an obvious and important factor in the decision. To receive the information, there were five Marine and one Air Force 26,000-pound receiver terminals in theater. Many of the Navy's larger ships also had DMSP receive terminals. The need for smaller and lighter receivers became immediately evident in order to disseminate this valuable weather imagery to field commanders. In three months, a rapidly developed prototype receiver was made transportable on the back of the Army's "Humvee."

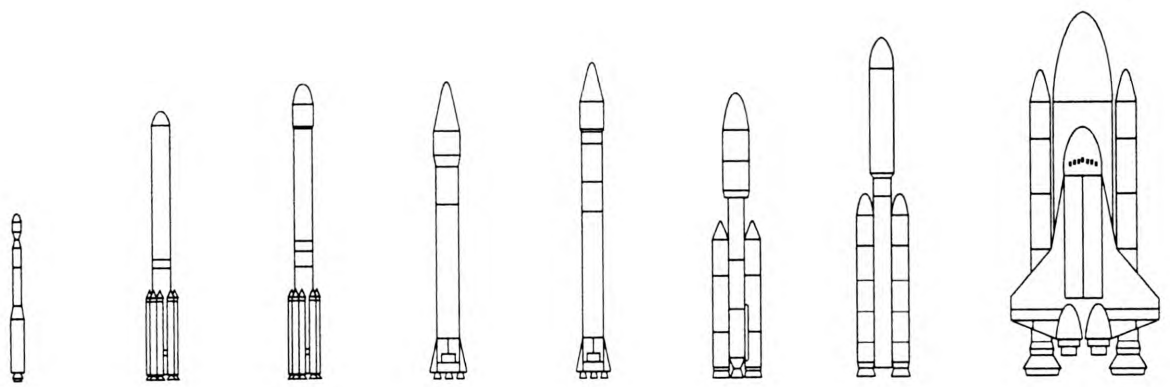
Tomorrow's Challenges

As the focus of military strategies and doctrines changes to accommodate the world of tomorrow, the Department faces several important challenges:

- First, early warning of threats remains a vital requirement. Based on Operation DESERT STORM lessons learned, a follow-on to the current DSP system which addresses both the strategic and some tactical missile threats will be essential to future U.S. military operations.
- Second, defenses against ballistic missiles of all ranges will be an increasingly important requirement.

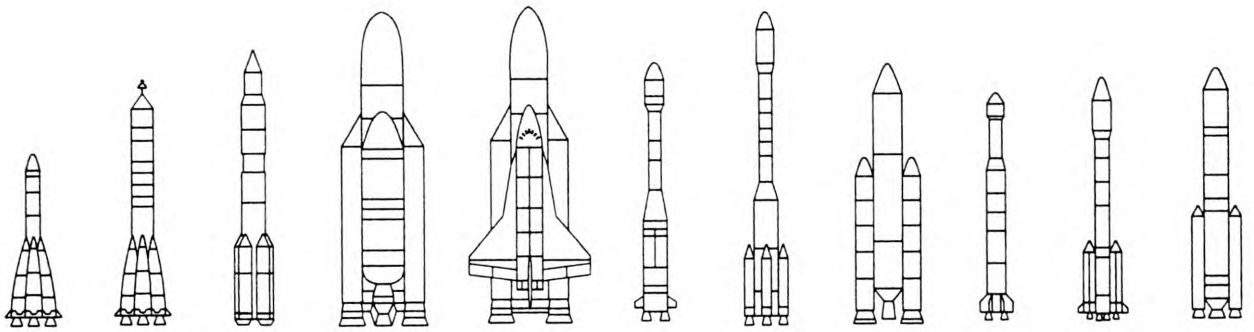
Primary Launch Vehicles of the World Chart 18

U.S. launch vehicles



	Scout	Delta	Delta II	Atlas I	Atlas II	Titan III	Titan IV	Shuttle
LEO	475 lbs.	7,800 lbs.	11,000 lbs.	12,000 lbs.	14,500 lbs.	32,500 lbs.	39,000 lbs.	52,000 lbs.
GTO	NA	3,500 lbs.	4,000 lbs.	5,000 lbs.	6,000 lbs.	12,500 lbs.	12,000 lbs.	NA

Foreign launch vehicles



	Vostok (SL-3)	Soyuz (SL-4)	Proton (SL-12/13)	Energia (SL-17)	Energia (SL-17)	Ariane 3	Ariane 4	Ariane 5	Long March 3	Long March 2E	H-2
LEO	11,000 lbs.	17,000 lbs.	43,000 lbs.	220,000 lbs.	66,000 lbs.	NA	14,000 lbs.	44,000 lbs.	NA	19,000 lbs.	18,000 lbs.
GTO	NA	NA	8,000 lbs.	NA	NA	7,000 lbs.	9,000 lbs.	15,000 lbs.	3,000 lbs.	7,000 lbs.	9,000 lbs.

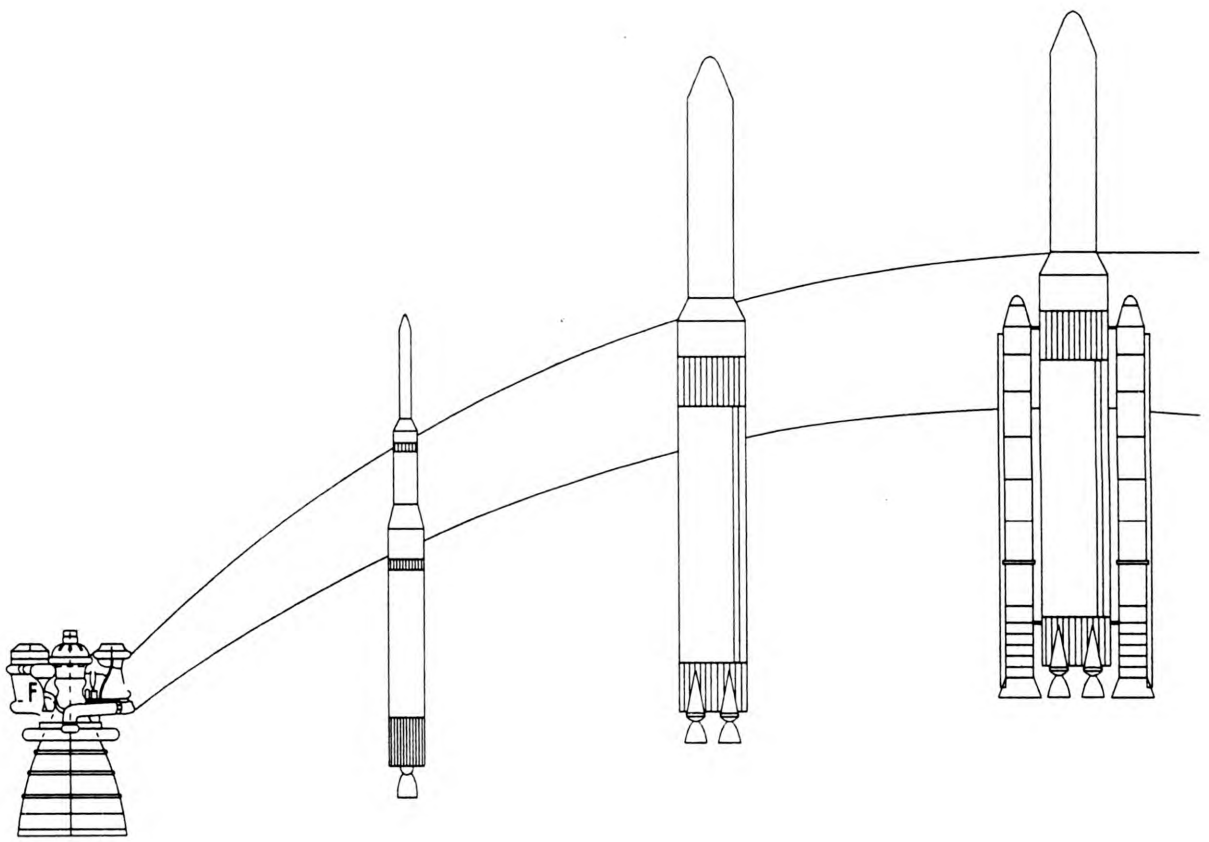
KEY: GTO = Geostationary Transfer Orbit; LEO = Low Earth Orbit

The present ballistic missile defense efforts are directed toward GPALS. Defense based on the GPALS concept will protect the United States itself, U.S. forces deployed overseas, U.S. power projection forces, as well as U.S. friends and allies from accidental or unauthorized limited ballistic missile strikes — whatever their source. Space is a key component of that mission, providing continuous surveillance, tracking, communications, and eventually intercept capability in conjunction with ground-based components.

- Third, support for tactical users is essential to successful combat operations. Operation DESERT STORM illustrated several areas where space can improve its support to tactical users. The Department intends to emphasize such improvements. DoD will be moving

National Launch System (NLS) Evolutionary Approach

Chart 19

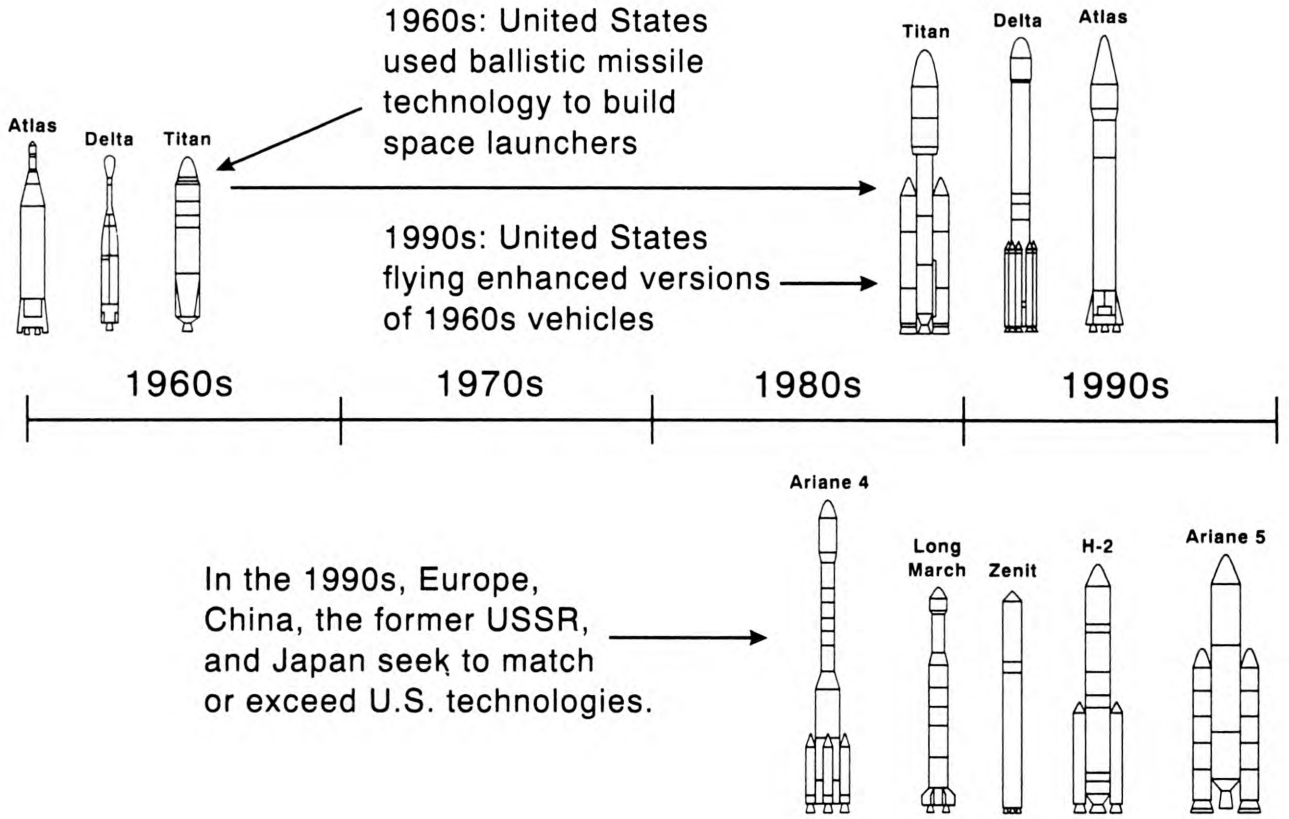


The NLS evolutionary approach develops the Space Transportation Main Engine (STME) which will power three modular vehicles which share components to the greatest extent possible. The approach is evolutionary because the program utilizes existing infrastructure where prudent. For example, the two largest vehicles share a common core which is planned for production at the Space Shuttle External Tank Facility in Michoud, Louisiana. The three vehicles will provide the lift capacity from the medium launch vehicle (MLV) through Titan IV class for DoD and an enabling vehicle that will have twice the capacity of the Space Shuttle for NASA.

to reorient the focus of space support to identify the tactical commander's needs and to provide a product that best supports those needs. Areas for improvement include reducing and simplifying ground equipment and operations, improving intelligence information flow by providing it more directly to the deployed user, and providing innovative options to further make use of space in support of terrestrial forces.

- Fourth, improving access to space by enhancing launch capabilities is a key goal. The DoD and National Aeronautics and Space Administration (NASA) National Launch System (NLS) will focus on a reliable cost-effective family of modular space launch vehicles integrated with an efficient launch infrastructure (see Chart 19). This jointly managed and funded program is projected to meet the national security, civil, and commercial launch demands of the 21st century — assuring timely, reliable, and cost-effective access to space.
- Fifth, assured access to space requires a robust launch

Foreign Launchers Have Caught Up Chart 20



infrastructure. The decline of launch support elements and the limited resiliency and responsiveness of these systems are challenges currently being addressed. These problems are the result of the evolution of launch vehicles from 1960s era ballistic missiles (See Chart 20) and decisions of the 1970s which projected the phaseout of the government's expendable launch inventory. The U.S. launch infrastructure requires substantial modernization to meet not only current and future requirements of DoD and NASA, but also the needs of our emerging commercial space industry.

- Finally, access to and freedom of operations in space for U.S. forces will continue to be essential to overall capabilities. U.S. military space systems provide an important advantage to U.S. and allied forces. With many nations seeking to exploit the force multiplier effects of space systems, it will be necessary to limit militarily significant information gathering from space by adversaries. During peacetime, the United States must control the proliferation of militarily useful space systems by prudent examination of space exports that would jeopardize U.S. national security interests. During a conflict, if significant military space capability is available to an adversary, antisatellite (ASAT) operations may be necessary. DoD's ongoing ASAT program, which would provide a deployed kinetic energy ASAT weapon around the year 2000, could effectively negate an adversary's capability to target U.S. and allied forces from space.

Space operations of tomorrow will be characterized by high readiness and versatility, a combat-ready structure, and improved sustainability. Continued pursuit of these goals will ensure the availability of space systems and their consistent and constant effectiveness to support terrestrial forces at all levels of conflict.

World Space Launch Centers

Chart 21

Technology Advancements

The backbone of U.S. space capability is the technology base from which it evolved. Technologies of the future are being developed today. U.S. space technology centers are researching a multitude of advanced technology projects, such as alternative power sources, radiation hardened space computers, artificial intelligence, on-board processing techniques, alternative storage capabilities, and advanced materials. Increased demands on U.S. space systems will require technologies that move them toward greater autonomy and versatility. Likewise, the Department seeks to develop affordable and more efficient propulsion and ground processing technologies in order to launch space payloads that will meet the requirements of a broad spectrum of worldwide missions.

While U.S. forces have always enjoyed operational and technological space superiority, the gap has narrowed significantly because of expanding international recognition of the military and commercial importance of space. Many nations have significantly increased their R&D activity. Maintaining the space technology advantage demonstrated in Operation DESERT STORM will be one of the fundamental U.S. national security challenges of the 1990s. Space programs, including launch vehicles and satellite developments, are proliferating throughout the world (See Table 14 and Chart 21). Many nations are demonstrating the political will and technological capability to develop or obtain space resources for both commercial and military use. Space-launch vehicle hardware and technology are interchangeable with those of ballistic missiles. Moreover, military applications of space technologies will increase the effectiveness of potential adversaries and will make it more difficult to match the successes the United States enjoyed in the Persian Gulf. The proliferation of indigenous space capabilities and technologies must be closely monitored.

Summary

As the national defense strategy accommodates broader responsiveness to regional conflicts, space systems will continue to provide the critical links among U.S. forces and coalition partners on both strategic and tactical levels. However, many challenges remain. Aggressive technology programs are needed to retain America's leadership role in space technologies and

Space Systems (Worldwide) Existing and Emerging Space Technology/ Satellite Countries Table 14

Argentina	Iran	Russia
Australia	Iraq	South Africa
Brazil	Israel	South Korea
Belarus	Italy	Spain
Canada	Japan	Taiwan
China	Kazakhstan	Thailand
Czechoslovakia	Luxembourg	Turkey
Germany	Mexico	UAE
India	Netherlands	Ukraine
Indonesia	Pakistan	United Kingdom
		United States

their applications. Effective strategies must be employed to minimize the proliferation of dual use (military and commercial) space- and missile-critical systems and related components and technologies that significantly jeopardize U.S. national security interests. The acquisition of critical space-based information by adversaries engaged in regional conflicts will have a dramatic impact on the course of the battle. U.S. space forces must support both tactical and strategic users worldwide and provide cost effective and responsive assured access to space.

As U.S. forces commit to force reductions and restructuring in response to a new strategic environment, space systems will become increasingly important. These capabilities serve as the first forces on-scene, as the principal provider of real-time worldwide support to national command authorities and the fighting forces, and as a force multiplier. These capabilities will continue to be an integral and essential part of DoD operations worldwide.

MOBILITY FORCES

Introduction

The need for strategic mobility was demonstrated vividly in Operation DESERT SHIELD/STORM. When a crisis erupted nearly halfway around the world, the United States was able to respond promptly to requests for assistance, dispatching a major military force to bolster the defenses of friendly nations in the region. Within days of Iraq's invasion of Kuwait, the lead elements of a 500,000-strong U.S. force were on the scene. It was several months, however, before sufficient heavy forces were delivered and ready with high confidence to defend against further Iraqi aggression. During the nearly seven months that its presence was required in the Persian Gulf region, the force was maintained in peak operating condition through the constant replenishment of equipment, parts, and ammunition over a supply line extending nearly 8,700 nautical miles by sea (7,500 nautical miles by air). Mobility forces — airlift, sealift, and prepositioning — made this tremendous achievement possible.

Deployments to regions such as the Persian Gulf have long figured prominently in U.S. mobility planning. Such deployments place great demands on mobility resources in terms of both the distance to be covered and the amount of materiel to be moved. A deployment to Europe also would tax U.S. mobility forces, but in that case, the United States would not have to shoulder the full transport burden. U.S. airlift and sealift forces would be augmented by large numbers of ships and aircraft provided by the NATO allies. Once in the theater, U.S. combat forces would draw on large stocks of equipment and supplies that had been stored for them in advance.

During the 1980s, U.S. mobility forces were structured to support the lift requirements of a global war that began with a contingency in Southwest Asia and spread quickly to Europe. The European portion of the scenario required the rapid movement of heavy forces on short notice, which was to be accomplished by airlift augmented by prepositioning. In light of the dramatic changes in Europe, there is no longer the threat of a large-scale conventional attack launched with little warning. Nevertheless, regional instabilities and ethnic strife within or across political boundaries may create contingencies in which NATO might decide to take military action. While fewer forces would be required than in the past, these contingencies still might involve a rapid response once a decision to act was taken. As a result, the Department proposes to scale back U.S. forces in Europe and the goal for prepositioning there but believes it prudent to retain a significant military presence and rapid reinforcement capability.

Deployments to many regions of the world, such as Southwest Asia or the Pacific, remain constants in U.S. mobility planning. Protecting U.S. interests in these areas requires mobility force levels similar to those planned in the past. The United States must have flexible and responsive assets to project military power in defense of its vital interests wherever those interests are threatened.

In the 1980s, DoD made major improvements in each component of its mobility forces: airlift, sealift, and prepositioned equipment and supplies. The Department nearly doubled airlift capability, increased sealift capacity by almost 40 percent, and significantly increased the amount of combat and support equipment prepositioned in Europe. DoD's goal is to build on that progress during the 1990s, in areas where investment will be most effective in terms of meeting tomorrow's threat and most efficient in view of the reduced resources available for defense.

Operation DESERT SHIELD/STORM

The aircraft and ships that delivered troops and materiel during Operation DESERT SHIELD/STORM did a remarkable job. A review of these operations highlights the important contributions that each mobility component made, and suggests areas where capabilities must be maintained or enhanced. It is important to remember, however, that some aspects of this deployment — such as the large contribution of foreign-flag ships and the modern port facilities in the theater — may not be replicated in future contingencies. Also, some mobility systems that were not used in the operation — such as logistics over the shore (LOTS) equipment, which allows ships to be unloaded without port facilities — could well be essential in future contingencies. DoD,

therefore, must ensure that these programs are fully supported in budget plans.

AIRLIFT

Aircraft delivered more than 500,000 troops and about 545,000 short tons of cargo over the duration of the operation. During the initial weeks, it delivered air forces and light ground forces, as well as the troops and residual materiel of heavier units with equipment prepositioned at sea.

Both military aircraft (C-5s, C-141s, C-130s, KC-10s) and commercial planes participated in the airlift operation. When the military airlift fleet needed augmentation beyond the levels that could be secured with commercial contracts, the Civil Reserve Air Fleet (CRAF) provided additional capacity. Activation of CRAF went smoothly: the response was so rapid that within 24 hours of the time CRAF planes were requested, they were loading cargo at Pope Air Force Base. Over the course of the build-up and conflict, CRAF and other commercial aircraft carried about 65 percent of the U.S. troops deployed to the region and more than 25 percent of the airlifted cargo, confirming the important contribution that civil aircraft make to total U.S. airlift capability.

Several aspects of the airlift programs, though mostly unseen in the aggregate statistics, were important contributors to these operations. First, the ability to operate military aircraft depended heavily on reserve personnel. Reserve component forces contribute more than 60 percent of our airlift manpower. In the initial stages of the deployment, many reserve crews and support personnel volunteered for duty, but it was not until these forces were activated that we could exploit the full potential of all airlift systems. Second, given the enormous distances involved, U.S. aircraft required access to foreign airfields en route to their destination, overflight rights and, in some cases, in-flight refueling. During the initial phases of the operation, the KC-10 fleet was used in both the tanker and lift roles, providing aerial-refueling support for deploying aircraft as well as carrying cargo to the region. Once hostilities began, KC-10s were employed solely as tankers for aircraft conducting combat missions. En route basing support for refueling and routine maintenance was provided throughout the operation by airfields in Germany, Portugal, and Spain.

At the beginning of the deployment, the number of airfields available for military operations and some shortages of support equipment restricted arrivals to two main airfields in Saudi Arabia. Hence, the contribution of airlift in the initial stages of the deployment was limited.

SEALIFT

Ships — excluding those used for prepositioning purposes — delivered nearly 3,000 troops and more than 3,100,000 short tons of dry cargo, including 1,364,000 short tons of resupply and ammunition. Some 275 dry cargo ships were employed, including 70 Ready Reserve Force (RRF) vessels, 8 fast sealift ships (FSS), and 197 commercial ships (168 foreign flag) chartered from civilian carriers. The RRF ships delivered 22 percent of the cargo, the FSS ships delivered 10 percent, and the chartered ships delivered 37 percent. U.S.-flag container ships carried the remaining 31 percent of the sealifted cargo under regularly scheduled service to the region.

Prepositioned ships provided 73,000 short tons of unit equipment, 199,000 short tons of resupply and ammunition, and 18 million gallons of fuel. These ships — all of which are leased on a continuous basis by the government from commercial shippers — included 13 vessels from the MPS force and 8 afloat prepositioning ships.

The performance of these ships underscores the value of sea-based prepositioning of equipment and supplies. MPS ships allowed the first Marine Air-Ground Task Force to be combat ready and available to U.S. Central Command by August 25 — 18 days after the beginning of the deployment. The FY 1993 budget request, along with funds from the Gulf Cooperation Account, will restore the equipment, supplies, and fuel on these ships to their pre-August 1990 levels. This will be done as the ships are cycled through routine maintenance periods between now and FY 1994.

Sealift operations during the Persian Gulf deployment also highlighted some deficiencies in the readiness of RRF ships. Of the 78 RRF vessels that were called up, 74 (70 dry cargo ships and 4 tankers) actively participated in the operation. Of these, 57 ships were to have been ready in 5 days, 16 in 10 days, and 1 in 20 days. Twenty-two met their activation targets, with the median time from call-up to loading being 11 days.

Several aspects of Operation DESERT SHIELD/STORM were quite possibly unique. First, U.S. government-owned ships were augmented in this operation by vessels donated by allied nations, as well as by U.S. and foreign-flag ships obtained under charter. Thus, there was no need to requisition U.S.-flag fleet ships, which may not be the case in future contingencies. Second, by using the Suez route, ships were able to cut the trip from the United States to Saudi Arabia from 12,000 nautical miles (the distance around the Cape of Good Hope) to 8,700 nautical miles. For some contingencies in Southwest Asia, safe access through the canal could not be counted on. That would greatly extend transit times and delay cargo deliveries commensurately. Third, the availability of modern, well-equipped ports in the Gulf region made it possible to discharge cargo from ships rapidly.

The FY 1992-97 Program

The defense program makes selective improvements in the existing U.S. mobility capability. The investments proposed are modest, reflecting the significant gains achieved in the 1980s, the diminished prospect of global war, and the increased emphasis on mobility for regional contingencies.

For airlift, the program maintains current capacity well into the next century. The Department has examined a range of options for retaining the existing capacity, and has found that the C-17 provides the most capability (in terms of cost per ton delivered) for the regional deployments that the United States is likely to face in the future. The C-141 fleet will be nearing the end of its useful life at the end of this decade. As the C-17 is phased in, the total capacity of the U.S. military and civil airlift fleets will grow from today's level of 48 million ton miles per day (MTM/D) to 53 MTM/D (does not include 4 MTM/D which would be withheld to meet other high-priority mission requirements) as the aircraft funded in FY 1997 are delivered in FY 1999. If additional C-17s beyond those currently planned are not purchased, or if CRAF does not grow beyond its current level, then capacity will return to 48 MTM/D with the retirement of the C-141 fleet early in the next century.

For purposes of illustration, it would take about 26 MTM/D of lift capacity to move an airborne division and its initial nondivisional support units to Europe (4,000 nautical miles) in a week (See Chart 22). Moving that same division to Southwest Asia (7,500 nautical miles), also in a week's time, would take about 49 MTM/D of airlift capacity.

Troop-carrying capacity will remain at about 147 million passenger miles per day over the program period. CRAF will provide the bulk of that capacity.

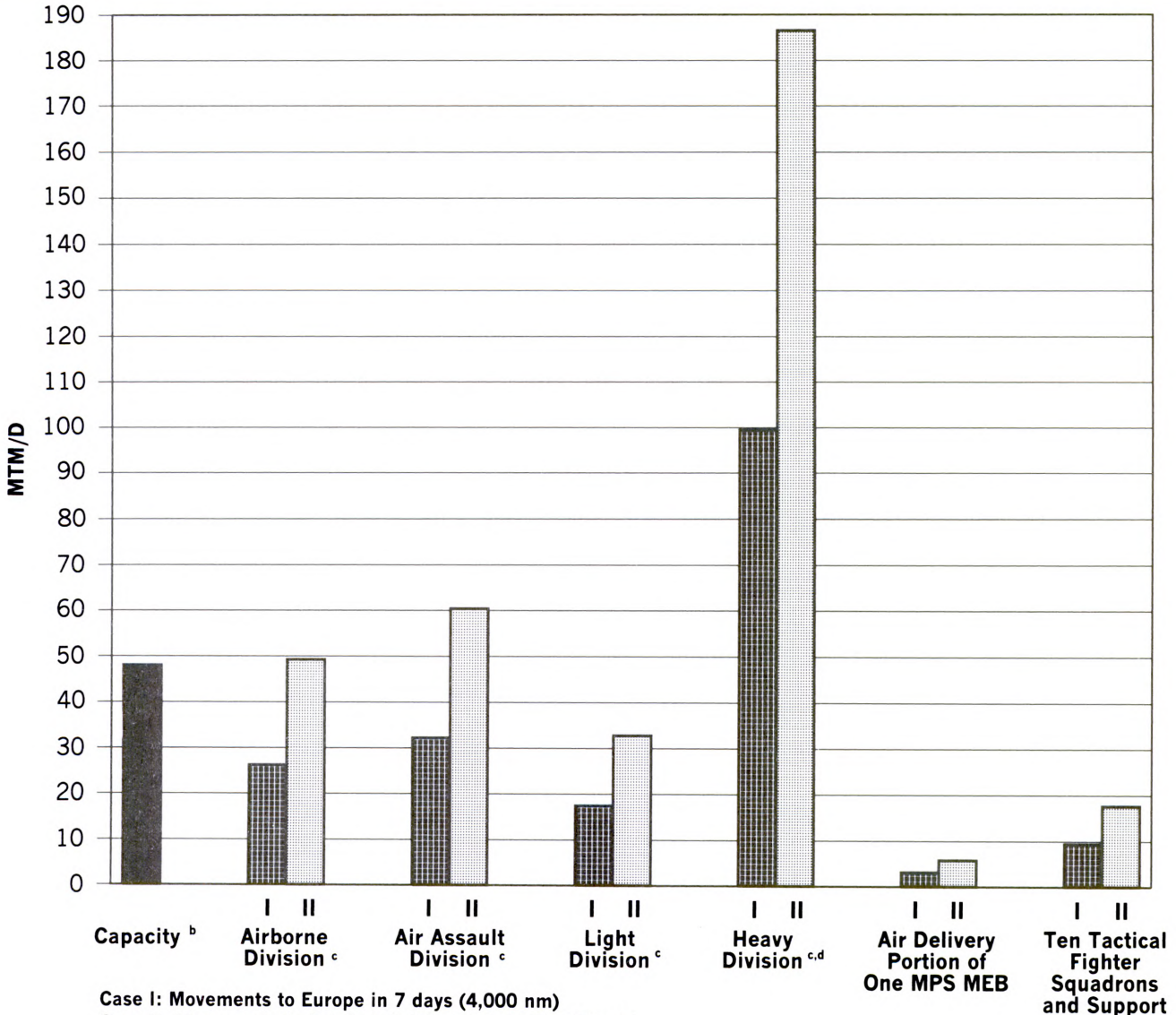
Of the 53 MTM/D of cargo capacity programmed for FY 1997, about 37 MTM/D will be provided by military airlift and the remainder by CRAF. CRAF Stage I, which is activated by the Commander-in-Chief of MAC, will provide 3 MTM/D of capacity. CRAF Stage II, activated by the Secretary of Defense, will provide an additional 2 MTM/D of capacity, and CRAF Stage III (also activated by the Secretary of Defense) will contribute another 11 MTM/D.

For sealift — both afloat prepositioning and surge — the Department plans to buy three million square feet of surge capacity and two million square feet of afloat prepositioning capacity. The surge capacity will provide for rapid deployment of heavy Army divisions and support elements from the United States. The afloat prepositioning capacity will add Army combat and support equipment to the quick-reaction forces already in the DoD program. Together they will provide an adequate capability to respond in force within the first few weeks to any regional crisis that threatens U.S. interests. DoD also plans to buy additional roll-on/roll-off (RO/RO) ships for the Ready Reserve Force as part of its plans to expand the RRF from the current 96 ships to a goal of 104 dry cargo, 36 tanker, and 2 troop ships.

The additional capacity plus the existing government-owned and projected commercial fleets will give the United States the capacity by the end of the decade to move about 21 million square feet of unit equipment in a single sailing. This represents an increase of about 6 million square feet over the current capacity. Government-owned ships (RRF, FSS, etc.) will provide about 16 million square feet of the total capacity, up from about 8 million square feet in FY 1991. RRF will contribute about 7 million square feet. The government-owned fleet's increased capacity will more than offset the expected decrease in U.S.-controlled commercial capacity from about 6.5 million square feet of lift in a single sailing (in FY 1991) to about 4.5 million square feet. Where appropriate agreements exist, foreign-flag ships will provide additional capacity.

Airlift — Current Cargo Capacity and Required Lift [a]

Chart 22



Case I: Movements to Europe in 7 days (4,000 nm)
Case II: Movements to Southwest Asia in 7 days (7,500 nm)

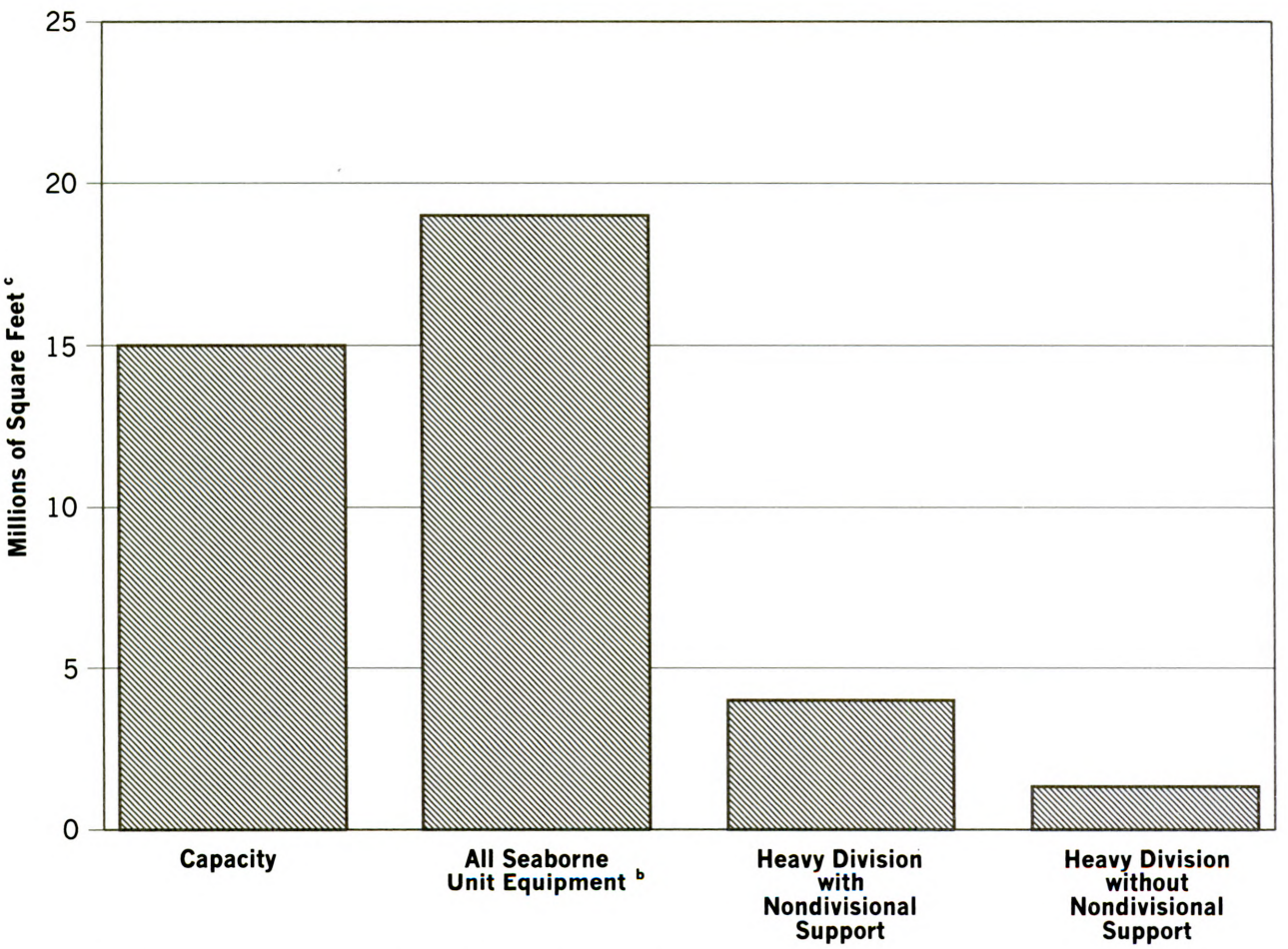
[a] Does not include troops, which also must be flown in on passenger aircraft.
[b] Forty-eight MTM/D expected to be available in a contingency. Four MTM/D – two MTM/D military and two MTM/D from CRAF – would be withheld to meet high-priority mission requirements outside the theater of operations.
[c] Includes initial nondivisional support units. Some of the figures are higher than those in the 1991 report. The differences are due to changes in the support factors based on analysis for the Mobility Requirements Study.
[d] Would travel by sea – airlift figures are for comparison only.

Lift capability for resupply and ammunition will remain at about 800,000 short tons, capable of delivery in the first 60 days of a deployment. LOTS capability for unit equipment will remain at about 30,000 short tons per day.

For purposes of illustration, it would take about four million square feet of lift capacity to move the equipment and supplies of a heavy Army division, with its nondivisional support, by sea (See Chart 23). The same amount of lift is needed no matter where the division is

Sealift — Current Capacity and Required Lift [a]

Chart 23



[a] Single sailing capacity for government-owned plus US-controlled sealift

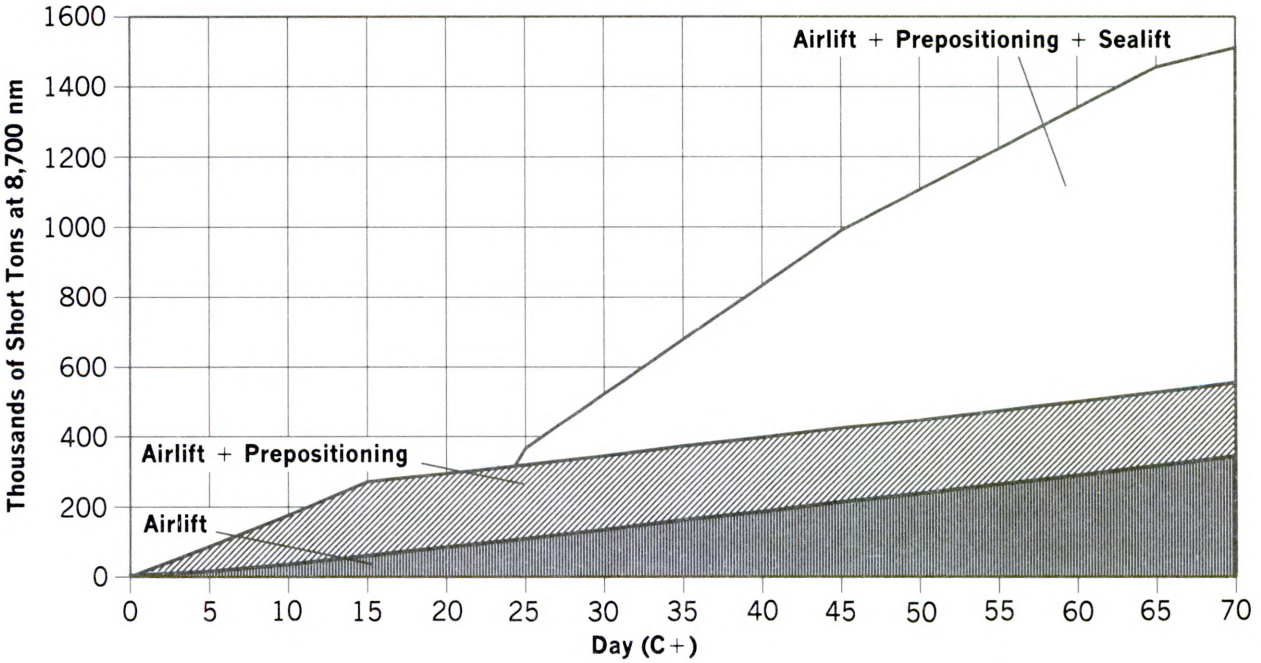
[b] The unit equipment for a national four-division force (one airborne, one air assault, and two heavy divisions, their nondivisional support, plus accompanying Navy and Air Force units and an Army regiment) that would be delivered by common user sealift

[c] Figures are shown in square feet instead of short tons as in the 1991 report, because in Operation DESERT SHIELD/STORM square feet was found to be a better measure of capacity. Although it is difficult to give a single conversion factor, the 833,000 short ton capacity from the 1991 report would equal about 15 million square feet of usable capacity in this chart.

deployed. The distance covered — and the ships' speed — determine how quickly the forces would arrive and when the ships would be available for a second sailing. The round-trip time, including loading and unloading, for a 24-knot ship to Europe is about 16 days; to Southwest Asia — via the Suez Canal — a round-trip voyage would take about 36 days.

To make the most of ships that are available right away at ports, major combat and support units need to be able to move rapidly from their posts in the United States to seaports of embarkation. To speed the movement of units, DoD plans to invest in infrastructure, equipment, and training. Infrastructure investments will include multiple rail loading ramps and upgrades to rail spurs. Equipment additions will include heavy rail cars and specialized containers to be prepositioned at the units' home stations. Training programs will provide regular opportunities to practice moving a heavy Army division to port and loading it on RO/RO ships.

Components of Mobility Capability Chart 24



NOTE: The figures do not include land-based prepositioning. To gauge its contribution, adjust the y-axis of the graph from 0 short tons or square feet to the number of short tons or square feet that are prepositioned.

For prepositioning, the 13-ship MPS force will continue to provide equipment and 30 days of supplies for 3 MEBs deployed worldwide. The 12-ship Afloat Prepositioning Force in the Indian Ocean will continue to provide equipment, ammunition, and supplies for early-deploying Army, Air Force, and Navy units. New initiatives will be pursued in regions where prepositioning is politically feasible and cost-effective.

The diminished prospect of a large-scale war in Europe and the longer warning times now associated with conflict in that region have allowed DoD to scale back the POMCUS (prepositioned materiel configured to unit sets) program in Europe. POMCUS will now provide unit equipment and supplies for 2 full Army divisions (a total of 6 ground maneuver brigades or 18 armored and mechanized battalions) and their support elements. The new goal will support the same number of maneuver battalions as exist in FY 1992 — with some filling of holes. It is consistent with the President's policy of scaling back — but not eliminating — our capability in Europe in light of the demise of the Warsaw Pact.

Prepositioned materiel for early-deploying tactical fighter squadrons will continue to be maintained at European locations. The Marine Corps also will retain its prepositioning program in Norway, which provides unit equipment and 30 days of supplies (including ammunition and fuel) for one MEB.

Although the U.S. defense strategy emphasizes military action in the context of collective security arrangements, as was illustrated in Operation DESERT STORM, the United States must be prepared to conduct deployments worldwide, relying on U.S.-controlled assets and allied lift committed under formal agreements.

When the programs outlined above are complete, they will provide the following capabilities:

- For contingencies outside Europe, the ability to deploy about 5 Army divisions, along with tactical fighter and

naval forces, a MEF and accompanying support units, within about 8 weeks; and
- For contingencies in Europe, the ability to augment U.S. in-place forces with about 2 Army divisions, 2 Marine expeditionary brigades, and associated tactical fighter squadrons and their support in about 15 days of a deployment decision.

To illustrate what these capabilities provide, Chart 24 tracks a hypothetical deployment to a theater located 8,700 nautical miles from CONUS. (This is the approximate distance to Southwest Asia via the Suez Canal.) The chart shows the relative contributions of airlift, sealift, and afloat prepositioning; no land-based prepositioning is assumed. Deliveries could be shown in either short tons or square feet, but are given in this example in short tons only.

The first shipments would arrive by air, beginning on the day the deployment starts (C-day). Airlift could move about 4,500 short tons of cargo per day using only military aircraft and up to 6,750 short tons daily with full CRAF augmentation (CRAF Stages I, II, and III). Afloat prepositioning is the next component to contribute capability. Within as little as five days of the deployment decision (C+5), equipment could be unloaded and married up with unit personnel, who would be flown to the region. Over a several-day period, afloat prepositioning could deliver 53,000 short tons. At 8,700 nautical miles, the fastest sealift ships would begin to deliver units to in-theater ports in about 20 days after the decision to deploy (C+20), with the exact amount delivered at that time constrained by the availability of combat forces (how quickly they can get to CONUS seaports), load-out facilities in CONUS (the number of berths at the seaports), and port facilities in the theater (the availability of berths, cranes, unloading equipment, etc.). Soon after the first ships arrive, sealift would be delivering the bulk of the cargo.

Program Implementation

The FY 1993 amended budget request carries forward the mobility programs included in the President's budget last year. These programs provide for the continued procurement of mobility systems such as the C-17 aircraft, the transfer of selected assets to the reserves, and the retirement of aging equipment. In addition, the amended budget proposes enhancements in sealift.

AIRLIFT

The FY 1993 budget proposes the least costly programs for maintaining current airlift capability, particularly in regions with limited airfield capacity. The C-17, by virtue of its size and maneuverability, will be able to deliver cargo at high rates to such locations. A DoD review of airlift options conducted last year found C-17 procurement to be the most cost-effective choice in constrained scenarios, under which most airlift operations would be conducted. If there were no airfield constraints either en route to or at the final destination (which is highly unlikely), procuring additional C-5s would be a possible alternative. In no case was extending the service life of the C-141 and the subsequent procurement of a replacement aircraft the preferred alternative. These conclusions were found to hold over a wide range of cost estimates for each aircraft.

The C-17 also will increase U.S. ability to distribute cargo within theaters, complementing the C-130 in that role. The defense program provides for procurement of 8 C-17s in FY 1993 and for 66 additional C-17 purchases through 1997. C-141s will be transferred from the active force to the reserve component — or be retired — as C-17s are delivered. The C-141s will need some maintenance and repairs to achieve the 45,000-hour service life required by this plan. When the C-17 acquisition goal is reached with the delivery of the 120th aircraft in 2001, there will be 64 C-141s in the active force and 64 in the reserves. The active C-141s are scheduled for retirement between 2001 and 2005. The reserve C-141s will leave service one decade later, between 2012 and 2015. Eight C-130Hs are slated for procurement in FY 1993 with eight per year funded in FY 1994 and beyond. These aircraft will be used to replace "E" models in the active force. The intratheater airlift force will remain almost constant throughout the period.

DoD plans to maintain the CRAF program at its current level, contributing up to 30 percent of U.S. cargo capability and the majority of our capacity to carry personnel.

As part of its broader reorganization, the Air Force will combine the airlift assets from MAC and tankers from SAC into the new Air Mobility Command. As its name suggests, this command will focus on the overall problem of force mobility. Air Mobility Command will handle intertheater airlift, most CONUS-based theater airlift, and most of the Air Force tanker fleet. Command

of overseas tankers and theater airlift will transfer to the Pacific Air Forces and U.S. Air Forces in Europe. Air Mobility Command will provide forces for U.S. Transportation Command and will be responsible for worldwide tanker scheduling.

SEALIFT AND PREPOSITIONING

Since the President's budget was submitted in January 1991, DoD has programmed an additional $1 billion for sealift enhancements. This funding, plus the $1.875 billion appropriated for sealift in prior years and the $200 million originally requested for sealift in FY 1993, will be combined to provide the initial capital for a National Defense Sealift Fund (NDSF). The fund will be used to begin a sealift enhancement program that implements the integrated mobility plan described in the Mobility Requirements Study. The initial capital in the NDSF is sufficient to implement the plan through FY 1993. As the Department refines its FY 1994-99 program, requests will be made for appropriations of additional capital. The NDSF also will operate as a revolving fund to support existing afloat prepositioning ships and the RRF. A total of $618 million is budgeted in DoD's Operations and Maintenance (O&M) appropriations for afloat prepositioning, and $234 million is included in the Department of Transportation budget in function 054 for RRF. RRF initiatives are designed to overcome some of the breakout problems that occurred during the call-up of ships for Operation DESERT SHIELD/STORM and to expand the fleet to the 142-ship goal.

As noted earlier, the prepositioning ships used in Operation DESERT SHIELD/STORM will be restocked and their equipment refurbished at an estimated cost of $90 million over the budgeted maintenance costs during the next three years. At the conclusion of the operation, the Marine Corps reconfigured the supplies and equipment loaded on MPS ships into Crisis Action Modules. This initiative has enhanced operational flexibility, improved deployability, and provided sufficient sustainment to support a range of roles and missions — from disaster relief to a major crisis response.

Conclusions

Now, more than ever, as regional scenarios become the focus of planning, mobility is essential to the U.S. defense strategy. As the size of U.S. forward-deployed and CONUS-based forces is reduced, we must sustain and expand our investment in airlift, sealift, and — where possible — prepositioning. The mobility programs planned for FY 1993 and coming years are flexible, allowing for meeting many different possibilities in the 1990s. They also are prudent, in view of the decreasing resources available for defense. DoD looks forward to working with the Congress to maximize the capabilities of this critical element of the U.S. conventional force structure.

SPECIAL OPERATIONS FORCES

Introduction

Recent changes in the international security environment confirm that well-trained and equipped special operations forces will continue to be an essential instrument of national policy. Their versatility, speed of deployment, and peacetime experience around the globe make them ideally suited for limited engagement in regional contingencies, and as crucial adjuncts to larger conventional actions. The resource investments of the 1980s have yielded robust, highly capable SOF with the flexibility to conduct joint operations in support of the new defense strategy.

Special Operations Forces (SOF) and the New Defense Strategy

In a world of broader, more regionally oriented and ambiguous threats, the United States must remain well prepared for both conventional and unconventional challenges. Each of the four tenets of the new U.S. defense strategy calls into play one or more aspects of SOF capabilities:

- Strategic Deterrence and Defense. Special operations forces are essential contributors to strategic deterrence and defense. The ongoing proliferation of weapons of mass destruction and the means to deliver them threaten to erode strategic stability during the decades ahead. SOF special reconnaissance and direct action capabilities can help to locate and destroy storage facilities, control nodes, and other strategic assets. SOF can also support compliance with arms control measures in situations where intrusive verification measures become necessary. Should circumstances require, SOF are one of the few instruments available to precisely apply measured force to deal with an adversary's nuclear, biological, or chemical weapons capabilities.
- Forward Presence. The changing international security environment allows the Department to reduce some permanent overseas deployments; however, it will remain important for the United States to stay engaged in regions of vital interest. The forward presence of U.S. forces provides more credible deterrence, promotes regional stability, and provides an initial capability for crisis response and escalation control. SOF are principal contributors in achieving greater regional stability through a wide range of humanitarian and nation assistance and Foreign Internal Defense activities, which constitute a de facto forward presence. Even in areas where a larger American presence might not be possible for political or fiscal reasons, SOF's low profile, relatively economical cost, and small logistics requirements often make them an acceptable alternative.
- Crisis Response. A major requirement for U.S. forces is the ability to respond rapidly to short-notice contingencies. Designed to be a quick-reaction, high-leverage force, SOF have repeatedly demonstrated their utility both in leading and supporting roles in recent crises, including Operations DESERT SHIELD/STORM, PROVIDE COMFORT, JUST CAUSE, PROMOTE LIBERTY, and actions in the Philippines, Liberia, Latin America, and elsewhere.
- Reconstitution. The historical threat of short-notice global war has become far less likely; nonetheless, DoD must maintain the ability to reconstitute a larger force structure if needed, to help deter or if necessary counter any potential global military challenger. SOF support several aspects of reconstitution. First, SOF units can serve as a force multiplier and help to buy time by training allied forces, including resistance movements, as a first line of defense. Second, SOF routinely use leading-edge technology to preserve operational secrecy and overcome hostile forces. Requirements for, and early demonstration of, advanced combat technologies by SOF are important stimulants to R&D that also support reconstitution of conventional capability.
- Other SOF Characteristics. Although SOF can help to catalyze regeneration in the face of a renewed global threat, they are not easily rebuilt themselves. SOF are among the most difficult units to reconstitute because of the high demands on both individuals and units, especially the long lead-times required to develop mature operational experience, language skills, and regional orientation. The prominent role that reconstitution plays in the new defense strategy requires that any necessary changes to SOF force structure carefully preserve essential operational capabilities as well as provide a basis for future reconstitution of additional capability.

SOF have repeatedly proven their value in enhancing U.S. military partnerships with allied and friendly nations. During Operation DESERT SHIELD/STORM, for example, Arabic-speaking SOF were assigned to every Arab unit of the Coalition to ensure interoperability, a mission they executed with outstanding success. In the developing world, the degree of contact among SOF counterparts is an important element of the larger military-to-military relationships, particularly for countries which do not possess large conventional forces. These links can be especially useful in helping SOF plan for and conduct contingency, humanitarian assistance, counterterrorism, and counterdrug operations in various regions of the world.

At the middle and high intensity levels of conflict, SOF support conventional forces by providing economy-of-force capabilities to delay, disrupt, or divert enemy forces. Recent operations in the Middle East illustrate the value and versatility of such units in a conventional conflict.

The Iraqi Campaign

SOF conducted a broad range of missions during Operation DESERT SHIELD/STORM. They were among the first units sent to the Kuwaiti Theater of Operations, a movement that eventually became the largest deployment of SOF in U.S. history. They attacked critical radar and communications centers, rescued American pilots downed deep in enemy territory, collected valuable intelligence from behind enemy lines, and sowed doubt and confusion among opposing units. Their language skills, familiarity with the various cultures of the region, wide range of tactical and technical expertise, and high levels of training also made SOF particularly effective in helping to train allied forces and carry out the liaison function so essential for successful coalition warfare.

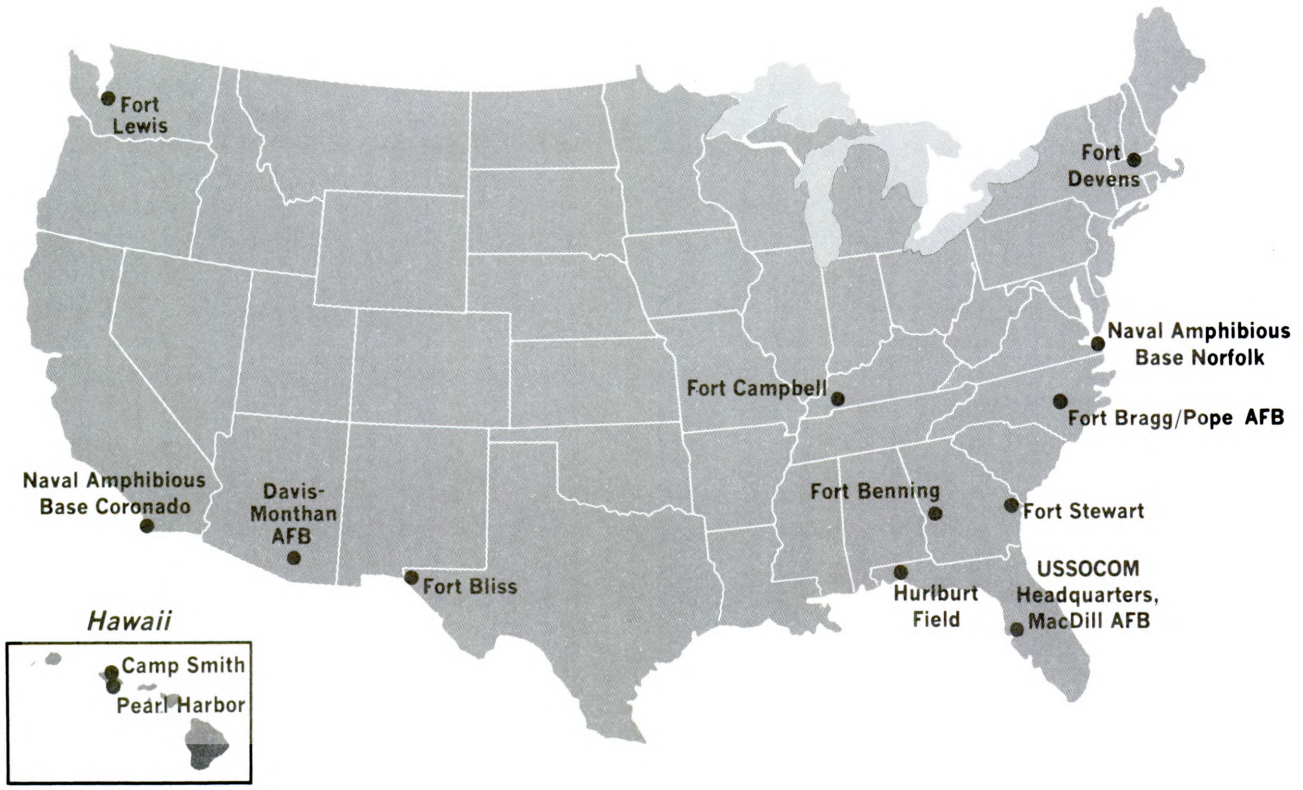
- Direct Action and Special Reconnaissance. SOF assets provided vital support at various stages of Operation DESERT STORM. For example, Air Force Special Operations MH-53 helicopters led a flight of Army attack helicopters to destroy key Iraqi radars in the opening phase of the air campaign, thus creating a 10 kilometer wide air corridor for the initial sorties of Coalition air forces. As the air corridor operation was being mounted, SOF also emplaced radar beacons along the northern Saudi border to help guide Coalition pilots safely into and out of Iraq. Naval Special Warfare operations along the Kuwaiti coast contributed to the successful deception plan that froze 10 Iraqi divisions, preparing for an amphibious assault that never took place. Army Special Forces elements conducting reconnaissance deep behind Iraqi lines obtained crucial information to determine whether soil conditions would support the passage of Coalition armored forces.
- Psychological Operations (PSYOP). PSYOP contributed to the collapse of the Iraqi army. PSYOP leaflets, loudspeaker, and radio broadcasts gave Iraqi soldiers information which, in addition to undermining their morale, provided detailed instructions on how to surrender and instilled confidence that they would be treated humanely and fairly by Coalition forces. Discussions with Iraqi prisoners of war indicated that the PSYOP campaign was a major factor in influencing a substantial portion of them to surrender. Following the liberation of Kuwait, PSYOP units helped restore Kuwaiti print and broadcast media and assisted in other humanitarian activities as part of Task Force FREEDOM.
- Civil Affairs (CA). CA units also played a significant role throughout the campaign. They provided emergency support to the civilian sector and, during the combat phase, assisted in the control, care, and movement of dislocated civilians and enemy prisoners of war. In the post-combat phase, these same units, drawing on their specialized skills in medicine, law, and public administration, also assisted the newly reorganized government of Kuwait in restoring basic services.

Operation PROVIDE COMFORT, mounted to help Kurdish refugees in northern Iraq, is an excellent example of the multiple skills and flexibility inherent in SOF capabilities:

- Special Forces soldiers located suitable sites for refugee camps, provided security, and then worked with local leaders to make the refugees more self-sufficient;
- Civil Affairs units developed plans for camp design, daily camp operations, and distribution of humanitarian supplies and coordinated with international and private organizations for final disposition of refugees; and
- PSYOP units provided an essential flow of information to the local populace, ultimately convincing Kurdish leaders to cooperate with military relocation efforts.

Major SOF Locations (Active Component)

Chart 25



Acting in concert with other organizations, these SOF units stabilized a difficult situation and made possible an orderly transition of responsibility from the U.S. military to international oversight.

Special Operations Forces (SOF) Development

United States Special Operations Command (USSOCOM) continues its R&D efforts to meet SOF operational requirements. The Special Operations Research and Development Center (SORDAC) was established on February 1, 1991, and is collocated with USSOCOM at MacDill AFB in Tampa, Florida. The SORDAC is currently staffed with 30 personnel and monitors over $1 billion of research, development, and acquisition programs. Current priorities for the SORDAC include long-range maritime capability, avionics, communications systems, and nonlethal technologies.

Summary

Special operations forces have played and will continue to play a vital role in protecting U.S. interests from a variety of conventional and unconventional threats. SOF demonstrated a broad range of capabilities during the campaign against Iraq — before, during, and after combat. The versatility, area expertise, and specialized skills of these forces also make them particularly well-suited to conducting contingency, humanitarian assistance, counterterrorism, and counterdrug operations. In a volatile and turbulent world, special operations forces have a critical role in executing the new strategy for preserving and defending U.S. national security interests.

COUNTERDRUG PROGRAM

Introduction

In 1991 — a year of dramatic change and daunting challenge — DoD's principal task in its counterdrug mission was to adapt not only to the tenacity and resourcefulness of narcotraffickers as they adjusted to our efforts, but also to do so under the sudden and unexpected demands of Operation DESERT SHIELD/STORM. Nevertheless, during the entire period of Operation DESERT SHIELD/STORM, the detection and countering of the production, trafficking, and use of illegal drugs continued — as it continues today — to be a high priority national security mission of the Department of Defense. While the Persian Gulf War led inevitably to some shifting of certain counterdrug assets in FY 1991, the long-term upward trend in the number and scope of DoD counterdrug activities continued unabated.

Despite the force levels required to fight the Persian Gulf War, the tempo of counterdrug operations during FY 1991 remained close to the same overall levels that existed prior to Operation DESERT SHIELD/STORM, and in fact increased substantially along the southwest border. In all its counterdrug activities, DoD adopted and executed a highly successful and flexible response to the deployment of assets to the Persian Gulf. For example, NORAD and Forces Command (FORSCOM) used HAWK missile radar systems in place of Patriot radar systems originally planned to be used in certain strategic trafficking corridors, when Patriot systems were sent to the Persian Gulf. The Atlantic Command (LANTCOM) made up for the temporary loss of some assets by increasing the on-station time of deployed assets, enabling LANTCOM to maintain the desired counterdrug operating tempo levels. And despite the war, FORSCOM supported in FY 1991 8 times the number of missions supported in FY 1990 — 305 versus 38. In addition, the reserve components played a major role in counterdrug missions by taking over from active component units that were deployed to the Persian Gulf as more fully detailed below.

Attacking the Flow of Illegal Drugs at the Source

Attacking illegal drugs at the source is a major component of the President's National Drug Control Strategy. A focal point continues to be the Andean Ridge countries, where virtually all cocaine consumed in the United States is produced. DoD aid to the counterdrug efforts in these countries has grown substantially in recent years. Total DoD support to the Andean Region in FY 1990 and 1991 totaled more than $203.5 million in equipment, services, and planning assistance.

DoD assistance to the region involves only support to host nations. DoD personnel do not accompany host-government forces on actual field operations. DoD support includes deployment of mobile training teams and unit deployments for training. U. S. military personnel continue to train selected host-nation police and military units for a variety of counterdrug missions, such as aircraft maintenance, logistics, individual and small-unit tactics, leadership, and air mobile and riverine operations.

DoD efforts in the Andean Region have helped host-nation counterdrug forces achieve significant success. In the first fully coordinated air, ground, and riverine counterdrug operation in the Andean Region, conducted by one host nation's army, navy, air force, and law enforcement personnel with training and planning assistance from DoD, a primary illicit coca paste buying market was seriously disrupted. Upon completion of the operation, a permanent law enforcement presence was established in an area formerly under narcotrafficker domination, illicit drug trade was interrupted, and there was a significant reduction in the availability of coca leaf, due to the high number of arrests (over 150) and the inability due to seizures of aircraft to move the leaves for processing. This particular host nation now has the opportunity to return control of the region to legitimate government and business.

DoD also provided timely information on illegal drug activities and facilities to cooperating host nations in the region. One host-government forces' raid (accomplished in part with information, training, and other resources provided by DoD) on an air transshipment operation in the northern Andean Ridge substantially disrupted cocaine production and shipping throughout the region. Another operation planned with DoD assistance led to the arrest of several drug traffickers and the capture of numerous documents, causing significant

disruption of trafficking activities. In cooperation with host nations, a concentrated DoD detection and monitoring operation that focused on air and maritime narcotics trafficking routes off the northern coast of South America led to a number of successful interdictions by host-government forces, disrupting "business as usual" for drug traffickers in the area.

Many of the notorious Medellin Cartel leaders are either dead or in jail. In Colombia alone, host-nation forces seized a record 90 metric tons of cocaine in FY 1991. Coordinated operations or campaigns among neighboring countries are becoming more commonplace and should provide for greater overall success in interdiction operations.

DoD remains particularly sensitive to human rights in the region. Prior to deployment, training teams in the Andean Region receive briefings to acquaint them with the human rights environment in the country in which they operate. They are required to be aware of violations and to report any that occur. All teams that train host-nation personnel, both police and military, for counterdrug purposes, must include human rights training as part of their instruction to host-nation forces.

Attacking the Flow of Drugs in Transit

The attack on drugs in transit to the United States continues to improve, supported by DoD's substantial detection and monitoring capability. Employed pursuant to a defense in depth strategy, DoD detection and monitoring assets are closely coordinated and integrated into the interdiction efforts of U.S. drug law enforcement agencies (DLEAs) and the DLEAs in participating host nations. Defense in depth involves the forward deployment of certain ground-based, airborne, and maritime sensor platforms, and includes an increased focus on regional cooperation, as in the case of the Caribbean Basin Radar Network.

The Department has improved significantly its ability to gather and process multisource tactical counterdrug intelligence information. DoD manages and directs a wide range of fixed and mobile tactical surveillance assets, such as ships, airborne early warning aircraft, and land-based and ship-based aerostats. Deployments of mobile assets are reviewed and adjusted to best counter changing narcotrafficker threats.

One of the most important aspects of DoD detection and monitoring activities is sharing usable and timely interdiction information with DLEAs. Our success in doing so was commended by the House Armed Services Committee in its May 1991 Report on the FY 1992 Defense Authorization Bill, which noted that representatives of law enforcement agencies say DoD support is "better now than it ever has been, and that there is real synchronization of efforts among all participating agencies."

In May 1991, all involved federal agencies agreed to the formalized National Counterdrug Planning Process in order to enhance interdiction operations. The process began with a single, jointly prepared National Threat Assessment of the air and maritime cocaine smuggling threat. Updated quarterly, it is now being used by military and federal law enforcement agencies to develop coordinated operational plans for drug interdiction. The planning process also includes quarterly, national planning meetings in Washington, DC, with senior officials from the military commands, the Intelligence Community, and the federal law enforcement agencies, followed by more detailed planning sessions at regional levels.

Attacking the Distribution and Use of Illegal Drugs in the United States

In the United States, the National Guard continues to provide effective and welcome support to law enforcement counterdrug efforts. In FY 1991, the National Guard performed 5,815 missions, using 875,513 man-days. Marijuana eradication operations were conducted in all 54 states and territories, cargo container searches in 42, aerial and ground transportation support in 34, training programs in 28, and communications support in all 50 states.

The National Guard brings enthusiasm and dedication to this mission. One member of the California National Guard, while assisting with the inspection of a cargo container, noticed inconsistencies in packing and weight descriptions. The observation triggered a detailed inspection and discovery of a shipment of extremely high-grade heroin, weighing in excess of 1,100 pounds and valued by U.S. Customs at over $2 billion. Also, in the final week of June 1991, Oklahoma Guardsmen located and destroyed 1,683,529 marijuana plants, a substantial portion of total plants destroyed by U.S. DLEAs for the year.

In FY 1991, the California National Guard established the National Interagency Counterdrug Institute in San Luis Obispo, California. It provides training for reserve and active component military personnel on DLEA requirements.The Institute also trains federal, state, and local agents on what support the military can offer DLEAs and how they can obtain it.

In addition to National Guard activities, there has been a substantial increase in the use of active component personnel in the United States for marijuana eradication, air and ground transportation, administrative and logistical support, reconnaissance of marijuana gardens, and navigational assistance to DLEA personnel in rough terrain.

DoD's dedicated counterdrug secure communications system continues to be well received by DLEAs. Called the Anti-Drug Network (ADNET), it allows federal DLEAs to communicate and exchange information without fear of being compromised. The number of operating ADNET sites has nearly doubled in FY 1991, from 46 to 88. Due to the unqualified success of the system, DoD projects a total of 129 operational sites by the end of FY 1992.

DoD is actively assisting DLEAs with integrating their equipment into ADNET at the Drug Enforcement Administration headquarters and at the U.S. Coast Guard Intelligence Coordination Center, as examples. Seven Coast Guard cutters have ADNET installed, with 24 more projected. In addition, new ADNET initiatives are planned, including further integration of DoD and DLEA counterdrug applications and data sources; allowing select users to exchange counterdrug tactical intelligence reports; and providing unclassified, multinational detection and monitoring data on suspect drug smuggling activity in the Pacific Ocean to interested users. Efforts are also under way to obtain graphic and digital map products from the Defense Mapping Agency, and to continue to develop a commercial maritime tracking data base for ADNET users.

In addition to ADNET initiatives, the Defense Information Systems Agency (formerly the Defense Communications Agency) is conducting a computer system upgrade of the El Paso Intelligence Center (EPIC). That upgrade will enhance the function, support capacity, and performance of the EPIC information system while ensuring compatibility and interoperability with DoD and other DLEAs.

Demand reduction efforts within the Department, and through DoD activities in surrounding communities, have received continuing and impressive attention. Within DoD, efforts have focused on drug testing, prevention and education, community service, and treatment and rehabilitation. As in the past, DoD's demand reduction programs in FY 1991 were extremely successful. DoD Dependent Schools expanded Project Drug Abuse Resistance Education (D.A.R.E.) to include over 80 percent of all DoD schools overseas; 100 percent of all DoD dependent schools will be covered in FY 1992.

Last summer, the best community outreach demand reduction program in each of the military services was honored with the first annual presentation of the Secretary of Defense Military Services Community Drug Awareness Award. The award was established to recognize outstanding demand reduction programs within the military departments, and is designed to encourage awareness of drug abuse in communities across the nation through specially targeted demand reduction programs.

The policy of no tolerance for drug use continues as a mainstay for each of the military services. The Services maintained a successful and aggressive drug testing policy by testing over three million specimens last year. The laboratories continue to refine automation methods to improve assay procedures and to develop systems for analyzing data.

Drug testing of DoD civilian personnel continues to progress. All DoD components have begun drug education and testing programs — to include random, reasonable suspicion, voluntary, post-accident, and treatment follow-up testing — for civilian personnel in specially designated positions, such as those having an immediate impact on national security, public health, and safety. Moreover, all applicants for these positions are subject to testing prior to employment. To date, less than 1 percent of those tested have tested positive.

The Department also requires all defense contractors involved in national security, public health, or safety to achieve a drug-free work force through a comprehensive program of antidrug abuse education, training, and testing. DoD was the first federal agency to require a drug-free work force program for its contractors.

Impact of the Unified and Specified Commands

The Commanders-in-Chief of the Atlantic, Pacific, Forces, Southern, and North American Aerospace Defense Commands execute their respective counterdrug missions under detailed plans approved by the Secretary of Defense. To facilitate command and control, three fully operational joint task forces (JTF) are dedicated to DoD's counterdrug mission: in the Caribbean and on the east coast, Joint Task Force Four in Key West, Florida; on the west coast, Joint Task Force Five in Alameda, California; and along the southwest border, Joint Task Force Six in El Paso, Texas. LANTCOM has also deployed a Caribbean counterdrug task group, with appropriate planes and ships, to further enhance the DoD detection and monitoring mission in the Caribbean Basin.

Last year, in performing its detection and monitoring mission, LANTCOM significantly improved its intelligence program in terms of the quality of intelligence gathered, and the speed with which it is fused and then passed to operators. A joint effort of the Atlantic and Southern Commands has honed intelligence collection efforts against known and suspected narcotrafficking locations. The results have been near real-time analysis of incoming data for support to counterdrug operations and increased interagency cooperation. Other improvements of the LANTCOM intelligence program include better identification of suspect vessels, more timely cuing of drug law enforcement assets, and improved analysis of trafficking patterns. As a consequence of improved intelligence, more timely analysis, and increasing interoperable communications capability with DLEAs, LANTCOM has achieved an increasingly flexible response to trafficking pattern changes.

In support of DLEAs in Hawaii and Southeast Asia, and in support of certain FORSCOM operations in the western United States, Pacific Command (PACOM) provides manpower and equipment on a daily basis to assist in routine operations and special exercises. Joint Task Force Five continues to coordinate detection and monitoring activities in the Pacific area.

Due to the vastness of the Pacific Ocean, PACOM concentrates on intelligence operations: building data bases, improving its ability to refine analyses, and developing a system to improve the collection and flow of intelligence. In addition, PACOM works with DLEAs to improve their automation, data collection, and reporting. PACOM also provides surface ship platform availability, intelligence collection, transportation, military working dog teams, training, and operational support for counterdrug operations.

FORSCOM also worked to improve counterdrug intelligence support to DLEAs, providing analysts to DLEAs to help improve their overall intelligence capabilities, conducted related training exercises when requested by DLEAs, and when observing suspect activities, reporting this information to supported agencies. FORSCOM accomplished a large number of aerial imagery operations over public lands, which provided data on marijuana cultivation sites, methamphetamine labs, and trafficking routes.

FORSCOM's relationship with Operation ALLIANCE, a consortium of federal, state, and local DLEAs along the southwest border, has now completely matured. Operation ALLIANCE is the requesting agency for all DoD counterdrug support requests received by Joint Task Force Six. These requests have increased dramatically during FY 1991, and JTF-6 completed an impressive 231 missions during FY 1991 — an elevenfold increase over FY 1990. During 1991 and pursuant to its request, Operation ALLIANCE was collocated with JTF-6 at Fort Bliss, Texas.

Along the border, FORSCOM supported the United States Border Patrol in a number of ways, including listening posts and observation posts, remote sensors, engineer missions to improve border roads and fences, ground surveillance radars, and deployment of units for training and exercises designed to deny certain smuggler-preferred terrain. Other FORSCOM support includes mobile training teams, marijuana eradication, and aerial reconnaissance.

Trafficking through Mexico has taken on increased importance due to shifting smuggling patterns and United States detection and monitoring efforts in the Caribbean. In FY 1991, FORSCOM leased helicopters to Mexico along with a 2-year sustainment package, extended-range fuel tanks, and pilot training pursuant to the FY 1990 section 506(a)(2) authority. Section 506(a)(2) of the Foreign Assistance Act of 1961, as amended, authorizes the President to direct the drawdown of defense articles, defense services, and training for countries participating in counterdrug operations for international disaster assistance, and for refugee assistance. Total 506(a)(2) drawdown authorized for loaned

equipment and repair parts for counterdrug support during FY 1990 for Mexico was $17 million.

NORAD continues to refine its methods for carrying out detection and monitoring activities. NORAD has concentrated its resources in high intensity drug trafficking areas, and in providing support to drug law enforcement surge operations. These operations include both airborne and ground radar assets targeted against suspected transit routes. Additionally, direct communications and data sharing are occurring among NORAD, the Federal Aviation Administration, and the U.S. Customs Service in order to obtain timely identification of routine legitimate traffic and facilitate rapid response to suspicious flights. NORAD is working to improve its relationship with Transport Canada and the Royal Canadian Mounted Police, and to make improvements in radio communications with United States and Canadian law enforcement aircraft.

In Latin America, SOUTHCOM has deployed tactical analysis teams to Andean Region embassies and other embassies in Latin America to provide U.S. Ambassadors with an intelligence fusion capability. SOUTHCOM also provides support in the form of planning assistance and medical, engineering, and civic action assistance.

Training is conducted by mobile training teams in light infantry tactics, riverine operations, maintenance and logistics, and air surveillance and tracking operations. In the past year, SOUTHCOM intensified the level of intelligence support to host nations, as well as support for data collection, analysis, and communications in order to provide timely sharing of such information.

A major effort has been made to apply scarce SOUTHCOM reconnaissance assets efficiently to host-nation surge operations in order to give host-nation forces timely and meaningful intelligence.

Personnel from the reserve components of each of the Services provided a force multiplier to activities of the unified and specified commands. Although the reserve components played a major role in Operation DESERT SHIELD/STORM — mobilizing more than 245,000 personnel and deploying almost half that number to the Persian Gulf — they played another major role in counterdrug missions by taking over for active component units that were also deployed to the Persian Gulf. For example, the Air National Guard deployed F-16s and personnel to Panama a month earlier than originally planned, in order to assume the mission of an F-16 squadron deployed by SOUTHCOM in Saudi Arabia. Similarly, in support of FORSCOM, U.S. Marine Corps reserve personnel of the V MEF completed a sensor operation in Arizona and two listening post/observation post operations in California, which had been undertaken by the active component I MEF until it was deployed to Saudi Arabia.

Research and Development

In one of the most important areas of counterdrug research, DoD has initiated the Contraband Detection/Cargo Container Inspection Technology Development Program. Led by the Defense Advanced Research Projects Agency (DARPA), DoD is taking a broad-based systems approach to the problem of detecting contraband in cargoes entering the country that otherwise appear legitimate. The program provides for the early establishment of test sites at ports of entry operated by DLEAs. Programs that show great potential, such as fast neutron activation analysis and neutron elastic scatter, are receiving special emphasis through increased funding, multiple R&D approaches, and expedited contracting procedures.

DoD's research, development, testing, and evaluation initiatives continue to support other objectives of the National Drug Control Strategy. These include improving communications and information system architectures used in counterdrug enforcement, analyzing the potential counterdrug application of such systems as the commercial over-the-horizon radar, and studying the potential for use of the wheeled light armored vehicle (LAV) by the DLEAs. In addition, DoD is working to enhance several technical intelligence systems specifically for counterdrug application.

Additional DoD Support to the Overall Effort

Secretary Cheney's September 1989 guidance concerning counterdrug activities and priorities has led to establishment of a number of additional programs and activities in support of the President's National Drug Control Strategy.

For example, there are currently 206 military personnel assigned to federal DLEAs and the Office of National Drug Control Policy to provide liaison, training,

and planning support. Much of their work has concentrated on enhancing the intelligence capabilities of DLEAs, and has enabled badly needed law enforcement agents to return to field work. Fifty-five additional positions have been approved and are in the process of being filled.

Four regional logistical support offices (RLSOs) have been fully operational since August 1, 1990. Located in Buffalo, New York; Miami, Florida; El Paso, Texas; and Long Beach, California; with a detachment in Honolulu, Hawaii, they provide a focal point for a wide spectrum of nonoperational support. Nonoperational support includes requests for formal training, use of DoD facilities, and loan, lease, or transfer of equipment. Examples of equipment furnished include items such as ground sensors, small arms, uniforms, body armor, generators, forklifts, aircraft boarding ramps, diving equipment, turbine powered helicopters, night vision devices, and secure handheld radios. During FY 1991, RLSOs received more than 1,050 requests from federal, state, and local DLEAs.

DoD has provided extensive training to federal, state, local, and foreign DLEAs. For example, the Army provides helicopter training programs and tactical survival training for personnel of Operation SNOWCAP, a Drug Enforcement Administration source-country initiative. Operation SNOWCAP personnel regularly receive training at the Ranger Training Brigade at Fort Benning, Georgia. As another example, the Navy provides technical training to the U.S. Coast Guard through the use of mobile training teams.

In FY 1991, military working dog teams provided 4,880 team days to assist DLEAs with cargo inspections at land, sea, and air ports of entry. These teams assisted in discovering 88,000 pounds of contraband drugs with an estimated street value of over $135 million.

DoD continues to provide training to federal, state, and local agencies for establishing and operating rehabilitation oriented training camps. Using methods of military discipline, these camps typically incarcerate and attempt to rehabilitate first-time drug offenders. Last year, DoD trained over 100 trainers.

Drug Interdiction and Counterdrug Funding

FY 1991 was the first year of the Counterdrug Central Account, through which all of the Department of Defense counterdrug activities were requested, justified, and funded.

Aggressive yet balanced, the Department's program is oriented toward reducing the supply of and demand for illegal drugs. In FY 1990, DoD's total contribution to the nation's counterdrug efforts was $740.4 million, and in FY 1991, $1,047.4 million.

In FY 1991, Congress legislatively mandated or otherwise directed that the Department finance approximately $410 million in activities which were either not requested as part of the President's budget, or were requested at funding levels lower than desired. The net result was a shortfall of approximately $175 million to fund previously approved counterdrug activities, a shortfall that cut across all mission areas of the military departments, the commanders of the unified and specified commands, and the defense agencies.

In addition, the Congress directed the Department to conduct a number of studies pertinent to several counterdrug activities, and provide the results of those studies with recommendations to the Congress. Examples include employment of over-the-horizon type radars, use of LAVs, feasibility of employing a C-130 airborne early warning aircraft, and study of the utility of OH-58D helicopters in detection of cross-border intrusions by drug smugglers, to name just a few.

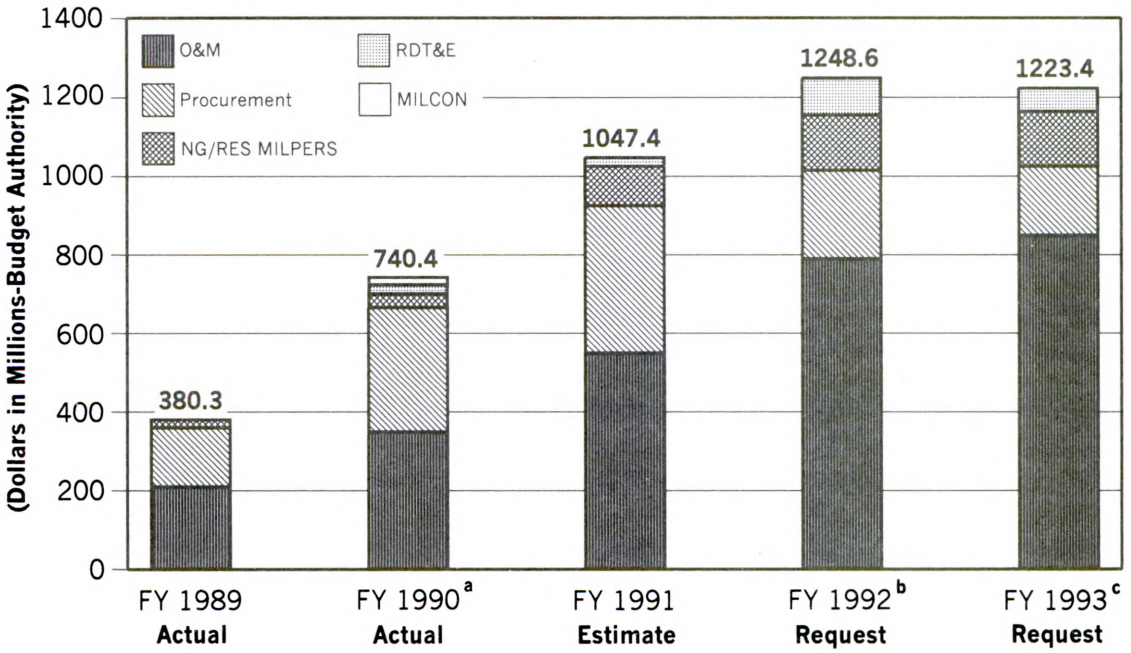
The congressional appropriation for FY 1992 includes $1,188.6 million for counterdrug activities (See Chart 26). An additional $60 million was directed to be transferred from Air Force Missile Procurement to DoD Drug Interdiction and Counterdrug Activities. DoD has also furnished additional equipment, training, and services to countries in the Andean Region under the Foreign Assistance Act.

Summary

During a period of extraordinary and historic change in the world strategic environment, and in which the nation's armed forces were engaged in armed conflict in the Persian Gulf, the Department of Defense has nonetheless vigorously pursued a wide range of activities in performing its counterdrug mission. The Department actively participated in 21 interagency committees and working groups related to a broad spectrum of activities, from

DoD Counterdrug Program by Appropriation

Chart 26



[a] FY 1990 has $3.7 million in MILCON.

[b] FY 1992 includes $60 million congressionally-directed transfer from USAF Missile Procurement to DoD Drug Interdiction and Counterdrug Activities, Defense.

[c] FY 1993 reflects incorporation of a $26 million deflation adjustment.

interdiction, to demand reduction and education, to R&D initiatives.

Drug law enforcement agencies that DoD is charged with supporting in the fight against illegal drugs are uniform in their praise of our efforts. The available objective data, as well as more subtle indicators, also suggest that DoD has been, and continues to be, very successful in performing the support missions and programs assigned to it by law, by the President's National Drug Control Strategy, and by the Secretary's policy guidance. The counterdrug mission will continue to be a high priority national security mission of the Department of Defense.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

Introduction

The research and development track we followed in the years before the war in the Persian Gulf gave us the technology to defeat the enemy with minimum casualties to U.S. and allied troops and equipment. We must structure our science, technology, and test and evaluation (T&E) efforts to ensure that we are just as prepared in the future. DoD has initiated efforts to maintain the technology edge and to provide the capabilities needed to forestall military competitors.

During the liberation of Kuwait, the performance of U.S. forces was superb. Superb, too, were the U.S. weapon systems they employed — lethal, accurate, and visibly superior. The American public witnessed and applauded the results of their investments in advanced technology which brought us overwhelming land, sea, and air superiority, swift victory, and minimum loss of Coalition lives. We must not, however, be lulled by our victory into thinking that we will be as successful in future confrontations without a sustained program of vigorous R&D.

Strategic Framework for Defense Science and Technology (S&T)

The DoD Science and Technology (S&T) program is a critical building block in the foundation of U.S. national defense. The Department will continue to develop advanced technology and be ready to respond to rapidly changing world events.

We must select and manage the technology base with extreme care. Every penny spent today in R&D must be focused on meeting the needs of an uncertain future. The President's National Security Strategy includes six strategic factors (global responsibilities, deterrence, damage/casualty limitation, constrained budgets, technology acceleration, and technology diffusion) which will guide the S&T program.

In addition, DoD has identified seven capabilities in which we must excel if we are to deter potential enemies and, should deterrence fail, be able to defeat the enemy with the fewest possible casualties and minimum collateral damage:

- Global surveillance and communications, and associated data fusion and processing that can be focused upon a theater of operation;
- All-weather, day/night, foliage, and camouflage penetration to identify and strike critical mobile and fixed targets;
- Air superiority and air defense;
- Sea control and undersea superiority;
- Advanced land combat vehicles;
- Computer- and electronics-based technology for training and readiness; and
- Technology for affordability.

The S&T program will focus on these capabilities as we move toward the 21st century. Some of the technologies required are advanced guidance for seekers; covert communications; space, surface, and subsurface based surveillance and communication; high energy lasers and microwaves; multispectral correlation, tracking, and fusion; mine warfare; and low observability. Additional work includes technology programs in radiation, tactical decision aids, data distribution systems, underwater oceanographic phenomena, solid state and phased-array components, programmable ordnance, and adaptive signal processing.

Defense Test and Evaluation (T&E)

As weapon systems of the future employ increasingly sophisticated technologies, the defense T&E community is concentrating on improved support to all phases of the Department's acquisition process. To accomplish the mission the defense T&E community is developing a strategy which improves management techniques, increases test capability through technology development, and provides sound investment in test facilities. It will also lead to closer correlation between weapon system requirements and test objectives.

IMPROVED MANAGEMENT

The defense T&E community will improve management of weapon system T&E through initiatives which identify and enable corrective action far earlier in the acquisition cycle. Procedures to certify that a weapon system is ready to enter operational test will meet this

objective. Developmental testers are involved in the review and formulation of requests for proposals to improve test planning and capability.

The foreign comparative test program proved its worth in Operation DESERT STORM. The program tested some 15 systems resulting in the accelerated deployment of 9 systems ranging from chemical protection equipment to mine detection and destruction systems. The Department must continue to leverage the savings that can be realized through acquisition of foreign weapon systems — when such acquisitions make sound business sense.

The live-fire testing program continues to yield substantial benefits as evidenced in the success in Operation DESERT STORM. The Abrams tank, Bradley Fighting Vehicle, F-15, F-16, F-18, and other weapon systems were among the systems modified prior to Operation DESERT STORM to improve their survivability in combat as a direct result of live-fire testing. The long lead-times and added complexities of weapon systems in development will add even more importance to the need to assess vulnerabilities and lethalities early in the development cycle.

IMPROVED TEST EFFECTIVENESS

The Department will improve its T&E effectiveness by integrating a set of tools which includes modeling and simulation and indoor test facilities to augment field system testing. Test and evaluation capabilities must continuously improve to keep pace with weapon system technology. As weapon systems become "smarter" and are required to operate more autonomously, advanced techniques must be developed to enable meaningful evaluation of their performance.

SOUND INVESTMENT STRATEGIES

The Department's investment strategies will be based on the reliance program which promotes multi-Service investment in test facilities. It also includes a joint, centralized management structure which reviews all DoD T&E facility investments. The program is designed to eliminate underused, redundant facilities while improving test capability. Sound investments coupled with improved business practices will allow the T&E community to do more with less.

Defense Science and Technology Action Plan

Four management actions are under way as a result of the ongoing defense management review aimed at strengthening the S&T program. These actions are to:

- Strengthen research, development, test, and evaluation (RDT&E) activities;
- Consolidate or transfer DoD RDT&E functions;
- Consolidate DoD RDT&E facilities; and
- Foster competition for execution of science and technology tasks.

To implement these actions, the Department has established a Defense Technology Board (DTB) to advise the Director of Defense Research and Engineering (DDR&E) on S&T matters. Based on the S&T strategic framework and advice from the DTB, the DDR&E will prepare, publish, and revise as required a defense technology strategy to serve as guidance on S&T matters for the planning, programming, and budgeting system. The plan will be executed primarily by the military departments. Specialized initiatives and programs are managed by DARPA, the Defense Nuclear Agency (DNA), the Balanced Technology Initiative (BTI) Office, and SDIO. The current activities in these organizations are highlighted in the following sections.

Defense Advanced Research Projects Agency (DARPA)

The Defense Advanced Research Projects Agency is working to stimulate, develop, and demonstrate technologies which cause fundamental changes in future defense systems and operations. DARPA emphasizes those technologies which are changing too rapidly for conventional Department R&D practices to effectively capture. DARPA targets areas for timely transition to weapon capability through specially designed technology demonstrations, prototypes, and associated manufacturing processes which are key to promoting the flexible, modern, and robust defense industrial base needed to face tomorrow's challenges.

DARPA's current main technology thrust is in information science with emphasis on solid state microelectronics and scalable high performance computers, including associated software and networks. Other areas of emphasis include simulation, advanced materials, sensors, and manufacturing processes.

Some of the lessons learned during Operation DESERT STORM have resulted in a refocus of the technology areas and applications on which DARPA has targeted its efforts.

- High Performance Computing and Software Technology — A fast start of the advanced technology aspects of the Federal High Performance Computing and Communications program that was announced as an FY 1992 presidential initiative. This fast start will significantly reduce the risks associated with achieving the goals of this initiative, including computing systems capable of sustaining trillions of operations per second and networks capable of transmitting billions of bits per second by FY 1996.
- Software and Intelligent Systems — Developing a new generation of software engineering environments and tools. A new thrust is "megaprogramming technology" to develop software reuse component-by-component rather than instruction-by-instruction. Typical intelligent systems technology efforts will provide scalable software tools for large, complex planning tasks, as well as systems for automatic voice, text, and image recognition.
- Solid State Devices, Electronics Packaging and Manufacturing — Developing key electronic component technologies and their associated manufacturing processes in optoelectronics, artificial neural networks, and digital gallium arsenide to achieve performance beyond the limitations of today's digital silicon-based microelectronics. DARPA is developing techniques for manufacturing affordable microwave and millimeter wave monolithic integrated circuits for smart weapons, radar and communication systems, infrared focal plane arrays, and high definition sensor systems.
- Advanced Materials — Developing advanced materials processing to increase the versatility and decrease the cost of weapon systems. Near-term efforts are focused on ceramic-matrix composites, metal-matrix composites, new conducting polymers, high temperature superconductors, and large diamond films for a new class of electronic substrates.

Additionally, and unrelated to the Persian Gulf conflict, DARPA has several major areas for technology demonstration. They include:

- Simulation — Networking, intelligent gateways, high speed processing, advanced graphics, high definition systems, and human factors engineering applied to develop and operate distributed, interoperable simulations and synthetic environments. Training, testing, acquisition, and operational communities will see widespread application of these technologies.
- Critical Mobile Targets — Applying advanced sensors, automatic target recognition, data fusion techniques, and simulation technology to detect, identify, and prosecute a wide range of high value mobile tactical targets including ballistic missiles, mobile command post, tanks, and artillery.
- Space Technologies — Applications of advanced microelectronics, optics, materials, and information processing aimed toward on-orbit testbeds of satellite communications, surveillance, and common-bus technologies. The goal is to enhance military access to space, improve the utility of space assets, and decrease the cost of space systems by reducing the risk of rapid insertion of advanced technology into space systems.
- Undersea Warfare — Applications of advanced acoustics — especially structural acoustics — signal processing, computation and simulation technologies to reduce the vulnerability of submarines to detection, and permit more rapid detection and classification of threat submarines. Additionally, DARPA will demonstrate the utility of unmanned undersea vehicles to perform a variety of missions in support of submarines and battle group operations.

Defense Nuclear Agency (DNA)

The Defense Nuclear Agency is responsible for all nuclear weapon-related research including survivability, effects on weapon systems and forces, and system safety and security. Additionally, DNA conducts research to ensure the survivability and effectiveness of our strategic and theater deterrent, executes new nuclear weapon surety initiatives, and develops technologies required to support arms control treaty verification.

- Survivability. Preparation continues for the Hunters Trophy underground test which will evaluate weapon system hardness against nuclear weapon effects. DNA will examine the survivability of sophisticated space systems in an integrated operational mode in a nuclear disturbed environment. Efforts continue to characterize electromagnetic pulse (EMP) effects on critical fixed ground based C^3 systems.
- Effectiveness. DNA is preparing the Diamond Fortune underground test to better understand the airblast effects of nuclear weapons. Greater understanding of such blast effects will allow more precise targeting to achieve required effects with weapons of smaller yield.

In support of the Strategic Defense Initiative, DNA is developing performance criteria for kinetic-kill weapon systems against ICBMs. DNA is also enhancing kinetic kill technology for defense against smaller, nonnuclear missile threats. On the theater-level battlefield, DNA is adapting nuclear effects modeling techniques to analyze conventional weapons effects against hardened structures. This modeling is a continuation of work begun in support of Operation DESERT STORM.

- Treaty Verification. DNA will continue research in new technologies to support arms control treaties. In support of the Threshold Test Ban Treaty, DNA is acquiring the technology required to measure underground nuclear tests.
- Surety. In FY 1992 DNA will undertake a major new initiative to conduct nuclear weapon safety analyses and provide an independent safety assessment of U.S. nuclear weapons for DoD.

Balanced Technology Initiative (BTI)

The Balanced Technology Initiative is the Department's user-oriented program to foster application of advanced technology to our most urgent and critical operational needs. BTI projects are focused on leap-ahead capabilities in smart weapons, automatic target recognition, battle management, active countermeasures, and ultra-wide bandwidth radars.

BTI has begun the test phase for several weapon projects. A 20-pound guided missile, the Marine Short Range Anti-Armor Weapon, will be evaluated against the latest tanks. A Millimeter Wave Seeker was successfully tested on a Maverick missile. This seeker, operating autonomously, located a preselected type of target, an air defense unit, and guided the missile precisely to the target. This seeker operates day or night in any weather or smoke condition. The semiactive laser guided Hellfire missile was test fired from a BTI developed, truck-mounted launcher. The truck mounted system is being considered to provide a low cost, easily transported anti-armor system for light forces.

New technologies that permit night-vision thermal imagers to operate at room temperatures could result in lower cost, smaller and quieter units that consume less power than current thermal imagers which operate at cryogenic temperatures. The BTI project will evaluate this new technology in surveillance systems, weapon sights, and weapon seekers.

In the Advanced Mine System project, BTI developed a way to communicate with mines, turning them on and off at will to achieve tactical advantage and making use of information from the sensors on the smart mines. This technology has been transitioned to the Army mine program. The same BTI project is developing a mine that will be designed to detect passing helicopters and destroy them. Subsystem tests have been successful, and fully integrated systems will be tested within two years.

Other BTI projects include a guided projectile for effective ship defense against supersonic sea-skimming missiles, a guided hypersonic armor piercing projectile to give our tanks an accurate long-range capability, low-cost smart submunitions needed to make standoff weapons effective against armor and missile launchers, an advanced torpedo warhead effective against modern multihulled submarines, laser countermeasures to protect helicopters and airplanes from infrared guided missiles, and a high technology radio system that will be able to use over 15 different waveforms on multiple bands, operating simultaneously with up to four waveforms. This Speakeasy radio technology, when widely deployed, can solve many of our inter-Service operability problems, can greatly reduce the number of separate radios needed on any operation, and can save money both in procurement and in maintenance. BTI is transitioning the advanced technology needed to make this possible; a joint-Service program is conducting the remainder of the radio development.

Strategic Defense Initiative Organization (SDIO)

The results of Operation DESERT STORM provide a strong argument for the benefits of properly applied R&D in creating technologies for ballistic missile defenses (BMD). Clearly, ongoing R&D in developing smart sensors, smart interceptors and directed energy weapons, improved radars, integrated command and control, data transmission, improved communications, and improved processing capability is essential in providing for an effective BMD. Through development of new technologies, miniaturization, hardening, and integration, SDI is providing solutions that will ensure our BMD meets the ballistic missile threat. While GPALS is at the focus of SDIO efforts, the Strategic Defense Initiative Organization R&D program is significantly broader in scope and is already looking at potential follow-on technologies. The SDIO investment in R&D is about 20 percent of

the total DoD science and technology budget.

SDIO is also a major catalyst for cooperative research with and among the United States, friends, and allies. These efforts enhance common defense goals and fundamentally strengthen alliances, as well as set precedents for mutually beneficial technology exchange.

SDIO continues to make significant contributions in R&D. Specifically, SDIO has continued technology development in the following areas:

- Interceptor Technology. A very impressive array of hardware is beginning to emerge from SDI's interceptor technology programs. This includes nuclear-hard passive and active seekers; very small, high-speed data and signal processors; light-weight inertial instruments, including the world's first inertial measurement unit on a single chip; and highly-efficient advanced propulsion systems. These programs have greatly advanced the state-of-the-art in many fields of technology critical to the SDI, with spin-off to other military and commercial areas.
- Sensors and Radars. SDIO continues its extensive research efforts to form effective passive sensor arrays at reduced cost. We have been successful in our ongoing efforts to reduce the cost of sensor pixels and still strive to ultimately reduce sensor costs from about $20 a pixel in 1984 to a cost of 50 cents a pixel in 1995. Midwave sensors, based on mercury-cadmium-telluride (HgCdTe), are now on the order of $1 per pixel, while silicon sensors are still $5 per pixel. SDIO investment in sensor fabrication benefits not only strategic surveillance for SDIO, but also tactical sensors, such as those used so effectively in Operation DESERT STORM. Efforts continue to improve radar technology, not only to better discriminate between RVs and decoys during the midcourse phase of a ballistic missile's trajectory, but also to satisfy the requirement for a more capable theater missile defense radar.
- Phenomenology Measurements. We continue our R&D efforts in this area by collecting data in space, in the air, and from the ground about radiation and particles that make up the background against which we seek our targets. A significant achievement this past year involved the STS Discovery flight which carried two crucial SDI experiments, the Infrared Background Signature Survey and the Cryogenic Infrared Radiance Instrumentation for Shuttle. These sensors collected large amounts of unique data on earth background, plumes, chemical and gas releases, and contamination effects. This information is being used to establish the initial sensor designs for SDI elements and will be used in later test programs.
- Hypervelocity Projectiles. SDIO continues its R&D efforts to develop incredibly small smart bullets. In another success story for SDI in 1991, an exoatmospheric reentry-vehicle interceptor subsystem (ERIS) interceptor successfully intercepted a simulated RV launched from Vandenberg AFB. The ERIS correctly selected the target from among decoy balloons, diverted to the target, and successfully intercepted it in a hit-to-kill collision. Interceptors continue to be a major thrust of our ongoing research efforts. Throughout our projectile program, we have made significant progress, approaching our ultimate goal of reducing a guided projectile to less than 500 grams.

Two types of lightweight exoatmospheric projectile interceptors were built and tested, weighing only 9.6 and 5.5 kilograms, respectively. This is more than an order-of-magnitude lighter than the previous state-of-the-art would allow. Both vehicles were successfully hover tested and will begin flight testing this year at White Sands Missile Range.

- Directed Energy. SDIO continues to research directed energy systems, specifically chemical lasers, neutral particle beams, and free electron lasers. These revolutionary technologies are being developed to support additional capabilities which may be required to meet future requirements. They provide capabilities for maintaining a robust defense against theater and strategic ballistic missiles. They extend GPALS capabilities against proliferation and countermeasures. The capability for pointing laser beams with exceptional stability has been verified in space tests. In the neutral particle beam program, key system components have been built and tested with technologies which scale to weapon levels. Although these technologies are being developed specifically for ballistic missile defense applications, there is now a demonstrated potential for revolutionizing a much broader spectrum of military doctrine and tactics.
- Innovative Science and Technology (IS&T). SDI IS&T programs play a key role in advancing the technology required for defense against ballistic missiles, whether strategic or in the theater. Strategic Defense Initiative IS&T encourages new initiatives to exploit innovative technologies seeking

SDI Innovative Science and Research Accomplishments Table 15

Research Area	Accomplishments	Potential Application or Impact
Fast Electronics	Demonstrated world's quickest transistor, a 22-picosecond gate delay	Tenfold faster than today's; faster transistors mean faster computers
Diamond Films	Developed free-standing diamond mask for x-ray lithograph	Both commercial and military electronics
Electro Magnetic Launcher	Propelled 95 grams at 5.6 kilometers/second	Washington, DC, to New York City in 1 minute
Microwave Power Projection	Demonstrated largest ever microwave energy and power (20 gigawatt) from a single source	Reached power levels predicted for 1995; microwaves could burn electronics of RVs
Missile Detection	Confirmed the ultraviolet glow from ICBM bow-shock is 50 times the calculated value previously calculated	Found a beacon with which to find the hard body
Multiplying Microwave Power	Proved, with a 6-gigawatt power source, that phase-locking allows separate microwave power sources to be added	Microwaves could burn RV electronics
Infrared Detectors	Developed 6 to 8 percent efficiency silicon/germanium detectors	More efficiency means better sensors to locate the missiles
Electric Propulsion	Nearly doubled specific impulse with hydrogen arcjet	Moving orbiting satellites to view sensitive areas
Accelerometer	Demonstrated a tiny accelerometer that works even after high radiation dose	Interceptor survivability improved
Composite Materials	Developed a higher damage resistant composite	Tenfold increase; system elements with longer lives and greater survivability
Solar Blind Detection	Demonstrated diamond film as solar blind detector-first lightweight solid-state solar blind detector	Solar blind detectors can see into the atmosphere even when sunlight bounces off the clouds and air
Miniaturized Electronics	Demonstrated triple speed in half the space for an analog-to-digital converter	Smaller processors
Long-Wavelength Detection	Achieved high pixel-to-pixel uniformity in silicon	Improved detection and tracking of cold bodies
Superconducting Gyroscope	Made tiniest superconducting gyroscope	Smaller and lighter interceptors
Laser Interference Filter	Demonstrated a light filter a million times more sensitive	Satellite-to-satellite contact by laser
High-Power Simulation	Simulated 100,000 amperes and 100,000 volts in space near-vacuum conditions	High power for space-based weapons
Laser Beam Steering	Bent a laser beam 28 degrees with one-fifth the power	Laser radars must use minimum power to bend beams to detect and track missiles
Light Traps	Developed a new material that records data with green laser and reads it with red laser	Optical storage of data is much more compact than straight magnetic storage of data for computing and signal processing
Heat-Resistant Electronics	Developed first bipolar silicon carbide transistor	Silicon carbide can withstand heat; less cooling required for electronics
Shrinking Detectors	Demonstrated a dynamic comparator that cuts circuits size by 90 percent for analog-to-digital converters	Smaller system elements
Light Heat Pipes	Developed the thinnest walled alkali metal heat pipe	Thinner walls mean lighter weight system elements
Range Finding	Quintupled target detection range with new moving target indicator	Improved target detection provides more time to react and intercept
Intermetallic Materials	Developed economic method for making intermetallics	Tenfold faster; cheaper intermetallics means cheaper system
Signal Processing	Found numerics for efficient wavelet image representation	Efficient representation results in smaller computers
New Design Guide	Rewrote the book of design rules for high power in space	High power for space-based weapons
Atmosphere Measurement	Delivered instrument package for French atmospheric probe satellite	Laser beam propagation through the atmosphere

breakthroughs that would improve the capability of our BMD program. IS&T sponsors fundamental research in six areas:

- Advanced high-speed computing;
- Materials and structures for space application;
- Sensing and discrimination;
- Advanced space power;
- Advanced propellants and propulsion; and
- Directed energy and kinetic energy concepts.

Table 15 illustrates several SDI innovative science and technology accomplishments. Advanced technologies continue to evolve under studies that employ the significant results of SDIO research and development efforts.

Summary

The importance of maintaining a strong R&D program in the Department cannot be overemphasized. Technology has revolutionized the battlefield time and time again. To match potential adversaries' strength in numbers, the United States has always relied upon its technological edge, and this proven concept must be continued.

The United States must maintain a robust program to develop and exploit technology if we are to maintain superiority with smaller forces and fewer systems. Systems routinely take a minimum of 10 years to move from the drawing board to the battlefield. National defense demands that we plan now for future threats. Decisions made today will either push, delay, or eliminate programs. These decisions will dictate the military forces available to the future leaders of the United States.

Part IV
Statutory Reports

REPORT OF THE SECRETARY OF THE ARMY

This past year demonstrated the strategic power of an Army developed through 15 years of careful investment in people, training, and equipment. This foundation will be maintained as the Army continues to reshape its force based on the dramatic changes to the strategic environment. The Army is quickly becoming a smaller, potent, U.S.-based force focused on regional contingencies.

Of course, the most remarkable activity of this past year was Operation DESERT SHIELD/STORM. This victory was the fruit of years of preparation and investment after the Vietnam War. Dedicated soldiers and civilians produced the superb equipment and trained the outstanding people who performed so commendably. American industry also responded to meet accelerated production demands in a most impressive manner. Our "high tech" equipment showed its value as it exacted a tremendous toll on Iraqi forces while saving countless Coalition lives. Equipment, such as the Patriot Air Defense System, the M1A1 Abrams tank, the M2/3 Bradley, the Apache helicopter, the Multiple Launch Rocket System, and others developed over the last 15 years, provided the overwhelming capability that led to victory. More importantly, the American public saw the competence and dedication of the soldiers who had volunteered in peacetime to serve their country when called.

The soldiers who deployed to the Gulf were part of the Total Army — a team of regulars, Guardsmen, reservists, and Department of the Army civilians. All made significant contributions wherever they served. Overall, more than 147,000 Guardsmen and reservists were activated in 1,045 units. Together with the active forces, they executed not only one of the largest deployments of combat forces since World War II, but also one of the most rapid deployments of a large armored force in military history.

Two corps, the equivalent of eight divisions and supporting units, landed in Saudi Arabia, secured defensive positions, and established the logistics sustaining base. The combat units then moved hundreds of miles before attacking in a coordinated fashion alongside other Coalition forces across a broad front. At least half of the massive destruction of Iraqi equipment occurred during the ground war. Along with this devastation, the Coalition interned over 86,000 personnel.

Immediately after the liberation of Kuwait and the cessation of hostilities, the Army demonstrated its conflict-termination capabilities. Relief and reconstruction work began. The Army created Task Force Freedom to provide unity of effort in the monumental tasks of providing damage assessment, police support, emergency services, food, water, medical care, transportation, utilities, and communications. While responsibilities were gradually transferred to the Defense Reconstruction Assistance Office, the United Nations Observer Mission, and the government of Kuwait, Army units from Europe and the continental United States (CONUS) remained in Kuwait throughout 1991.

The Army also exercised its capabilities in humanitarian assistance, participating in Operation PROVIDE COMFORT. The internal turmoil in Iraq spawned this major humanitarian operation to aid the fleeing Kurdish refugees. Operation PROVIDE COMFORT was launched March 10, 1991, with the deployment of forces from the U.S. European Command to southern Turkey. This Coalition effort built way stations and transit camps while providing relief services and protection through deterrence for the Kurds in Turkey and northern Iraq. At its peak, the Army effort provided 5,872 soldiers of the 10,000 member Coalition force.

These massive operations played out against a backdrop of a changing strategic environment. The Berlin Wall had already fallen, the Warsaw Pact was crumbling, and the Army was changing to a smaller, U.S.-based, regionally focused force. The Army today continues to move towards its reduced size of 12 active, 6 reserve component, and 2 cadre divisions confident that our smaller force will allow us the combat power and the strategic mobility to support the objectives of the National Military Strategy. To this end we are committed to the capability of responding to a crisis anywhere in the world with a minimum of one light and two heavy divisions within 30 days.

Just two years ago the active Army included 770,000 personnel. At the end of fiscal year (FY) 1991, we were

at 725,445, 6 percent smaller. By 1995, we plan to be under 550,000, the smallest the active Army has been since before World War II. The reserve component is also downsizing, and currently, the civilian force is about halfway in reducing from approximately 403,000 to less than 300,000.

The coming years will present us with tough challenges. We have an impressive arsenal of equipment that proved its value in the Gulf War, but we must allocate the resources necessary to keep our forces ready to fight and to keep pace with technological advancements. Our nation expects us to be ready for the next contingency.

The continuous modernization philosophy that has served so well in the past will be pursued in the future as well. The goal of Army modernization is to equip the American soldier with world-class equipment in sufficient quantity and in the shortest possible time, consistent with sound business practices and within affordability constraints.

The Army modernization strategy focuses on the future — to assure our soldiers' future warfighting capabilities, but with a close eye on the present — so that we can provide world-class equipment to today's soldier as well. Modernization is a key element in our ability to execute the requirements of the National Military Strategy — providing our soldiers with the equipment to win quick, decisive victories with a minimum number of casualties in an era of uncertainty.

Units in the field will keep training as their highest priority. Our smaller Army must keep its equipment in top shape and use it regularly to maintain individual and unit proficiency. The Army will continue to make the resources available so that soldiers can maintain the edge that they exhibited in the Gulf War.

Essential for our trained and ready Army is the logistics sustainability that keeps our forward presence, contingency, and reinforcing units ready over time. War reserve materiel positioned in selected overseas regions for initial sustainment, kept afloat for rapid response to worldwide contingencies, and stored in CONUS for reinforcement comprises our primary warfighting sustainability. Our wholesale-logistics commands and the early accelerated production from the industrial base keep our Total Army at its full capability.

While preparation for war remains the Army's first and foremost concern, our soldiers contribute much more. Operation PROVIDE COMFORT is an excellent example of the Army's broad role in its service to our nation and its interests. The Army's versatile capabilities have produced numerous other victories, varying in magnitude, but all important in support of U.S. foreign policy.

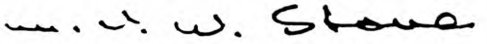
Activities in support of our continuing engagement worldwide include humanitarian and security assistance, disaster relief, support to civil authorities including peacekeeping, and counterdrug operations in accordance with national policy. In addition to our soldiers stationed abroad for the forward presence missions, the Army might have 5,000 soldiers assisting 30 host nations on any given day. This assistance might include engineering support for a needed construction project or medical support in an area with inadequate facilities. These varied missions help propagate and reinforce American values and provide direct benefits to the United States as well as to the host nation. The Army's support of the National Drug Control Strategy as it applies in Latin America is an excellent example.

In another area, Army research efforts in a variety of fields benefit our country beyond the technological improvements in Army equipment. For example, Army medical personnel have been instrumental in the initial development of a promising AIDS vaccine called GP160. We also have scientists working in high technology areas such as lasers and directed energy that have applications both within and outside the defense arena. The Army also continues to be a leader in managing natural and cultural resources in compliance with environmental laws, in instituting sound practices relating to contamination clean up, in preventing pollution at its sources, and in conserving resources for future generations.

The accomplishments outlined above show clearly that the Army continues to provide valuable service to the nation in both peace and war, just as the Army has done throughout its history. The key to the Army's success in so many areas is the quality of its people. As such, we are pledged to continue as a pacesetting institution in human relations. As we accommodate change, we will do our utmost to ensure that our soldiers, civilians, and family members can face the uncertainties of the future with faith in the fairness of our policies and plans. The Army Career and Alumni Program (ACAP) is a major initiative to ease the transition for active duty

and reserve component soldiers, civilians, and family members who leave the Army to resettle in communities across the nation. At the end of 1991, the Army had 61 ACAP sites worldwide, including transition assistance offices and job assistance centers capable of serving approximately 200,000 people per year.

The Army's accomplishments in the past year have added another important chapter to the proud history of our great institution. While answering our nation's call to Southwest Asia, the Army was already deeply involved in fundamental adjustments. The Army of the future will be markedly different from the Army of today. In size, it will be reminiscent of the Army prior to World War II and the Korean War. In capability, however, it must not resemble those armies. It must not only retain all the capabilities of the Army of Operation DESERT STORM, but it also must improve upon those capabilities by incorporating lessons learned and new technological developments. We are committed to maintaining a trained, ready, and well-equipped Army, focused on its goals and managed efficiently to give the American public the best return for its investment.



Michael P. W. Stone
Secretary of the Army

REPORT OF THE SECRETARY OF THE NAVY

The extraordinary events of 1991 saw the Navy and Marine Corps engaged as pivotal forces in all facets of United States policy action. No year in recent memory has better illustrated the dividend sea forces pay the American people.

This past year also saw restructuring and careful downsizing of our existing and programmed naval forces in response to changes in the defense environment. In the Department of the Navy, we are reshaping our forces as we downsize, not simply reducing horizontally across the board.

During the Persian Gulf War, naval forces performed key roles in strike warfare using carrier-based aircraft and sea-launched cruise missiles, in enabling joint and Coalition air/land operations with the Maritime Interdiction Force, and in leading the allies' attack into occupied Kuwait with the First Marine Expeditionary Force (I MEF).

The year 1991 began and ended with naval forces actively interdicting shipping bound for Iraq. The continuing maritime embargo of Iraq has been the longest and most successful interdiction operation ever undertaken by the United States. As of January 1992, Navy ships with embarked Marines, special forces, and Coast Guardsmen have directly challenged and intercepted over 12,800 ships, while boarding at sea over 3,400 ships, including 215 forcible diversions of ships bound for Iraq with embargoed cargo. Over 2,000 of the actual boardings were accomplished by United States forces in this unique, combined, multinational maritime operation. Today, months after the active conflict in the Persian Gulf ended, most American ground and ground-based air forces have returned home, while the maritime embargo continues unabated, with an aircraft carrier battle group, an amphibious ready group, and over 25 ships still on station in the Middle East.

With the enormously successful multinational maritime interdiction operations, naval forces were key contributors to the joint air campaign. Navy aircraft from six carriers, sea-launched cruise missiles, and land- and sea-based Marine aviation forces complemented our Coalition land-based air forces.

Marine ground units were responsible for breaking the back of the Iraqi invaders within Kuwait and liberating Kuwait City with amazing speed. Amphibious operations tied down an estimated six Iraqi divisions, allowing the Coalition ground forces to sweep the unprotected flank and end what many predicted would be a long, bloody ground campaign.

In addition to our extensive Middle East naval operations during and after the war and the long-standing requirements of global naval deployments, Navy and Marine Corps forces conducted sustained humanitarian assistance operations around the world in 1991. The evacuation of American civilians and other noncombatants from civil-war ravaged Somalia during Operation EASTERN EXIT in January 1991 was accomplished in less than three days by Navy and Marine Corps forces in the Arabian Sea. Operation PROVIDE COMFORT in northern Iraq's Kurdistan region immediately followed the end of Operation DESERT STORM, providing months of humanitarian support as well as defensive military security for the besieged Kurds and United Nations peacekeeping forces. Operation SEA ANGEL in May and June, conducted by a naval amphibious group and embarked Marines from the 5th Marine expeditionary brigade returning home from the war, provided desperately needed assistance in Bangladesh following devastating flooding in the Ganges delta. And in response to the eruption of Mount Pinatubo volcano in the Philippines, naval forces provided disaster assistance, personnel evacuation, and clean up during Operation FIERY VIGIL in June and July.

While the lessons of Operation DESERT STORM are still being considered and documented, our experiences in the war support some important top level observations.

- The 46-year United States commitment to naval presence in the Persian Gulf, a strategic prototype for our national security policy, laid the groundwork for our eventual success in the war.
- The rapid introduction of the carrier battle groups into the theater helped deter further Iraqi aggression, allowing Coalition forces the build-up time necessary.
- The Tomahawk cruise missile is an exceptional force multiplier for air warfare. A total of 288 Tomahawks

were fired, 276 from ships of the surface force and 12 from submarines.

- The efficacy of naval aviation in combined arms operations was established early and throughout the war, with Navy and Marine A-6s and F/A-18s, Marine AV-8s, and Navy A-7s shaping the Kuwaiti battlefield, providing close air support, attacking and destroying air defense radars, communications nodes, armor, enemy forces, and military headquarters. Navy F-14s and Navy and Marine F/A-18s directly contributed to establishing unchallenged air superiority. Navy and Marine Corps EA-6B electronic countermeasures aircraft were superbly effective in the air war, as were Navy carrier-based E-2C aircraft in maintaining a complex airborne control environment, and P-3C and S-3B aircraft in portraying the surface picture. Navy destroyer-based LAMPS helicopters flying with Special operations forces (SOF) aircraft assured unassailed coastal control.
- The effectiveness of our Marine Corps forces was most dramatically demonstrated by the brilliant movement of I MEF through numerically superior defensive forces into Kuwait City — revalidating the maneuver warfare doctrine adopted by the Corps.
- The threat of an amphibious assault during Operation DESERT STORM was a masterfully successful deception. It probably saved countless American and Coalition lives by diverting and fixing six Iraqi divisions to aid the ground assault phase of operations. Having an amphibious group in the Persian Gulf provided the Commander-in-Chief, Central Command with a unique and flexible power projection or strategic reserve force.
- The Naval Reserve and Marine Corps Reserve are key components of the total force, providing the national leadership with the flexibility to augment or reconstitute active forces on short notice. Navy and Marine Corps reservists deployed not only to the Persian Gulf War, but also assumed continuing naval commitments in other parts of the world.
- Strategic sealift is a critical element of any force deployment. A combination of afloat prepositioning, support ships in a reduced operating status, a U. S.-flag merchant fleet, and the Ready Reserve Force is essential. Operation DESERT STORM identified a national shortfall in meeting early surge delivery requirements, and that more roll-on/roll-off ships are needed.
- Operation DESERT STORM highlighted shortcomings in our mine countermeasures capabilities. We plan both organizational and programmatic changes to address these deficiencies. Likewise, improvements in command, control, communications, and intelligence (C^3I) interoperability and precision weapons upgrades will also result from our experiences in the war.

Despite the successes of Navy and Marine Corps forces and weapons systems in the Persian Gulf War, not every defense program planned in the past several years continues to meet the twin tests of value and affordability. Accordingly, the Department of the Navy has continued a carefully measured program of defense reductions. These reductions are consistent with defense requirements in an era when the United States will more likely be involved in regional conflicts rather than consumed with an overarching Soviet threat.

Declining budgets require that we reduce our shore infrastructure in parallel with our forces. We are implementing plans to close 20 installations and realign functions at 18 additional locations in CONUS. We are working with community leaders at the affected locations to ease the transition and accelerate any required environmental clean up. Overseas, we are concluding actions for the return of bases to their host countries in Greece, Scotland, and Australia. Plans are also under way for consolidations which will reduce our naval shore infrastructure at several additional overseas locations.

Fleet and Fleet Marine Force commanders continued to expand their drug interdiction efforts, with more than 4,500 ship steaming days and 28,000 aircraft flight hours in 1991 dedicated to detecting and monitoring drug traffic long before it reaches U. S. shores. Additionally, the Marine Corps has been actively involved in training, equipping, and providing counternarcotics operational support to host nations throughout South America, and to law enforcement agencies within the United States.

In 1991, 11 ships joined the active Fleet, 3 ships entered Military Sealift Command service in the naval fleet auxiliary force, 43 ships were retired, and 8 ships transferred to the Naval Reserve Force. Commissionings of new ships included USS Arleigh Burke (DDG-51), which entered service on the fourth of July, as the first in the Navy's new class of Aegis guided-missile destroyers; 4 new Aegis guided-missile cruisers; 1 new amphibious dock landing ship; 1 new mine countermeasures ship; 1 new Trident ballistic missile submarine; and 3 new attack submarines.

In the Department of the Navy, we continue working to meet the challenges of the future through the application of total quality leadership (TQL). TQL involves the Fleet, Fleet Marine Force, shore support infrastructure, and headquarters organizations. The aim of our effort is to operate our fully integrated Navy and Marine Corps team to its maximum operational capability. TQL is an approach to managing work and leading people — focusing on quality — that is guided by our total view of how our systems and people work to meet naval mission requirements and to perform the finest service to our country.

Navy and Marine Corps budget priorities begin today, as we restructure, where they did in the past taking care of our sailors and Marines. Even with fiscal constraints and a smaller Fleet, we cannot allow our personnel readiness to suffer. Our men and women are of the highest caliber and have unsurpassed dedication. Those characteristics combined with our technological edge give our naval forces the fighting professionalism which enabled our success in Operation DESERT STORM. Maintaining this professionalism along with our training, readiness, and fighting spirit cannot be compromised. These factors define our most significant goal — keeping the quality of our people high. We, therefore, remain committed to enhancing the compensation and quality of life of all Navy and Marine Corps members.

The Department of the Navy is equally committed to being a good steward of the environment in which we operate and of the natural resources found on our installations. We are accelerating development, testing, and installation of solid and liquid waste processors aboard our ships. We are funding projects for compliance with all applicable federal and state environmental statutory and regulatory requirements, and to clean up environmental hazards from past operations. We have also taken a number of steps to instill an environmental ethic among all Navy and Marine Corps service members and civilian personnel.

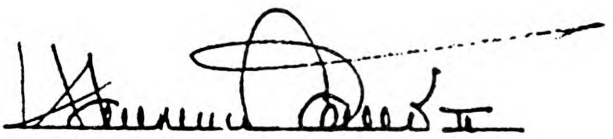
Our strategic vision as we counter threats to the security of the United States means that we will necessarily rely more heavily on powerful and flexible forward-deployed naval forces to underwrite our national objectives as we seek a new world order. Our naval programs continue to emphasize the national capabilities inherent in power projection from carrier-based naval aircraft, from surface- and subsurface-launched cruise missiles, from amphibious forcible entry capabilities. We are building down to a naval force that is sufficient, but not more than is necessary to guard our enduring interests. We must exercise forward presence in key areas of the world, respond effectively to manage crises as the United States chooses, and retain the national capacity to rebuild if we must in the future.

Our major procurement initiatives continue to include Arleigh Burke class Aegis guided-missile destroyers, and Trident D-5 submarine-launched ballistic missiles for submarines under construction. We have initiated the Centurion program with a view toward a new, lower-cost class of attack submarines. The cancellation of the A-12 carrier-based stealth attack aircraft was the most significant program action of 1991. In its wake, we are progressing carefully in our development priorities for naval aviation. Those aviation priorities include development of the A-X as our next-generation medium attack aircraft, continued development of the F/A-18E/F fighter-attack aircraft, development of a medium lift replacement for our aging CH-46E/CH-53D helicopter fleet, and extension of the AV-8B attack aircraft into the next century.

As more bilateral and multilateral arms control agreements are signed and enter into force, the Department of the Navy's role in their implementation and compliance will increase. Since 1988, we have been responsible under the Intermediate Nuclear Forces Treaty for the permanent Soviet presence at a solid rocket motor manufacturing facility in Utah. In early December 1991, as part of the early technical exhibitions protocol of the Strategic Arms Reduction Talks (START) Treaty, a Soviet inspection team viewed and measured C3, C4, and D5 submarine-launched ballistic missiles (SLBMs) at Kings Bay, Georgia, and Charleston, South Carolina. Other Soviet inspections are expected as the START Treaty enters into force.

The September 1991 initiative to reduce the United States nuclear arsenal significantly affects Navy and Marine Corps tactical nuclear weapons programs, resulting in the eventual removal of tactical nuclear weapons from all of our ships, submarines, aircraft, and operating bases. Our weapons acquisition and modernization programs will be influenced by decisions about what remaining capability we should maintain, and will affect ship facilities, operational and safety training, and redeployment planning.

August's coup in the Soviet Union served to remind us that the world's political waters are not yet smooth. The international scene can still be shaken by unexpected twists and turns, and we must therefore not be complacent. The Navy and Marine Corps take great pride in their role in the successful conclusion of the Cold War and in our performance in the Persian Gulf. Our task now is to reshape the Navy and Marine Corps for the future. We look forward with confidence to the job ahead and to playing our role in America's defense.



H. Lawrence Garrett, III
Secretary of the Navy

REPORT OF THE SECRETARY OF THE AIR FORCE

A year of unprecedented events from the Persian Gulf War to the disintegration of Soviet communism has begun to give form to the security environment of the post-Cold War era. The events that have unfolded after the June 1990 release of our strategic planning framework *Global Reach-Global Power* have demonstrated how the inherent characteristics of airpower can underwrite U.S. national security in the evolving world order. The Air Force provides a range of core capabilities vital to our national military strategy. From dropping bombs during Operation DESERT STORM to delivering food during Operation PROVIDE COMFORT, the Air Force provided critical elements to execute our national strategy.

As the President stated in May 1991, "Gulf lesson one is the value of airpower." Operation DESERT STORM confirmed that airpower is a decisive and flexible weapon that has entered a new stage of its evolution. Rapid deployment of aircraft deterred further Iraqi aggression and laid the foundation for a successful air campaign. In the first night alone, 668 Coalition aircraft attacked Iraq, including 530 from the Air Force using in-theater bases. Land bases were provided by allies when their vital interests were at stake.

The Air Force carried the weight of the air campaign, hitting targets in Baghdad, shutting down the electric grid, interdicting transport and supplies, disabling the Iraqi Air Force, and destroying the Iraqi Army. F-111s and other strike airplanes killed Iraqi tanks and armored vehicles at rates as high as 150 vehicles per night.

Many aspects of the shift in thinking encapsulated in *Global Reach-Global Power* were confirmed in Operation DESERT STORM. Perhaps the most significant in terms of force planning for the future was the impact of the combination of stealth and precision. That combination allowed us to strike a multitude of targets simultaneously — something never before possible — and to strike the heart of the enemy with surprise each and every day of the war. Stealth and precision give us greater combat capability with a smaller force structure. Over the course of the entire war, stealth aircraft flew only 2 percent of the combat sorties yet struck over 40 percent of the strategic targets. The Air Force is committed to procuring systems that will multiply this kind of leverage to meet the demands of the future. The B-2 has over 5 times the range and 10 times the payload of the F-117 and provides the kind of leverage that reduces the manpower, the number of systems, and the overall costs in money and lives to accomplish a desired effect.

During the war, precision weapons destroyed hardened aircraft shelters, communications centers, bridges, and a wide range of other targets with a consistent accuracy never before seen in air warfare. This allowed the Coalition to destroy key targets at a rate far beyond Iraq's ability to respond. Precision munitions effectiveness demonstrated that — to some degree — they can offset the need for mass. What took 9,000 bombs to do in World War II, and 300 bombs in Vietnam, we can do with one today. This, combined with the revolutionary implications of stealth, will have a significant impact on the conduct of future conflicts. Simply put, airpower technology has finally caught up with airpower theory. We have witnessed a revolution in warfare.

The Gulf campaign also proved to be a watershed event for the application of space power in modern combat. For the first time the full range of military space capabilities was employed as an integral and vital part of the air and ground campaigns. The Global Positioning System provided precision navigation, the Defense Support Program relayed early warning of Scud attacks, the Defense Meteorological Satellite Program contributed an unprecedented volume of weather data, and communications satellites carried communications within and to the theater.

The success of Operation DESERT STORM would not have been possible without the extensive support of airlift and tanker forces. From the initial deployment to the final ceasefire, these forces made deterrence and combat operations possible. Also key to victory was the participation of Air Force reserve personnel. Guardsmen and reservists answered the call to fill positions in the Persian Gulf, Europe, and in the United States. Civilian airlines provided additional transport as part of the Civil Reserve Air Fleet.

The experiences of Operation DESERT SHIELD/STORM will help us plan for the future. We have identified several areas for analysis. As one

example, when the air campaign reached its peak, our ability to destroy targets at times outpaced our ability to record and assess the damage. We have initiated the Gulf War Air Power Survey to examine Operation DESERT STORM and its implications for airpower doctrine, intelligence, logistics, command and control as well as operational concepts and strategy.

In the world that is evolving, we no longer face a monolithic threat, but political instability and the spread of sophisticated weaponry will still shape challenges for our nation. The Air Force's contribution to our national security is to provide global reach and global power, and to do that with a smaller, more capable force that can achieve strategic objectives in the uncertain world of the future.

The Air Force is reshaping both its organization and force structure in response to changing international conditions and a reduced budget. The core of this plan is the concept of *Global Reach-Global Power*, a framework that builds on the unique attributes of airpower — speed, range, flexibility, precision, and lethality — and integrates them to support a strategy for a world in which the location and direction of future threats will be difficult to predict. To implement this vision, we are adopting modern management practices as part of a top to bottom restructuring of our organization. Over the past year we restructured major commands and made other far-reaching choices to manage priorities as our forces are reduced in size.

We have emphasized five main objectives under Global Reach-Global Power: sustaining deterrence, power projection, global mobility, controlling the high ground of space, and building U.S. influence.

Sustaining nuclear deterrence remains a bedrock requirement of our national security policy, even as the START Treaty and the President's initiative on nuclear arms reduction adjust the nature and number of our forces. Air Force bomber crews and those missiles scheduled for elimination under START stood down from alert in October. The Rail Garrison program for Peacekeeper and the Small Intercontinental Ballistic Missile (ICBM) were canceled. Procurement of the advanced cruise missile was halted. With these changes, it will be even more important to ensure that the systems that remain are fully capable and effective. The Air Force supports the President's offer to proceed with removing multiple warheads from Minuteman III missiles and taking steps to eliminate Peacekeeper should the former Soviet Union agree to similar reductions. The proliferation of nuclear weapons technology in many countries adds long-term uncertainty and underscores the need to deter and counter potential threats. Improvements in guidance systems will be carried out for our remaining missile forces.

The Gulf War proved that airpower can project force and arrive on the scene to deter aggression within a matter of hours. Air Force F-15s were the first U.S. forces on the ground in Saudi Arabia after Iraq's invasion of Kuwait. Long-range bombers were on call from day one. In the *power projection* mission, the Air Force can deliver a decisive response tailored to a range of contingencies and the same forces that provide power for sustained combat can also support other requirements. Air Force SOF in Operation DESERT STORM led Army Apache helicopters to strike Iraqi early warning radar facilities and conducted rescue operations deep in Iraqi territory. The Air Force also routinely employs surveillance assets and other capabilities to help stem the flow of narcotics threatening the fabric of our society.

Airlift and tanker forces provide the *global mobility* and reach that makes global power possible. Successful force projection is critically dependent on air refueling. Tankers act as force multipliers for aircraft of all Services and of allied nations. Airlift moves troops, equipment, and cargo to deploy and extend power in all dimensions.

Controlling the high ground of space creates invaluable military advantage. Global situational awareness and real-time data multiply the effectiveness of all our assets. Air operations, joint missions, and coalition operations such as Operation DESERT STORM each benefit from the unique edge provided by space-based capabilities. Space missions including warning, navigation, communications, surveillance, and weather information will continue to be vital to all future operations.

Airpower is also a ready tool for *building U.S. influence* in support of national interests around the globe. In many cases, only the United States has the airlift to provide humanitarian assistance, support United Nations peacekeeping operations, and engage in other nonlethal operations that earn international respect and good will. Following the ceasefire in Iraq, Air Force SOF and transport

aircraft ferried relief supplies to Kurdish refugees. Air Force security assistance programs continue to provide our friends and allies in many regions with capabilities critical to our common security. Aircraft transfers, combined with Air Force-provided logistical support and training, are key components in the emerging international order. Through increasing contacts with the air forces of other nations, the Air Force is helping to spread the ethic and practice of professionalism.

Carrying the Air Force concept of Global Reach-Global Power into the future requires an organizational structure that can fully exploit airpower's inherent strengths. Current experience with the employment of airpower has dissolved much of the original doctrinal distinction between tactical and strategic air forces. Planning and executing the Operation DESERT STORM air campaign placed emphasis on the use of integrated airpower, using the best weapon system to achieve the desired effect. The air campaign removed old distinctions between strategic and tactical systems. F-15s, F-16s, and F-117s hit strategic targets and B-52s attacked tactical ones. Composite wings — such as the one at Mountain Home AFB, Idaho — reflect this experience, organizing airpower as an integrated whole and combining aircraft for a more flexible force. So too does our decision to place all Air Force aircraft assigned to a theater under the theater Air Force commander.

Beyond this, in September 1991, we announced the formation of two new major commands to succeed Strategic Air Command, Tactical Air Command, and Military Airlift Command. The new Air Combat Command will merge fighter, bomber, reconnaissance, and missile forces, structuring us for the integrated employment of airpower. Air Mobility Command will include the bulk of airlift and tanker assets, integrating lift with tankers to better supply global mobility and reach, to enhance rapid response, and to enable us to more fully cooperate with other Services and nations. This command structure will align our forces in the United States into the two broad categories of our Global Reach-Global Power vision and better position us to employ these forces, either on their own or to augment forward deployed theater air forces.

Following our program for total quality management, we have adopted a program of restructuring that reaches from headquarters to the flight line. Streamlining, empowering, and delayering will give commanders a new flexibility to allocate resources. Air Force Materiel Command is replacing Air Force Systems Command and Air Force Logistics Command to provide cradle-to-grave management of systems. We have eliminated an entire echelon of command, air divisions, and cut the staff of numbered air forces by half.

In addition to these changes, effective management of a declining budget is an imperative. Both international events and the fiscal climate demand wise choices, and the Air Force has deliberately chosen to continue modernization and maintain readiness while sacrificing force size. Budget realities have led to several tough choices. We have scaled back production of new F-16s and terminated programs such as the Advanced Tactical Aircraft and the Mark XV combat identification system. Procurement of F-15s will halt this year. Savings from the cancellation of the short-range attack missile (SRAM II) and other strategic programs will help us meet our goals.

Our key modernization programs will maintain global reach and global power into the 21st century. In the future combat environment, the value of stealth technology will increase. The B-2 melds stealth technology with range and payload in a system that accomplishes the work of many different types of aircraft. With the ability to carry out conventional missions against targets worldwide, the B-2 ensures that the United States can meet and defeat a range of threats and contribute to deterring aggression. Even at smaller numbers, the B-2 is an essential part of our core capabilities. The decision to build the F-22 guarantees the United States a speedy, stealthy fighter to penetrate hostile airspace and destroy enemy aircraft to maintain air superiority. Flight testing of the C-17 underscores the commitment to maintaining and modernizing airlift forces. Procurement of Milstar communications satellites and an Improved Space-based Tactical Warning/Attack Assessment Satellite will provide fundamental capabilities to meet a changing international environment. Modifications and upgrades for existing systems paid dividends in the Gulf War and will continue to be an important part of our program.

By FY 1995, our active duty military personnel strength will be reduced by 82,000 from current levels. Closing bases in the United States and withdrawing from installations overseas will also cause changes. Plans for base closures will balance government needs

and the impact on local communities. Maintaining capability rests not only on our systems, but on our trained personnel. In 1991, the Air Force achieved the safest year in history in both flight and ground safety. Recognizing the critical role of safety, we established Air Force Safety as a separate office in the headquarters.

The Air Force will continue its strong commitment to protecting and enhancing the environmental resources at our installations. A field operating agency on the environment has been established. More senior managers are receiving education in site restoration and preventing pollution. A new high of approximately $1 billion will be spent over the next two years for environmental action, including the clean up of hazardous areas.

Aerospacepower's leading role in Operation DESERT STORM dramatized the demand for global reach and global power. Under the guidance of Secretary Cheney, the Air Force is restructuring to reflect both its vision and the principles of modern management. The vision is of a smaller air force, but one even more capable of projecting U.S. influence and power to support national security objectives in a changing international environment.

Donald B. Rice
Secretary of the Air Force

REPORT OF THE CHAIRMAN OF THE RESERVE FORCES POLICY BOARD

I am pleased to present a brief summary of the Reserve Forces Policy Board's (Board) observations and recommendations of the past year. The views expressed are the consensus of the Board members and do not necessarily reflect the views or positions of the Administration, the Secretary of Defense, or the Military Departments. The FY 1991 Annual Report of the Board will provide a comprehensive review of all aspects of reserve component programs and include a summary of the Board's positions and recommendations. The annual report, entitled "Reserve Component Programs FY 1991," is scheduled for publication in March 1992.

The Board, acting through the Assistant Secretary of Defense for Reserve Affairs, is "the principal policy adviser to the Secretary of Defense on matters relating to the Reserve components" (10 USC 175(c)). Representatives of each of the seven reserve components (Army and Air National Guard, and the Army, Navy, Marine Corps, Air Force, and Coast Guard Reserve) serve as members of the Board as prescribed by law. As an advisory body, the Board offers independent advice, as well as reports on reserve strengths and readiness, and other critical issues relating to the reserve components.

Operation DESERT SHIELD/STORM has been hailed as a triumph for America's volunteer forces and the total force. They included the largest mobilization and deployment of reserve component forces since World War II. At the height of DESERT SHIELD/STORM operations, reserve component personnel made up nearly 20 percent of U.S. forces in the theater of operations. More than 245,000 members of the reserve components were mobilized. They supported not only operations in the Gulf, but also other operations around the world.

Following the commencement of Operation DESERT SHIELD/STORM, the Board held special meetings, in addition to regular quarterly meetings, to receive information on the situation. During these meetings, the Board discussed reserve component issues and submitted policy recommendations to the Secretary of Defense. The Board noted there were major inequities in laws, policies, and regulations, which affect members of the reserve components who were either voluntarily, or involuntarily, ordered to active duty. The Board made several recommendations with regard to changing policy and laws affecting mobilized reserve component personnel. Many of those recommendations were implemented during the year. Some of these Board recommendations follow:

- Review legislation and regulations to ensure reservists and their families are adequately protected and equitably treated when ordered to active duty;
- Ensure pay and entitlements of reserve component members called to active duty are the same as their active duty counterparts;
- Review existing mobilization authority to ensure effectiveness of future mobilizations of the reserve components;
- Overcome reluctance to call reserve flag/general officers to active duty with their units;
- Call reserve component units to active duty as complete units, to the maximum extent possible, to maintain unit integrity and readiness;
- Activate and deploy reserve component roundout units when parent active component units are deployed and the President exercises authority to call up reserve components;
- Utilize, as intended, reserve component units with active component affiliations in support of operational missions;
- Address strategic mobility requirements in the areas of airlift and sealift;
- Encourage academic reinstatement and reimbursement of college tuition and fees for reserve component members called to active duty;
- Develop a military dental care program and a dental insurance program to ensure that members of the Selected Reserve meet mobilization readiness standards. Dependent dental coverage is also needed for family members of Guard and reserve members, who are called to active duty for less than two years;
- Develop policy guidance to Combatant Commands and the Services to release mobilized reserve component members and retirees from active duty as rapidly as possible following the end of hostilities, subject to operational considerations;
- Provide Selected Reserve unit positions for members of Selected Reserve, who were mobilized and served honorably, without regard to end strength limitations, for up to three years after release from active duty;

- Authorize the National Defense Service Medal (NDSM) be authorized to all members in good standing in the Selected Reserve; and develop a device that may be authorized for wear on the NDSM by those reservists and retirees who served on active duty as a result of a mobilization; and
- Ensure prompt action be taken to achieve effective active and reserve component interface between management information (automated data processing) systems.

The Board recognized that employer support of the reserve components is essential to the volunteer total force. Almost without exception, employers fully supported their reserve component employees who were called to active duty in support of Operation DESERT SHIELD/STORM. However, it was brought to the Board's attention that there is currently no appeal process to permit employers to raise their concerns, when mobilization of their employees threatens survival of their business or services. With regard to employer support, the Board made the following observations and recommendations:

- Officially recognize support by employers;
- Monitor employer support problems upon return of members of the National Guard and reserve from active duty; and
- Commend the National Committee for Employer Support of the Guard and reserve for its outstanding efforts and success in improving employer support of the reserve components.

Family support is another important area of concern to members of the reserve components called to active duty for Operation DESERT SHIELD/STORM. Reserve component family support programs provided invaluable support to the families of members of the Selected Reserve, Individual Ready Reserve, and Retired Reserve, as well as the families of active component members not residing in the immediate vicinity of an active component post, base, or station.

Family members should be kept informed of family support programs and military benefits available in the event of mobilization and activation. The Board believes that how well reserve component families are treated and kept informed may have a significant impact on family support of the reserve component program in the future. The Board recommended development of an adequately resourced reserve component family support network, with appropriate consideration given to expanded staffing by military retirees.

Civil affairs units played an important role throughout Operation DESERT SHIELD/STORM and Operation PROVIDE COMFORT. The major source of civil affairs capability in the armed forces consists of 36 Army reserve and two Marine Corps reserve units. One civil affairs battalion exists in the active Army. Civil affairs reservists acquire their unique expertise from their civilian education, professions, careers, and experience. Seventeen Army reserve units and the two Marine Corps reserve units were activated and deployed to support combat commanders at all levels. They also planned for and assisted the government of Kuwait in reconstruction of that country. The proper utilization of civil affairs units and personnel requires the involvement of civil affairs prior to, during, and subsequent to military operations.

Significant force structure reductions are planned for the total force. The Board has expressed its concern with regard to force structure reductions and force mix decisions, stating that "Reserve component force structure and budget reductions should be preceded by careful analyses to ensure full consideration of Reserve component cost-effectiveness and force capability requirements resulting from the projected threat, and lessons learned from recent worldwide operations."

The Board continues to believe that it is essential and in the best interests of the national security:

- To resource the National Guard and reserve with the necessary personnel and equipment;
- To provide training support through adequate facilities, ranges, and schools; and
- To provide sufficient ground vehicle miles, flying hours, steaming days, and full-time support personnel to assure individual and unit readiness.

The Board's annual report, "Reserve Component Programs FY 1991," will detail the contributions of the

reserve components to the total force, report on reserve component programs, and further address matters pertaining to the readiness and future of the reserve components.

John O. Marsh, Jr.
Chairman

Forwarded to the
Secretary of Defense

Stephen M. Duncan
Assistant Secretary of Defense
for Reserve Affairs

Appendices

BUDGET TABLES

Department of Defense — Budget Authority by Appropriation[a] *(Dollars in Millions)*

Table A-1

	FY 1986[b]	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991[c]	FY 1992[c]	FY 1993
Current Dollars								
Military Personnel	67,794	74,010	76,584	78,477	78,876	84,213	79,217	77,080
Operations & Maintenance	74,888	79,607	81,629	86,221	88,309	131,930	92,501	86,471
Procurement	92,506	80,234	80,053	79,390	81,376	71,740	60,532	54,416
Research, Development, Test and Evaluation (RDT&E)	33,609	35,644	36,521	37,530	36,459	36,193	36,999	38,813
Military Construction	5,281	5,093	5,349	5,738	5,130	5,188	4,942	6,195
Family Housing	2,803	3,075	3,199	3,276	3,143	3,296	3,650	4,004
Special Foreign Currency Program	2	4						
Defense-wide Contingency								–110
Revolving & Management Funds	5,235	2,612	1,246	897	566	2,701	4,324	1,552
Trust & Receipts	–707	–781	–801	–668	–832	–44,329	–5,690	–763
Deduct, Intragovt Receipt	–22	–28	–26	–25	–27	–29	–178	–29
Total, Current $	**281,390**	**279,469**	**283,755**	**290,837**	**292,999**	**290,904**	**276,297**	**267,628**
Constant FY 1992 Dollars								
Military Personnel	85,086	90,581	90,179	89,474	88,631	90,633	82,762	77,080
Operations & Maintenance	97,259	99,977	99,290	100,079	99,033	138,421	95,765	86,471
Procurement	117,686	98,551	94,681	90,515	89,651	76,498	62,511	54,416
RDT&E	43,025	44,233	43,688	43,093	40,287	35,578	38,231	38,813
Military Construction	6,802	6,333	6,381	6,572	5,661	5,541	5,106	6,195
Family Housing	3,550	3,790	3,821	3,761	3,477	3,497	3,771	4,004
Special Foreign Currency Program	3	4						
Defense-wide Contingency								–110
Revolving & Management Funds	6,647	3,229	1,495	1,033	626	2,877	4,467	1,552
Trust & Receipts	–898	–966	–961	–769	–921	–42,211	–5,878	–763
Deduct, Intragovt Receipt	–27	–35	–31	–29	–30	–31	–184	–29
Total, Constant $	**359,132**	**345,699**	**338,543**	**333,728**	**326,415**	**308,803**	**286,551**	**267,628**
% Real Growth								
Military Personnel	–3.4	6.5	–0.5	–0.8	–1.0	2.3	–8.7	–6.9
Operations & Maintenance	–4.7	2.8	–0.7	0.8	–1.1	39.8	–30.8	–9.7
Procurement	–7.5	–16.3	–3.9	–4.4	–1.0	–14.7	–18.3	–13.0
RDT&E	4.5	2.8	–1.2	–1.4	–6.5	–4.3	–0.9	1.5
Military Construction	–6.9	–6.9	0.8	3.0	–13.9	–2.1	–7.9	21.3
Family Housing	–5.3	6.8	0.8	–1.6	–7.6	0.6	7.8	6.2
Total	**–4.4**	**–3.8**	**–2.1**	**–1.4**	**–2.2**	**–5.4**	**–7.2**	**–6.6**

[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.
[c] In FY 1991-92, abrupt increases in budget authority, especially Operations and Maintenance (O&M), were due to the incremental costs of Operation DESERT SHIELD/STORM. The FY 1991-92 sharp rise in receipts reflects offsetting allied contributions. FY 1991 O&M also includes the $15 billion appropriated for the Persian Gulf Regional Defense Fund. From this fund, only $300 million was spent, and that was for refugee assistance, not for Operation DESERT SHIELD/STORM.

Department of Defense — Budget Authority by Component[a] *(Dollars in Millions)*

Table A-2

	FY 1986[b]	FY 1987	FY 1988	FY1989	FY 1990[c]	FY 1991[c]	FY 1992[cd]	FY 1993[d]
Current Dollars								
Army	73,128	73,984	75,813	78,079	78,479	91,825	71,163	63,325
Navy	96,113	93,500	100,281	97,675	99,977	103,470	87,090	84,586
Air Force	94,870	91,624	88,324	94,685	92,890	91,257	82,545	83,859
Defense Agencies/OSD/JCS	15,520	19,195	17,021	18,154	18,663	21,134	29,389	21,548
Defense-wide	1,759	1,168	2,315	2,245	2,989	-16,781	6,110	14,311
Total, Current $	**281,390**	**279,469**	**283,755**	**290,837**	**292,999**	**290,904**	**276,297**	**267,628**
Constant FY 1992 Dollars								
Army	93,727	91,956	90,506	89,588	87,525	98,170	73,962	63,325
Navy	122,678	115,518	119,490	112,040	111,331	109,811	90,330	84,586
Air Force	120,222	112,677	105,217	108,561	103,557	96,083	85,566	83,859
Defense Agencies/OSD/JCS	20,269	24,112	20,582	20,974	20,705	22,605	30,382	21,548
Defense-wide	2,237	1,436	2,748	2,565	3,297	-17,867	6,311	14,311
Total, Constant $	**359,132**	**345,699**	**338,543**	**333,728**	**326,415**	**308,803**	**286,551**	**267,628**
% Real Growth								
Army	–4.3	–1.9	–1.6	–1.0	–2.3	12.2	–24.7	–14.4
Navy	–5.4	–5.8	3.4	–6.2	–0.6	–1.4	–17.8	–6.4
Air Force	–6.9	–6.3	–6.6	3.2	–4.6	–7.2	–11.0	–2.0
Defense Agencies/OSD/JCS	14.9	19.0	–14.7	1.9	–1.3	9.2	34.4	–29.1
Defense-wide	75.9	–35.8	91.3	–6.7	28.5	–641.9	–135.3	126.8
Total	**–4.4**	**–3.8**	**–2.1**	**–1.4**	**–2.2**	**–5.4**	**–7.2**	**–6.6**

[a] Numbers may not add to totals due to rounding. Entries for the three military departments include Retired Pay accural.

[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.

[c] FY 1990-92 data for the three departments and defense agencies includes Gulf War incremental costs. FY 1991-92 defense-wide entries include appropriations that made available allied cash contributions to offset these incremental costs; entries also include the $15 billion appropriated for the Persian Gulf Regional Defense Fund. From this fund, only $300 million was spent, and that was for refugee assistance, not for Operation DESERT SHIELD/STORM.

[d] In FY 1992, $9.1 billion was shifted from the military services to defense agencies/OSD for the new Defense Medical Program (DMP). In FY 1993, the DMP is in the defense-wide line, and totals $9.5 billion.

Federal Budget Trends (Dollars In Millions)

Table A-3

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	17.9
1955	17.6	51.5	9.1	48.5	8.6	34.5
1960	18.2	45.0	8.2	55.0	10.0	28.8
1965	17.5	38.8	6.8	61.2	10.7	23.8
1970	19.8	39.4	7.8	60.6	12.0	23.6
1971	19.9	35.4	7.1	64.6	12.8	20.6
1972	20.0	32.6	6.5	67.4	13.5	18.8
1973	19.1	29.8	5.7	70.2	13.4	17.1
1974	19.0	28.8	5.5	71.2	13.5	16.6
1975	21.8	25.5	5.6	74.5	16.2	15.1
1976	21.9	23.6	5.2	76.4	16.7	14.0
1977	21.1	23.4	4.9	76.6	16.2	14.0
1978	21.1	22.5	4.7	77.5	16.4	13.6
1979	20.5	22.8	4.7	77.2	15.8	13.8
1980	22.2	22.5	5.0	77.5	17.2	13.8
1981	22.7	23.0	5.2	77.0	17.5	14.4
1982	23.7	24.5	5.8	75.5	17.9	15.5
1983	24.3	25.4	6.2	74.6	18.2	16.1
1984	23.1	25.9	6.0	74.1	17.1	16.3
1985	24.0	25.9	6.2	74.1	17.8	16.4
1986	23.6	26.8	6.3	73.2	17.3	16.6
1987	22.6	27.3	6.2	72.7	16.4	16.5
1988	22.3	26.5	5.9	73.5	16.3	16.4
1989	22.2	25.6	5.7	74.4	16.5	16.0
1990	22.9	23.2	5.3	76.8	17.6	14.4
1991	25.0	20.4	5.0	79.6	20.0	13.0
1992	24.3	19.8	4.8	80.2	19.5	12.4
1993	24.2	18.0	4.5	82.0	19.7	11.3

* 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.

Defense Shares of Economic Aggregates

Table A-4

Fiscal Year	DoD as a Percentage of Public Employment		DoD as a Percentage of National Labor Force		National Income Accounts Percentage of Total Purchases		
	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	63.2	17.2	2.8	5.6	6.5	8.8	11.8
1987	62.9	17.1	2.8	5.6	6.4	8.5	12.1
1988	61.8	16.5	2.7	5.4	6.1	7.8	12.0
1989	61.9	16.2	2.7	5.3	5.9	7.8	12.1
1990	61.0	15.6	2.5	4.9	5.7	7.7	12.2
1991	60.2	15.0	2.5	4.8	5.8	7.9	12.5

* 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.

PERSONNEL TABLES

Military and Civilian Personnel Strength [a,b] (End Fiscal Year — In Thousands)

Table B-1

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
Active Component Military												
Army	780.0	780.0	780.0	781.0	781.0	781.0	772.0	770.0	750.6	725.4	640.7	598.9
Navy	553.0	558.0	656.0	571.0	581.0	587.0	593.0	593.0	582.9	571.3	551.3	535.8
Marine Corps	192.0	194.0	196.0	198.0	199.0	200.0	197.0	197.0	196.7	195.0	188.0	181.9
Air Force	583.0	592.0	597.0	602.0	608.0	607.0	576.0	571.0	539.3	510.9	485.1	449.9
Total	**2108.0**	**2124.0**	**2229.0**	**2152.0**	**2169.0**	**2175.0**	**2138.0**	**2131.0**	**2069.5**	**2002.6**	**1865.1**	**1766.5**
Reserve Component Military (Selected Reserve)												
ARNG	407.6	417.2	434.3	440.0	446.2	451.9	455.2	457.0	437.0	441.3	431.2	383.1
Army Reserve	256.7	266.2	275.1	292.1	309.7	313.6	312.8	319.2	299.1	299.9	301.8	257.5
Naval Reserve	104.8	109.1	120.6	129.8	141.5	148.1	149.5	151.5	149.4	150.5	142.6	125.8
MC Reserve	40.5	42.7	40.6	41.6	41.6	42.3	43.6	43.6	44.5	44.0	42.4	38.9
ANG	100.7	102.2	105.0	109.4	112.6	114.6	115.2	116.1	117.0	117.6	118.1	119.2
Air Force Reserve	64.4	67.2	70.3	75.2	78.5	80.4	82.1	83.2	80.6	84.3	83.4	82.2
Total	**974.7**	**1004.6**	**1045.9**	**1088.1**	**1130.1**	**1153.9**	**1158.4**	**1170.6**	**1127.6[c]**	**1137.6[d]**	**1119.5**	**1006.7**
Civilian[e]												
Army	378.4	390.9	403.0	420.0	413.0	417.9	392.9	402.9	380.4	365.5	330.8	309.4
Navy	319.1	339.1	342.1	352.9	342.1	353.1	347.8	354.0	341.0	328.9	311.6	283.2
Air Force	247.9	251.2	252.7	263.9	263.2	264.3	253.2	260.6	248.9	232.7	218.4	213.9
Defense Agencies	82.2	83.4	87.3	92.4	94.0	97.8	96.3	99.3	102.5	117.4	140.2	151.2
Total	**1027.6**	**1064.5**	**1085.1**	**1129.2**	**1112.3**	**1133.1**	**1090.2**	**1116.8**	**1072.8**	**1044.5**	**1001.0**	**957.7**

[a] As of January 30, 1992
[b] Numbers may not add to totals due to rounding.
[c] Does not include 25,600 members of the Selected Reserve who were activated for Operation DESERT SHIELD, displayed in the FY 1990 active strength total and paid for from the Active Military Personnel Appropriations account.
[d] Does not include 17,059 members of the Selected Reserve who were activated for Operation DESERT SHIELD/STORM, displayed in the FY 1991 active strength total and paid for from the Active Military Personnel Appropriations account.
[e] Includes direct and indirect hire civilians.

U.S. Military Personnel in Foreign Areas [a] *(End Fiscal Year — In Thousands)*

Table B-2

	FY 79	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90[b]
Germany	239	244	248	256	254	254	247	250	251	249	249	240
Other Europe	61	65	64	67	70	73	75	75	73	74	71	67
Europe, Afloat	25	22	25	33	18	25	36	33	31	33	21	16
South Korea	39	39	38	39	39	41	42	43	45	46	44	41
Japan	46	46	46	51	49	46	47	48	50	50	50	47
Other Pacific	15	15	16	15	15	16	16	17	18	17	16	14
Pacific Afloat (Including Southeast Asia)	22	16	25	33	34	18	20	20	17	28	25	24
Latin America/ Caribbean	12	11	12	11	14	13	12	13	13	15	21	24
Miscellaneous	9	31	27	23	27	25	20	26	27	29	13	8
Total	**468**	**489**	**502**	**528**	**520**	**511**	**515**	**525**	**524**	**541**	**510**	**481**

As of June 30, 1991
[a] Includes 19,000 troops in Saudi Arabia.
[b] Following Operation DESERT STORM and includes 19,000 troops afloat in the Persian Gulf.

FORCE STRUCTURE TABLES

Department of Defense Strategic Forces Highlights

Table C-1

	FY 80	FY 84	FY 86	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
Strategic Offense									
Land-Based ICBMs [a]									
Titan	52	32	7	0	0	0	0	0	0
Minuteman	1000	1000	998	954	950	950	950	880	802
Peacekeeper	0	0	2	46	50	50	50	50	50
Strategic Bombers (PAA) [b]									
B-52D	75	0	0	0	0	0	0	0	0
B-52G/H [c]	241	241	241	234	173	154	138	125	84
B-1B	0	0	18	90	90	90	90	84	84
Fleet Ballistic Missile Launchers (SLBMs) [a]									
Polaris (A-3)	80	0	0	0	0	0	0	0	0
Poseidon (C-3 and C-4)	336	384	320	336	384	368	352	176	160
Trident (C-4 and D-5)	0	72	144	192	192	216	264	288	288
Strategic Defense Interceptors (PAA/Squadrons) [b]									
Active Aircraft	127	90	76	36	36	18	18	0	0
Squadrons	7	5	4	2	2	1	1	0	0
Air National Guard	166	162	198	216	216	216	216	216	216
Squadrons	10	10	11	12	12	12	12	12	12

[a] Number on-line — Operational/not in maintenance or overhaul status
[b] Primary aircraft authorized — Total inventory (including aircraft in depot maintenance, test aircraft, etc.) will be higher.
[c] Does not include conventional B-52 force.

Department of Defense General Purpose Forces Highlights

Table C-2

	FY 84	FY 86	FY 88	FY 90	FY 91	FY 92	FY 93
Land Forces							
Army Divisions							
Active	16	18	18	18	16	14	14
Reserve	8	10	10	10	10	10	8
Marine Corps Divisions							
Active	3	3	3	3	3	3	3
Reserve	1	1	1	1	1	1	1
Army Separate Brigades [a]							
Active	8	7	8	8	8	7	7
Reserve	23	20	20	19	18	16	11
Army Special Forces Groups							
Active	4	4	4	5	5	5	5
Reserve	4	4	4	4	4	4	4
Army Ranger Regiment	0	1	1	1	1	1	1
Tactical Air Forces (PAA/Squadrons) [b]							
Air Force Attack and Fighter Aircraft							
Active	1,734/77	1,764/78	1,868/79	1,722/76	1,560/71	1,230/57	1,158/56
Reserve	852/43	876/43	909/43	873/43	861/43	873/43	831/41
Conventional Bombers							
B-52G	0	0	0	33	33	33	33
Navy Attack and Fighter Aircraft							
Active	616/63	746/65	706/67	622/57	654/59	678/61	620/56
Reserve	75/9	113/10	110/10	97/9	116/10	116/10	116/10
Marine Corps Attack and Fighter Aircraft							
Active	256/24	333/25	341/25	334/ 24	361/26	336/23	326/22
Reserve	90/8	94/8	96/8	84/8	60/7	84/8	72/7
Naval Forces							
Strategic Forces							
Ships	41	45	43	39	40	33	27
Battle Forces							
Ships	425	437	437	412	392	362	361
Support Forces							
Ships	46	55	60	65	62	60	55
Reserve Forces							
Ships	12	18	25	31	32	19	19
Total Ship Battle Forces	**524**	**555**	**565**	**547**	**526**	**474**	**462**
Mobilization Catagory B							
Surface Combatants/Mine Warfare Ships	24	21	21	16	13	16	14
Support Ships	9	7	5	3	3	2	2
Total Other Forces	**33**	**28**	**26**	**19**	**16**	**18**	**16**

[a] Does not include roundout brigades; does include the Eskimo Scout Group and the armored cavalry regiments.
[b] PAA — Primary aircraft authorized

Department of Defense
Airlift and Sealift Forces Highlights

Table C-3

	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93
Intertheater Airlift (PAA)[a]						
C-5	98	110	109[e]	109[e]	109	109
C-141	234	234	234	234	234	214
KC-10	57	57	57	57	57	57
C-17	0	0	0	0	0	6
Intratheater Airlift (PAA)[a]						
C-130	521	492	460[e]	462[e]	445	428
Sealift Ships, Active[b]						
Tankers	20	29	28	20[e]	20	20
Cargo	41	40	40	39[e]	39	39
Sealift Ships, Reserve						
RRF[c]	91	93	96[e]	96[e]	99	112
NDRF[d]	129	128	121[e]	121[e]	122	122

[a] PAA — Primary aircraft authorized
[b] Active — Includes Fast Sealift Ships, Afloat Prepositioned Ships, and Common User (Charter) Ships
[c] RRF — Ready Reserve Force (assigned to 5-, 10-, or 20-day reactivation readiness groups)
[d] NDRF — National Defense Reserve Fleet (beginning in FY 1988, specific NDRF ships were designated militarily useful ships)
[e] Differences from previous year's defense report are due to operational changes (damaged aircraft and actual long-term ship charters) and congressional direction/funding (retention of C-130s in the reserve components and underfunding of the Ready Reserve Force acquisitions).

GOLDWATER-NICHOLS ACT IMPLEMENTATION REPORT

This appendix contains the Department's Joint Officer Management Annual Report for FY 1991. Acronyms used in report: JSO — Joint Specialty Officer; JDA — Joint Duty Assignment; COS — Critical Occupational Specialty; and JPME — Joint Professional Military Education. (Except for tables D-2, D-5, reasons in D-9, D-11, and promotion objectives, the Joint Duty Assignment Management Information System (JDAMIS) was used to produce this report.)

SUMMARY OF JOINT SPECIALTY OFFICER AND JOINT SPECIALTY OFFICER NOMINEE DESIGNATIONS FOR FY 1991

Table D-1

Category	ARMY	NAVY	USAF	USMC	TOTAL
Number of officers designated as JSOs*	0	19	0	0	19
Number of officers designated as JSO nominees	405	574	123	117	1219
Number of JSO nominees designated under COS provision	217	498	5	87	807

* NOTE: Few officers were designated as JSOs in FY 1991 due to large number of JSOs designated under the transition provisions and the length of time required to complete the JSO prerequisites.

CRITICAL OCCUPATIONAL SPECIALTIES

Table D-2

The following military specialties, listed by Service, are designated as critical occupational specialties. In every case, the specialties so designated are each Services' "combat arms" specialties.

ARMY	NAVY	USAF	USMC
Infantry	Surface	Pilot	Infantry
Armor	*Submariner	Navigator	Tanks/AAV
Artillery	Aviation	Air Weapons Director	*Artillery
Air Defense Artillery	SEALS	Missile Operations	*Air Control/Air Support/Antiair
Aviation	Special Operations	*Space Operations	Aviation
Special Operations		Operations Mgmt	Engineers
Combat Engineers			

* Specialties which have a severe shortage of officers.

SUMMARY OF OFFICERS ON ACTIVE DUTY WITH A CRITICAL OCCUPATIONAL SPECIALTY (AS OF SEPTEMBER 30, 1991)

Table D-3

CATEGORY	ARMY	NAVY	USAF	USMC	TOTAL
COS officers who have completed JPME	1496	1053	1398	460	4407
COS officers designated as JSOs	2223	1540	1979	736	6478
COS officers designated as JSO nominees	1203	1106	1471	290	4070
COS officers designated as JSO nominees who have not completed JPME	1009	873	1146	211	3239
COS JSO nominees currently serving in a JDA	559	685	596	155	1995
COS JSO nominees who completed a JDA and are currently attending JPME	2	1	9	0	12

SUMMARY OF JSOs WITH CRITICAL OCCUPATIONAL SPECIALTIES WHO ARE SERVING OR HAVE SERVED IN A 2ND JOINT ASSIGNMENT (AS OF SEPTEMBER 30, 1991)

Table D-4

	Army		Navy		USAF		USMC		Total	
Field Grade										
Have served*	28	(6)	9	(4)	60	(17)	0	(0)	97	(27)
Are serving*	136	(33)	45	(10)	154	(58)	9	(5)	344	(106)
General/Flag										
Have served*	1	(1)	4	(1)	4	(3)	1	(1)	10	(6)
Are serving*	11	(9)	7	(1)	16	(7)	1	(1)	35	(18)

* Number in parenthesis indicates number of second joint assignments which were to a critical joint position.

ANALYSIS OF THE ASSIGNMENT CATEGORY TO WHICH OFFICERS WERE REASSIGNED (IN FY 1991) ON THEIR FIRST ASSIGNMENT FOLLOWING DESIGNATION AS A JOINT SPECIALTY OFFICER Table D-5

ASSIGNMENT CATEGORY	ARMY	NAVY	USAF	USMC	TOTAL
Command	1	111	93	54	259
Service HQ	18	84	32	24	158
Joint Staff critical	1	2	5	4	12
Joint Staff other	1	7	5	18	31
Other JDA critical	20	27	42	10	99
Other JDA	51	47	93	9	200
PME	21	72	57	33	183
Other Operations	60	109	59	110*	338
Other Staff	196	30	247	88*	561
Other Shore	—	177	—	13	190

* For the Marine Corps: Other Operations = Fleet Marine Force; Other Staff = Non-Fleet Marine Corps

AVERAGE LENGTH OF TOURS OF DUTY IN JOINT DUTY ASSIGNMENTS (FY 1991) (IN MONTHS) Table D-6

	GENERAL/FLAG OFFICERS		
	JOINT STAFF	OTHER JOINT	JOINT TOTAL
ARMY	30	32	31
NAVY	24	27	26
USAF	29	28	28
USMC	19	22	22
DoD	**27**	**28**	**28**
	FIELD GRADE OFFICERS		
	JOINT STAFF	OTHER JOINT	TOTAL
ARMY	35	39	39
NAVY	35	41	40
USAF	38	41	41
USMC	38	39	39
DoD	**36**	**41**	**40**

SUMMARY OF TOUR LENGTH EXCLUSIONS FOR FY 1991

Table D-7

CATEGORY	ARMY	NAVY	USAF	USMC	TOTAL
Retirement	77	119	175	4	375
Separation	2	21	1	0	24
Suspension From Duty	7	3	4	0	14
Compassionate/Medical	10	1	15	3	29
Other Joint After Promotion	5	7	1	2	15
Reorganization	3	2	3	0	8
Joint Overseas-Short Tours	276	70	185	19	550
Joint Accumulation	12	1	1	0	14
COS Reassignment	88	91	59	4	242
TOTAL	**480**	**315**	**444**	**32**	**1271**

JOINT DUTY POSITION DISTRIBUTION BY SERVICE (AS OF SEPTEMBER 30, 1991)

Table D-8

	Joint Duty Positions				
	JOINT STAFF	OTHER JOINT DUTY	TOTAL JOINT DUTY	PERCENT OF TOTAL DoD JOINT ASSIGNMENTS	PERCENT OF TOTAL DoD COMMISSIONED OFFICERS
ARMY	304	2920	3224	36	36
NAVY	243	1586	1829	21	24
USMC	59	437	496	6	7
USAF	306	3000	3306	37	33
DoD	912	7943	8855		

CRITICAL POSITIONS SUMMARY (AS OF SEPTEMBER 30, 1991) Table D-9

Category	Army	Navy	USAF	USMC	Total
Total Critical Positions	393	185	375	63	1016
Number of Vacant Positions	28	21	37	1	87
Number of Critical Positions Filled by JSOs and % of Filled Positions	305 (84%)	130 (79%)	286 (85%)	55 (89%)	776 (84%)
Number of Critical Positions Not Filled by JSOs	60	34	52	7	153
Percent Critical Positions Filled by JSOs (Since January 1, 1989)	84%	79%	84%	88%	83%

Reasons for filling critical positions with officers who are not JSOs are listed below:

Position filled by incumbent prior to being a joint position: . . . 21
Position being converted to a noncritical position or being deleted: . . . 3
JSO not available: . . . 27
Best qualified officer not a JSO: . . . 54
Position filled by incumbent prior to being a critical position: . . . 35
Other: . . . 13
TOTAL 153

THE FOLLOWING ORGANIZATIONS HAVE JOINT DUTY CRITICAL POSITIONS WHICH ARE FILLED BY OFFICERS WHO ARE NOT JSOs:

Iceland Defense Force . . . 1
US Atlantic Command (USLANTCOM) . . . 7
US Central Command (USCENTCOM) . . . 6
North American Aerospace Defense Command (NORAD) . . . 5
Office of the Secretary of Defense (OSD) . . . 3
US European Command (USEUCOM) . . . 9
Armed Forces Information Services (AFIS) . . . 1
National Defense University (NDU) . . . 4
Joint Strategic Target Planning Staff (JSTPS): . . . 1
Joint Warfare Center . . . 1
US Space Command (USSPACECOM) . . . 8
Defense Nuclear Agency (DNA) . . . 5
Defense Mapping Agency (DMA) . . . 1
Defense Logistics Agency (DLA) . . . 7
Defense Information Systems Agency (DISA) . . . 4
Defense Intelligence Agency (DIA) . . . 9
National Security Agency (NSA) . . . 2
Defense Attache . . . 1
Defense Mobilization Planning Activity . . . 2
Joint Staff . . . 18
US Military Entrance Processing Command (USMEPCOM) . . . 2
Combined Field Army . . . 2
US Pacific Command (USPACOM) . . . 17
US Special Operations Command (USSOCOM) . . . 4
US Southern Command (USSOUTHCOM) . . . 6
US Transportation Command (USTRANSCOM) . . . 4
Supreme Headquarters Allied Powers Europe (SHAPE) . . . 2
Allied Command Europe (ACE) . . . 12
Allied Command Atlantic (ACLANT) . . . 5
NATO Military Committee . . . 4
TOTAL 153

COMPARISON OF WAIVER USAGE (FY 1991)

Table D-10

CATEGORY	Army	Navy	USAF	USMC	Total
JSO Designations	0	18	0	0	18
JSO Sequence Waivers	0	1	0	0	1
JSO Two-tour Waivers	0	0	0	0	0
JSOs Graduating from JPME	3	10	24	4	41
JDA Assignment Waivers Granted	0	2	0	0	2
Field Grade Officers who departed JDAs	990	696	1145	148	2979
Field Grade JDA tour length waivers	56	37	19	3	115
General/Flag Officer Section					
General/Flag Officers who departed JDAs	48	37	45	9	139
General/Flag Officer JDA tour length waivers	10	9	11	4	34
Attended CAPSTONE	45	40	22	11	118
CAPSTONE Waivers	0	5	0	0	5
Selected for Promotion to 0-7	44	39	41	9	133
Good of the Service Waivers	3	5	2	1	11
Other Waivers	26	21	26	0	73

JOINT PROFESSIONAL MILITARY EDUCATION (PME) PHASE II SUMMARY (FY 1991)

Table D-11

Category	Army	Navy	USAF	USMC	Total
Students attending Armed Forces Staff College Program for Joint Education Phase II in FY91	279	183	271	39	772
Students who had not completed resident PME (percent of total)	12(4%)	52(28%)	111(41%)	9(23%)	184(24%)
Students who had completed non-resident PME (percent of total)	7(3%)	3(2%)	90(33%)	2(5%)	102(13%)
Students who had not completed resident or non-resident PME (percent of total)	5(2%)	49(27%)	21(8%)	7(18%)	82(11%)

REASONS FOR STUDENTS NOT COMPLETING RESIDENT PROFESSIONAL MILITARY EDUCATION (PME) PRIOR TO ATTENDING PHASE II*

Officer completed Phase I equivalent program 10
Officer scheduled to attend a resident PME immediately following Phase II 35
Officer career path did not allow attendance at a resident PME program 5
Other 6

*NOTE: Excludes Armed Forces Staff College JPME Classes 91-1 and 91-2 since the waiver process had not been fully implemented.

PROMOTION OBJECTIVE SUMMARY FOR FY 1991 Table D-12

The DoD Reorganization Act of 1986 requires the Department to report the promotion rates for field grade and general/flag officers (0-7 and 0-8) with the intent of measuring the qualifications of officers assigned to joint duty assignments. See "Notes" at the end of this table for consolidation of brief explanations where the required promotion objectives were not met for the "in zone currently serving" categories. In this table, a dash (–) indicates there were no eligible officers in that category and a "N/A" means that no such category exists for that grade.

AIR FORCE PROMOTION RATES (LINE)

		ARE SERVING IN			HAVE SERVED IN			
GRADE	JOINT CATEGORIES	IN ZONE	BELOW ZONE	ABOVE ZONE	IN ZONE	BELOW ZONE	ABOVE ZONE	REMARKS
0-8	Joint Staff	29%	N/A	N/A	43%	N/A	N/A	
	Joint Specialty	29%	N/A	N/A	29%	N/A	N/A	
	Service HQS	27%	N/A	N/A	10%	N/A	N/A	
	Other Joint	17%	N/A	N/A	0%	N/A	N/A	
	Board Average	26%	N/A	N/A	26%	N/A	N/A	
0-7	Joint Staff	4%	N/A	N/A	0%	N/A	N/A	
	Joint Specialty	2%	N/A	N/A	2%	N/A	N/A	
	Service HQS	2%	N/A	N/A	2%	N/A	N/A	
	Other Joint	1%	N/A	N/A	0%	N/A	N/A	
	Board Average	1%	N/A	N/A	1%	N/A	N/A	
0-6	Joint Staff							
	Joint Specialty			Selection Board Conducted Late in				
	Service HQS			FY 1991 — joint promotion statistics				
	Other Joint			to be included in next report.				
	Board Average							
0-5	Joint Staff	93%	12%	67%	0%	0%	20%	See note #1
	Joint Specialty	85%	3%	6%	85%	3%	6%	
	Service HQS	94%	10%	18%	95%	14%	0%	
	Other Joint	78%	3%	4%	66%	2%	2%	
	Board Average	66%	2%	3%	66%	2%	3%	
0-4	Joint Staff	100%	–	–	100%	–	–	
	Joint Specialty	–	–	–	–	–	–	
	Service HQS	97%	8%	0%	87%	–	0%	
	Other Joint	81%	3%	0%	76%	–	29%	
	Board Average	75%	2%	8%	75%	2%	8%	

ARMY PROMOTION RATES (ARMY COMPETITIVE CATEGORY)

0-8	Joint Staff	0%	N/A	N/A	71%	N/A	N/A	
	Joint Specialty	26%	N/A	N/A	26%	N/A	N/A	
	Service HQS	60%	N/A	N/A	26%	N/A	N/A	
	Other Joint	22%	N/A	N/A	67%	N/A	N/A	
	Board Average	29%	N/A	N/A	29%	N/A	N/A	
0-7	Joint Staff	11%	N/A	N/A	2%	N/A	N/A	
	Joint Specialty	2%	N/A	N/A	N/A	N/A	N/A	
	Service HQS	3%	N/A	N/A	2%	N/A	N/A	
	Other Joint	4%	N/A	N/A	2%	N/A	N/A	
	Board Average	2%	N/A	N/A	2%	N/A	N/A	

GRADE	JOINT CATEGORIES	ARE SERVING IN IN ZONE	ARE SERVING IN BELOW ZONE	ARE SERVING IN ABOVE ZONE	HAVE SERVED IN IN ZONE	HAVE SERVED IN BELOW ZONE	HAVE SERVED IN ABOVE ZONE	REMARKS
0-6	Joint Staff	47%	0%	6%	60%	3%	–	
	Joint Specialty	49%	2%	4%	49%	2%	–	
	Service HQS	31%	1%	5%	52%	4%	–	
	Other Joint	27%	0%	2%	17%	2%	–	
	Board Average	39%	2%	3%	39%	2%	–	
0-5	Joint Staff	100%	0%	33%	100%	0%	0%	
	Joint Specialty	82%	9%	2%	82%	9%	2%	
	Service HQS	79%	5%	2%	75%	6%	0%	
	Other Joint	72%	3%	3%	45%	0%	2%	
	Board Average	62%	5%	2%	62%	6%	2%	
0-4	Joint Staff							
	Joint Specialty			No Selection Board Conducted				
	Service HQS			in FY 1991.				
	Other Joint							
	Board Average							
MARINE CORPS PROMOTION RATES (UNRESTRICTED)								
0-8	Joint Staff	–	N/A	–	100%	N/A	–	
	Joint Specialty	50%	N/A	20%	50%	N/A	20%	
	Service HQS	0%	N/A	–	33%	N/A	50%	
	Other Joint	0%	N/A	–	0%	N/A	100%	See note #1
	Board Average	50%	N/A	33%	50%	N/A	33%	
0-7	Joint Staff	0%	N/A	N/A	0%	N/A	N/A	
	Joint Specialty	4%	N/A	N/A	4%	N/A	N/A	
	Service HQS	3%	N/A	N/A	3%	N/A	N/A	
	Other Joint	0%	N/A	N/A	20%	N/A	N/A	
	Board Average	2%	N/A	N/A	2%	N/A	N/A	
0-6	Joint Staff	43%	67%	50%	71%	0%	–	See note #2
	Joint Specialty	56%	4%	9%	56%	4%	11%	
	Service HQS	57%	0%	10%	41%	0%	5%	
	Other Joint	100%	0%	–	18%	6%	0%	
	Board Average	42%	2%	5%	42%	2%	4%	
0-5	Joint Staff	67%	0%	33%	100%	0%	–	
	Joint Specialty	73%	3%	11%	73%	3%	11%	
	Service HQS	51%	0%	3%	57%	11%	5%	
	Other Joint	65%	10%	0%	64%	11%	0%	
	Board Average	59%	3%	4%	59%	3%	4%	
0-4	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	–	–	–	–	–	–	
	Service HQS	77%	0%	11%	60%	0%	11%	
	Other Joint	100%	0%	0%	25%	0%	–	
	Board Average	66%	1%	8%	66%	1%	8%	
NAVY PROMOTION RATES								
0-8	Joint Staff	100%	N/A	N/A	100%	N/A	N/A	
Unrestricted Line	Joint Specialty	43%	N/A	N/A	43%	N/A	N/A	
	Service HQS	37%	N/A	N/A	44%	N/A	N/A	
	Other Joint	100%	N/A	N/A	100%	N/A	N/A	
	Board Average	42%	N/A	N/A	42%	N/A	N/A	

GRADE	JOINT CATEGORIES	ARE SERVING IN IN ZONE	ARE SERVING IN BELOW ZONE	ARE SERVING IN ABOVE ZONE	HAVE SERVED IN IN ZONE	HAVE SERVED IN BELOW ZONE	HAVE SERVED IN ABOVE ZONE	REMARKS
Cryptology	Joint Staff	–	N/A	N/A	–	N/A	N/A	
	Joint Specialty	100%	N/A	N/A	100%	N/A	N/A	
	Service HQS	–	N/A	N/A	–	N/A	N/A	
	Other Joint	–	N/A	N/A	–	N/A	N/A	
	Board Average	100%	N/A	N/A	100%	N/A	N/A	
0-7 Unrestricted Line	Joint Staff	11%	N/A	N/A	0%	N/A	N/A	
	Joint Specialty	3%	N/A	N/A	3%	N/A	N/A	
	Service HQS	5%	N/A	N/A	4%	N/A	N/A	
	Other Joint	2%	N/A	N/A	0%	N/A	N/A	
	Board Average	2%	N/A	N/A	2%	N/A	N/A	
AEDO	Joint Staff	–	N/A	N/A	–	N/A	N/A	
	Joint Specialty	0%	N/A	N/A	0%	N/A	N/A	
	Service HQS	0%	N/A	N/A	0%	N/A	N/A	
	Other Joint	0%	N/A	N/A	0%	N/A	N/A	
	Board Average	2%	N/A	N/A	2%	N/A	N/A	
Engineering Duty	Joint Staff	–	N/A	N/A	–	N/A	N/A	
	Joint Specialty	13%	N/A	N/A	13%	N/A	N/A	
	Service HQS	0%	N/A	N/A	0%	N/A	N/A	
	Other Joint	–	N/A	N/A	–	N/A	N/A	
	Board Average	2%	N/A	N/A	2%	N/A	N/A	
Intelligence	Joint Staff	–	N/A	N/A	–	N/A	N/A	
	Joint Specialty	2%	N/A	N/A	2%	N/A	N/A	
	Service HQS	0%	N/A	N/A	0%	N/A	N/A	
	Other Joint	0%	N/A	N/A	–	N/A	N/A	See note #1
	Board Average	1%	N/A	N/A	1%	N/A	N/A	
0-6 Unrestricted Line	Joint Staff	67%	0%	0%	29%	0%	0%	
	Joint Specialty	69%	0%	2%	61%	0%	2%	
	Service HQS	51%	0%	5%	61%	0%	33%	
	Other Joint	31%	0%	0%	12%	0%	0%	
	Board Average	52%	1%	1%	52%	1%	1%	
Civil Engineer	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	63%	0%	0%	63%	0%	0%	
	Service HQS	–	0%	0%	50%	0%	0%	
	Other Joint	100%	0%	9%	0%	–	–	
	Board Average	47%	0%	–	47%	0%	9%	
Aeronautical Engineer	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	0%	0%	0%	0%	0%	0%	
	Service HQS	–	0%	–	33%	0%	–	
	Other Joint	–	–	–	–	–	–	
	Board Average	45%	2%	0%	45%	2%	0%	
AMDO	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	100%	–	–	100%	–	–	
	Service HQS	50%	0%	–	50%	0%	–	
	Other Joint	–	–	–	–	–	–	
	Board Average	42%	0%	7%	42%	0%	7%	

		ARE SERVING IN			HAVE SERVED IN			
GRADE	JOINT CATEGORIES	IN ZONE	BELOW ZONE	ABOVE ZONE	IN ZONE	BELOW ZONE	ABOVE ZONE	REMARKS
Cryptology	Joint Staff	0%	–	–	–	–	–	
	Joint Specialty	60%	0%	0%	60%	0%	0%	
	Service HQS	0%	0%	–	0%	0%	–	
	Other Joint	–	0%	0%	–	–	0%	
	Board Average	50%	0%	0%	5%	0%	0%	
Engineering Duty	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	33%	0%	–	33%	0%	–	
	Service HQS	33%	–	–	–	0%	100%	
	Other Joint	–	–	–	–	–	–	
	Board Average	52%	3%	8%	52%	3%	8%	
Intelligence	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	56%	4%	8%	56%	4%	8%	See note #3
	Service HQS	100%	–	0%	–	0%	–	
	Other Joint	100%	–	0%	0	0%	–	
	Board Average	36%	3%	5%	36%	3%	5%	
Oceanography	Joint Staff	–	–	–	–	–	0%	
	Joint Specialty	33%	0%	0%	33%	0%	0%	
	Service HQS	–	0%	–	0%	100%	–	
	Other Joint	–	–	–	–	–	–	
	Board Average	33%	8%	0%	33%	8%	0%	
Public Affairs	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	33%	20%	0%	33%	20%	0%	
	Service HQS	–	0%	–	50%	100%	–	
	Other Joint	–	0%	–	–	–	–	
	Board Average	25%	11%	0%	50%	11%	0%	
Supply	Joint Staff	50%	0%	–	0%	0%	–	
	Joint Specialty	61%	0%	0%	61%	0%	0%	
	Service HQS	0%	0%	0%	67%	0%	–	
	Other Joint	60%	0%	0%	50%	0%	–	
	Board Average	49%	0%	4%	49%	0%	4%	
0-5 Unrestricted Line	Joint Staff	86%	11%	0%	77%	25%	–	
	Joint Specialty	79%	2%	5%	79%	2%	5%	
	Service HQS	86%	5%	4%	85%	7%	0%	
	Other Joint	55%	1%	0%	53%	0%	0%	
	Board Average	65%	1%	1%	65%	1%	1%	
Civil Engineering	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	67%	0%	0%	67%	0%	0%	See note #2
	Service HQS	–	0%	0%	–	0%	–	
	Other Joint	100%	0%	0%	100%	0%	–	
	Board Average	66%	0%	3%	66%	0%	3%	
Aeronautical Engineering	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	100%	–	0%	100%	0%	0%	
	Service HQS	–	–	–	–	–	–	
	Other Joint	–	–	0%	–	–	–	
	Board Average	74%	0%	0%	74%	0%	0%	

GRADE	JOINT CATEGORIES	ARE SERVING IN IN ZONE	ARE SERVING IN BELOW ZONE	ARE SERVING IN ABOVE ZONE	HAVE SERVED IN IN ZONE	HAVE SERVED IN BELOW ZONE	HAVE SERVED IN ABOVE ZONE	REMARKS
Cryptology	Joint Staff	100%	–	–	–	–	–	
	Joint Specialty	100%	0%	0%	100%	0%	0%	
	Service HQS	–	0%	0%	0%	–	0%	
	Other Joint	–	0%	0%	50%	–	–	
	Board Average	63%	2%	4%	63%	2%	4%	
Engineering Duty	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	75%	0%	–	75%	0%	–	
	Service HQS	–	–	–	50%	–	–	
	Other Joint	–	–	0%	100%	0%	0%	
	Board Average	69%	0%	7%	69%	0%	2%	
Intelligence	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	69%	0%	13%	69%	0%	13%	
	Service HQS	–	0%	0%	–	0%	–	
	Other Joint	100%	–	0%	33%	–	0%	
	Board Average	65%	2%	2%	65%	2%	2%	
Oceanography	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	–	0%	0%	100%	0%	0%	
	Service HQS	–	–	–	–	–	–	
	Other Joint	–	0%	0%	–	0%	0%	
	Board Average	65%	0%	6%	65%	0%	6%	
AMDO	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	–	0%	–	–	0%	–	
	Service HQS	–	–	–	–	–	0%	
	Other Joint	–	–	–	–	–	–	
	Board Average	70%	0%	0%	70%	0%	0%	
Public Affairs	Joint Staff	–	–	100%	–	–	–	
	Joint Specialty	100%	0%	50%	100%	0%	50%	
	Service HQS	67%	0%	0%	–	0%	–	
	Other Joint	33%	0%	0%	100%	0%	100%	
	Board Average	60%	0%	6%	60%	0%	6%	
Supply	Joint Staff	–	–	–	–	0%	–	
	Joint Specialty	71%	0%	0%	71%	0%	0%	
	Service HQS	67%	0%	–	100%	0%	–	
	Other Joint	73%	0%	10%	39%	0%	0%	
	Board Average	66%	0%	6%	66%	0%	6%	
0-4 Unrestricted Line	Joint Staff	100%	–	–	100%	–	–	
	Joint Specialty	0%	–	–	–	–	–	
	Service HQS	100%	0%	50%	100%	10%	–	
	Other Joint	92%	0%	0%	77%	0%	0%	
	Board Average	74%	1%	8%	74%	1%	8%	
Engineering Duty	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	–	–	–	–	–	–	
	Service HQS	–	–	–	–	0%	–	
	Other Joint	100%	–	–	–	0%	–	
	Board Average	92%	1%	9%	92%	1%	9%	

		ARE SERVING IN			HAVE SERVED IN			
GRADE	JOINT CATEGORIES	IN ZONE	BELOW ZONE	ABOVE ZONE	IN ZONE	BELOW ZONE	ABOVE ZONE	REMARKS
Intelligence	Joint Staff	–	–	–	–	–	–	
	Joint Specialty	–	–	–	–	–	–	
	Service HQS	–	–	–	–	–	–	
	Other Joint	100%	0%	–	33%	0%	–	
	Board Average	77%	2%	11%	77%	2%	11%	
Supply	Joint Staff	–	–	–	–	0%	–	
	Joint Specialty	–	–	–	–	–	–	
	Service HQS	–	–	–	0%	–	–	
	Other Joint	50%	0%	–	67%	0%	–	
	Board Average	64%	0%	18%	64%	0%	18%	

Notes:
1: Small numbers involved – one additional selection in this promotion category needed to meet promotion objective.
2: Small numbers involved – less than 3 1/2% of eligible population; comparison and analysis is inconclusive.
3: Only one officer considered in this promotion category.

DEFENSE ACQUISITION WORK FORCE IMPROVEMENT REPORT

Annual Report on FY 1991 Implementation

This first annual report summarizes the Department of Defense implementation of the Defense Acquisition Work Force Improvement Act (DAWIA) of 1990. DAWIA, in concert with ongoing *Defense Management Report* (*DMR*) initiatives, makes fundamental changes in the defense acquisition system with a focus on the "people" element of the system. It expands the scope of several *DMR* initiatives and delineates numerous new detailed provisions and reporting requirements for the Department. The Department, under the phase-in provisions of the Act, began implementation in FY 1991 with progressive efforts planned to meet full compliance in FY 1993. The Department is fully committed to the goal of *DMR* and DAWIA to improve the professionalism of the acquisition work force. The Under Secretary of Defense for Acquisition (USD(A)), in coordination with the Assistant Secretary of Defense for Force Management and Personnel (ASD(FM&P)), is responsible for implementation of DAWIA throughout the Department.

DMR laid the foundation for many DAWIA provisions under implementation today. Dedicated acquisition corps for each Service are being expanded to include membership of career professionals in acquisition functional areas outside the immediate program management field. The Department has designated in regulation acquisition and critical acquisition positions. Minimum mandatory education, training, experience, and career development standards have been broadened to cover the total acquisition work force. An Instruction signed by USD(A) and ASD(FM&P) expands the data base created under *DMR* to a Department-wide management information and reporting system covering all acquisition positions and all acquisition work force personnel. Further professionalization of the contracting segment of the acquisition work force is also occurring. Centralized management of all mandatory acquisition training within the new Defense Acquisition University (DAU) structure is a broad expansion of the existing USD(A) managed Acquisition Enhancement Program (ACE).

DESIGNATED ACQUISITION POSITIONS

The Department designated acquisition positions by developing functional descriptions for each of 14 acquisition position categories including: program management; program management oversight; communications-computer systems; contracting (including contracting for construction); purchasing (including procurement assistant); industrial property management; quality assurance; acquisition logistics; systems planning, research, development, and engineering; test and evaluation engineering; manufacturing and production; business, cost estimating, and financial management; auditing; and education, training, and career development. Each functional description includes a brief summary of typical duties performed, a list of typical civilian and military occupational codes, and representative duty titles. They are contained in a DoD Instruction and serve as guidance for the DoD components to identify acquisition positions.

DEVELOPED CAREER PATHS

Career paths have been established in consideration of education, training, and experience standards together with typical assignment patterns. Each career field has established three career levels of standards: basic, intermediate, and senior. The certification standards are in DoD 5000.52-M.

A career level must be assigned to each acquisition position and, as such, serves as a certification standard. Members of the acquisition work force should meet the applicable standards before being assigned to a position to which certification standards apply or they must achieve the standards within 18 months of assignment. When an individual achieves a standard, he or she is formally certified at that level.

QUALIFICATIONS

The requirements and qualifications for program managers and deputy program managers of major and significant nonmajor defense acquisition programs have been formulated into DoD policy and provided to the DoD components. This policy includes the assignment period, education, training, and experience requirements necessary to fill these important functions. Waiver requirements and procedures are established in this policy guidance.

The requirements and qualifications for acquisition corps membership and for general, flag officer, or Senior Executive Service (SES) acquisition position appointments have been included in DoD policy guidance.

IDENTIFIED FUNCTIONAL ADVISORS

Functional advisors have been designated for each of the 12 acquisition career fields. They are general, flag officers, or SES personnel selected from the OSD staff and defense agencies for their expertise in a specific functional area. These advisors chair a functional board which determines education, training, and experience standards for career field(s) in that functional area. The boards also develop career paths, review curricula of training courses, review and recommend funding for education and training, monitor acquisition work force qualifications, and perform similar oversight activities for their functional area. Where a functional board has not yet been established, the functional advisor performs the duties of the board until formed.

STATUS OF PERSONNEL BENEFITS

The *DMR* recommended a number of management flexibilities to expand opportunities for the education and training of the civilian acquisition work force, as well as to enhance the recruitment and retention of these employees. Several of these recommendations were incorporated into the policies of the Department during the past year.

The waiting period for the hiring of retired military personnel has been suspended. Through this action, qualified and experienced military personnel can be hired into the Department to meet existing vacancies in the civilian work force without any waiting period. It is anticipated that this effort will result in a more stable work force while also providing the mechanism to retain personnel with considerable experience in acquisition matters.

Procedures have also been established to waive, on a case-by-case basis, the dual pay offset previously imposed on military and civilian personnel receiving retirement annuities. Such requests are reviewed for the Department by the Director of Administration and Management and then are forwarded to the Office of Personnel Management (OPM) for approval. OPM is also developing other regulations to implement the authority to pay for civilian education leading to a college degree. Additionally, regulations are being prepared to initiate a student loan repayment program. These efforts, combined with other existing intern and scholarship programs will increase the overall qualifications and professionalism of the work force over the long term.

Establishment of the Defense Acquisition University (DAU)

The Department submitted to the Committees on Armed Services of the Senate and House of Representatives an implementation plan, including a charter, for the DAU. DoD Directive 5000.57, "Defense Acquisition University," was issued October 22, 1991, chartering the university and prescribing a consortium structure initially to include components of 12 Army, Navy, Air Force, and Defense Logistics Agency schools and activities that now deliver courses designated as mandatory for personnel performing acquisition functions. Consortium participants will remain in their existing commands; memoranda of agreement will be negotiated between the university and each participant in the consortium. The Defense Systems Management College is an integral part of the university structure.

The Industrial College of the Armed Forces (ICAF) of the National Defense University at Fort McNair will participate in the consortium and deliver the senior course for acquisition professionals. This increased responsibility reinforces ICAF's traditional mission and purpose.

Management Information System

Under joint USD(A) and ASD(FM&P) sponsorship, a Department-wide Management Information System for acquisition positions and personnel has been defined. This system standardizes a uniform reporting structure for all of DoD with a centralized data base maintained by the Defense Manpower Data Center under ASD(FM&P) management. System definition to the data element level was completed with reissuance of DoD Instruction 5000.55, "Reporting Management Information on DoD Military and Civilian Acquisition Personnel and Positions." Service and defense agency inputs to the central data base will start in FY 1992. Summary data from this system will make up a substantial portion of the Department's future annual reports to Congress.

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