CBO
TESTIMONY

Statement of
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before the
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NOTICE

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I appreciate the opportunity to discuss the Administration's proposed drawdown of U.S. military forces and the associated budget reductions. These last few months have been eventful times for the U.S. military. The nation's attention has been riveted on the war in the Middle East. At the same time, the Administration has proposed the largest reduction in U.S. military forces since the end of the Vietnam War. Like the Administration's budget proposal, my testimony today will focus on the proposed reduction of forces.

After a brief discussion of the overall budget proposal, I will analyze the details of the Administration's plan in categories proposed by the Chairman. I will first discuss changes in the number of U.S. forces, including the effects of those changes on the balance of military power between the United States and its potential adversaries. Next, I will talk about spending related to the readiness of U.S. forces and overhead activities. Finally, I will address the modernization of U.S. forces, including the near-term effects of the force reductions and the longer-run influence of spending on research and development.

The testimony reaches several conclusions:

- The proposed cuts in forces should permit compliance with the limits on budget authority in last year's budget agreement.
- From a U.S. perspective, the proposed cuts worsen the balance of military forces with potential adversaries, but those negative effects may be offset by other military advantages.
- Trends in modernization among categories of weapons will be mixed between now and 1995. Remaining forces, however, should be able to operate at current levels of readiness for war if overhead activities can be reduced in proportion to other cuts in operating costs.
- In the long run, substantial real increases in the U.S. defense budget would be required to modernize fully remaining U.S. forces with the new weapons now planned. To avoid budget increases, the Congress will have to be highly selective in choosing new weapons to be bought.

THE ADMINISTRATION'S DEFENSE BUDGET PROPOSAL

In 1992, the Administration proposes budget authority for the national defense function (function 050) of $290.8 billion, rising to $295.1 billion by 1995 (see Table 1). Compared with funding for fiscal year 1990, the year used

TABLE 1. THE ADMINISTRATION'S PROPOSED NATIONAL DEFENSE BUDGET FOR 1992 THROUGH 1995
(In billions of dollars of budget authority)

Category	Fiscal Year 1990	1991	1992[a]	1993	1994	1995
Department of Defense						
Military personnel	78.9	79.0	78.0	77.5	76.5	75.9
Operation and maintenance	88.3	86.0	86.5	84.7	84.6	85.7
Procurement	81.4	64.1	63.4	66.7	68.8	74.7
Research, development, test and evaluation (RDT&E)	36.5	34.6	39.9	41.0	40.1	37.5
Military construction	5.1	5.0	4.5	3.7	7.0	6.4
Other defense [b]	2.9	4.3	6.0	4.2	1.2	0.6
Total	293.0	273.0	278.3	277.9	278.2	280.7
Department of Energy	9.7	11.6	11.8	12.2	12.9	13.6
Other Defense-Related Activities	0.6	1.1	0.8	0.8	0.8	0.8
Total, National Defense (Budget Function 050)	303.3	285.6	290.8	290.9	291.9	295.1
Real Percentage Reductions[c] (Relative to 1990)	n.a.	-10	-13	-16	-19	-22
Real Percentage Reductions[c] (Relative to 1991)	n.a.	n.a.	-3	-7	-10	-13

SOURCE: Congressional Budget Office.

NOTE: Numbers may not add to totals because of rounding.
n.a. = not applicable.

a. Excludes a proposed transfer of $165 million from procurement to RDT&E for the V-22 program.

b. Category includes family housing, revolving funds, and allowances.

c. Using CBO economic assumptions.

for comparison in last year's budget discussions, the Administration's proposed budget authority would be lower in real or inflation-adjusted terms by 13 percent in 1992 and by 22 percent by 1995.

While the overall budget declines, there is no shift in emphasis between operating and investment funds. (Investment funds include appropriations for procurement, research and development, and military construction.) The percentage of Department of Defense (DoD) funds allocated to investment is 42 percent in both 1990 and 1995.

The portion of the declining budget allocated to various defense missions shows more of a shift. Unclassified data contained in the Future Years Defense Program (FYDP) show that general purpose forces, which are the forces that fight most conventional wars, receive a significantly smaller share of the declining DoD dollar (down from 39 percent in 1990 to 35 percent in 1995). Intelligence and communications receives a larger share (up from 10 percent to 12 percent), as do the forces that provide airlift and sealift (2 percent to 3 percent). The share for strategic forces increases only slightly (from 6 percent to 7 percent) based on the Administration's narrow definition of the mission. The increase would be larger if, for example, the definition was broadened to include funding for the Strategic Defense Initiative.

The shares of the budget each military service receives also shifts. Between 1990 and 1995, the Army's share declines most sharply (from 27.0 percent to 24.6 percent). Smaller shifts take place in shares for the other services, downward in the Navy and upward in the Air Force. The share received by the defense agencies grows significantly (from 6.1 percent to 8.7 percent), in part because of increases in funding for the Strategic Defense Initiative.

Compliance with Budget Ceilings

For 1992 and 1993, the Administration's proposed defense budget meets the limits on budget authority established by the Budget Enforcement Act (BEA) of 1990. By CBO's estimates, however, defense outlays would exceed the BEA limits by about $3 billion in 1992 and by less than $1 billion in 1993.[1]

CBO's estimate of outlays exceeds the limits primarily because we believe that the Administration has inappropriately claimed certain reductions

1. For further discussion, see *Analysis of the President's Budgetary Proposals for Fiscal Year 1992*, Congressional Budget Office (March 1991).

in outlays. Funds for some intelligence agencies are included in DoD's budget and are then transferred to the agencies. Before 1992, a transfer in budget authority was assumed to result in an outlay of the same amount in the first or budget year. However, the intelligence agencies apparently spend less than 100 percent of these funds in the first year. In 1992 and subsequent years, the Department of Defense has elected to use the lower spendout rates to estimate outlays associated with the transfers. This method reduces defense outlays, but it also raises outlays in other government accounts because the shift in spendout rates affects only intragovernmental transactions. In other words, the change does not result in any real savings to the government or any reduction in the government's borrowing needs.

CBO believes that, for purposes of meeting the BEA limits on outlays, this revision constitutes a conceptual change that is analogous to the change in accounting for federal credit programs. Under the BEA, such conceptual changes require an offsetting reduction in the outlay limit for defense. The Administration adjusted the limits for federal credit programs, but the limit on defense outlays was not reduced. Therefore, CBO believes it is inappropriate to claim the outlay reductions in the DoD budget.

In 1994 and 1995, the BEA does not set specific limits on the defense budget; instead, it sets limits on total federal discretionary spending. The Administration's proposed levels of defense budget authority, along with proposals for other types of spending, would meet these ceilings if the Congress approves the spending reductions the Administration recommends for domestic programs and international affairs. Under those recommendations, budget authority for domestic and international affairs in 1995 would be about 2 percent higher in real terms than its level in 1990, but about 8 percent below its 1991 level.

Would Smaller Force Cuts Permit Budgetary Compliance?

In recent testimony before the Congress, Secretary of Defense Cheney characterized the Administration's proposals to cut forces as a "good news" plan. The Secretary indicated that smaller reductions in forces could be necessary if the course of reform changed in the Soviet Union. The Secretary has also suggested that, unless cuts in forces are smaller than those now planned, the United States would have greater difficulty carrying out an operation like Desert Storm in the future.

Knowing exactly what a "bad news" plan might look like is impossible. It might just slow the currently planned reduction. Or it might lead to a decision to forgo part of the cut permanently.

To illustrate the budgetary consequences of a smaller reduction, CBO analyzed the savings from defense cuts that, in 1995, are roughly one-third smaller than those the Administration is now proposing. (Table A-1 in the Appendix to this testimony compares the smaller cut with the Administration's planned reduction.) In 1995, the annual operating savings stemming from the smaller reduction would be about $12 billion less than those associated with the Administration's plan.

These smaller cuts in forces would also mean smaller reductions in military personnel. For example, between 1990 and 1995, the smaller cuts assumed by CBO would result in a reduction of only 14 percent in the number of active-duty military personnel, compared with the reduction of 20 percent under the Administration's plan.

Although not large as a percentage of the defense budget, a requirement for $12 billion in extra operating funds would be difficult to accommodate within the limits set by the Budget Enforcement Act. The Administration could attempt to offset the increased operating costs by reducing spending for other defense activities, of which procurement is by far the largest. However, procurement spending has already been reduced significantly in recent years and may be difficult to cut further. Other categories of defense spending, such as research and development, are not large enough to absorb a reduction of $12 billion without far-reaching changes in programs.

Additional defense spending in 1995 could also be accommodated by making larger reductions in spending for domestic programs and international affairs. If these nondefense activities were to absorb the reduction, by 1995 their real funding would be about 4 percent below the 1990 level and 13 percent below the level in 1991. Large cuts in nondefense spending might be just as difficult to achieve as would offsetting reductions in the defense budget.

In sum, the Congress may have limited flexibility in meeting the ceilings imposed by the Budget Enforcement Act. If the Administration or the Congress decide on cuts in forces that are significantly smaller than those now planned, they may well have to revise the ceilings upward.

REDUCTIONS IN THE NUMBER OF FORCES

The Administration's defense budget request proposes substantial reductions in the number of military forces between 1990 and 1995 (see Table 2). The Army will experience the largest percentage reduction in major forces. It

TABLE 2. PLANNED ACTIVE AND RESERVE MILITARY FORCES THROUGH FISCAL YEAR 1995

Forces	1990	1995	Percentage Reduction
	Conventional Forces		
Army Divisions	28	20	29
Active	18	12	33
Reserve	10	6	40
Cadre	0	2	n.c.
Navy Ships	545	451	17
Carriers (Deployable)	13	12	8
Carrier air wings	15	13	13
Active Marine Corps Brigades	9	8[a]	11
Air Force Tactical Fighter Wings	36	26	28
Active	24	15	38
Reserve	12	11	8
	Strategic Forces[b]		
Land-Based ICBMs	1,000	650[c]	35
Sea-Launched Ballistic Missiles	608	496[c]	18
Strategic Bombers, Total	291	210[c]	28
Strategic Bombers (PAA)[d]	268	181	32

SOURCE: Statement of Secretary of Defense Cheney before the House Armed Services Committee (February 7, 1991), except as noted.

NOTE: n.c. = not calculable

a. Reduction estimated by CBO to account for personnel reductions reported by the Department of Defense.

b. Strategic forces in 1990 are based on data in the *Budget of the United States Government Fiscal Year 1992* (February 1991), p.85.

c. Estimated by CBO.

d. Primary aircraft authorizations.

plans to reduce the number of divisions in its active-duty forces from 18 in 1990 to 12 in 1995, while divisions in the part-time reserves will decrease from 10 to 6 over the same period. Air Force tactical fighter wings will decrease from 36 in 1990 to 26 in 1995. Nine of the ten tactical fighter wings eliminated from the Air Force come out of active-duty forces. Ships in the Navy's battle force will decline from 545 in 1990 to 451 in 1995. One brigade of Marine Corps forces (about 15,000 Marines) will be eliminated.

Reductions in strategic forces will also be made. CBO estimates that the number of strategic missiles based on land will be reduced by 35 percent between 1990 and 1995 as a result of the phasing out of the Minuteman II missile. However, land-based warheads would decline by only 14 percent. Missiles based on submarines will be reduced by 18 percent, while the total number of strategic bombers will fall by 28 percent.

These reductions in forces will allow the services to make significant cuts in military and civilian personnel. By 1995, the number of personnel on active duty and those in the selected reserve will each have been reduced by about 20 percent compared with numbers at the end of 1990 (see Table 3). The Army will experience the largest percentage reduction, losing 29 percent of its active personnel. Over the same period, the Air Force will experience a reduction of 19 percent, while Navy and Marine Corps personnel will decrease by 13 percent.

Personnel changes are the best common denominator we have for measuring reductions in all the services. By this measure, the Administration's proposed cuts in forces through 1995 represent a 20 percent cut from the 1990 level rather than the widely advertised reduction of 25 percent.

Effects of the Cuts on the Balance of Air and Ground Forces

The proposed cuts in forces will affect the balance of conventional (that is, non-nuclear) air and ground forces between the United States and its potential adversaries. This section focuses on air and ground forces because the reductions proposed by the Administration are largest in these categories and because relatively simple analytic techniques are available that permit us to assess the balance of such forces. This testimony does not analyze the effects of the Administration's proposed reductions on the balance of naval forces. Nor are naval and marine aviation forces included in the analysis of air forces.

In measuring the balance of air and ground forces, CBO used scoring methods that attempt to take into account both the quantity and the quality

TABLE 3. PERSONNEL REDUCTIONS PLANNED BY THE DEPARTMENT OF DEFENSE (In thousands of personnel)

DoD Component	End Strength in 1990	End Strength in 1995	Percentage Reduction
Army	751	536	29
Navy	583	510	13
Marine Corps	197	171	13
Air Force	539	437	19
Subtotal Active Forces	2,069	1,653	20
Selected Reserve Forces	1,128	906	20
Total, Active and Selected Reserve	3,197	2,559	20
Civilian Personnel	1,073	940	12

SOURCES: Department of Defense, "Fiscal Year 1992-93 Department of Defense Budget Request" News Release, February 4, 1991, and Department of Defense, *Manpower Requirements Report FY 1992* (February 1991).

of a nation's weapons. These methods do not take into account losses resulting from combat; rather, they estimate the capability of forces that would be available to each side during mobilization, before an attack begins. Nor do the methods capture the effects of training, tactics, logistics support, intelligence and communications, and other factors that influence the outcome of battles. These factors would generally favor the United States, especially when matched against countries other than the Soviet Union.

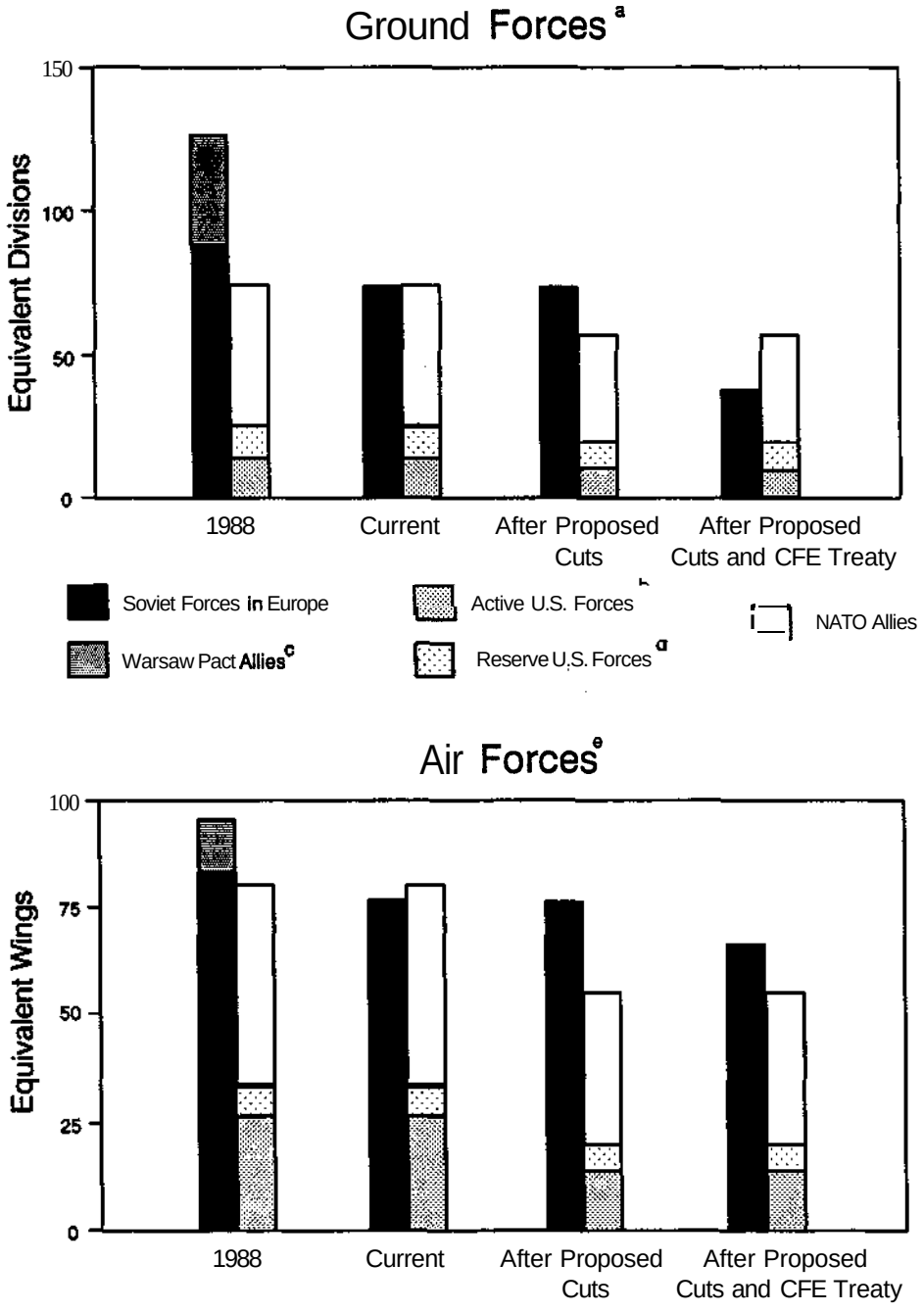
Operation Desert Storm provided clear evidence that factors such as training and tactics can contribute to overwhelming an opponent who, at least on paper, enjoys parity in terms of the number and quality of some types of weapons. No one, however, can predict with confidence the effects of factors such as training and tactics on future battles, let alone relate such factors to the Administration's proposed cuts in forces. Thus, the numerical results in this section focus on what we can predict—the numbers and quality of available weapons.

Comparisons with Soviet Union. The threat posed by the forces of the Soviet Union and its allies in the Warsaw Pact has shaped the size and structure of the U.S. military for the past four decades. Military conflict with the Soviet Union now seems unlikely, or would at least be preceded by a substantial period of warning. Nevertheless, the United States and its NATO allies will still probably want to consider Soviet capability in assessing proposed force reductions. Although the Soviet Union's social and economic problems may well have diminished the capability of Soviet forces, the assessments in this testimony ignore that decline because it is difficult to quantify and could be reversed.

Even after the Administration's proposed force reductions, the balance of capability for ground forces will be more favorable to the United States than it was in 1988, before the end of the Cold War. (These assessments of the capability of ground forces, which include the Army and other forces that would contest a land war, reflect only those forces that are expected to fight in Europe.) In 1988, the capability of the Soviet Union and its allies in the Warsaw Pact exceeded the capability of the United States and its NATO allies by a ratio of 1.6 to 1 for ground forces (see Figure 1). With the dissolution of the Warsaw Pact, the Soviet Union can no longer count on its allies for military support. Thus, in assessing the balance of forces today, it is most appropriate to compare NATO forces with those of the Soviet Union alone. That comparison shows rough parity of capability for ground forces.

The Administration's proposed cuts could reduce U.S. ground capability for NATO by about 25 percent below the current level. After these cuts, the ratio of the capability of Soviet ground forces to those of the NATO

Figure 1. Comparison of U.S. and NATO Forces with those of the Soviet Union and Its Allies



SOURCE: Congressional Budget Office.

NOTE: CFE = Conventional Forces in Europe; CONUS = Contintental United States.

a. Assumes full mobilization of U.S., Soviet, and other NATO forces.
b. Includes all forces in Europe plus reinforcements from CONUS.
c. The Warsaw Pact will no longer be a military alliance after March 31, 1991.
d. Includes all reinforcements from CONUS.
e. Excludes Naval and Marine aircraft.

allies could rise to about 1.3 to 1. This ratio assumes that our NATO allies make reductions in their forces proportional to those the United States makes, but that the Soviet Union makes no reductions in its ground forces beyond the cuts it has already made unilaterally. Although worse than today's balance of ground forces, this ratio would still be more favorable to NATO than the balance before the end of the Cold War.

Moreover, the Soviet Union may make some further reductions in its forces. Eventually, it might comply fully with the provisions of the Conventional Forces in Europe (CFE) treaty. That treaty has been signed but has not been submitted for ratification to the U.S. Senate because the Soviet Union insists on an interpretation of the treaty that none of the other 21 parties shares. Should the Soviet Union comply with the treaty as signed, it would have to destroy large numbers of its ground weapons. After the treaty was carried out, NATO's ground forces would enjoy an advantage over the Soviet Union of about 1.5 to 1, even if all of the Administration's proposed force reductions have been carried out.

Compared with ground capability, the balance of capability in the tactical air forces would be less favorable for the United States and its NATO allies. (Assessments of the capability of tactical air forces, which include the fighter and bomber aircraft that would attack enemy forces, encompass all those aircraft that are expected to fight in the region between the Atlantic Ocean and the Ural Mountains in the Soviet Union.) In 1988, before the end of the Cold War, the ratio of tactical aircraft capability between the Warsaw Pact and NATO was about 1.2 to 1 in favor of the Pact (see Figure 1). Currently, with the dissolution of the Warsaw Pact, a rough parity of capability in tactical air forces exists between the Soviet Union and NATO. The Administration's planned reductions could reduce U.S. tactical air forces for Europe by about 40 percent below its current level. If the NATO allies make proportional reductions in their air forces but the Soviet Union makes no reductions, then the Soviet Union would enjoy a substantial advantage over NATO of about 1.4 to 1.

Other factors, however, may offset this advantage. For example, if the Soviet Union were to comply fully with the CFE treaty, it would enjoy an advantage over NATO in tactical air forces of only about 1.2 to 1. Moreover, the ratios do not include naval and marine aircraft, a category where NATO would have an advantage. Also, some Soviet aircraft that are included in CBO's comparisons may not be used to oppose NATO forces. Many Soviet aircraft, while capable of opposing allied forces, are configured to defend the Soviet homeland and so might be kept out of any offensive action.

These balances of forces may suggest why some policymakers are cautious about carrying out all of the Administration's proposed reductions in forces. If the Soviet Union does not make substantial force reductions, the cuts the Administration proposes—coupled with cuts by the NATO allies—could leave the Soviet Union with some military advantages over NATO, particularly in tactical aircraft. If the Soviet Union were once again to become aggressive in its use of military forces, those advantages could be worrisome.

However, the analysis in this section makes assumptions that may significantly overstate the Soviet Union's advantages. For example, NATO's forces may be better trained and enjoy superior logistical support, factors that are not captured in these ratios. More important, the analysis assumes that Eastern European nations would remain neutral in any future conflict. Some of these nations, however, have indicated a desire to join NATO and might fight on NATO's side in any future war. Factors such as these may offset, perhaps more than offset, any Soviet advantages.

Comparisons with Other Nations. Although Soviet forces still pose the largest military threat to the United States, most analysts agree that war with the Soviet Union is unlikely. A conflict with some other country may be much more likely. Thus, this testimony compares U.S. military capability, before and after the Administration's proposed force cuts, with the capability of three potential adversaries other than the Soviet Union: Cuba, North Korea, and a large armored foe.

We selected the three potential adversaries to illustrate a wide spectrum of potential opponents. The comparison with Cuban forces is included to illustrate U.S. capabilities against potential threats closer to our own country. The United States is committed by treaty to the defense of South Korea from its northern neighbor. In assessing capabilities against North Korea, we assume that all the forces of South Korea fight with the United States. The large armored foe, which is assumed to have forces similar to those of Iraq before the war, is included to illustrate how U.S. military capability would compare against a heavily armed nation in the Middle East or elsewhere. (Table A-2 in the Appendix shows the key forces of various heavily armed nations.) While no obvious adversary has this capability, it is prudent to assess the effects of the proposed force cuts against a well-armed foe other than the Soviet Union. Because of uncertainty about the presence of allies, none is included in assessing U.S. capability against this large adversary.

A comparison of the capabilities of U.S. forces against those of other nations reveals one clear conclusion. Even after the Administration's

proposed reductions in forces, the United States would enjoy overwhelming advantages in tactical aircraft over all three potential foes. After U.S. reserve forces had been called up, the ratio of capability would range from 4 to 1 against the large armored foe to 16 to 1 against Cuban forces (see Figure 2, which notes the U.S. forces that are assumed to be pitted against each of the potential adversaries). Ratios of capability would still heavily favor the United States, even if reserve air units were not called up. Nor do these ratios capture the effects of the superior training of U.S. pilots, which means that the United States has an even greater advantage.

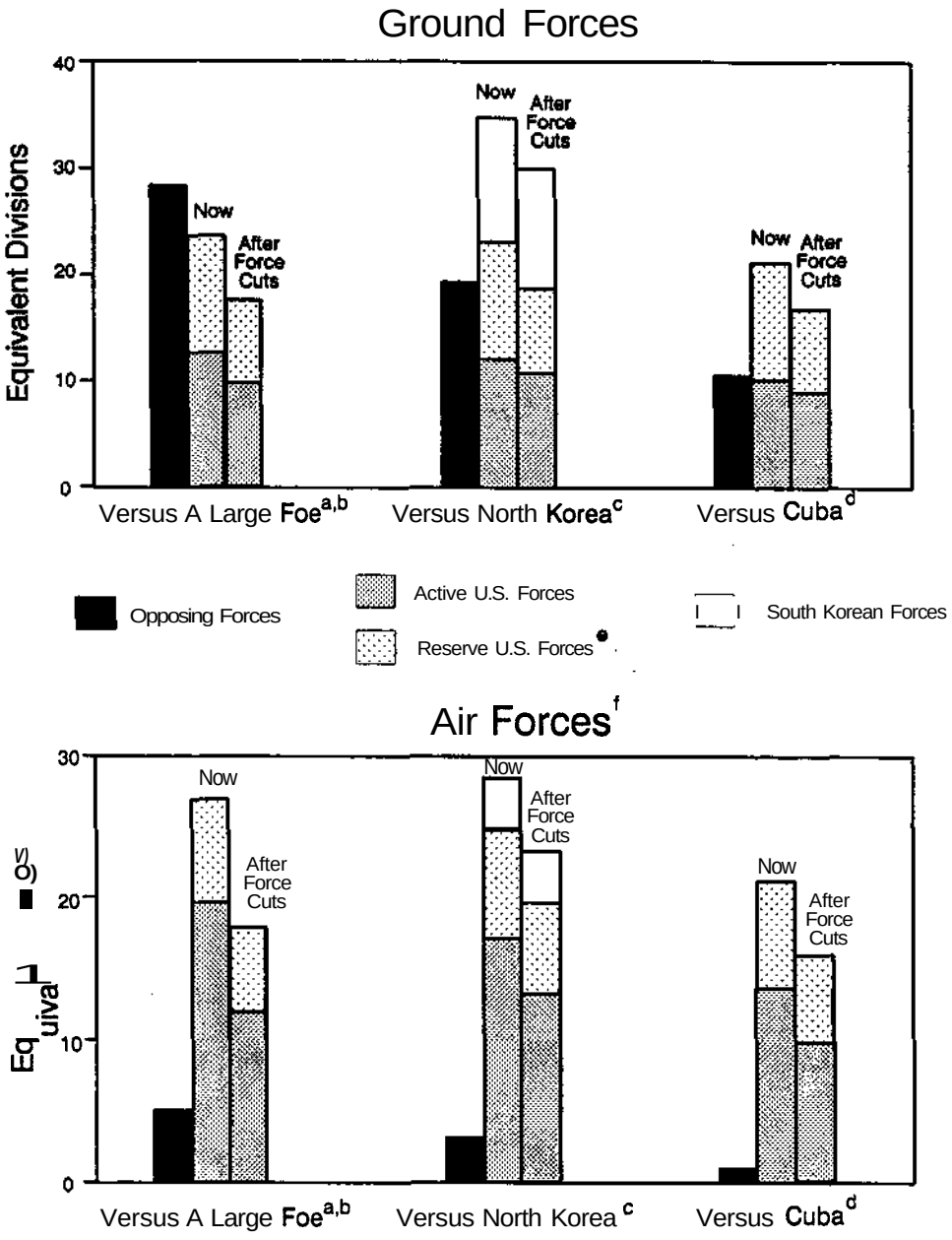
On the ground, the effects of the force cuts on U.S. capability against these three potential adversaries would vary more widely than is the case for air forces. Against the relatively small Cuban military, those U.S. ground forces that are on active duty and might reasonably be used in such a conflict would be roughly equivalent in capability to Cuban forces, even after the Administration's proposed cuts in forces. (CBO assumes that about two-thirds of all U.S. ground capability on active duty would be available for a Cuban conflict.) Adding in U.S. reserves would provide the United States a substantial advantage.

The story would be similar in a conflict against North Korea. South Korean forces, coupled with those U.S. forces that are on active duty and that might reasonably be used in such a conflict, would match the ground forces of North Korea even after the Administration's force cuts. (CBO assumes that about three-quarters of all U.S. ground capability on active duty would be available for a Korean War.) Adding in U.S. reserves would provide the United States and South Korea with a substantial advantage.

Against a country with the forces of the large foe, the United States would face some disadvantages on the ground. The U.S. ground forces likely to be used in such a conflict, including both reserve and active forces, would be at a modest disadvantage today (about 1.2 to 1) and a somewhat larger disadvantage after the Administration's proposed cuts in forces (about 1.6 to 1). Before adding the reserves, U.S ground forces could be outnumbered even more heavily, by more than two-to-one today and by almost three-to-one after the force cuts.

These disadvantages against a large foe, which is patterned after the forces Iraq possessed before the war, are clearly not consistent with the overwhelming military victory achieved during Operation Desert Storm. The ratios, however, capture only the effects of the number and quality of weapons. The ratios do not reflect important assistance that the United States received from its allies. Nor do the ground ratios reflect the military advantage the extensive air campaign conferred. Finally, the ratios do not

Figure 2. Comparison of Illustrative U.S. Force Deployments to Various Theaters with those of Other Countries



SOURCE: Congressional Budget Office

NOTE: CONUS = Continental United States.

a. Based on the equipment holdings of pre-war Iraq.

b. Includes one-half of U.S. forces in Europe plus reinforcements from CONUS.

c. Includes U.S. forces in the Pacific plus reinforcements from the CONUS

d. Includes U.S. forces in Panama plus reinforcements from CONUS.

e. Includes U.S. reinforcements from CONUS.

f. Excludes Naval and Marine aircraft.

reflect the coalition's apparently superior military training, logistics, intelligence, communications, and tactics.

In sum, even after the Administration's proposed cuts in forces, the United States and its allies would have important military advantages over a wide range of potential foes, particularly in the air. Against a large foe, such as one with Iraq's prewar forces, the planned force reductions would slightly exacerbate the U.S. disadvantage on the ground. However, the overwhelming victory recently achieved in the Persian Gulf suggests that disadvantage may be more than offset by factors other than numbers and quality of weapons.

Effects on Balance of Strategic Forces

Today, the strategic nuclear forces of the United States and the Soviet Union are roughly in balance. The United States has a slight edge in the number of strategic warheads, roughly 13,000 warheads compared with about 11,000 warheads in the Soviet Union's arsenal. The United States has an advantage in that its warheads are generally more accurate. But Soviet missiles have the capability to launch larger payloads.

This rough balance of strategic forces should be preserved even after the Administration's proposed force reductions. By the year 2000, the reductions would cut the number of U.S. strategic warheads by about 20 percent. The reduction in warheads would be slightly larger during the period before the procurement of the B-2 bomber was completed. If the United States and the Soviet Union agree to and carry out the provisions of the Strategic Arms Reduction Talks (START) treaty that is now being negotiated, the Soviet arsenal of warheads should be reduced by at least as much as the U.S. arsenal.

Even if the START treaty is not carried out, the Administration's proposed reductions would still leave the two sides with roughly equal numbers of warheads. Without START, however, the Soviet missiles would retain the advantage of launching larger payloads. With or without START, new forces being deployed by both sides will be better able to survive an enemy attack, which should enhance stability during a period of crisis.

READINESS AND OVERHEAD

Readiness of military forces can be defined as the ability to fight well early in a war. If U.S. forces are to be reduced in number, it is particularly important that those forces that remain on active duty be ready to fight quickly in the event of war.

The Department of Defense states that it has budgeted funds to maintain the readiness of U.S. military forces at current levels through 1993. Consistent with that decision, spending on training, maintenance, and other readiness-related accounts is to be kept high enough to maintain current levels of key measures of readiness—such as training days for Army units, flying hours for Navy and Air Force aircraft, and steaming days for Navy ships. The overall mix of active-duty and reserve personnel is not changed between 1990 and 1995, which also suggests that readiness will not change.

Though DoD plans no reductions in readiness-related spending, readiness may still fall temporarily. During the next few years, DoD plans to eliminate roughly one in five military units. To carry out these cuts, forces will have to be reorganized and moved to permit the closing of military bases. Some of those active and reserve units that remain in the force will receive new equipment from units that are deactivated. The turmoil associated with these many changes may well temporarily reduce readiness.

CBO Estimates Are Consistent With Constant Readiness Spending

CBO's estimates of operating costs are consistent with the assumption that readiness-related spending does not change. CBO estimated the cost of operating the Administration's planned forces in 1992 through 1995. We assumed that readiness-related spending for each major type of military unit remained roughly constant at its real level in 1989. (1989 was the last complete fiscal year before the beginning of the reductions in forces that make it difficult to identify budgetary relationships.) CBO's estimates of operating and support costs (which we define as funds for military personnel and operation and maintenance) are within about 4 percent of DoD's planned spending, both spending in 1995 and total spending in the 1992 through 1995 period. Given the inevitable errors in estimation, these are not significant differences.

However, CBO's estimates of operating costs match DoD's planned funding only when we assume proportional reductions in all categories of operating and support costs, including so-called "overhead" costs. Some portions of operating and support costs, such as the pay for personnel in military units and the cost of fuel used in unit training, can be related directly to the number of units. Other portions—for example, parts of the medical and training establishment—can also be related to the number of units in the military, though only indirectly. The remainder of operating and support costs tend not to respond to changes in the number of units. These activities, which CBO terms overhead, include much of the training and medical establishment as well as many administrative services and many of the activities that provide central supply and maintenance services. If changes in numbers of forces are

small, little or no reduction in these overhead activities would be expected. Larger changes in forces, however, suggest eventual reductions. CBO's estimates of operating costs in 1992 through 1995 match DoD's planned funding only when we assume that reductions in overhead are proportional to reductions in the direct and indirect categories of operating costs.

This assumption of proportional reductions in overhead seems consistent with DoD's future-year plans. Between 1990 and 1995, the total dollars in the three DoD budget programs that are most closely related to overhead (training and medical, central supply and maintenance, and administrative costs) are reduced roughly in proportion to cuts in the overall budget.

Proportional Cuts in Overhead

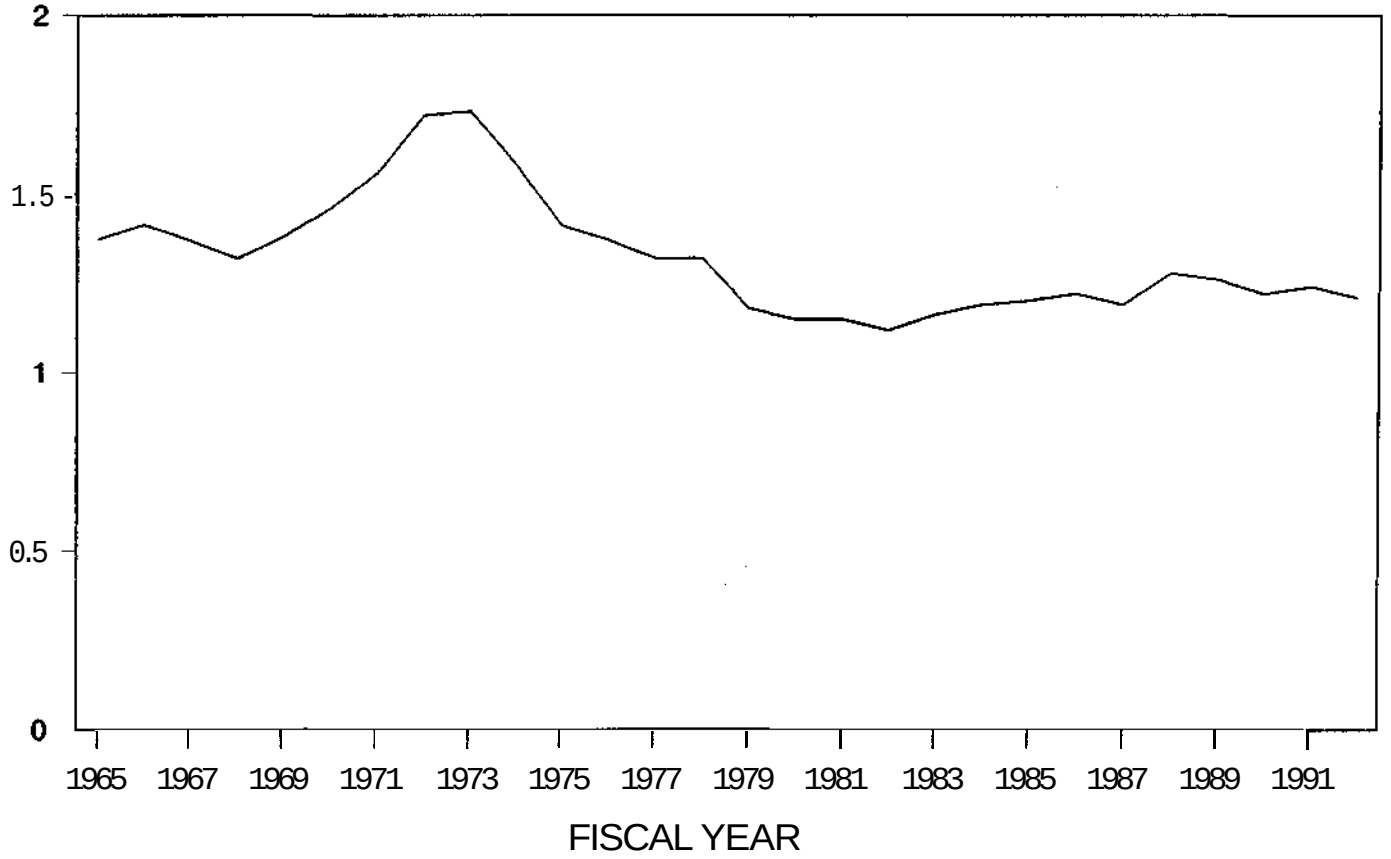
Proportional cuts in overhead are desirable in that they avoid cutting the "teeth" of the defense establishment more than its "tail." However, proportional reductions in overhead may be difficult to achieve in the next few years. If budgetary targets must be met, this difficulty could lead to reductions in categories of spending more directly related to readiness and, hence, in readiness itself.

The budgetary history of the Vietnam period suggests the difficulty of achieving proportional cuts in overhead quickly. After the peak of the Vietnam War, forces and personnel were reduced; active-duty personnel levels fell from a peak of 3.5 million in 1968 to a level of 2.2 million in 1974. As Figure 3 shows, in the early years of this reduction, support costs rose sharply in relationship to the direct costs of strategic and tactical forces. (Support costs in Figure 3 include both overhead and some indirect categories of expenses.) It took about seven years for the ratio to return to its pre-reduction level. Thus, if history is a guide, DoD will have trouble achieving proportional reductions in overhead by 1995.

Some categories of overhead spending may be difficult to reduce at all, let alone proportionally. For example, the Congress has expressed reservations about making any cuts in the military medical establishment, which makes up an important portion of overhead funding.

Of course, the Department of Defense may be able to achieve substantial efficiencies in its operations that will help it meet its budget targets for operating costs. Indeed, the Department has stated that it is seeking such efficiencies by carrying out the recommendations of its Defense Management Review. In the past, however, DoD has had difficulty achieving large dollar reductions through efficiencies.

Figure 3. Ratio of Support Costs to Operating Costs for Strategic and Tactical Forces



SOURCE: Congressional Budget Office

Note: Support Costs include both indirect costs of forces, as conventionally defined, and overhead costs not attributable to individual force elements

MODERNIZATION

How does the Administration's defense program affect the modernization of U.S. military forces? Modernization is important because newer weapons are generally more capable, and future U.S. weaponry may be pitted against modernized enemy weapons.

Research and Development: Key to Future Modernization

In the long run, modernization is influenced by funding for research projects in new technologies that can increase the capability of the next generation of weapons. The Administration is requesting research, development, test, and evaluation (RDT&E) appropriations totaling $40 billion in 1992. The request for 1992 represents a real increase of only 1 percent compared with funding in 1990. Growth is not sustained in the years beyond 1992. By 1995, real funding for RDT&E under the Administration plan would be 16 percent below its 1990 level. Moreover, much of the growth in 1992 pays for increased funding for one program—the Strategic Defense Initiative (SDI). Funding requested for SDI is $4.6 billion in 1992, compared with $2.9 billion the Congress appropriated in fiscal year 1991.

Despite Congressional guidance to establish a 2 percent real increase in basic research as a target, the Administration did not propose real increases in funding for the technology base in either 1992 or 1993. Indeed, funds for basic research and exploratory development (that is, those in subcategories 6.1 and 6.2) would actually decrease in real terms by about 6 percent in 1992 and remain at that lower level in 1993.

As reflected in the above budget trends, DoD's priorities are unlikely to contribute significantly to the national goal of increasing productivity in U.S. industry. Spending on defense research and development represents about one-half of the federal government commitment to R&D, which will total about $76 billion in fiscal year 1992. However, 90 percent of DoD spending for R&D pays to develop weapons, not to engage in basic research, and much of the technology is classified. Thus, this spending may do little to promote general advances in U.S. industrial productivity or to develop new products to enhance U.S. competitiveness. Nor does most of DoD's R&D budget do much to offset the funding advantages some U.S. competitors enjoy. Measured relative to the size of their economies, other major industrial nations, such as Japan and Germany, spend about 50 percent more on nondefense R&D than does the United States.

Near-Term Trends in Modernization

The pace of modernization in the next few years can be measured by changes in the average age of weapons. Changes in average age suggest changes in the proportion of weapons that have newer and, usually, more capable designs. Average age is certainly not a perfect measure of capability. An ideal measure would compare the abilities of **U.S.** weapons with the enemy threats they might face. However, average age provides a reasonable index of modernization and the improved capability that often goes with it.

Measured by average age, trends in modernization are mixed between now and 1995, depending on the type of weapon. Most categories of ships will be as or more modern than they were in 1990 (see Table 4). Major surface combatants and attack submarines decline or remain constant in average age; submarines carrying ballistic missiles are, on average, 7 years younger. As a result of older aircraft being retired, tactical aircraft in the Air Force decline sharply in average age by 1993, from 10 years to 8 years. By 1995, however, the average age of these aircraft returns to approximately its 1990 level. (These and other conclusions in this section reflect CBO's understanding of DoD's plans for retiring older weapons and buying new ones. The results might change somewhat as more information becomes available.)

In contrast to ships and Air Force aircraft, the average age of Navy combat aircraft rises steadily between 1990 and 1995, from 12 years to 15 years. CBO does not have detailed data on Army equipment. However, the average age of the Army's tanks, fighting vehicles, and helicopters will probably grow considerably between now and 1995.

Both purchases of new equipment and retirements influence these trends in average age. Faced with the need to reduce forces, the military services will generally choose to retire their oldest equipment first, which tends to make weapon inventories younger and more modern. Over the 1992-1995 period, for example, the Navy is likely to remove from its active forces all of the remaining James Madison and Benjamin Franklin class ballistic missile submarines (retaining only the 18 Ohio-class Trident submarines), nearly all its Knox class frigates, older Adams and Farragut class guided-missile destroyers, and its four modernized battleships. Surviving remnants of the older generation of aircraft will also be retired.

While retirements tend to make U.S. military equipment more modern, cuts in the procurement of new weapons have just the opposite effect. In its last two budget proposals, the Administration has proposed terminating at least 20 major acquisition programs. In addition, it has proposed sharp reductions in the rates of production for other programs, including the F-16

TABLE 4. AVERAGE AGES FOR SELECTED MILITARY EQUIPMENT

Equipment	1990	1993	1995
Air Force Tactical Aircraft	10	8	10
Navy Combat Aircraft	12	13	15
Naval Surface Combatant Ships	15	13	14
Attack Submarines	14	14	14
Ballistic Missile Submarines	18	15	11

SOURCE: Congressional Budget Office based on Department of Defense data.

and F/A-18 aircraft. For some major categories of weapons—particularly Army tanks and Air Force tactical aircraft—these decisions mean that DoD's proposed levels of procurement represent only a tiny fraction of its inventory requirements, even after the planned cuts in forces (see Table A-3 in the Appendix for details).

This sharp diminution of orders for weapons could reduce the number of companies producing equipment for the military. Loss of DoD business will affect most heavily the major firms that specialize in producing military equipment and weapons and the smaller firms that support their activities. The Administration, for example, plans to close five of the 13 active ammunition plants by 1993. Two factors could, however, serve to cushion the impact of the reductions. The first is the substantial backlog of orders that still remain. At the end of fiscal year 1990, $136.3 billion in DoD procurement obligations remained unspent and another $32.4 billion in funds were yet to be obligated. The second factor is sales of military equipment to foreign markets. In the wake of the invasion of Kuwait, Saudi Arabia ordered some $7.5 billion in equipment, and total sales to that country may amount to some $21 billion. Additional sales to other nations may result from the exemplary performance of U.S. weapons in conflict.

Despite the potential for negative effects on some defense companies, the sharp cutbacks in procurement may be quite consistent with the situation facing the Department of Defense. As a result of the large procurement budgets of the 1980s, DoD entered the 1990s with a substantial stock of relatively new equipment. Moreover, procurement programs in the 1980s were designed to meet the needs of military forces significantly larger than DoD now plans. Thus, the military services have more of many items of equipment than they need to equip forces, and can afford to terminate or slow procurement programs for the next few years to accommodate budgetary pressures.

Sharp procurement cutbacks, however, will in some cases more than offset the effects of reductions in forces and the retirements of older weapons that accompany them. Thus, by 1995 several categories of DoD weapons will not only be fewer in number but also less modern.

ADEQUACY OF DEFENSE FUNDING IN THE LONGER RUN

So far, this testimony has analyzed the effects of the Administration defense plan for 1992 through 1995. Those will be years of transition and turmoil for the defense establishment as it seeks to accommodate lower budgets and smaller forces. Will this period of turmoil end in 1995?

Perhaps not. Our analysis suggests that, even if the Administration carries out its proposed cuts in forces, the level of real defense budget authority the Administration proposes for 1995 will not be enough to support the smaller forces in the long run. The main problem is funding for procurement. Between now and 1995, and perhaps for some years after 1995, DoD can hold down spending on procurement by living off the stock of equipment it acquired in the 1980s. Eventually, however, the equipment bought in the 1980s and in earlier years will wear out and require replacement.

CBO estimates that, in the long run, the average annual funding required to replace this aging equipment would amount to about $109 billion in 1991 dollars (see Table 5). Demands for substantially higher procurement funding would most likely occur in the late 1990s or the early part of the next century. At that time, the average annual level of required funding could exceed the amount the Administration plans to spend on procurement in 1995 by more than $40 billion. Long-term requirements for procurement funding are large because the Administration plans to buy the new and much more expensive generation of weapons now in development or the early stages of procurement. These new weapons include the SSN-21 submarine, the C-17 aircraft, the B-2 bomber, the Advanced Tactical Fighter, a replacement for the A-6 aircraft, and replacements for the M-1 tank and Bradley Fighting Vehicle.

These estimates of annual procurement funding are based on numerous assumptions. Estimates depend critically on how long equipment can be maintained in the DoD inventory. CBO has made assumptions based, wherever possible, on recent experience with planned or actual retirements. These assumptions imply quite lengthy service lives, ranging up to 46 years for some ships and aircraft (see Table A-4 in the Appendix for selected examples of the service lives assumed in this analysis). CBO also had to make assumptions about the cost of the new generation of weapons. These assumptions are based on the latest available information about expected costs. In the case of the Army, which is just beginning to develop a new generation of weapons, CBO assumed an average annual real growth in costs of about 3 percent a year. Finally, CBO made explicit estimates about funding required to pay for major weapons. For more minor weapons and support systems, where detailed data are not available, CBO assumed that long-term levels of real funding maintained the same relationship with major procurement as has been the case in the recent past.

DoD could attempt to avoid its long-term budgetary problems by altering various policies. It might, for example, attempt to maintain weapons in its inventory even longer than CBO assumed in its analysis. However, this

TABLE 5. ESTIMATED ANNUAL PROCUREMENT COST TO MAINTAIN 1995 FORCES OVER THE LONG RUN
(In billions of 1991 dollars)

Service	With Current Equipment[a]	With Modernized Equipment
Army	17	26
Navy and Marine Corps	23	42
Air Force	26	39
Total, Military Services	66	106
Defense Agencies	2	3
Total, Department of Defense	67	109

SOURCE: Congressional Budget Office.

NOTE: Details may not add to total because of rounding.

a. Alternately, replacement weapons could be new versions that have the same unit costs as current weapons.

analysis already assumes lengthy service lives. DoD might also be able to develop new weapons that cost less to operate, thereby offsetting higher procurement costs with lower costs for operations and support. Lower operating costs are often a goal in the design of new weapons, and DoD has succeeded in developing new weapons that require fewer people and funds to pay for direct operating costs.

However, the history of the relationship between procurement and total operating costs (including not only direct operating costs but also indirect costs and overhead) is discouraging. During the years between the mid 1970s and the latter part of the 1980s, total operating and support costs have often tended to increase with the overall value of DoD's stock of weapons. Thus, in the past, more costly weapons have been associated with total operating budgets that are higher, not lower.

To offset higher procurement costs, DoD could also attempt to reduce categories of spending other than operating and support costs. These other categories are, however, relatively small. Moreover, some of them have already been cut substantially. For example, during the early 1990s funding for military construction, which pays for new buildings and other physical structures, will be at its lowest real level since the early 1970s.

DoD may also be able to find less costly ways to provide adequate national security, perhaps based on the lessons of the current war. Increased use of smart munitions may represent one such approach. According to press reports, the performance of some U.S. munitions has been outstanding during Operation Desert Storm. By focusing research efforts on improving munitions rather than on improving the more costly ships, aircraft, and tanks that deliver the munitions, it may be possible to hold down procurement costs. Such a policy, however, requires difficult and uncertain choices between cost and military capability that are not likely to be made quickly.

One policy could resolve DoD's long-term funding problem. If the services elected to replace aging equipment with the current generation of weapons, or with replacement weapons that cost the same as the current generation, then instead of $109 billion the average annual requirement for procurement funding would be about $67 billion—roughly the level of procurement funding planned for 1995, expressed in 1991 dollars. Of course, such a policy is no panacea because it would require DoD to forgo the benefits of the new generation of weapons. Comparing the $67 billion with the $109 billion does, however, dramatize the budgetary effect of choosing to modernize U.S. forces with the next generation of weapons.

CONCLUSION

We have examined the Administration's proposed defense budget using the categories proposed by the Chairman. Between now and 1995, the Administration's proposed defense budget should comply with limits on defense budget authority, in part by maintaining a smaller number of forces. While trends in modernization among various categories of weapons would be mked, the remaining forces should be able to maintain current levels of readiness if overhead can be cut in proportion to reductions in other categories of operating costs.

In the late 1990s and beyond, however, funds may not be adequate to support the smaller number of forces, largely because of the high cost of the new equipment DoD plans to buy. This finding emphasizes the importance of a choice that will be made, not in the late 1990s, but in the next few years. If DoD begins to procure all of the new weapons now proposed, production lines for the current generation of weapons will be closed. In that case, the choices for defense in the late 1990s and the early part of the next century may be simple: find substantially more funds or accept much larger cuts in forces. If those choices are not acceptable, then DoD and the Congress must be selective over the next few years about which new weapons are bought and which older weapons are not.

APPENDIX A. TABLES

TABLE A-1. ILLUSTRATION OF SMALLER FORCE CUTS

Force	Cuts by 1995	
	Smaller Cut	Administration's Proposed Cuts
Army Divisions		
Active	4	6
Reserve	3	4
Navy Ships	63	94
Marine Corps Brigades	0	1
Air Force Active Tactical Fighter Wings	7	9

SOURCE: Congressional Budget Office based on Department of Defense data.

TABLE A-2. ARMED FORCES OF VARIOUS NATIONS

Adversary	Tanks	Ground Troops (In thousands)	Combat Aircraft[a]
Soviet Union (Forces in Europe)			
1988	38,100	2,200	7,600
Current	20,694	1,960	6,445
Post CFE Treaty	13,150	n.a.	5,150
China	7,750	2,300	5,070
Large, Heavily Armored Foe[b]	5,500	955	607
Syria	4,000	300	634
North Korea	3,500	1,000	796
Cuba	1,100	145	191

SOURCES: Congressional Budget Office based on The International Institute for Strategic Studies, *The Military Balance 1990-1991* (London: IISS 1990) and Congressional Budget Office, "Budgetary and Military Effects of a Treaty Limiting Conventional Forces in Europe" (September 1990).

NOTES: n.a. = not available.
CFE = Conventional Forces in Europe.

a. Excludes naval and marine aircraft, but includes trainers capable of combat that are assigned to air forces.

b. Based on the forces available to Iraq before Operation Desert Storm.

TABLE A-3. COMPARISONS OF EQUIPMENT LEVELS AND PLANNED PROCUREMENT FOR SELECTED CATEGORIES OF WEAPONS

Equipment	1995 Level	Average Annual Procurement in 1992 - 1995
Navy Ships[a]	451	9
Navy/Marine Corps Combat Aircraft[b]	3,300	78
Air Force Fighter Aircraft[b]	2,800	18
Army Tanks[c]	6,300	0

SOURCE: Congressional Budget Office based on Department of Defense data.

a. Includes battle force ships.

b. CBO estimates of approximate inventory required to equip planned number of wings.

c. CBO estimates of approximate inventory to meet Army requirements, excluding war reserves.

TABLE A-4. SELECTED SERVICE LIVES USED IN ESTIMATES OF STEADY-STATE PROCUREMENT (In years)

Equipment Item	Service Life
Army Equipment	
Combat Vehicles	30
Helicopters	30
Patriot Launchers	30
Missiles	20
Ships	
Aircraft Carriers	45
Cruisers/Destroyers	40
Frigates	30
Submarines	30
Amphibious Ships	35
Replenishment Ships	40
Aircraft	
F/A-18 Aircraft	20
E/A-6B Aircraft	35
Navy Helicopters	22-34
Air Force Fighters	21
Strategic Bombers	42
Tankers	46
Strategic Airlifters	45
Tactical Airlifters	30

SOURCE: Congressional Budget Office.