Statement of
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before the
Defense Policy Panel
Committee on Armed Services
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Mr. Chairman, I appreciate the opportunity to testify today on what has been accomplished to improve military capability since 1980. Between 1980 and 1985, budget authority for the Department of Defense (DoD) increased by 51 percent after adjustment for inflation. Unfortunately, the measures available to assess what has been accomplished by that buildup are severely limited. There exists today no direct, comprehensive measure that quantifies the likelihood that U.S. forces, together with those of our allies, would prevail in a future conflict. Nor are we ever likely to develop such a comprehensive measure.

My testimony today is based on a Congressional Budget Office (CBO) review 1/, which had a more limited objective--namely, to summarize for the Congress data on our military forces and their capabilities. CBO did not examine the growth in Soviet forces and their capabilities. Moreover, in assessing U.S. forces, CBO accepted the Administration's overall strategic framework and priorities. We can count the numbers and types of weapons; we can also assess improved capability in other areas, although with less certainty. But measuring overall cost effectiveness is virtually impossible, and definitive conclusions remain elusive.

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1. Congressional Budget Office, "Defense Spending: What Has Been Accomplished," Staff Working Paper (April 1985).

The measures I will review today show improvements in various factors that are generally accepted as important indicators of U.S. military capability. The measures fall into four categories:

- o Force structure--the number of combat units of various types;
- o Modernization--the replacement of older equipment with newer, more sophisticated equipment;
- o Readiness--the ability of U.S. forces to deploy and fight in the early stages of a conflict; and
- o Sustainability--the ability to sustain prolonged combat to a successful resolution.

Based on those measures, there has been general improvement in all aspects of military capability between 1980 and 1985. With a few exceptions, such as quality of personnel, however, quantitative measures of performance show only modest improvements. In many areas, quality is, of course, harder to measure.

DEFENSE BUDGET INCREASES

During the first four years of this Administration (fiscal years 1982-1985), the Congress provided about $1.1 trillion in budget authority for national defense. Even after adjustment for inflation, this amount is about 36 percent greater than was spent in the previous four years. Looked at

another way, total budget authority for the Department of Defense in 1985 stood at $284.1 billion, 51 percent higher after adjustment for inflation than it was in 1980. This growth has left real defense budget authority higher than it has ever been in peacetime. As a percentage of gross national product, however, defense spending is still considerably less than it was in the peacetime period of the late 1950s.

Not all categories of DoD budget authority benefited equally during the buildup. From 1980 to 1985, investment funding, after adjustment for inflation, rose from $68.5 billion to $134.1 billion, an increase of 96 percent. (The investment-related funds in the DoD budget include appropriations for procurement, research and development, and military construction.) Clearly, the Administration has emphasized investment in its buildup.

Percentage increases in operation and support costs between 1980 and 1985 were considerably smaller than those for investment. Increases in personnel costs were the smallest of all the major appropriations. Military personnel funding rose to $67.8 billion in 1985, an increase of 12 percent over the 1980 level. The other major part of operation and support funding--operation and maintenance appropriations--rose to $77.7 billion in 1985, an increase of 34 percent. Operation and maintenance dollars pay for operations, training, maintenance of facilities and equipment, personnel support, and other essential activities.

TABLE 1. DEPARTMENT OF DEFENSE BUDGET AUTHORITY IN 1980 AND 1985 (In billions of 1985 dollars)

Category	1980	1985	Percent Change
Investment			
Procurement	48.2	97.2	102
Research, development, test and evaluation	17.4	31.4	80
Military construction	2.8	5.5	95
Total investment	68.5	134.1	96
Operation and Support			
Military personnel	60.4 a/	67.8	12
Operation and maintenance	57.3	77.7	34
Family housing	2.0	2.9	43
Revolving funds and miscellaneous	b/	1.5	N/A
Total operation and support	119.7	149.9	25
Total DoD Budget Authority	188.3 c/	284.1 c/	51

SOURCE: Congressional Budget Office.

N/A = not appropriate.

a. Adjusted to an accrual accounting basis for retired pay.

b. Less than $50 million.

c. Detail does not add to total because of rounding.

What has been accomplished by this buildup of defense budget authority, particularly investment authority? CBO used many measures to judge the effects of higher spending. They fall into the four categories I mentioned earlier: force structure, modernization, readiness, and sustainability. In addition to the severe limits on these measures that I have already discussed, there are others that should be borne in mind.

Some of these measures, such as force structure, involve comparing assets. In examining these measures, care must be taken to distinguish between increases in procurement funding and resulting increases in the stock of defense equipment. The U.S. military owns a large stock of long-lived capital assets (ships, aircraft, vehicles, and base facilities) whose total value in today's prices approaches $800 billion. Losses of equipment occur each year because of accidents, retirement of equipment that is too old to maintain economically, or obsolescence in the face of improved enemy capabilities. Thus, a certain amount of investment is required just to stay even.

If funding is provided in excess of the cost of replacing lost assets, the stock of equipment will increase. Doubling the annual funding for new equipment, however, will not result in doubling the total stock of equipment.

As an example, suppose the average life of DoD equipment was 20 years, so that investment representing 5 percent of the stock was required each year to replace losses and retirements. Also, let the original level of funding be equal to this, so that DoD assets are being held constant. Then a 100 percent increase in investment funding (to a level equal to 10 percent of the stock) would still result in an increase of only 5 percent per year in the stock. In this example, it would take over 14 years of spending at the higher rate to achieve a doubling of the size of the stock.

Timing is also a problem with these measures. CBO has measured funding by budget authority, which represents DoD's right to enter into contracts for weapons and other support. Actual deliveries will lag behind funding by periods of two to five years, depending on the item being purchased. Some measures, especially those for force structure, will thus not yet reflect recent increases in budget authority. On the other hand, CBO has counted all weapon systems authorized and funded through 1985, not just those that have already been delivered. As a result, these measures may overstate current capability.

These measures suffer from other limitations as well. Simple counts of weapons systems (tanks, aircraft, and so forth) do not reflect improvements in quality or sophistication that the new weapons incorporate. Although some of these measures reflect improvements in quality to a limited degree, most of them neglect that dimension. Moreover, CBO's

analysis does not consider many intangible factors that contribute to U.S. capability, such as troop morale and national military strategy, that are not directly affected by the budget. Our review focuses only on the effects of U.S. budget choices on U.S. capability.

Despite such important limitations, the measures are the best aggregate indicators currently available. They are used by the Administration, which sometimes refers to them as the four "pillars" of military capability.

FORCE STRUCTURE

The first of the four indicators is the number of U.S. combat units, commonly termed "force structure." Between 1980 and 1985, the number of Navy battle force ships increased by 13 percent (see Table 2). But few other U.S. forces increased comparably, or--as in the case of strategic forces--growth in one category was offset by declines in others.

Even without more increases in funding, some further expansion will continue as weapons already purchased are completed and begin to equip additional forces. For example, it is likely that ships funded but not yet delivered will propel the Navy to higher force levels than those existing today, assuming that older ships are retired at ages typical of those in the recent past. By the end of this decade, Navy battle forces should number

TABLE 2. U.S. FORCE STRUCTURE

Category	1980	1985
Uniformed Personnel (thousands)	2,040/(861) a/	2,152/(1,077) a/
Strategic Forces		
Ballistic missiles (land)	1,052	1,023
Ballistic missiles (submarine)	576	640
Bombers	376	298
Interceptor squadrons	7/(10) a/	5/(11) a/
Conventional Forces		
Land forces		
Army divisions	16/(8) a/	17/(9) a/
Marine divisions	3/(1) a/	3/(1) a/
Tactical air forces		
Air Force squadrons	79/(39) a/	78/(43) a/
Navy/Marine Corps squadrons	85/(17) a/	88/(17) a/
Ships		
Deployable battle forces	479	542
Reserves and auxiliaries	59	63
National Defense Reserve Fleet	164	214

SOURCE: Congressional Budget Office from data presented in Caspar W. Weinberger, Annual Report FY1985, Department of Defense (1985).

a. Active/(Reserve).

about 600, a 25 percent increase over 1980 levels. Also, 52 B-1 bombers and 42 MX missiles were authorized through fiscal year 1985. These weapons should be in service in a couple of years.

Nonetheless, even when all weapons purchased by 1985 are in the inventory, increases in naval forces will amount to 25 percent, while increases for other types of forces will be much smaller. These generally modest increases in force structure should not be surprising, since the Administration has given lower priority to expanding force structure than to other aspects of defense capability, especially modernization.

MODERNIZATION

Analysts of modern warfare believe that the side with superior equipment can overcome numerical inferiority through its advantage in quality. Thus, force modernization has been a high priority for the armed services and DoD, as well as the Congress.

Increased funds for modernization have been devoted to buying more capable weapons and equipment. For example, the Air Force is buying C-5B and KC-10 aircraft to remedy a deficiency in intercontinental airlift capacity. In contrast, earlier airlift purchases emphasized the much smaller and short-ranged C-130 transport. Similarly, the Army reduced its purchases of M-113 armored personnel carriers and began buying the considerably more advanced (and more expensive) Bradley fighting vehicle.

TABLE 3. TOTAL QUANTITIES AND COSTS OF MAJOR WEAPONS SYSTEMS PROCURED
(In units and constant 1986 dollars of budget authority)

Category	Total 1977-1980	Total 1982-1985	Percentage Change
Aircraft, Fixed Wing			
Combat	1,745	1,482	-15.1
Airlift	144	165	14.6
Trainer	113	114	0.9
Aircraft, Rotary	587	1,055	79.7
Total Aircraft	2,589	2,816	8.8
Total Cost in Billions of 1986 Dollars	45.6	79.7	74.7
Missiles, Strategic and Theater Nuclear	627	2,284	264.3
Missiles, Tactical			
Air launched	19,999	42,047	110.2
Surface launched	96,082	79,860	-16.9
Total Missiles	116,708	124,191	6.4
Total Cost in Billions of 1986 Dollars	15.9	30.1	89.7
Ships, Trident Submarines	4	3	-25.0
Major Warships a/	15	29	93.3
Other Warships	29	22	-24.1
Ships, Auxiliaries	13	29	123.1
Total Ships	61	83	36.1
Total Cost in Billions of 1986 Dollars	29.0	46.5	60.6
Tanks and Combat Vehicles			
Tanks	2,762	3,235	17.1
All other vehicles b/	5,194	7,107	36.8
Total Quantity	7,956	10,342	30.0
Total Cost in Billions of 1986 Dollars	6.4	16.2	151.3

SOURCE: Compiled by the Congressional Budget Office Defense Cost Unit from Department of Defense procurement summaries (P-1) for fiscal years 1977 through 1985. Excludes all classified programs.

a. Defined as carriers, battleships, cruisers, destroyers, and attack submarines. Excludes service life extension programs (SLEP) and conversions, except for the battleship reactivation program.

b. Includes Marine Corps tanks, vehicles, and LVT-7A1 SLEP.

During the past four years, the Navy has ordered many more large surface ships, while reducing its purchases of cheaper but more limited frigates.

These high quality weapons have sometimes cost more than expected, which has consumed another significant share of the increase in procurement funding authorized since 1980. DoD's original plan for the 1981-1985 period anticipated that prices of these new systems would decline over time as cumulative production increased. Actual costs per unit for certain major weapons were higher than expected by percentages varying from 9 percent to 64 percent during the 1981-1985 period, even after adjustment for overall inflation experienced by all DoD weapons. The DoD recognized these higher costs by the time of its 1983 budget submission. Since then, costs per unit have remained closer to and, in some cases, have declined relative to plans. Nonetheless, over the entire 1981-1985 period, unanticipated cost increases consumed a substantial part of the growth in procurement funding.

Perhaps because of high quality weapons and their price, the pace of modernization efforts, measured by the numbers of new systems purchased, has not accelerated very much. This is illustrated by comparing the fiscal year 1982 through 1985 procurement program with the one for the earlier 1977-1980 period (see Table 3). The Congress did fund 36 percent more ships and 30 percent more tanks and combat vehicles in the more recent period. Real budget authority for these weapons, however, increased by 61

percent and 151 percent, respectively. The lack of emphasis on numbers is even more clear for aircraft and missiles. The number of missiles purchased increased only 6 percent despite a real increase of 90 percent in budget authority for this category. Aircraft purchases went up less than 9 percent versus 75 percent growth in aircraft appropriations. Indeed, purchases of fixed-wing combat aircraft were lower in the more recent period than they were during the 1977 through 1980 period.

READINESS

So far, I have examined increases in the number of forces and DoD's efforts to provide them with modern equipment. Military capability requires that those forces also be ready to perform their missions when necessary.

Personnel Readiness

One important aspect of readiness is the quality and experience of DoD personnel. Of all the aspects of defense capability I will discuss, this area has shown the most dramatic improvement.

Recruit quality is best assessed by looking at the Army, which faces the greatest recruiting challenge. In 1980, one out of two Army recruits was drawn from Category IV, the lowest acceptable test score group among those taking the Armed Forces Qualification Test. In 1984, only 10 percent

of enlistees scored in Category IV. Moreover, in that same year 90 percent of Army recruits were high school graduates compared with 54 percent in 1980.

The level of experience in the services is also rising as a result of an increase in reenlistment rates. In 1984, over 50 percent of eligible enlisted personnel reenlisted after their first term (usually the first three or four years of service), and 80 percent reenlisted after their second or successive term of service. These rates are much higher than 1980 levels when 39 percent of first-term personnel and 71 percent of career personnel reenlisted.

Equipment Readiness

Trends in the readiness of equipment are much less dramatic. Readiness of equipment can be measured at least in part by the percentage of equipment that is "mission capable." For aircraft, mission capable means that the aircraft can fly and perform at least one of its assigned missions. The measure has analogous meanings for other weapons.

The Department of Defense has characterized overall mission capable rates between 1980 and 1984 as "steady or slightly increasing." Rates for some types of forces have, however, shown greater improvement. For example, mission capable rates for fighter/attack aircraft have risen from 53 percent to 63 percent in the Navy and from 62 percent to 73 percent in

the Air Force. Other rates have remained steady (some of these are at the goals established by the services). At the same time, equipment readiness has declined for certain older equipment, such as our bomber force.

There should be no presumption that dollar increases would be proportional to increases in mission capable rates. The rates themselves are only partial indicators of military readiness. They would not reflect other factors--for example, a better quality of training--that would influence readiness. Nor do we understand very well how an extra dollar of spending affects those rates or other broad measures of readiness. On the other hand, DoD's characterization of mission capable rates as "steady or slightly increasing" does raise concern in light of the 34 percent real increase in funds for operation and maintenance, one key category of readiness-related spending.

SUSTAINABILITY

Sustainability, the fourth of DoD's indicators of capability, measures the ability to continue to fight effectively after the initial outbreak of hostilities. Two prime indicators of sustainability are the stocks of munitions and other war reserve items, relative to what the services say are their requirements. These requirements, which depend on administration strategic and resource guidance, as well as difficult judgments about the

pace and duration of future wars, have been accepted as a given in this analysis.

Munitions

Munitions include bombs, ammunition of all types, and most tactical missiles. War reserve stocks of munitions would replenish forces in wartime, once the basic issue they carry with them has been exhausted. The DoD has spent substantial sums on building war reserves of munitions. In nominal dollars, funding between 1981 and 1985 totaled almost $46 billion. This funding has increased reserves of munitions significantly. The Army, for instance, has gone from meeting 65 percent of its requirements in 1980 to 77 percent in 1985. The other services also show improvements based on their own measures. Major gaps still exist, however, between what the services have and what they say they need to meet the full range of possible conflicts.

Secondary Items

Secondary items are the roughly 4 million items, other than weapons systems and munitions, that DoD buys. Of these, some 200,000 items have been deemed sufficiently important to warfighting ability that war reserve objectives have been set for them. These items include spare parts for weapons systems, clothing, food, fuel, and medical supplies.

From 1980 to 1985, deficits in war reserves actually increased despite higher funding. War reserve stocks increased in value by 106 percent during this period, measured in nominal dollars, but objectives increased by 118 percent. These increases in objectives do not result from changing assumptions regarding the scope or length of a future war. Rather, statements by DoD and the services suggest that increases stem from the advent of new weapons that require much more expensive spare parts, which increases the cost of sustaining them in combat. Indeed, this may be one of the less visible ways in which more complex weapons add to DoD costs.

CONCLUSION

The measures I have reviewed suggest that there have been improvements in most aspects of U.S. military capability since 1980, with the degree of improvement reflecting the priority accorded by the Administration. Even though there has been a sizable increase in the defense budget, however, most of these aggregate indicators have not increased markedly, with a few exceptions like personnel quality. This lack of marked improvement may reflect the aggregate nature of the measures used here, which may mask some important changes. It may also reflect the gradual change one would expect in stocks of defense equipment. Nor do the measures used here fully

reflect improvements in the quality of weapons, which has been a high priority in this Administration.

The analysis does point up the difficulty in quantifying what has been accomplished by the higher level of defense budget authority. This is particularly true for factors such as the quality of weapons, training and equipment readiness, and requirements for sustainability in wartime. DoD is currently working to develop better indicators of military capability that can at least be used to measure trends over time.

One helpful improvement would be a better measure of the value of the stock of military assets. DoD's reporting of the value of its assets is expressed in historical prices, some going back decades, and so is useless for analytic purposes. The Commerce Department's measure of the defense capital stock, while it is adjusted to current prices, is too aggregated to be of much value in defense analysis. Better measures, reflecting both the quantity and quality of additions to the inventory, would allow the Congress to assess growth resulting from increased procurement funding, as well as to establish what level of resources are required to prevent a decline in our military assets.

Better measures of readiness are also needed. Current measures do not account fully for increases in readiness-related spending. Nor do they seem to capture the feeling, often stated by military leaders, that readiness is much better today than in the past. This may reflect a failure of current

measures to recognize adequately the effects of higher quality people and more realistic training. New measures may have to capture systematically the judgments of experts about factors that resist quantification.

No set of measures is ever likely to allow a precise comparison of total defense output with defense spending. But efforts to develop better measures of capability, perhaps including those now underway in DoD, might allow future assessments to be more definitive than I can be today.