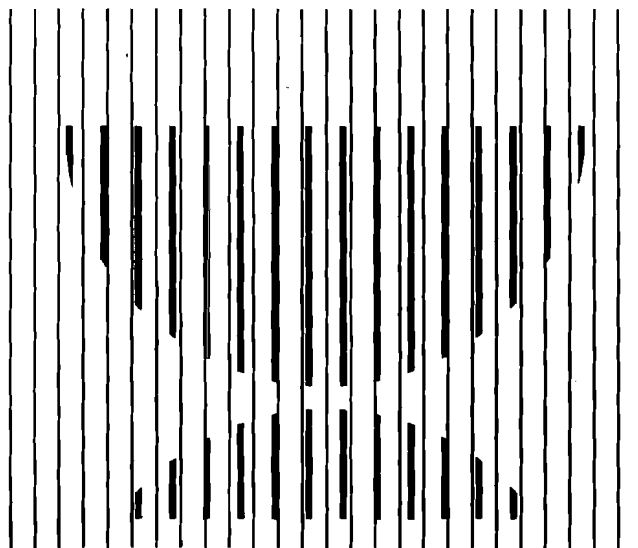


CBO STAFF MEMORANDUM

BUDGETARY AND MILITARY CONSEQUENCES OF
THE CFE TREATY: AN UPDATE

March 1991



**CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515**

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE MAR 1991		2. REPORT TYPE		3. DATES COVERED 00-00-1991 to 00-00-1991	
4. TITLE AND SUBTITLE Budgetary and Military Consequences of the CFE Treaty: An Update				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Congressional Budget Office ,Ford House Office Building, 4th Floor ,Second and D Streets, SW ,Washington,DC,20515-6925				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

This memorandum was prepared by the Congressional Budget Office (CBO) in response to a request by the Chairman of the Senate Committee on Foreign Relations. It revises and updates previous CBO analyses of the treaty limiting conventional arms in Europe to reflect the provisions included in the signed version of the treaty.

This memorandum was prepared by Frances M. Lussier under the supervision of Robert Hale, with significant contributions from Michael O'Hanlon in the area of treaty compliance and verification. The author wishes to acknowledge the contributions of William P. Myers of CBO's Budget Analysis Division who analyzed the budgetary implications of the force reductions. Questions regarding the overall provisions and impact of the treaty should be addressed to Frances M. Lussier (202-226-2908); questions pertaining specifically to verification and compliance procedures and costs should be directed to Michael O'Hanlon (202-226-2920).

INTRODUCTION AND SUMMARY

On November 19, 1990, the sixteen members of the North Atlantic Treaty Organization (NATO) and six members of the Warsaw Pact signed a treaty limiting conventional armed forces in Europe (CFE). This historic document, referred to as the CFE treaty, will require significant reductions in the number of conventional weapons located on European soil between the Atlantic Ocean and the Ural Mountains in the central part of the Soviet Union. Weapons held by either alliance in this region in excess of those permitted by the treaty will have to be destroyed. The Warsaw Pact, which currently controls far more weapons than does NATO, will have to destroy many more weapons and reduce its inventories by a much larger proportion. Specifically, the Warsaw Pact will have to destroy over 34,500 weapons, including tanks, armored combat vehicles, pieces of artillery, and combat aircraft representing more than 30 percent of its current arsenal. After excluding weapons once controlled by East Germany, NATO will be required to destroy about 3,700 weapons, or only 5 percent of its total arsenal. The treaty also permits each side to conduct extensive inspections of the other side's military facilities to ensure compliance with its provisions.

The treaty has not yet been submitted to the U.S. Senate for ratification because of controversy over an interpretation by the Soviet Union that certain of its weapons are not constrained by the treaty. No other parties to the treaty support the Soviet interpretation. The numbers used in this analysis are based on declarations made by the parties to the treaty at the time of its signing. Depending on the outcome of the controversy, some of the numbers could change but not enough to change the estimated savings or basic conclusions presented in this memorandum.

Last year, the Congressional Budget Office (CBO) completed three analyses dealing with the budgetary and military consequences of the proposed CFE treaty and with the costs of verifying and complying with the treaty.¹ This Staff Memorandum revises the analyses in those studies to reflect the provisions included in the signed version of the treaty. Detailed descriptions of the methods used in the analysis summarized here are contained in the earlier studies.

CBO's analysis finds that the balance of military forces in Europe is shifting sharply in NATO's favor, both because of recent political changes and because of the potential benefits of the CFE treaty. For example, measures of military capability that reflect both the quantity and quality of ground-based military equipment show that in 1988, the countries that made up the Warsaw Pact had an advantage over NATO by a factor of about 1.5 to 1. Taking into account the dissolution of the Warsaw Pact as a military entity and the CFE treaty, the ratio of NATO forces to those of the Soviet Union alone shifts to 1.7 to 1 in NATO's favor. The ratio of air forces also shifts in NATO's favor, though by a smaller amount.

1. Congressional Budget Office, *Budgetary and Military Effects of a Treaty Limiting Conventional Forces in Europe* (January 1990, updated as a CBO Paper, September 1990); and *U.S. Costs of Verification and Compliance Under Pending Arms Treaties* (September 1990).

Although carrying out the provisions of the CFE treaty would enhance the balance of military forces, it would not guarantee any significant U.S. budgetary savings. The United States could comply with the treaty without eliminating any of its military units from Europe. Instead, the United States could reduce the amount of its equipment that is now stored in Europe as reserves for replacement of wartime losses. Eliminating reserve equipment would not significantly cut costs. Indeed, the CFE treaty could result in modest added costs for verification and compliance. One-time costs for verification and compliance might amount to between \$130 million and \$385 million, with ongoing annual costs amounting to between \$25 million and \$75 million.

Because of improvements in the balance of military forces, and the reduced chance of a major war in Europe, the United States might elect to reduce its forces in Europe more than would be required by the treaty. A reduction in U.S. troops to a level of 225,000 (as President Bush recommended in January 1990) might eventually reduce the annual U.S. defense budget by about \$6 billion compared with its 1991 level. Reducing U.S. troops to a level of 100,000 could lower the annual budget relative to the 1991 level by about \$14 billion. The balance of military forces associated with these larger reductions would be less favorable than what would result from only those reductions needed to comply with the CFE treaty. Even with a reduction to 100,000 U.S. troops, however, the balance of forces would still favor NATO over the Soviet Union by a ratio of 1.3 to 1 for both ground and air forces.

DESCRIPTION OF THE TREATY

The CFE treaty would limit alliance weapons holdings in five broad categories: tanks, armored combat vehicles (ACVs), artillery, helicopters, and aircraft (see Table 1). During final negotiations, limits on U.S. and Soviet troops in Europe, which had been discussed earlier in the negotiations, were dropped from consideration. Thus, the treaty would not restrict the number of NATO or Pact troops in Europe.

Based on the weapons ceilings in the treaty and on current holdings of weapons, NATO, after excluding recently acquired East German weapons, would have to reduce its inventories in only two weapons categories--tanks and artillery.² Even in these areas, NATO's reductions would be relatively small--3,615 tanks and 118 pieces of artillery--representing reductions of 16 percent and 1 percent, respectively. In contrast, based on declarations submitted the day before the treaty was signed, the Warsaw Pact would be required to destroy 13,191 tanks, 12,949 ACVs, and 6,953

2. While the treaty was being negotiated and weapons ceilings set, East Germany was an active member of the Warsaw Pact. Just before the treaty was signed, however, the Germans united and all East German weapons came under NATO control. With this shift, about 2,300 tanks, 6,500 ACVs, over 2,200 pieces of artillery, and more than 400 combat aircraft became part of NATO rather than Pact inventories. All weapons formerly belonging to East Germany are assumed to be destroyed as part of the unification and CFE processes. Even after this shift, reductions required of the Pact by the treaty are much larger than those required of NATO.

TABLE 1. REDUCTIONS REQUIRED BY THE TREATY LIMITING CONVENTIONAL FORCES IN EUROPE

	Weapons Ceiling	Warsaw Pact		NATO ^a		Ratio
		Number	Percent	Number	Percent	Pact/NATO
Main Battle Tanks	20,000	13,191	40	3,615	16	4
Armored Combat Vehicles	30,000	12,949	30	b	b	n.a.
Artillery	20,000	6,953	26	118	1	59
Helicopters	2,000	b	b	b	b	n.a.
Aircraft	6,800	1,572	19	b	b	n.a.

SOURCES: Congressional Budget Office based on United States Information Agency, *Treaty on Conventional Armed Forces in Europe* (Paris: November 19, 1990); British American Security Information Council, *BASIC Reports from Vienna* (Washington, D.C.: December 17, 1990); and Arms Control Association, *Arms Control Today* (January/February 1991), p. 29.

NOTE: n.a. = not applicable.

a. Excludes weapons formerly belonging to East Germany and included in German and NATO arsenals at the time the treaty was signed. These include 2,334 tanks, 6,469 armored combat vehicles, 2,216 pieces of artillery, 51 helicopters, and 408 aircraft.

b. Alliance holdings in these categories are below the ceilings.

pieces of artillery, representing reductions of 40 percent, 30 percent, and 26 percent in its holdings. Based on data submitted before the treaty was signed, neither alliance would need to reduce its helicopter fleet in order to comply with the treaty. (See Table A-1 in the appendix for more details.)

Effects of the CFE treaty on aircraft will be even more favorable for NATO than those on ground-based weapons. Under the provisions of the treaty, NATO will actually be allowed to increase the number of aircraft in its air forces, should it choose to do so. The Warsaw Pact, however, would have to destroy 1,572 aircraft, which represents about 19 percent of its fleet.

The United States expressed doubts concerning the accuracy of the numbers contained in the Soviet Union's declaration of its assets at the time the treaty was signed. Some NATO officials felt that the Soviet Union had understated its holdings by up to 40,000 weapons. The dispute seems to have arisen because the U.S. intelligence community was unable to keep track of the large numbers of Soviet weapons moved east of the Urals before the treaty was signed. Three months later, revised U.S. intelligence estimates differed from Soviet declarations by less than 2,000 to 3,000 weapons.

A more serious controversy surrounds the Soviet Union's declaration that three of its divisions are part of its naval forces and outside the jurisdiction of the treaty. This dispute would apply to about 3,500 tanks, ACVs, and pieces of artillery, and would establish a precedent for exempting land-based naval units from the provisions of the treaty, an interpretation that none of the 22 parties to the treaty, except the Soviet Union, supports. U.S. Administration officials have stated that they will not submit the treaty for ratification with these disputes pending. By the time the Senate takes up the matter of the CFE treaty, therefore, these issues presumably will have been resolved.

The provisions of the treaty are to be fully in place 40 months and 10 days after the treaty is ratified by all 22 parties. To ensure compliance, the treaty permits each alliance to conduct specified inspections of the other's military facilities. For example, each alliance can inspect the other's facilities to verify that no weapons are being stored there in violation of the treaty. In addition, each alliance has the right to observe and confirm that the other side is destroying its excess weapons in compliance with the treaty.

MILITARY AND BUDGETARY EFFECTS OF THE TREATY

The treaty would significantly alter the balance of NATO and Pact military forces--or Soviet forces alone after the Pact is dissolved--in Europe. It would have only modest effects on the U.S. defense budget, however, yielding no direct savings and requiring, on average, annual expenditures of less than \$200 million, or less than 0.1 percent of the Defense Department's total budget.

Military Effects of the Treaty

Once the treaty has been carried out, NATO and the Warsaw Pact will have an equal number of weapons deployed in Europe between the Atlantic Ocean and the Ural Mountains (the ATTU region). NATO's historical edge in the quality of its weapons, however, should provide it with an advantage over Pact forces. This advantage would be enhanced by U.S. reinforcements from the continental United States that are not limited by the treaty, and by the fact that the Pact will cease to exist as a military alliance on April 1, 1991.

To quantify the effects of the treaty on the military balance in Europe, CBO used analytic methods that take into account both the quantity and quality of each side's weapons. The capabilities of the ground and air forces of Pact and NATO countries were quantified based on the Army's weapons effectiveness indices/weighted unit value (WEI/WUV) and TASCFORM methodologies, respectively. Both methods rank and score individual models of weapons--for example, an M1 tank or an F-15 fighter aircraft--based on their capability relative to other weapons of the same type. The scores of all the weapons held by each alliance are then weighted appropriately and added up for the entire combined ground or air forces.³

These methods produce scores for the ground and air forces fielded by the members of the Warsaw Pact and NATO. Dividing the total score for Pact or Soviet forces by NATO's total score yields a ratio that is one measure of relative military capability. These ratios do not take into account losses resulting from combat; rather, they estimate the capability of forces that would be available to each side after mobilization and the arrival of all out-of-theater reinforcements, but before an attack begins. Moreover, there are important assumptions and limitations inherent in the methods that produce the ratios; these limitations suggest that the ratios should be used only as a rough guide to relative military capability.

Ground Forces. These analytic methods document the decline in military advantage of the Soviet and Warsaw Pact ground forces. Analysis of ground forces typically focuses on the key central region of Europe, where most of the fighting in any European war would take place.⁴ In 1988, before any of the military changes associated with the end of the cold war had occurred, the ground forces of the Warsaw Pact had a significant advantage--a ratio of roughly 1.5 to 1--over NATO ground forces in the central region (see Table 2).

In 1989, the Soviet Union and some of its Eastern European allies began unilateral reductions in their military forces, which reduced the Pact advantage over

3. For details of these two methods, see Congressional Budget Office, "Budgetary and Military Effects of a Treaty Limiting Conventional Forces in Europe" (CBO Paper, September 1990).

4. The central region includes Germany, Belgium, Luxembourg, the Netherlands, Poland, and Czechoslovakia.

TABLE 2. RATIOS OF MILITARY FORCES IN EUROPE AFTER FULL MOBILIZATION

	Forces Included in Ratios ^a	Ground Forces in the Central Region ^b	Air Forces in the ATTU Region ^c
Before the CFE Treaty			
1988 Forces	Pact/NATO ^d	1.5	1.1
After Unilateral Pact Cuts and Unification of Germany	Pact/NATO	1.2	1.0
After Unilateral Pact Cuts and Dissolution of the Warsaw Pact ^e	Soviet/NATO	1.0	0.9
After the CFE Treaty			
Treaty Reductions Only	Soviet/NATO	0.6	0.8
Option I: Reduce U.S. Forces in Europe so that 225,000 Remain ^f	Soviet/NATO	0.7	0.8
Option II: Reduce U.S. Forces in Europe so that 100,000 Remain ^f	Soviet/NATO	0.8	0.8

SOURCE: Congressional Budget Office.

NOTE: ATTU = Atlantic Ocean to the Ural Mountains.

- a. Except where noted, East German forces are assumed to have been disbanded and are not counted as part of either Pact or NATO forces.
- b. Based on ratios after 90 days of mobilization.
- c. Based on ratios of aircraft available throughout Europe, including reinforcements.
- d. East German forces are included in Pact totals.
- e. The Pact will cease to exist as a military alliance on April 1, 1991.
- f. Assumes reductions in allied NATO forces proportional to those made in U.S. forces for NATO.

NATO ground forces to a ratio of about 1.2 to 1. At about the same time, the Warsaw Pact ceased to be a viable military alliance because of the movement toward democracy by many of its Eastern European members. Also, the unification of Germany, and the decision of the unified Germany to remain part of NATO, eliminated East German military forces from those available to the Warsaw Pact. These shifts are best captured by considering the ratio of Soviet to NATO forces.⁵ By that measure, there is a rough parity of ground forces in the central region of Europe.

The rough parity in capability between the ground forces available to the Soviet Union and NATO in central Europe may actually overstate the Soviet Union's ability to wage war against NATO. The Eastern European nations that have left the Soviet orbit have requested that all Soviet forces eventually leave their soil. Thus, by 1994, there should be no Soviet forces stationed in Europe outside the Soviet Union. In order to attack NATO, Soviet ground forces would have to traverse Poland, Czechoslovakia, or Hungary, where they might be opposed by indigenous forces. The need to fight their way through Eastern Europe, or merely to leave troops behind to guard their supply lines, would reduce Soviet forces available to oppose NATO.

The CFE treaty will continue the shift in military advantage away from the Pact and its sole remaining military member, the Soviet Union, and toward NATO. After the treaty is fully in place, the ratio of Soviet to NATO ground forces will be about 0.6 to 1 (see Table 2). Stated another way, NATO ground forces will have an advantage of about 1.7 to 1 over those of the Soviet Union. Furthermore, the treaty will not permit the Soviet Union to recapture any of its former advantage by increasing its weapons levels up to the level allowed for the entire Warsaw Pact: the treaty limits holdings of ground weapons by individual countries within each alliance to about two-thirds of the alliance's total ground weapons.

Although the Soviet Union could build up its forces east of the Ural mountains where the treaty does not apply, it would take time and effort to bring these weapons to bear on NATO. First, the forces would have to move more than 1,500 miles to NATO's eastern border. Second, the weapons would need to be maintained in an area where today there is not a large concentration of Soviet military units. Thus, although positioning forces for use against NATO in Soviet Asia is possible under the treaty, it may not be practical.

Air Forces. The effect of the treaty and political events on NATO's relative capability in the air will be less dramatic than for ground forces, but still will be substantial. In 1988, NATO air forces enjoyed relative parity with the Pact air forces; the ratio of capability stood at about 1.1 to 1 in favor of the Warsaw Pact (see Table 2). Unilateral cuts by the Soviet Union combined with the dissolution of the Warsaw Pact resulted in a ratio of 0.9 to 1 that favors NATO over Soviet forces.

5. CBO did not assume that military forces of the former country of East Germany become part of NATO forces. Instead, in order to provide a conservative analysis of NATO's advantage, CBO assumed that East German military forces are disbanded.

After implementation of the treaty's provisions, the ratio will move to about 0.8 to 1 in favor of NATO. Thus, after the treaty is fully in place, NATO's air forces could enjoy an advantage of 1.3 to 1 over those of the Soviet Union.

Savings Associated with the Treaty

In contrast to the large military benefit that would accrue to NATO and the United States as a result of the treaty, there is no guarantee of significant budgetary savings. Because the treaty does not limit troops stationed in Europe, the United States is not required to withdraw or disband any of its units based in Europe in order to comply with the treaty. As a result of the agreement within NATO on how to distribute reductions in weapons imposed by the treaty, the United States will be required to destroy or transfer to a NATO ally 1,898 tanks, 375 armored combat vehicles, and 109 pieces of artillery from its holdings in Europe (see Table 3). The United States could choose to remove these items from the large stocks of equipment it currently stores in Europe. These stocks are not in military units but rather are kept as reserves to replace weapons damaged in war. If U.S. stocks are reduced to comply with the treaty, the only savings associated with the treaty will be reductions in storage costs, which would not be significant.

The United States could, of course, comply with the treaty by removing military units from Europe, destroying their equipment or transferring it to a NATO ally, and eliminating them from the U.S. force structure. Indeed, some units have been withdrawn from Europe and sent to the Persian Gulf in connection with Operation Desert Storm. If these units are eventually eliminated from the force structure, there would be substantial budgetary savings. But those savings are not guaranteed by the CFE treaty.

Cost of Verifying and Complying with the Treaty

The CFE treaty includes detailed provisions delineating how countries should comply with the treaty, and how they can monitor each other's activities to be confident that all parties are in compliance with the treaty. These verification and compliance provisions include important rules for exchanging data on military equipment--their numbers and locations, in particular--and for on-site inspections of military inventories covered by the data bases. They also stipulate how excess equipment should be destroyed or converted to civilian use.⁶

This analysis reaches no conclusions about the level of confidence that activities allowed by the treaty would provide regarding compliance with its provisions. Rather, it provides estimates only of the budgetary costs to the United States assoc-

6. Parties to the treaty technically would not conduct verification, since that term implies certainty and also presupposes compliance. More accurately, countries would accumulate information from a variety of sources in order to reach "compliance assessments" of other countries' activities.

TABLE 3. PROVISIONS OF THE CFE TREATY AND THEIR IMPACT ON U.S. WEAPONS HOLDINGS IN EUROPE

Category	Weapons Ceiling	Current Holdings		Maximum U.S. Level Proposed for 1994	Required U.S. Reduction
		NATO ^a	U.S.		
Tanks	20,000	22,757	5,904	4,006	1,898
Armored Combat Vehicles	30,000	28,197	5,747	5,372	375
Artillery	20,000	18,404	2,601	2,492	109
Attack Helicopters	2,000	1,685	279	518	none
Aircraft	6,800	5,531	704	784	none

SOURCES: Congressional Budget Office based on United States Information Agency, *Treaty on Conventional Armed Forces in Europe* (Paris: November 19, 1990); British American Security Information Council, *BASIC Reports from Vienna* (Washington, DC: December 17, 1990); and Arms Control Association, *Arms Control Today* (January/February 1991), p. 29.

a. Excludes weapons acquired from East Germany.

iated with verifying and complying with the treaty, which could be between \$25 million and \$75 million a year. In addition, there would be a one-time investment of between \$130 million and \$385 million.

One-Time Costs. The initial, one-time investment would be required to fund several types of operations that would take place during the first 44 months after the treaty takes effect. NATO representatives would conduct baseline inspections of Pact military facilities to verify the number of weapons the Pact declared it had at the time the treaty was signed. In addition, the United States would have to pay the costs for personnel accompanying Pact inspections of U.S. facilities in Europe for the same type of baseline verification. The United States would probably conduct about 50 to 75 inspections at Pact bases during the baseline validation period and a comparable number during the residual-level validation period. The United States will be subject to somewhat fewer inspections at its European bases during each phase (for more details, see Table 4).

Also contributing to the initial costs is the need to provide observers to watch the destruction of weapons by the Warsaw Pact and to destroy perhaps as many as 1,000 U.S. weapons.⁷ There would also be "challenge" inspections of sites not declared by one alliance as containing treaty-limited items, but suspected by the other alliance of doing so. Finally, an initial investment would be needed to pay for the establishment of aerial reconnaissance to supplement on-site inspections, once follow-on negotiations determine what type of equipment will be allowable for this purpose, and for research and development of technical enhancements of current methods for treaty verification and weapons destruction.

Annual Costs. The ongoing costs of between \$25 million and \$75 million a year associated with treaty verification and compliance would result from the need to provide hosts for about 30 on-site inspections at U.S. bases in Europe and to conduct about 65 inspections at Pact bases. These inspections would be used to confirm that weapons systems at declared sites do not exceed the numbers assigned to them at those sites, and that no limited weapons exist at undeclared sites. Some of these inspections would be routine, and some might result from suspicions aroused by other means of observation such as aircraft or satellites. Additional costs could be incurred to support aerial reconnaissance flights to monitor compliance with the treaty (see Table 4).

Not all of these costs for verification and compliance would increase the U.S. defense budget. Some or all of the added costs could be offset by decreases in other portions of the defense budget, and some would be associated with shifting personnel from other duties rather than adding personnel. Indeed, because the provisions of the Budget Enforcement Act of 1990 limit U.S. defense spending through fiscal year 1993, any verification costs that add to the U.S. defense budget would arguably have to be offset by cuts in other types of defense spending.

7. CBO assumed that the United States, through a process called "cascading," would transfer some of its excess weapons to its NATO allies, who would, in turn, destroy their older weapons.

TABLE 4. U.S. PROCEDURES AND COSTS FOR COMPLIANCE AND MONITORING

	Number of Visits	Cost (Millions of 1991 dollars)
One-Time Procedures and Costs^a		
Observations of Warsaw Pact Eliminations/Conversions	50 to 200	10 to 50
Elimination of Excess U.S. Equipment	10 to 50	5 to 30
Baseline Validation and Residual-Level Validation Inspections ^b		
At U.S. bases ^c	65	25 to 50
At Warsaw Pact bases	100 to 150	3 to 15
Challenge Inspections During Baseline Validation and Residual-Level Validation		
At U.S. bases	10	1 to 10
At Warsaw Pact bases	15 to 25	1 to 5
Establishment of Aerial Reconnaissance ^d	n.a.	40 to 100
Monitoring Through National Technical Means ^e		
Satellite reconnaissance	n.a.	0
Other	n.a.	0
Initial Planning and Management	n.a.	10 to 25
Research and Development	n.a.	<u>25 to 100</u>
Total	n.a.	130 to 385
Annual Recurring Procedures and Costs^f		
Short-Notice Inspections		
At U.S. bases	25	1 to 5
At Warsaw Pact bases	50	1 to 5
Challenge Inspections		
At U.S. bases	5	1 to 5
At Warsaw Pact bases	10 to 15	1 to 5
Air Reconnaissance ^d		
Over U.S. bases	10 to 50	5 to 15
Over Warsaw Pact territory	10 to 50	5 to 15
Management and Analysis	n.a.	10 to 25

(Continued)

TABLE 4. Continued

	Number of Visits	Cost (Millions of 1991 dollars)
Additional Monitoring Through National Technical Means^c		
Satellite reconnaissance	n.a.	0
Other	n.a.	<u>0</u>
Total	n.a.	25 to 75
Total Costs over Different Time Periods		
First 44 Months		
Total	n.a.	205 to 610
Annual Average	n.a.	55 to 165
First 5 Years		
Total	n.a.	240 to 710
Annual Average	n.a.	50 to 140
First 10 Years		
Total	n.a.	365 to 1,085
Annual Average	n.a.	35 to 110

SOURCES: Congressional Budget Office, *U.S. Costs of Verification and Compliance Under Pending Arms Treaties* (September 1990), pp. 23-34; British American Security Information Council, *BASIC Reports from Vienna* (Washington, D.C.: December 17, 1990); information provided to CBO by the Senate Committee on Foreign Relations.

NOTE: n.a. = not applicable.

- a. Procedures would be carried out and the costs incurred once, as the treaty takes effect.
- b. The categories of baseline validation and residual-level validation are treated together here; the costs shown are the totals for the two categories combined. Baseline validation would occur during the first 120 days after the treaty enters into force; residual-level validation would occur during the 120-day period beginning three years after the completion of baseline validation.
- c. Excludes costs for possible closing down of bases. The treaty does not require that any bases be shut, and the necessary reductions in equipment inventories are small enough that no restructuring of the U.S. military presence in Europe would seem to be required.
- d. Excludes a possible "Open Skies" reconnaissance system, but includes an aerial reconnaissance regime for CFE purposes that probably will lead to added costs.
- e. CBO does not have adequate access to highly classified information to offer these satellite costs with a high degree of confidence. These estimates derive from CBO's assumption that the lessening of the Soviet military presence in central Europe, together with the new verification tools of data-base exchanges and on-site inspections, may well eliminate the need for increased satellite coverage in the future. Nevertheless, if it is deemed politically important to make U.S. reconnaissance estimates considerably more accurate in the future than they have been in the past, added satellites or other national technical means may be needed, which would add substantially to the cost.
- f. These categories refer to both the three-year reduction period and the residual period, and represent procedures repeated and costs incurred annually.

The range of cost estimates for verification and compliance reflects uncertainty, principally about the cost of each inspection. The treaty generally specifies a maximum number of inspections, but fewer inspections may be carried out. Also, the cost of each inspection depends on how many inspections can be made during a single trip, how many personnel are involved, and how long each one takes. There is also uncertainty about how many of the inspections would be carried out by the United States and how many by other NATO allies. CBO developed the range of estimates in this memorandum based both on discussions with executive branch personnel about the possible range of costs and on experience with verification of the Intermediate-Range Nuclear Forces treaty.

OPTIONS FOR FURTHER U.S. FORCE REDUCTIONS

The United States could decide that the reduction in Soviet military capability that would result from the CFE treaty, coupled with the dissolution of the Warsaw Pact, would permit this country to reduce the number of forces it commits to NATO. Although this approach would forgo some of the reduction in military risk afforded by the treaty, it would result in budgetary savings. This analysis illustrates possible savings based on two assumptions about how many U.S. forces are withdrawn from Europe and eliminated from the active military.

Option I: Reduce U.S. Forces in Europe to 225,000

In his January 1990 State of the Union address, President Bush proposed a limit on the number of U.S. and Soviet troops that could be based in Europe but outside their home territory. Under this proposal, U.S. and Soviet troops in central Europe would have been limited to 195,000 on each side, with an additional 30,000 U.S. troops allowed outside Germany, Belgium, Luxembourg, and the Netherlands. All parties had tentatively agreed to this provision in early 1990, but it was dropped from the final version of the treaty.

This option would withdraw approximately 80,000 U.S. troops from Europe, reducing U.S. forces in Europe to the level proposed by President Bush in January 1990. Such a withdrawal could be accomplished in many ways. In order to estimate savings associated with a smaller U.S. presence in Europe, CBO constructed an illustrative withdrawal that would include two of the 5 2/3 Army divisions and two of the eight Air Force tactical wings that were in Europe before the transfers connected with Operation Desert Storm.⁸ (An Army division of the type now in Europe consists of about 16,000 personnel and a substantial number of tanks and other equipment. A tactical fighter wing typically consists of about 72 aircraft.) As

8. Included in the 5 2/3 divisions are four full divisions, two armored cavalry regiments, and three separate brigades. Three brigades or regiments are considered equivalent to one division.

a consequence of these reductions, about 73,300 Army and 6,200 Air Force troops would be removed from Europe and from active service. About 3,300 additional support troops based in the United States would also be eliminated.

Savings. The savings under this option would eventually reduce the annual defense budget below the 1991 level by about \$6 billion in 1991 dollars of budget authority (see Table 5). Most of the savings, about \$5 billion, would result from reductions in operating and support costs (assuming that all costs associated directly or indirectly with the eliminated units are avoided). The remaining \$1 billion in savings would be realized in procurement funding because of the reduced need for weapons to equip a smaller Army and Air Force. These budgetary reductions would be made only after implementation of the treaty is well under way; thus, the full savings might not be realized for several years. Nevertheless, these savings would more than offset the small annual cost associated with verifying and complying with the treaty.

The savings associated with this option result from adoption of a military force structure that is smaller than today's and are, therefore, relative to the 1991 level of defense spending. The actions assumed under this option, however, might not represent savings from the levels proposed by the Administration in the defense budget plan for 1992 through 1997 that was submitted to the Congress in February 1991. This budget plan includes the elimination of military units, some of which may be the same units that would be eliminated under this option. Since the Administration's plan does not specify which units it would eliminate, it is impossible to say how much of the \$6 billion in savings associated with this option is already included in the Administration's plan.

Military Consequences. This option would negate some of the beneficial shifts in the balance of military forces afforded by the CFE treaty, but most would be retained. The option assumes that the United States reduces its forces in Europe by 80,000 troops but that reinforcing units based in the continental United States dedicated to NATO's defense would remain unchanged. The United States' NATO allies are assumed to make reductions in their forces proportional to the overall cut in the U.S. forces for NATO, and the Soviet Union is assumed to make no cuts beyond those required by the CFE treaty. Under these assumptions, the balance of ground forces would shift modestly away from NATO, but the resulting level would still be favorable to the NATO alliance. The Soviet ground forces would be at less of a disadvantage--0.7 to 1 after NATO's additional force cuts, compared with 0.6 to 1 based solely on reductions required by the treaty (see Table 2). The ratio of air forces would be virtually unchanged.

Option II: Reduce U.S. Forces in Europe so that 100,000 Troops Remain

In view of the large reductions in Pact and Soviet forces required by the CFE treaty, the dissolution of the Warsaw Pact, and the likely withdrawal of all Soviet troops from non-Soviet territory, the United States could make much larger cuts in its European forces than those proposed by President Bush in January 1990. For ex-

TABLE 5. SUMMARY OF ANNUAL BUDGETARY SAVINGS
(In billions of 1991 dollars)

Options	Operating and Support	Long Term Procure- ment ^a	Total Savings ^b
Option I: Reduce U.S. Forces in Europe so that 225,000 Troops Remain	5	1	6
Option II: Reduce U.S. Forces in Europe so that 100,000 Troops Remain	11	3	14

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

- a. Long-term procurement savings are based on reductions in procurement budgets for the Army and tactical Air Force that are proportional to the reduction in major units.
- b. Includes costs for verification.

ample, the United States might reduce its European troops to a level of about 100,000--roughly one-third the number of troops this country maintained during the height of the Cold War. The United States' NATO allies probably would also reduce the size of their active forces. This option assumes, therefore, that U.S. allies reduce their forces proportionally, and that the Soviet Union makes no reductions beyond those required by the CFE treaty.

As with Option I, CBO constructed an illustrative withdrawal and deactivation of units from Europe designed to achieve the desired level of 100,000 U.S. troops. In this illustration, one Army corps including the equivalent of 2 1/3 Army divisions (that is, two divisions and one armored cavalry regiment) would be withdrawn from Europe and disbanded along with five Air Force tactical fighter wings. In addition, two individual Army brigades now stationed in Europe but belonging to divisions based in the continental United States and the brigade stationed in Berlin would be deactivated. After these reductions, the United States would have the equivalent of 2 1/3 Army divisions and three Air Force tactical fighter wings in Europe rather than the 5 2/3 equivalent divisions--including separate regiments and brigades--and eight wings that were in Europe before the movement of troops in connection with Operation Desert Storm.

Savings. Once fully implemented, which could be several years from now, this option could reduce annual U.S. defense spending by as much as \$14 billion (see Table 5). Most of the savings--almost two-thirds--would represent reduced funding for the Army. Considering the Army and the Air Force together, \$11 billion of the total savings would be realized in operating and support costs, the remaining \$3 billion in procurement costs. As with Option I, the actions taken under this option would represent reductions relative to the 1991 level of defense spending, but might not represent reductions relative to the reduced levels of defense spending proposed by the Administration in February 1991.

Military Consequences. The effects of this option on the military balance would not be significantly different from those of the previous option. The ground force ratios would remain about the same, with NATO enjoying an advantage over Soviet ground forces in central Europe. NATO would also retain its edge in the capability of its air forces over those of the Soviet Union throughout the European theater.

APPENDIX

Weapons in Europe Before and After the Treaty Limiting Conventional Forces in Europe Is Carried Out

Table A-1 lists the national holdings of 20 of the 22 countries that signed the treaty on conventional armed forces in Europe (CFE). The figures reflect the declarations of current arsenals made by each country when the treaty was signed and the post-CFE national ceilings agreed to within each alliance and declared the same day. No figures are provided for Iceland and Luxembourg; although parties to the treaty, they had no treaty-limited weapons to declare.

TABLE A-1. WEAPONS IN EUROPE BEFORE AND AFTER THE TREATY LIMITING CONVENTIONAL FORCES IN EUROPE (CFE)

Country	Tanks		ACVs		Artillery		Aircraft		Helicopters		Total	
	Pre- CFE	Post- CFE	Pre- CFE	Post- CFE	Pre- CFE	Post- CFE	Pre- CFE	Post- CFE	Pre- CFE	Post- CFE	Pre- CFE	Post- CFE
NATO												
Belgium	359	334	1,282	1,099	376	320	191	232	0	46	2,208	2,031
Britain	1,198	1,015	3,193	3,176	636	636	842	900	368	384	6,237	6,111
Canada	77	77	277	277	38	38	45	90	12	13	449	495
Denmark	419	353	316	316	553	553	106	106	3	12	1,397	1,340
France	1,358	1,306	4,125	3,820	1,330	1,292	700	800	429	352	7,942	7,570
Germany ^a	4,799	4,166	3,129	3,446	2,428	2,705	656	900	306	306	11,318	11,523
Greece	1,725	1,735	1,852	2,534	1,941	1,878	480	650	0	18	5,998	6,815
Italy	1,912	1,348	3,591	3,339	2,222	1,955	584	650	169	142	8,478	7,434
Netherlands	913	743	1,467	1,080	838	607	196	230	91	69	3,505	2,729
Norway	205	170	146	225	532	527	90	100	0	0	973	1,022
Portugal	146	300	259	430	334	450	96	160	0	26	835	1,366
Spain	854	794	1,259	1,588	1,373	1,310	252	310	28	71	3,766	4,073
Turkey	2,888	2,795	1,554	3,120	3,202	3,523	589	750	0	43	8,233	10,231
United States	<u>5,904</u>	<u>4,006</u>	<u>5,747</u>	<u>5,372</u>	<u>2,601</u>	<u>2,492</u>	<u>704</u>	<u>784</u>	<u>279</u>	<u>518</u>	<u>15,235</u>	<u>13,172</u>
Total	22,757	19,142	28,197	29,822	18,404	18,286	5,531	6,662	1,685	2,000	76,574	75,912
Warsaw Pact												
Bulgaria	2,416	1,475	2,010	2,000	2,474	1,750	387	235	44	67	7,331	5,527
Czechoslovakia	3,035	1,435	4,359	2,050	3,485	1,150	369	345	56	75	11,304	5,055
Hungary	1,345	835	1,720	1,700	1,047	840	110	180	39	108	4,261	3,663
Poland	2,850	1,730	2,377	2,150	2,300	1,610	654	460	29	130	8,210	6,080
Romania	2,851	1,375	3,135	2,100	3,819	1,475	407	430	104	120	10,316	5,500
Soviet Union	<u>20,694</u>	<u>13,150</u>	<u>29,348</u>	<u>20,000</u>	<u>13,828</u>	<u>13,175</u>	<u>6,445</u>	<u>5,150</u>	<u>1,330</u>	<u>1,500</u>	<u>71,645</u>	<u>52,975</u>
Total	33,191	20,000	42,949	30,000	26,953	20,000	8,372	6,800	1,602	2,000	113,067	78,800

SOURCE: Arms Control Association, *Arms Control Today* (January/February 1991), p. 29.

NOTE: This chart reflects post-CFE arsenals as agreed by the members of each military bloc and current arsenals declared November 18, 1990. Actual residual holdings may be lower if countries choose not to field the maximum number of weapons permitted.

a. Weapons belonging to East Germany at the time of treaty signature count against NATO limits but are excluded from the totals above. The arsenal of the former East Germany includes: 2,334 tanks; 6,469 armored combat vehicles (ACVs); 2,216 artillery; 408 aircraft; and 51 helicopters.