CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

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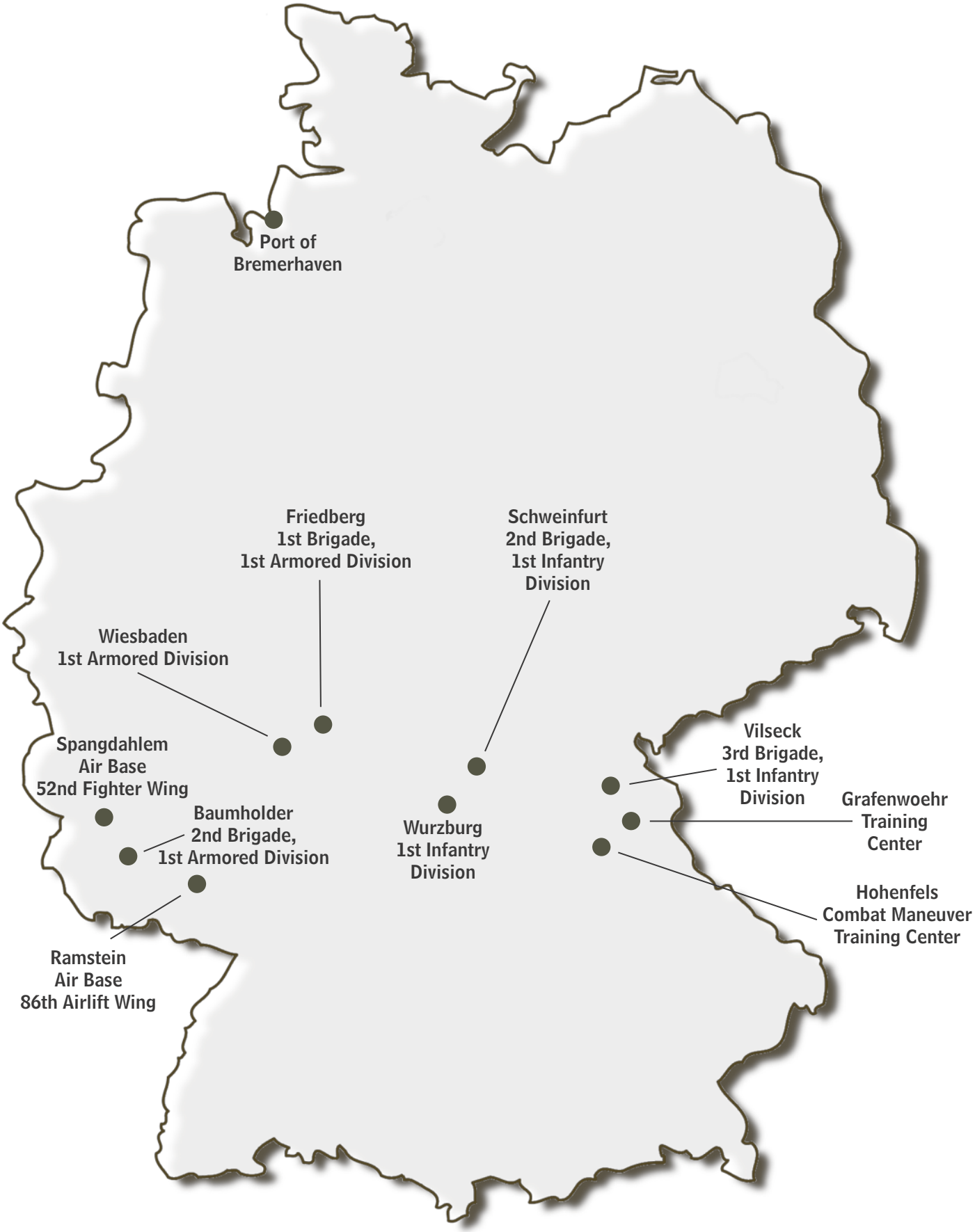
STUDY

MAY 2004

# Options for Changing the Army's Overseas Basing

## Major U.S. Military Facilities in Germany



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May 2004

The Congress of the United States ■ Congressional Budget Office

# Notes

Unless otherwise indicated, all years referred to in this study are fiscal years and all dollar amounts are in 2004 dollars.

Numbers in the text and tables may not add up to totals because of rounding.

# Preface

The Department of Defense is currently reevaluating how many forces it should continue to base overseas and where it should station them. Changes under consideration include moving troops now based overseas back to the United States and using periodic rotations to maintain a presence in Europe and South Korea. Also under consideration is establishing bases in Eastern Europe, which the Administration believes might be better suited than current bases to act as staging areas for deploying forces to contingencies outside Europe.

This Congressional Budget Office (CBO) study—prepared at the request of the Senate Budget Committee—examines several alternatives for changing the overseas basing of U.S. forces, focusing on Army units in Europe and South Korea. The alternatives cover a wide range of options, including ideas that have been discussed by the Administration. This analysis estimates the costs and savings associated with the alternatives as well as their effects on Army units and personnel. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Frances M. Lussier of CBO's National Security Division prepared this study under the general supervision of J. Michael Gilmore. Adam Talaber provided valuable assistance in analyzing the time needed to deploy Army forces around the globe and the availability of Army forces for contingencies. Matthew Schmit estimated the costs of the various alternatives and wrote Appendix B. Allison Percy and Chad Goldberg made important contributions to research and fact-checking. Perry Beider, Robert Dennis, Arlene Holen, Elizabeth Robinson, Christopher Williams, and Dennis Zimmerman offered thoughtful comments on an earlier draft, as did W. Michael Hix of the RAND Corporation. (The assistance of an external reviewer implies no responsibility for the final product, which rests solely with CBO.)

Christian Spoor edited the study and prepared it for publication; Christine Bogusz and Juyne Linger proofread it. Cindy Cleveland prepared numerous drafts of the text and tables, and Maureen Costantino produced the cover and maps. Annette Kalicki prepared the electronic versions of the report for CBO's Web site (www.cbo.gov).

Douglas Holtz-Eakin
Director

May 2004

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# Summary

For more than half a century, the United States has stationed large numbers of military personnel overseas—legacies of the forces that were in place in Germany and Japan at the end of World War II and in Korea when hostilities there ceased in 1953. Through the early 1990s, U.S. forces stationed overseas were considered to be on the front lines of the Cold War. Since then, the United States has cut its overseas forces in half: from about 400,000 active-duty personnel in 1990 to the current level of about 200,000 (excluding troops taking part in temporary operations, such as those in Afghanistan and Iraq). Nevertheless, the placement of those forces around the globe remains roughly the same as it was during the Cold War (see Summary Figure 1).

The Bush Administration and some Members of Congress have called for a review of the U.S. military's overseas basing posture, arguing that it is a vestige of the Cold War and is not well suited to the current strategic environment. The Administration has stated that stationing large numbers of U.S. forces—particularly heavy Army units—on big, expensive bases far from the location of likely conflicts is not in U.S. interests.

This study by the Congressional Budget Office (CBO) examines issues related to the current basing of U.S. forces overseas. It focuses on the Army, which has more permanent installations and personnel outside the United States than any other service. Most of the discussion of changing U.S. basing overseas has focused on Army forces in Europe and South Korea, so this study looks primarily at those two areas.

CBO's analysis points to several conclusions:

- Because the United States has invested heavily over the past 50 years in base infrastructure for its troops stationed overseas, any major shifting of forces—either between overseas locations or to the United States—would require significant spending to provide that infrastructure somewhere else.

- There would be limited annual savings to offset the large initial investment needed to restation U.S. forces, unless U.S. presence overseas was greatly reduced. In that case, annual savings could exceed $1 billion, but the net up-front investment would be substantial—on the order of $7 billion.

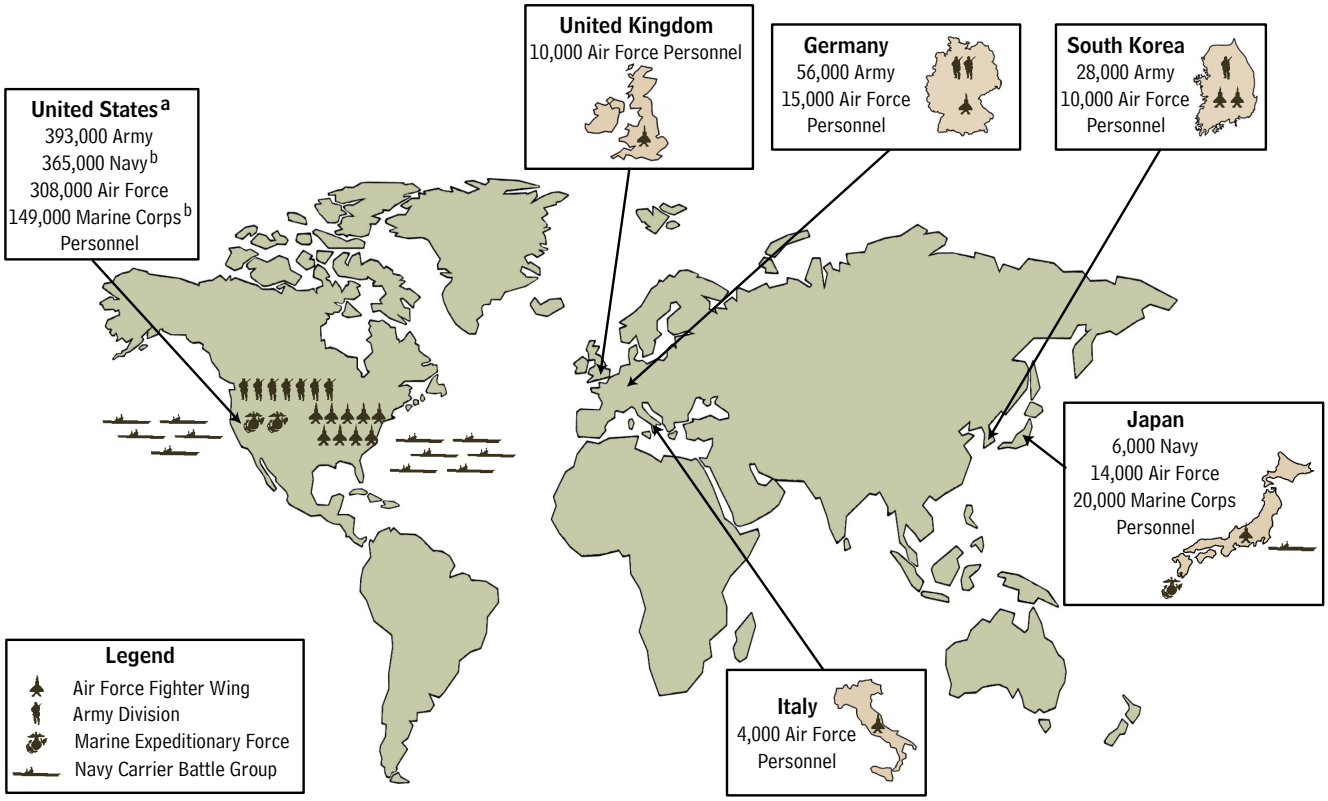
- Restationing Army forces would produce, at best, only small improvements in the United States' ability to respond to far-flung conflicts. The reason is that deploying Army units to many potential trouble spots from the likely locations of new bases would not be significantly faster than deploying them from current bases.

- Bringing forces that are permanently stationed in Europe and South Korea back to the continental United States (CONUS) and maintaining a presence in those regions through unit rotations would reduce the need for infrastructure overseas. It would also reduce instability in Army units by lessening the extent to which soldiers come and go, thus potentially enhancing unit cohesion. But maintaining the current level of overseas presence with unit rotations would limit the forces available for other operations—including the occupation of Iraq—and could hurt retention in the Army by increasing family separation.

- If large numbers of forces were relocated from overseas, the need for additional basing in CONUS for tens of thousands of personnel could preclude some of the closings that might otherwise occur as part of the 2005 round of base realignments and closures (BRAC).

**Summary Figure 1.**

## Countries That Host Permanent Bases for Major U.S. Military Forces




Source: Congressional Budget Office.

Note: Personnel numbers reflect permanent basing as of the end of 2002.

a. Includes Alaska, Hawaii, and U.S. territories.

b. Includes personnel afloat.

## Current Basing of U.S. Forces Overseas

The U.S. military has about 197,000 active-duty personnel stationed permanently outside the United States—the bulk of them in Europe and Asia (see Summary Table 1). That force level excludes more than 150,000 military personnel who are on temporary assignment in Iraq and Afghanistan. The distinction between permanent and temporary stations is important, because the United States has made significant investments in foreign countries so the military personnel who are based there—often on three-year tours with their families—will have many of the amenities they would enjoy at home. Less-extensive infrastructure is needed in countries like Iraq, where U.S. forces are deployed without their families on a temporary basis. This study looks at how changing the permanent stationing of U.S. forces overseas and the associated basing infrastructure would affect active-duty Army personnel, Army combat forces, and the defense budget.

More than half of the U.S. troops stationed permanently on foreign soil are in Germany and South Korea. The Army accounts for more than three-quarters of U.S. personnel in those countries, with 56,000 soldiers at more than 250 bases in Germany and 28,000 soldiers at 80 bases in South Korea. Those two nations are also home to a significant portion of the Army's total combat force of 10 divisions: two divisions (each with two of their three brigades) are based in Germany, and one division (with two of its three brigades) is stationed in South Korea.

The Administration has raised a number of concerns about the current basing of Army forces overseas:

- In the current global environment, the location of future conflicts is unpredictable, so the Army may need to become more agile and expeditionary (less tied to specific locations).

**Summary Table 1.**

## Permanent Basing of U.S. Active-Duty Military Forces, by Region

| | Europe | Asia and Pacific | Other | United States[a] | Total |
|---|---|---|---|---|---|
| Army | | | | | |
| Divisions | 2 | 1 | 0 | 7 | 10 |
| Personnel | 60,000 | 30,000 | 4,000 | 393,000 | 487,000 |
| Air Force | | | | | |
| Tactical fighter wings | 3 | 3 | 0 | 9 | 15 |
| Personnel | 34,000 | 23,000 | 3,000 | 308,000 | 368,000 |
| Navy[b] | | | | | |
| Carrier battle groups | 0 | 1 | 0 | 11 | 12 |
| Personnel | 10,000 | 6,000 | 2,000 | 365,000[c] | 383,000 |
| Marine Corps[b] | | | | | |
| Marine expeditionary forces | 0 | 1 | 0 | 2 | 3 |
| Personnel | 1,000 | 20,000 | 4,000 | 149,000[d] | 174,000 |
| Personnel from All Services | 105,000 | 79,000 | 13,000 | 1,215,000 | 1,412,000 |

Source: Congressional Budget Office.

Note: This table reflects the permanent basing of U.S. forces at end of 2002. Thus, it excludes forces on temporary assignment in Iraq, Afghanistan, and elsewhere.

a. Includes forces based in Alaska and Hawaii as well as trainees and personnel moving between assignments.

b. Personnel based on board ships are included under the United States.

c. Includes 145,000 personnel afloat.

d. Includes 5,000 personnel afloat.

- The U.S. military's overseas basing infrastructure has become too large, in the Administration's view; in other words, the United States should strive to reduce its "footprint" overseas.

- Army forces stationed in Germany could take too long to deploy to conflicts in Africa or the Caspian Sea region of Central Asia.

- The Army's bases in South Korea are small, scattered, obsolete, and located close to the border, well within range of North Korean artillery.

- Some overseas bases (particularly those in South Korea) that were formerly isolated are becoming increasingly surrounded by commercial and residential communities, leading to greater friction with the local populace.

- The practice of assigning 28,000 soldiers to South Korea on one-year tours—rather than the longer postings usual in Europe—contributes to high annual turnover in Army units, which reduces their cohesion and warfighting capability.[1]

1. Because conditions at many bases in South Korea are not suitable for accommodating soldiers' families, almost all soldiers who serve tours there do so unaccompanied by family members. To reduce family separation, the Army limits those tours to one year. Tours in Germany, by contrast, typically last for three years, and soldiers may bring their families with them.

In the spring of 2003, the Administration accelerated an ongoing review of the military's overseas basing structure. The detailed results of that review have not been officially released, although public statements by Administration officials have indicated some of the changes being considered.[2]

## Alternative Basing Schemes for Army Forces

CBO examined seven alternative ways in which the Army might alter its basing of forces in Europe and South Korea. None of the alternatives explicitly reflects the Administration's plans, because those plans are still under review. However, the alternatives incorporate several aspects of changes to overseas basing that the Administration has either announced formally or discussed informally, such as keeping the current number of Army forces stationed overseas but reducing their footprint and moving some of them closer to locations of potential conflicts; making the Army more expeditionary by using unit rotations to maintain overseas presence; or reducing the size of the Army's overseas presence by restationing forces to the continental United States.

Because details of the Administration's plans were unavailable, CBO could not estimate the costs of the alternative approaches relative to those plans. Rather, CBO compared the estimated costs or savings that would result from each alternative—both during a 10-year implementation period and annually thereafter—with the costs of maintaining the Army's current basing structure in Europe and South Korea. In addition, CBO examined how each option would compare with the current basing scheme in terms of four measures:

- The time needed to deploy Army forces to overseas locations that Administration officials have cited as close to where conflicts could occur in the future—specifically, Nigeria and Azerbaijan (potentially important future sources of oil) and Uganda and Djibouti (potential staging bases for conducting operations in Africa and the Arabian Peninsula to counter instability and terrorism);
- The number of Army forces available for missions other than providing overseas presence in Europe and South Korea;
- The amount of time that the average enlisted soldier would be separated from his or her family over a 10-year period;[3] and
- The degree of turnover among enlisted personnel in Army units based in CONUS.

Those measures were chosen because of their importance and their ability to be quantified, but they do not represent all of the ways to evaluate the benefits and drawbacks of different basing schemes. For example, changing the basing of U.S. forces overseas would have political and military implications. Such implications are difficult to predict and to quantify, however, so CBO did not attempt to evaluate them in depth.

Nearly all of the options in this study incorporate changes to Army basing in both Germany and South Korea. The implications of each option were considered individually for the two theaters as well as for the Army as a whole. Only the overall effects are described below, although the implications for each theater are discussed in the main text of the report.

## Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas

Without altering the number of Army forces based overseas, the Department of Defense (DoD) could make several changes to the basing of those forces to address concerns about their footprint, deployment times, and cost. One change would be to revise DoD policy so that soldiers assigned to tours in Europe were not accompanied by their families. DoD could also consolidate bases in Germany and South Korea and move Army units in Europe (either permanently or temporarily) closer to locations of likely conflicts. Several of the options in this

2. See, for example, Bradley Graham, "U.S. May Halve Forces in Germany," *Washington Post*, March 25, 2004, p. A1.

3. CBO looked at the effects on enlisted personnel over a 10-year period because enlisted personnel make up 83 percent of the Army, and 10 years is long enough that a typical soldier would have a high probability of serving at least one tour in South Korea and one in Europe as well as at least two tours in the continental United States.

study incorporate those latter two changes, to varying degrees, to reflect near-term actions that the Administration is reportedly considering.

### Make European Tours Unaccompanied

One approach to reducing the size and cost of the Army's European infrastructure would be to make Army tours in Europe unaccompanied. If the approximately 60,000 Army personnel assigned to units in Europe served one-year tours without their dependents rather than three-year tours with their families, the United States would no longer need to provide housing, schools, and support for some 80,000 dependents overseas. As a result, it could save about $50 million per year in construction costs at European bases, CBO estimates, and another $200 million per year on educating soldiers' children and providing special pay and allowances to personnel overseas. However, shortening tours to one year would increase the Army's annual moving costs by $225 million, because three times as many soldiers would be moving between Europe and CONUS every year. And leaving more families in the United States would raise yearly costs for housing allowances by $100 million. Consequently, making tours unaccompanied but shorter would actually increase the Army's annual costs by $75 million, in CBO's estimate.[4] (The Army would be reluctant to make unaccompanied overseas tours longer than one year because of concern that family separations of that length would hurt soldiers' morale and retention.)

Besides raising annual costs, this approach would require a net one-time investment of $825 million, CBO estimates (see Summary Table 2). The reduced need for family housing at European bases could allow some planned construction projects to be cancelled. But those savings would be more than offset by the costs of building more barracks in Europe for unaccompanied troops. (Under current policy, soldiers without dependents are housed in barracks, which are cheaper to maintain than family housing units. Existing family quarters could be used for unaccompanied soldiers, but they would need to be modified to house individuals rather than families.)

Making all tours in Europe unaccompanied would also adversely affect soldiers' overall quality of life and increase turnover among enlisted personnel in CONUS-based units. Over 10 years, an enlisted soldier would typically spend almost 60 percent more time away from his or her family—3.6 years rather than the current average of 2.3 years—because of the threefold increase in time spent on unaccompanied tours. The greater frequency of overseas tours would also raise the percentage of enlisted personnel leaving CONUS-based units each year from 37 percent to 47 percent. More family separations and shorter assignments in the United States during enlisted soldiers' careers would most likely reduce the Army's ability to retain soldiers in the force.

### Make Minor Changes in German and South Korean Basing and Rotate Combat Troops from Germany to Eastern Europe

This alternative would consolidate bases in Germany and South Korea in line with two plans announced by the Administration. The Efficient Basing Germany plan would close 13 small bases in central Germany and move the units and personnel stationed there to a single installation in the Grafenwoehr area in eastern Germany. The Land Partnership Plan, signed by representatives of the United States and South Korean governments in March 2002, would reduce the number of troop installations in South Korea by 18, mainly by closing and consolidating many bases north of the capital, Seoul.

In addition, this alternative would put Army combat forces closer to potential conflicts by rotating brigade combat teams based in Germany on six-month deployments to forward operating bases (FOBs) in Eastern Europe. The FOBs would be built at or near three existing facilities in Poland, Romania, and Bulgaria. Because they would be relatively spartan installations, the forward bases would be less expensive to build and operate than typical permanent (and more elaborate) installations in Germany.

This option would require a net one-time investment of about $1.4 billion to $2.9 billion, mainly to consolidate bases in Germany and South Korea and to establish FOBs in Eastern Europe. (The range reflects varying assumptions about what share of costs the host nations might bear.) After implementation, this alternative would cost about $225 million more per year than current basing, primarily to operate the FOBs and support rotations to them (see Summary Table 2).

Rotating brigade combat teams (BCTs) to Eastern Europe would allow them to deploy more quickly to the

4. The costs and savings associated with each alternative are discussed in detail in Appendix B.

**Summary Table 2.**

## Comparison of Alternatives with the Current Basing of Army Forces

| | Army Forces Stationed Overseas | | Costs or Savings (-) (Millions of 2004 dollars) | | Army Personnel Available for Operations[a] | |
|---|---|---|---|---|---|---|
| | Germany and Eastern Europe | South Korea | One-Time | Annual | Assuming High Rotation Ratio | Assuming Low Rotation Ratio |
| **Current Basing** | 56,000 | 28,000 | n.a. | n.a. | 44,000 | 64,000 |
| | **Change from Adopting Alternative** | | | | | |
| **Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas** | | | | | | |
| Make European Tours Unaccompanied | 0 | 0 | 825 | 75 | 0 | 0 |
| Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Austere Bases in Eastern Europe | 0 | 0 | 1,375 to 2,925 | 225 | -6,000 | -8,000 |
| Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe | 0 | 0 | 2,875 to 4,950 | 25 | 0 | 0 |
| **Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half** | | | | | | |
| Halve Forces Stationed Overseas and Maintain Current Level of Overseas Presence by Rotating Six BCTs from CONUS | -25,000 | -13,000 | 8,375 to 9,350 | 0 | -28,000 | -34,000 |
| Halve Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe | -29,000 | -13,000 | 4,825 to 5,800 | -500 | +2,000 | -1,000 |
| **Alternatives That Would Remove Almost All Army Forces Stationed Overseas** | | | | | | |
| Move Nearly All Forces to CONUS and Continuously Rotate Three BCTs to Europe and South Korea | -50,000 | -27,000 | 6,800 to 7,350 | -925 | -9,000 | -15,000 |
| Eliminate Virtually All Army Presence Overseas | -53,000 | -27,000 | 6,800 to 7,350 | -1,175 | +10,000 | +4,000 |

Continued

Source: Congressional Budget Office.

Note: BCTs = brigade combat teams; CONUS = continental United States; n.a. = not applicable.

a. Assuming use of active-duty forces only and a range of rotation ratios (the total number of units necessary to keep one unit on a rotational deployment at any given time).

**Summary Table 2.**

## Continued

| | Number of Days to Deploy | | | | Years of Family Separation for Enlisted Personnel Over 10 Years | | | Annual Turnover in CONUS Units (Percent)[e] |
|---|---|---|---|---|---|---|---|---|
| | To European Theater (Baku, Azerbaijan) | | To Asian Theater (South Korea) | | | | | |
| | Heavy BCT[b] | Division Base[c] | Heavy BCT | Division Base[d] | Unaccompanied Tours | Time Deployed | Total | |
| **Current Basing** | 23 | 28 | 0 | 0 | 0.6 | 1.7 | 2.3 | 37 |
| | **Change from Adopting Alternative** | | | | | | | |
| **Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas** | | | | | | | | |
| Make European Tours Unaccompanied | 0 | 0 | 0 | 0 | +1.3 | 0 | +1.3 | +10 |
| Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Austere Bases in Eastern Europe | -6 | 0 | 0 | 0 | 0 | +0.3 | +0.3 | 0 |
| Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe | -6 | 0 | 0 | 0 | +0.2 | 0 | +0.2 | +2 |
| **Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half** | | | | | | | | |
| Halve Forces Stationed Overseas and Maintain Current Level of Overseas Presence by Rotating Six BCTs from CONUS | -6 | +1 | 0 | +23 | -0.3 | +0.7 | +0.4 | -5 |
| Halve Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe | -6 | 0 | 0 | 0 | -0.3 | +0.1 | -0.2 | -6 |
| **Alternatives That Would Remove Almost All Army Forces Stationed Overseas** | | | | | | | | |
| Return Nearly All Forces to CONUS and Continuously Rotate Three BCTs to Europe and South Korea | -6 | +1 | 0 | +23 | -0.5 | +0.4 | -0.1 | -9 |
| Eliminate Virtually All Army Presence Overseas | 0 | +1 | +7 | +23 | -0.5 | 0 | -0.5 | -9 |

b. Based on deploying from the closest location in Europe or using the set of equipment prepositioned afloat in Diego Garcia.

c. Based on deploying from Germany or Qatar.

d. Based on deploying from South Korea or Hawaii.

e. The current level of turnover (the share of personnel who leave U.S.-based units each year, including for a permanent change of station overseas) is shown in percent. Changes from that level are shown in percentage points.

Mediterranean and Caspian regions (such as Baku, Azerbaijan) than they can from Germany, although no more quickly to Africa or the Middle East. However, constantly rotating BCTs from Germany to Eastern Europe could mean that the four combat brigades stationed in Germany—which are now generally available to be deployed out of the country—would not be immediately available for other missions. Consequently, the number of active-duty personnel that the Army could keep deployed on overseas operations on a sustainable basis would drop from the current level of 44,000 to 64,000 personnel to 38,000 to 56,000. (The ranges reflect uncertainty about rotation ratios, or the total number of units needed to keep one unit deployed at any given time.) Another drawback of this option is that it would increase total family separation for enlisted personnel by 13 percent over 10 years because family members would not accompany soldiers on rotations to Eastern Europe.

### Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe

This alternative would go farther than the previous option in reducing the footprint of U.S. forces in Germany and South Korea and potentially speeding deployment of Army forces in Europe to likely trouble spots. Rather than closing roughly one-quarter of the 80 Army bases in South Korea, this option would consolidate all U.S. forces in that country at two large installations south of Seoul—as the Administration and the South Korean government recently agreed to do. And rather than rotate combat forces to temporary forward bases in Poland, Romania, and Bulgaria, this option would establish three permanent bases in those countries and relocate a BCT (about 4,000 soldiers) from Germany to each one.

Because the new bases in Eastern Europe would host soldiers on one-year unaccompanied tours, they would not have to be as elaborate as the bases that now house U.S. soldiers in Germany. Nevertheless, this option would entail a net up-front investment of $2.9 billion to $5.0 billion to build new bases in Eastern Europe and South Korea and move units to them (see Summary Table 2 on page xiv).

Once implemented, this alternative would cost only about $25 million more each year than current basing and would have several advantages. It would speed deployments to the Mediterranean and Caspian regions, make U.S. forces in South Korea less vulnerable to North Korean artillery or to being overrun during a North Korean attack, close many isolated and obsolete facilities in South Korea, and make it feasible to increase the share of accompanied Army tours in that country from the current level of 10 percent (2,800 soldiers) to 25 percent (7,000 soldiers). However, because 12,000 Army personnel would serve one-year unaccompanied tours in Eastern Europe rather than three-year accompanied tours in Germany, the total number of unaccompanied tours worldwide would rise under this option, increasing family separation and annual turnover in CONUS units.

## Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half

Although the Administration has indicated that fewer Army personnel will probably be based overseas in the future, it has not said where forces will be cut or by how much. To cover a wide range of possibilities, the rest of the options that CBO examined would reduce the extent of the Army's presence overseas from current levels by changing permanent basing and, in some cases, introducing unit rotations. Those options would relocate between 38,000 and 80,000 personnel now based overseas to the continental United States.

Transferring tens of thousands of Army troops back to the United States could complicate preparations for the round of base realignments and closures being planned for 2005. Because of BRAC rounds carried out in the 1980s and 1990s, the Army has little or no excess capacity at bases in CONUS.[5] Thus, increasing the population of Army personnel in CONUS—as these options would do by as much as 23 percent—would require building new facilities in this country. If closing existing bases is considered during the upcoming BRAC round, the need to house forces in the United States that are now stationed overseas could preclude some of those closures.

Two of the options for cutting overseas forces that CBO examined would relocate roughly half of the Army personnel stationed in Germany and South Korea to the United States. The first would move all combat forces—brigades and divisions—from Germany and South Korea to CONUS, leaving the support forces now based there

5. Those four previous BRAC rounds eliminated many bases and facilities that were no longer necessary because of the large reductions in U.S. military forces that occurred during the 1990s.

in place. However, it would maintain roughly the current level of overseas presence by rotating BCTs from the United States to those two regions. The other option would reduce the level of overseas presence by moving half of both the combat and support forces based in Germany and South Korea to CONUS and not rotating any units back.

### Halve Forces Stationed Overseas and Maintain the Current Level of Overseas Presence by Rotating Six BCTs from CONUS

Some Administration officials have suggested that a rotational scheme would be a better way than current basing to maintain the present level of combat presence in Europe and South Korea. In line with that suggestion, this alternative would relocate all Army combat units based in Germany and South Korea to the United States and rotate six brigade combat teams overseas on six-month deployments. Three of the 4,000-person BCTs would rotate to forward operating bases in Poland, Bulgaria, and Romania; another would go to an existing base in Germany; and the other two would rotate to two new consolidated installations in South Korea. To enable all active Army brigades to take part in the overseas rotations, this option would buy two sets of equipment for the Army's new Stryker BCTs and preposition one set in Europe and one in South Korea.

This alternative would be the most expensive approach in this study to implement, requiring net one-time spending of $8.4 billion to $9.4 billion to construct new basing in the United States for returning units, to purchase equipment sets for prepositioning, and to establish three FOBs in Eastern Europe (see Summary Table 2 on page xiv). Thereafter, it would cost about the same each year as current basing.

Using a rotational scheme to maintain combat presence in Europe and South Korea would have both advantages and disadvantages. It would reduce annual turnover in CONUS units from 37 percent to 32 percent (by cutting one-year tours in South Korea) and lessen the time needed to deploy BCTs to the Caspian region by six days. However, getting a division base—everything in a division besides the BCTs, such as headquarters, aviation, and support units—to potential conflicts in the European or Asian theater would take longer under this alternative, because no divisional units would remain in Germany or South Korea. For operations in Baku, Azerbaijan, the delay would be only one day (the units would come from CONUS and their equipment from prepositioned stocks in Qatar). But for a conflict on the Korean Peninsula, the delay could stretch to 23 days (as divisional units deployed from Hawaii), during which time the BCTs in South Korea would have to operate without divisional support. They would receive some support from the extensive Army assets that would remain stationed in South Korea, as well as from assets of the U.S. Air Force and the South Korean army. But it is unclear how well the BCTs would be able to perform in combat without command and control provided by a divisional headquarters.

Other drawbacks of this approach are that it would reduce the availability of active Army brigades for other missions and increase family separation. Depending on assumptions about rotation ratios, the Army would need 19 to 24 brigades to support a total of six BCT rotations to Europe and South Korea. Thus, it would be able to sustain only 16,000 to 30,000 active-duty troops in other missions outside Europe and South Korea—less than half of the level possible under today's basing structure. Moreover, because the increased time that a soldier would spend deployed over 10 years would more than offset the decreased time spent on unaccompanied tours in South Korea, average family separation over 10 years would rise by about 17 percent. That rise would be enough, according to some of the Army's experts, to degrade retention—perhaps seriously.

### Halve Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe

In this alternative, the Army forces permanently stationed in Germany and South Korea would be cut by about half. One division, its two brigades, and additional supporting units would be returned to CONUS from Germany; one of the brigades and some divisional units from the 2nd Infantry Division, as well as supporting units outside the division, would move to CONUS from South Korea. The Army forces remaining in South Korea, including one brigade and the division headquarters, would be based at a consolidated installation south of Seoul. The two brigades still in Germany would each rotate periodically—for one three-month exercise per year, for example—to three FOBs in Eastern Europe, using equipment prepositioned there.

Those changes would require a net up-front investment of $4.8 billion to $5.8 billion to move forces to the United States and provide basing for them, set up three FOBs in Europe, and consolidate bases in South Korea.

Once this option was implemented, however, it would save the Army $500 million per year compared with the cost of current basing (see Summary Table 2 on page xiv).

This approach to halving the Army's overseas presence would have several advantages. It would reduce annual turnover in CONUS units from 37 percent to 31 percent and decrease the amount of family separation that enlisted soldiers experience over 10 years by about 9 percent. It could also speed deployments to the Mediterranean, Black Sea, and Caspian regions. Moreover, this alternative would have a fairly small effect on the availability of Army forces for other contingencies. Moving one brigade from South Korea to CONUS would slightly increase the number of troops available, but under some assumptions, that increase would be insufficient to offset the greater demand on brigades in Europe. As a result, the total active-Army forces available for overseas operations would range from 46,000 to 63,000 under this alternative, rather than 44,000 to 64,000 under the current basing strategy.

## Alternatives That Would Remove Almost All Army Forces Stationed Overseas

Although the Administration has not suggested such a drastic change in the near future, CBO also analyzed two approaches that would greatly reduce the Army's permanent overseas presence by moving nearly all of the Army forces stationed in Germany and South Korea back to the United States. Doing that would require a net one-time investment of $6.8 billion to $7.4 billion, CBO estimates, but thereafter would save at least $900 million per year compared with current basing. The first alternative would rotate combat teams overseas from the United States on a limited basis; the second would keep most Army forces in CONUS, deploying them overseas only in the event of a crisis.

### Return Nearly All Forces to CONUS and Continuously Rotate Two BCTs to Europe and One to South Korea

This option would relocate the vast majority of Army forces now in Germany and South Korea to CONUS but maintain half the current combat presence in those regions through a rotational scheme. It would establish three FOBs in Eastern Europe and locate prepositioned equipment and small reception forces (1,000 personnel) at each of them, as well as at a consolidated base south of Seoul. Another 3,000 troops would be stationed in Germany for administrative and reception purposes. Two BCTs from CONUS would rotate to Eastern Europe every six months, occupying two of the three forward bases at any given time. One BCT would rotate on a continuing basis from CONUS to South Korea.

Those changes would have both positive and negative effects. Once they were carried out, they would save the Army more than $900 million per year (see Summary Table 2 on page xiv). Furthermore, annual turnover in CONUS units would fall from 37 percent to about 28 percent because of the decline in the number of unaccompanied tours. Total family separation would decrease slightly, since the increased time spent on deployments would almost offset the reduction in time spent on unaccompanied tours. The impact on deployment times would be mixed. BCTs would be able to reach the Mediterranean and Caspian regions more quickly, but a division base would take an additional day to arrive in the European theater. Of more concern, a division base could take up to 23 days to deploy to South Korea, with all of the implications discussed earlier. And despite the concentration of forces in CONUS, maintaining three brigade rotations to Europe and South Korea would reduce the forces available for other contingencies by about 9,000 to 15,000 personnel from today's levels.

### Eliminate Virtually All Army Presence Overseas

This approach—the most significant change of all of the options—would remove Army forces from Germany and South Korea and rebase them in CONUS for use in future conflicts. Small reception forces would be stationed in Germany (2,000 personnel), Eastern Europe (1,000), and South Korea (1,000) to maintain prepositioned equipment and provide support for periodic exercises. For that reason, and because one set of equipment for a heavy brigade would be prepositioned in Romania or Bulgaria, the United States would be able to deploy a brigade combat team to conflicts in the Caspian region just as quickly as from current bases.[6] With unaccompanied tours all but eliminated, family separation would decline

6. Although equipment would be prepositioned in Bulgaria or Romania, Army personnel might need up to a week to fly to those locations from CONUS, draw their equipment, and organize themselves into a fighting force. That delay would negate any advantage over current basing gained by positioning sets of brigade equipment in Eastern Europe.

by 22 percent from the current level, and annual turnover in CONUS units would fall by 24 percent. Without brigades tied to the defense of South Korea, 4,000 to 10,000 more troops could be available for sustained overseas operations than would be available today. Finally, this option would save $1.2 billion annually—more than any other alternative that CBO examined (see Summary Table 2 on page xiv).

This approach would represent a significant departure from U.S. posture during the past 50 years, when the Army has maintained a significant combat presence in Germany and South Korea. Unlike the other alternatives, this option would not station or rotate any forces to South Korea that would be able to respond to an attack immediately. Instead, Army personnel might need up to a week to fly to South Korea from CONUS, retrieve their equipment from the prepositioned set, and organize themselves into a fighting force. The absence or presence of one Army brigade at the onset of hostilities might not be crucial, because the South Korean army would be able to respond immediately, as could the South Korean and U.S. air forces stationed in the region. However, the deterrent value of a U.S. brigade that was always present in South Korea might be more important than its tactical contribution.

CHAPTER

# 1

# Introduction

The United States maintains an extensive network of overseas military bases, as it has since the end of World War II. Those installations—scattered throughout the world and numbering more than 700—enable the U.S. military to maintain a permanent presence on all seven continents. The pattern of that presence was established in the aftermath of World War II and the Korean War and reinforced during the Cold War by the need to defend the United States and its allies from potential Soviet and North Korean aggression.

In recent years, members of both the Congress and the Administration have called for a reassessment of the military's overseas basing strategy. Last year, the Congress established the Commission on Review of Overseas Military Facility Structure of the United States as part of its bill appropriating funds for military construction for 2004.[1] The commission is charged with assessing the number of U.S. forces permanently based overseas, examining the condition of their facilities, and determining what changes may be necessary. The commission is due to report back to the Congress by December 31, 2004. For its part, the Administration stated in its September 2001 *Quadrennial Defense Review Report* that the existing system of overseas bases is inadequate for the current strategic environment.[2] To address that concern, the Administration accelerated an ongoing review of U.S. basing strategy in the spring of 2003. Although Administration officials have discussed several potential changes—such as halving the number of U.S. troops stationed in Germany—the final results of that review and official recommendations for change have not yet been formally released.[3]

This study by the Congressional Budget Office looks at the current worldwide basing posture of the U.S. military. It focuses on the Army, which has far more personnel stationed permanently overseas than any other service.[4] Because the bulk of the Army's overseas forces are based in two locations that are legacies of the Cold War—Germany and South Korea—this study looks in detail at those areas. It discusses some of the consequences of the Army's current basing policies and explores alternative strategies that would address concerns raised about those policies. The alternatives are analyzed in terms of their costs or savings, their ability to speed deployment of U.S. forces to potential trouble spots, and their effects on family separation, the stability of Army units based in the continental United States, and the availability of U.S. forces for operational deployments.

1. U.S. House of Representatives, *Making Appropriations for Military Construction, Family Housing, and Base Realignment and Closure for the Department of Defense for the Fiscal Year Ending September 30, 2004, and for Other Purposes*, conference report to accompany H.R. 2559, Report 108-342 (November 4, 2003), sec. 128, pp. 10-12.

2. Department of Defense, *Quadrennial Defense Review Report* (September 30, 2001), p. 25.

3. For information about some of the changes reportedly under consideration, see Bradley Graham, "U.S. May Halve Forces in Germany," *Washington Post*, March 25, 2004, p. A1.

4. All mentions in this study of forces based overseas refer to active-duty personnel permanently stationed on land outside the United States and its territories, as of the end of fiscal year 2002. Thus, they exclude forces on temporary deployments overseas (such as in Afghanistan or Iraq) and the roughly 22,000 personnel based on board ships off foreign shores.

## Changes in U.S. Overseas Basing in the Past 25 Years

Despite cutting its overseas forces in half in the early 1990s, the United States continues to maintain a significant military presence around the world. At the end of 2002, almost 200,000 active-duty U.S. troops were stationed on shore in foreign countries, down from almost 430,000 at the end of 1980 (see Figure 1-1).[5]

### Geographic Distribution

The number of U.S. military personnel stationed in Europe declined dramatically after the fall of the Berlin Wall and the collapse of the Soviet Union—from about 320,000 in 1989 to about 110,000 in 1995. Nevertheless, Europe continues to host the largest population of U.S. military personnel based on shore in foreign countries.

The next-biggest contingent of U.S. forces stationed on foreign territory is based in East Asia: roughly 40,000 personnel in Japan and 38,000 in South Korea. Throughout the 1980s, another 6,000 to 11,000 U.S. service members were based in Japan, and about 15,000 were stationed in the Philippines. Those personnel—who were primarily from the Air Force—were withdrawn in the early 1990s during the general contraction of the U.S. military, when the overall size of the active-duty force shrank by 30 percent.

The remainder of U.S. forces based overseas have been stationed in Latin America and the Caribbean, the Middle East, and numerous other places around the globe. In all, those other forces have ranged from 5,000 to 20,000 personnel during the past quarter century.

The percentage of U.S. forces based overseas decreased less dramatically during that period than the overall number did. For example, although the number of personnel stationed in Europe fell by two-thirds, the share of U.S. forces based there declined by about half: from 15 percent in 1980 to 8 percent in 2002 (see Figure 1-1). The number of personnel based in East Asia declined only slightly during those years, but the share of U.S. military forces stationed in that region actually rose from 5 percent to 6 percent.

### Differences Between the Services

Because the services differ in mission and in the mobility of their forces, they also vary in where and to what extent their personnel are based overseas. The Army has accounted for the largest share of U.S. forces stationed outside the United States during the past 25 years (see Figure 1-2). Army units have generally required significant resources and time to move between continents; thus, Army forces that might be needed on short notice to defend U.S. allies in Europe or East Asia have been based close to areas of likely conflict. That was the case during the Cold War, when four Army divisions and associated support units were stationed in Germany to deter or defend against a Soviet invasion of Western Europe. It is also the reason that Army forces are stationed in South Korea.

The number and fraction of Army forces based overseas have decreased since 1980—from over 250,000 personnel, or more than one-third of the Army's active-duty soldiers, to slightly more than 90,000 personnel in 2002, or about one-fifth of the active Army. Nevertheless, the Army continues to station a larger share of its forces overseas than any other service and almost as many people as all of the other services combined.

In terms of number of installations, the Army also represents the biggest U.S. presence overseas. According to the Department of Defense's most recent *Base Structure Report*, the Army maintains the highest number of overseas installations—with by far the most buildings and the greatest total replacement value—of all of the services (see Table 1-1).[6] Thus, the Army has a much bigger overseas "footprint" than the Navy, Air Force, or Marine Corps does.

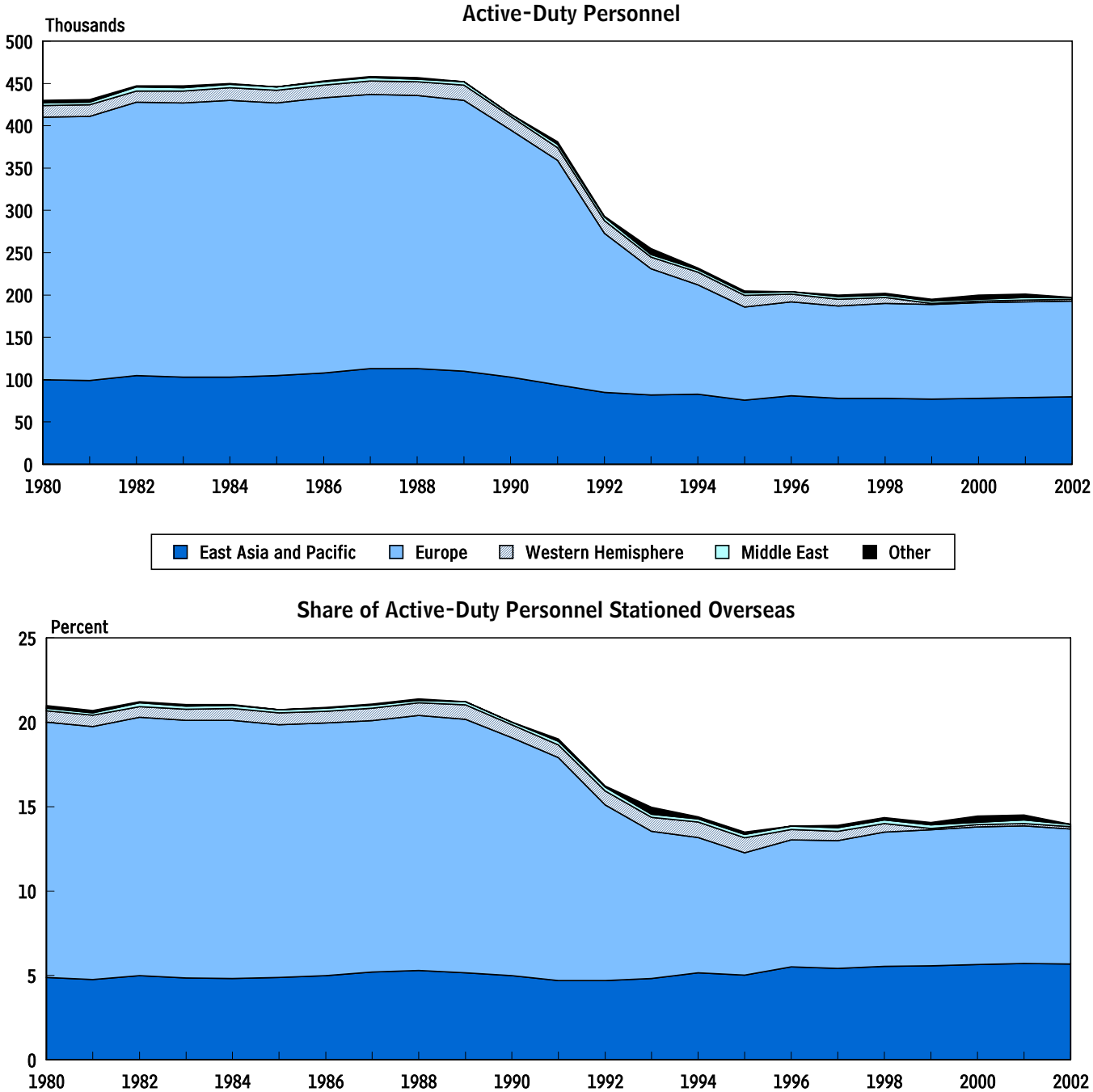
Those other services' combat forces are more mobile than Army forces (to varying degrees) and therefore are less widely based around the globe. Air Force aircraft can deploy to anywhere in the world in a matter of days. However, that service's supporting units, equipment, and mu-

5. Data for forces stationed overseas are provided as of the end of 2002 to exclude the effects of stop-loss orders (temporary stoppage of exits from active duty) and activation of reservists related to recent operations in Afghanistan and Iraq.

6. Based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf.

**Figure 1-1.**

## U.S. Military Forces Permanently Stationed Overseas, by Region, 1980 to 2002

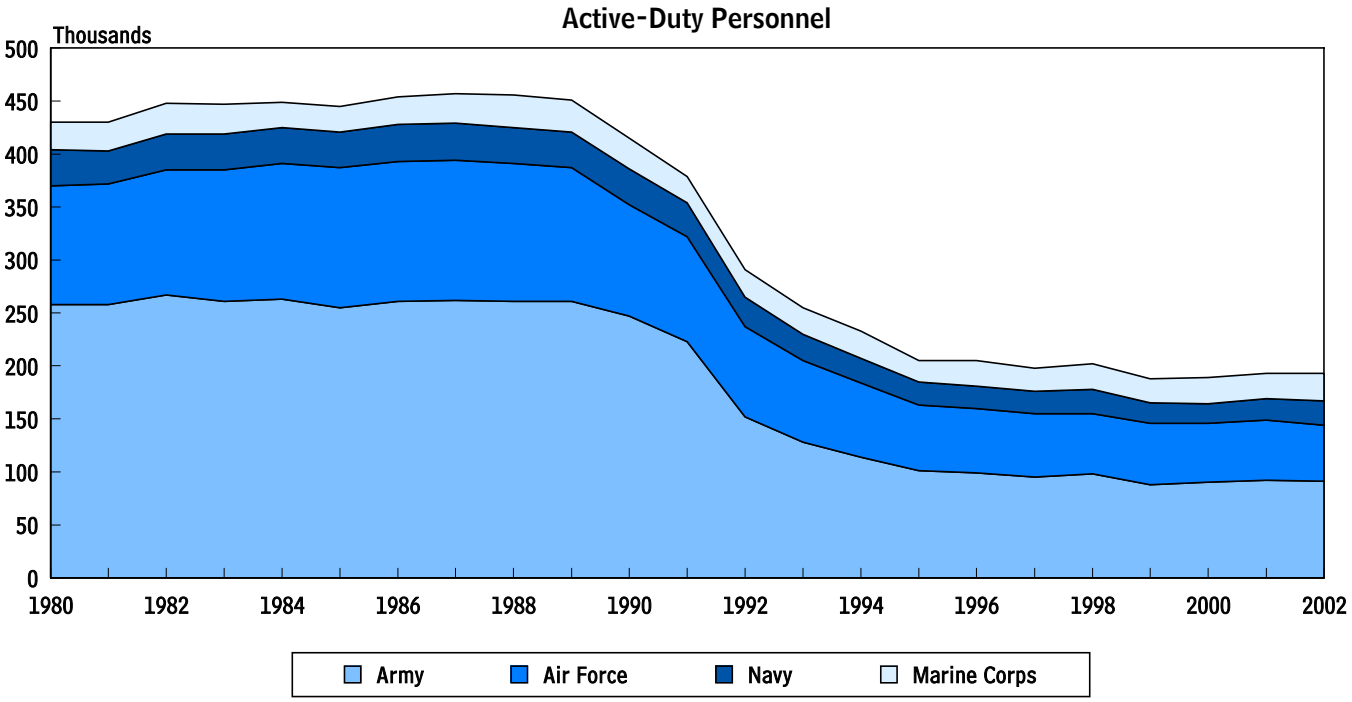


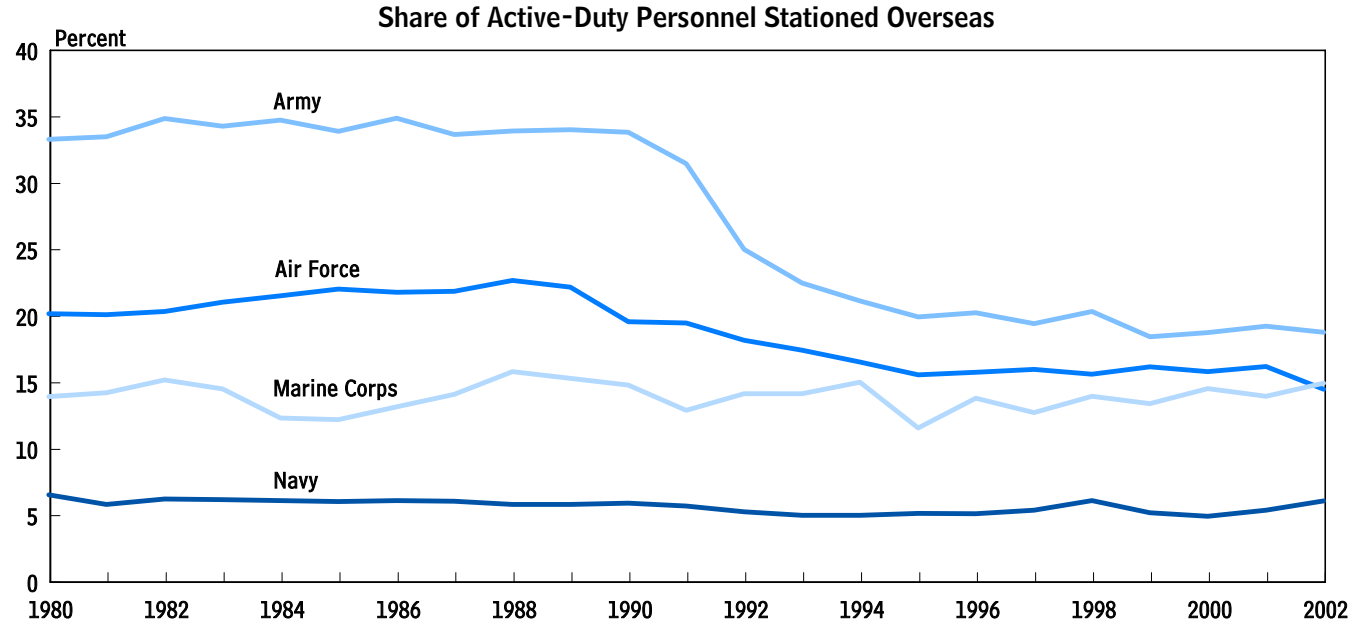

Source: Congressional Budget Office.

Note: Excludes forces afloat.

**Figure 1-2.**

## U.S. Military Forces Permanently Stationed Overseas, by Service, 1980 to 2002




Source: Congressional Budget Office.

Note: Excludes forces afloat.

**Table 1-1.**

## The U.S. Military's Overseas Infrastructure

| | Army | Navy | Air Force | Marine Corps | Total |
|---|---|---|---|---|---|
| Number of Installations | 381 | 44 | 275 | 2 | 702 |
| Number of Buildings[a] | 26,100 | 5,800 | 9,600 | 3,400 | 44,900 |
| Total Square Footage[b] (Millions) | 204 | 32 | 53 | 12 | 301 |
| Total Present Replacement Value[c] (Billions of dollars) | 46 | 21 | 39 | 6 | 112 |
| Number of Countries and Foreign Territories with Installations | 9 | 23[d] | 23 | 1 | n.a. |

Source: Congressional Budget Office based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf.

Notes: Excludes bases in Hawaii and in U.S. territories, such as Guam.

n.a. = not applicable.

a. Includes only facilities owned (rather than leased) by the United States.

b. Total space in all buildings, owned or leased.

c. Includes costs to replace excess U.S.-owned facilities awaiting disposal.

d. Excludes Antarctica.

nitions are not as mobile. Thus, like the Army, the Air Force established numerous overseas bases during the Cold War and stationed approximately one-fifth of its active-duty personnel at them. The Navy and Marine Corps, in part because of their sea-based nature, have stationed fewer of their personnel on shore overseas, in terms of both relative and absolute numbers. The Navy bases only about 5 percent of its personnel on shore outside the United States, a share that has remained relatively constant since 1980.[7] The Marine Corps has stationed a much larger proportion—roughly 12 percent to 16 percent—of its forces on shore overseas during the past 20 years.[8]

7. Between 9 percent and 13 percent of the Navy's personnel were based overseas on board ships during the 1980s. That share fell to 4 percent by 1997, but it has been as high as 11 percent in recent years.

8. The Marine Corps bases 1 percent to 6 percent of its forces on board ships in foreign ports.

## Reasons to Change Overseas Basing Further

The Administration argues that U.S. forces overseas, as now configured, are not adequate for the new strategic environment. Current security strategy calls for having agile forces that are not necessarily based where future conflicts will occur—because that cannot be predicted—but that are nonetheless stationed outside the United States and are prepared to deploy quickly to wherever conflicts might erupt.

The need for change to meet new security demands is greater for the Army than for other services, for at least two reasons. First, land forces are inherently less mobile than ships and aircraft, so the Army cannot react and move to a developing crisis as easily as the Navy and Air Force can. Second, the Army's overseas basing structure is more concentrated than the Navy's and Air Force's are. Roughly 90 percent of the Army's overseas personnel—and 80 percent of its overseas installations—are located in Germany and South Korea (see Table 1-2), generally at bases that have been in use for 50 years. Defense ana-

**Table 1-2.**

## The Share of the U.S. Military's Overseas Infrastructure in Germany and South Korea

| | Army | Navy | Air Force | Marine Corps | Total |
|---|---|---|---|---|---|
| **Active-Duty Personnel Permanently Stationed Overseas[a]** | | | | | |
| Total Number | 94,000 | 18,000[b] | 60,000 | 25,000[b] | 197,000 |
| Percentage of Total | | | | | |
| Germany | 60 | 1 | 26 | 2 | 35 |
| South Korea | 30 | 0 | 16 | * | 19 |
| Other countries | 10 | 99 | 58 | 98 | 46 |
| **Facilities Overseas** | | | | | |
| Total Present Replacement Value[c] (Billions of dollars) | 46 | 21 | 39 | 6 | 112 |
| Percentage of Total | | | | | |
| Germany | 65 | 0 | 23 | 0 | 35 |
| South Korea | 17 | 1 | 10 | 0 | 11 |
| Other countries | 18 | 99 | 67 | 100 | 54 |

Source: Congressional Budget Office based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf; Department of Defense, Washington Headquarters Services, Directorate of Information Operations and Reports, *Department of Defense Active-Duty Personnel Strengths by Regional Area and by Country (309A)* (September 30, 2002); and other Defense Department data.

Note: * = less than 0.5 percent.

a. As of September 30, 2002.

b. Onshore personnel only.

c. Includes costs to replace excess U.S.-owned facilities awaiting disposal.

lysts and Administration officials argue that Germany is no longer close to likely sites of future conflicts and that Army forces in South Korea are stationed dangerously close to the North Korean border. For those reasons, much of the discussion about modifying the overseas basing of U.S. forces has focused on Army units and installations in Germany and South Korea.

The next chapter looks in detail at the current basing of Army forces in those two countries, with particular attention to how it affects the lives and careers of soldiers and the Army's force structure. Chapter 2 also briefly describes the major facilities that the other services maintain in Germany and South Korea. Chapter 3 examines alternative ways to change the basing of Army forces to better meet the new strategic environment and discusses the advantages and disadvantages of each alternative.

CHAPTER

# 2

# Current Basing of U.S. Forces Overseas

Permanently stationing forces overseas gives the U.S. military a strategic advantage—but at a price. That price is paid not only in terms of budgetary cost but in terms of the personnel, units, and equipment needed to support forces stationed outside the United States. This chapter examines the U.S. forces stationed in Europe and East Asia and the budgetary and personnel cost of keeping them there.

## Forward-Based Versus Forward-Deployed Forces

U.S. forces can be maintained overseas on either a permanent or a temporary basis. Units or personnel that are in a foreign country on a permanent basis are said to be forward based or forward stationed. In contrast, units and their associated personnel that are in a foreign country for a limited time—typically six months or a year—while taking part in an exercise or operation are said to be forward deployed. (An example of such forces is those now deployed in Iraq for Operation Iraqi Freedom.) Although the distinction may appear to be semantic, it has important consequences for military forces and personnel.

### Forward-Based Units

Units that are permanently based outside the United States remain in place while individuals assigned to the units come and go. For example, the 2nd Infantry Division (2nd ID) has been stationed in South Korea since the 1950s, when the Korean War ended. While the division, with its headquarters and subordinate units, remains in place, some 13,000 Army soldiers rotate through it on one-year unaccompanied tours.[1] In other locations, such as Germany, U.S. military personnel serve three-year tours with units stationed there and can bring their families with them.

With the help of its allies, the United States has built up significant infrastructure overseas to support forward-stationed units, assigned personnel, and their families. Almost all overseas bases that permanently house large numbers of U.S. service members include all of the amenities of bases in the United States—such as commissaries, chapels, exercise facilities, and post offices. In addition, in places where families may accompany service members, the Department of Defense (DoD) has established schools for military dependents. In Germany alone, DoD runs 70 schools for more than 30,000 children who are dependents of U.S. military personnel and DoD civilians.

Another aspect of forward-based units is that personnel serving with them are considered on permanent assignment instead of temporary duty and thus undergo a "permanent change of station" (PCS) when they move from an assignment in the United States to an assignment overseas. In a PCS move, service members can take along their household goods (including automobiles) at the government's expense, regardless of whether they are accompanied by family members.

The fact that personnel are assigned to—and move in and out of—forward-based units on an individual basis creates continual turnover in those units. With the three-year tours common in Germany, one-third of the individuals in a particular unit will turn over every year, and

1. Most of the roughly 15,000 soldiers assigned to units in South Korea other than the 2nd ID also rotate through their units on one-year unaccompanied tours. However, approximately 10 percent of them are on accompanied tours, in which the Army pays to move soldiers' families to South Korea and provides facilities for dependents while the soldiers are on assignment there. Those tours typically last for two or three years.

the entire population will turn over in three years. Moreover, when individuals complete a tour with a forward-based unit, they are generally assigned to a different unit in the United States than the one they served in before going overseas.

### Forward-Deployed Units

Forward-deployed forces—such as those now in Iraq, Afghanistan, or Kosovo—are overseas on a temporary basis only. The United States does not anticipate having forces stationed in Iraq for the next 50 years, as it has done in Germany. Rather, it anticipates that once Iraq is secure, U.S. troops will be withdrawn and not replaced. As a consequence, the United States has no plans to build elaborate bases to house U.S. forces in Iraq.

Likewise, for the most part, military personnel are not assigned to duty in Iraq the same way they are to duty in South Korea or Germany. If a unit based in the United States, such as the 82nd Airborne Division, is assigned to duty in Iraq for a year, all of the personnel associated with the division who are eligible will deploy to Iraq for 12 months.[2] Neither soldiers' personal belongings (beyond some individual items) nor their families will accompany them. Furthermore, so far as possible, all of the individuals assigned to the unit will deploy and stay with it for the entire period and return to the home base together.[3] Those deployed forces are often included in tallies of U.S. forces overseas, but in fact they are officially considered to be overseas on a temporary basis, even though some operations supported by rotational deployments have continued for years.[4]

## U.S. Forces Based in Europe

The United States has about 100,000 military personnel forward based in Europe. The bulk of them are stationed in Germany, where the United States has maintained forces since the end of World War II, originally as an occupation force and later as part of NATO's defense during the Cold War. Although the size of U.S. forces in Europe declined by two-thirds after the collapse of the Berlin Wall, the need to maintain the current levels is being questioned by some defense analysts and Administration officials.

### Army Forces

The Army accounts for about 60 percent of active-duty U.S. personnel stationed in Europe. Despite significant cuts in those personnel after the unification of Germany and the dissolution of the Soviet Union in the 1990s, the Army continues to base two of its 10 divisions and one of its four corps in Europe. Thus, a significant portion of the Army's combat power is stationed on that continent, primarily in Germany.

Nevertheless, the Army's combat units (divisions and brigades) account for less than half of the service's active-duty personnel in Europe. Each of the two divisions stationed in Germany—the 1st Armored Division and the 1st Infantry Division (mechanized)—has only two of its three combat brigades and about 12,500 of its total 16,000 personnel based in Germany.[5] The Army's other combat unit in Europe—the 173rd Airborne Brigade, based in Vincenza, Italy—has about 1,000 personnel assigned to it. Thus, the Army's permanent active-duty combat forces in Europe total about 26,000 people (see Table 2-1).

Another 27,000 or so active-duty personnel are assigned to what the Army calls combat-support (CS) units, such

2. Not all of the soldiers assigned to a division would deploy with it. On average, 4 percent of Army personnel are ineligible to deploy overseas at any given time for various reasons, such as pregnancy, other health concerns, and family emergencies. Additional soldiers—as many as 35 percent in peacetime—may be ineligible because of Army personnel policies designed to ensure soldiers' quality of life. For a discussion of Army deployment rates in peacetime, see Bruce R. Orvis, *Deployability in Peacetime,* DB-351-A (Santa Monica, Calif.: RAND, 2002).

3. Some attrition, necessitating individual replacements, will inevitably occur over a deployment of six to 12 months.

4. For example, the United States has provided a small force to support the peacekeeping efforts of the Multinational Force and Observers (MFO) in the Sinai Peninsula since 1982. Battalion-sized units of about 1,000 soldiers deploy for six-month assignments with the MFO. Similarly, units have been supporting operations in Bosnia and Kosovo on six-month deployments since 1996 and 1999, respectively. All told, the Army maintained an average of about 15,000 soldiers on operational deployments from 1997 through early 2001.

5. The third brigade of each of those divisions is based at Fort Riley, Kansas. Although the 1st Armored and 1st Infantry Divisions each have about 16,000 personnel assigned to them, when taking part in an operation they would typically be accompanied by several support units, which might include a total of about 24,000 personnel. As a consequence, a division and its accompanying support units—known as a division slice—would include a total of about 40,000 personnel.

**Table 2-1.**

## U.S. Bases and Forces Stationed in Europe and Asia

| | Forward-Based Personnel (Thousands) | | | Installations | | |
|---|---|---|---|---|---|---|
| | Combat | Support and Administration | Total | Total Number | Number with Replacement Value of More Than $1 Billion | Total Replacement Value (Billions of dollars)[a] |
| | | | **Europe** | | | |
| Army | | | | | | |
| Belgium | 0 | 1 | 1 | 10 | 0 | 1 |
| Germany | 25 | 31 | 56 | 255 | 3 | 30 |
| Italy | 1 | 1 | 2 | 16 | 0 | 1 |
| Other | 0 | 1 | 1 | 13 | 0 | 1 |
| Subtotal | 26 | 34 | 60 | 294 | 3 | 33 |
| Air Force | 14 | 20 | 34 | 201 | 5 | 22 |
| Navy[b] | 0 | 10 | 10 | 15 | 2 | 7 |
| Marine Corps[b] | 0 | 1 | 1 | 0 | 0 | 0 |
| **Total** | **40** | **65** | **105** | **510** | **10** | **62** |
| | | | **East Asia and the Pacific[c]** | | | |
| Army | | | | | | |
| Japan | 0 | 2 | 2 | 15 | 0 | 3 |
| South Korea | 13 | 15 | 28 | 80 | 2 | 8 |
| Subtotal | 13 | 17 | 30 | 95 | 2 | 11 |
| Air Force | 14 | 10 | 23 | 67 | 5 | 18 |
| Navy[b] | 0 | 6 | 6 | 16 | 6 | 9 |
| Marine Corps[b] | 10 | 10 | 20 | 2 | 2 | 6 |
| **Total** | **37** | **43** | **79** | **180** | **15** | **44** |

Source: Congressional Budget Office based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf; Department of Defense, Washington Headquarters Services, Directorate of Information Operations and Reports, *Department of Defense Active-Duty Personnel Strengths by Regional Area and by Country (309A)* (September 30, 2002); and other Defense Department data.

Note: More-detailed breakdowns for the Navy, Air Force, and Marine Corps appear in Tables A-1 and A-2 in Appendix A.

a. Includes the replacement value of excess facilities that the United States still owns.

b. Onshore personnel only.

c. Excludes forces based in Hawaii and in U.S. territories, such as Guam.

as artillery, and combat-service-support (CSS) units, such as transportation. CS and CSS units provide various kinds of support to combat brigades and divisions. The other 7,000 or so active-duty Army personnel based in Europe are assigned to what could be termed administrative units, such as medical facilities, NATO headquarters in Brussels, and contracting agencies. In all, about 43 percent of Army forces in Europe are assigned to combat units, 45 percent to support units, and 12 percent to administrative duties. (The breakdown for Army forces in Germany is similar: 45 percent combat, 45 percent support, and 10 percent administrative.)

### Army Bases

The Army maintains an extensive network of bases in Europe, encompassing almost 300 installations. Like its personnel, the vast majority of the Army's overseas infrastructure (255 installations) is in Germany. The largest and some of the most expensive Army bases in Europe are at Grafenwoehr and Hohenfels, Germany. Those two training facilities—which provide ranges and space where Army units can practice tactics and maneuvers—cover 52,000 acres and 40,000 acres, respectively, and have a combined replacement value of more than $1.5 billion.[6] The Army also maintains 33 barracks for unaccompanied soldiers and 36 "villages" for family housing in Germany, which have a replacement value of roughly $14 billion. Other Army installations in Germany include five hospitals, five hotels, 15 smaller training areas, nine airfields, four depots, three golf courses, a Boy Scout camp, and a Girl Scout camp. That infrastructure is designed to enhance soldiers' morale and, to some extent, replicate the facilities and conveniences that would be found around many Army bases in the United States.

### Air Force, Navy, and Marine Corps Forces and Bases

The other three services have fewer forces stationed in Europe than the Army does. In addition, they have not concentrated their forces and bases on that continent in Germany to the extent that the Army has.

The Air Force maintains the second largest presence in Europe after the Army, with 34,000 active-duty personnel and 201 installations in 12 countries. The largest contingent (15,000 active-duty personnel) is based in Germany, but the Air Force also has relatively large numbers of people in the United Kingdom (10,000) and Italy (4,000). The service's major combat units are distributed similarly, with Germany, the United Kingdom, and Italy each hosting one fighter wing. (For more details about the distribution of Air Force, Navy, and Marine Corps personnel and installations in Europe and Asia, see Appendix A.)

The greatest number of Air Force installations in Europe are located in Germany. The base at Ramstein, Germany, is the main air hub for U.S. forces from all services flying to or from other parts of the world, including the United States and the Middle East. The Air Force also has strategically important installations in the United Kingdom and Greenland. The air bases at Mildenhall and Lakenheath in the United Kingdom were used extensively to support U.S. operations against Libya and during Operations Desert Storm and Iraqi Freedom. The Air Force's facility in Thule, Greenland, includes a radar that is designed to provide early warning of an intercontinental ballistic missile attack and is expected to be part of the Bush Administration's network of missile defenses. Thus, although the Air Force does not have as many installations in Europe as the Army does, several of its bases have played—and continue to play—major roles in supporting U.S. military operations.

The Navy and Marine Corps, because of the nature of their activities, have a far smaller onshore presence. Neither service bases any combat forces on shore in Europe, although the Navy has 10,000 support and administrative personnel there, and the Marine Corps has 1,000.[7] In addition, the Navy maintains 15 installations in Europe, including two air stations (in Iceland and Italy).

## U.S. Forces Based in East Asia and the Pacific

After Europe, the region with the largest permanent U.S. military presence overseas is East Asia and the Pacific, where approximately 80,000 personnel are stationed (see

6. That and other replacement values cited in this study are based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf. That publication lists the replacement values of current U.S. defense facilities, including excess facilities that the United States still owns.

7. The Navy and Marine Corps have additional personnel based on board ships that may be anchored in European waters.

Table 2-1 on page 9). Virtually all of them are based in two countries: Japan, where all four services have a significant presence, and South Korea, where the Army and the Air Force have stationed combat forces. In addition, the Navy and Air Force maintain a small number of installations (and fewer than 1,000 permanent personnel) in Australia, Hong Kong, Indonesia, and Singapore.

### Army Forces

Since the Korean War, the Army has maintained a major presence in South Korea, where 28,000 Army personnel are now based. Their mission is to enforce the 1953 cease-fire that ended hostilities under the auspices of the United Nations as well as to deter an attack by North Korea—or, should deterrence fail, help to repel an invasion or mount a counterattack to expel the invading force. Today, the 2nd ID is stationed in northern South Korea with two of its combat brigades, accounting for about 13,000 troops. (The division's third brigade is based at Fort Lewis, Washington.) Of the other 15,000 Army personnel in South Korea, about 13,000 are assigned to combat-support and combat-service-support units that are part of the Eighth Army, which serves as the high-level command organization for the Army in South Korea. The remaining 2,000 Army personnel in that country are assigned to units that perform administrative tasks.

The Army's representation elsewhere in the region is limited to Japan, where about 2,000 personnel are stationed. Those forces provide forward presence and support for regional contingencies and are also charged with helping to defend Japan if necessary. They include one special-forces battalion, some CS and CSS units, and several hundred soldiers assigned to administrative units.

### Army Bases

The Army has a total of 95 installations in East Asia—80 in South Korea and the rest in Japan. The most expensive Army installation in the region is Yongsan Garrison, located in the center of Seoul. It is home to 7,000 military personnel assigned to the headquarters of U.S. Forces Korea and other command organizations and has a replacement value of $1.3 billion. The Army's 15 installations in Japan, which support a much smaller force, include a housing area, three ammunition depots, and other logistics facilities, such as a port, a pier, and a fuel-handling facility.

### Air Force, Navy, and Marine Corps Forces and Bases

Although both the Navy and the Air Force have installations in several East Asian countries, their bases and forces are concentrated in Japan (see Appendix A for more details). On the basis of replacement value, Navy, Marine Corps, and Air Force installations in Japan represent 88 percent of the three services' investment in the region.

**Air Force.** The Air Force has 23,000 airmen stationed in East Asia and the Pacific, with more than half of them based in Japan. Half of the personnel in Japan are assigned to support and administrative units, although 7,000 are associated with the tactical fighter units stationed there. In contrast, the majority of the 10,000 Air Force personnel stationed in South Korea are combat forces, associated with the two fighter wings based in that country.

The Air Force maintains a total of 67 installations in Asia to support and house its forces. Japan hosts the majority of them (44) as well as several large or valuable installations, such as Kadena Air Base, the nearby Kadena Ammunition Storage Annex, and Misawa Air Base. Together, those three installations have a replacement value of $9 billion. Air Force installations in South Korea are not as extensive as those in Japan, but they include two large air bases: one at Kunsan on the western coast and one at Osan, less than 50 miles south of the North Korean border. Those two bases have a combined replacement value of about $3 billion.

**Navy.** Since World War II, the Navy has had a significant presence and interest in East Asia. The base at Yokosuka, Japan—home to the Seventh Fleet and the aircraft carrier Kitty Hawk—is considered the Navy's largest and most strategically important overseas installation in the world. Furthermore, the Kitty Hawk's air wing, which is based in Japan when the carrier is in port, is the Navy's only forward-stationed air wing. All told, the Navy has about 6,000 personnel based on shore in Japan.

To support its presence in Japan, the Navy maintains 12 installations, six of which are estimated to have a replacement value of more than $1 billion each. Its facilities at Yokosuka alone have a combined value of $5.7 billion. The Navy also operates a base at Sasebo, which hosts an amphibious squadron, and a naval air facility at Atsugi. In all, the Navy's installations in Japan have an estimated replacement value of approximately $9 billion.

Naval forces and installations in South Korea are much less extensive. Because the primary mission of U.S. Naval Forces Korea is to provide leadership and expertise in naval matters to area military commanders, there are no naval seagoing units permanently assigned to South Korea. Most of the Navy's facilities in South Korea are colocated with those of the Army at the Yongsan Garrison.

**Marine Corps.** The Marine Corps's only division-sized unit stationed overseas—the III Marine Expeditionary Force (MEF)—has been based on the Japanese island of Okinawa since 1971. To support the 20,000 marines stationed in Japan, including the MEF's 17,000 personnel, the Marine Corps maintains two large installations: Camp Butler, which covers 78,500 acres (or about one-quarter) of Okinawa, and Iwakuni Air Station on the island of Honshu. Those two installations represent a total U.S. investment of $6.5 billion.

## Concerns About the Current Basing of U.S. Forces Overseas

Asserting that the current basing structure is incapable of meeting future U.S. needs, the Administration in 2003 accelerated an ongoing strategic review of that structure. The goal of the review is to develop a plan for forward basing that will make U.S. forces more agile and better able to respond to an unpredictable and ever-changing global geopolitical situation. (Results of the review have not yet been officially released.) Defense analysts outside the Administration have voiced similar criticisms of the military's current basing structure. The rest of this chapter examines some of the concerns that have been raised from both inside and outside the Administration about the forward basing of U.S. forces.

### Issues Common to Various Services

Some concerns apply, to varying degrees, to all four services and their bases outside the United States. Those concerns include frictions with host nations, the cost of maintaining forward bases, the ability of forces stationed overseas to respond to likely conflicts, and the enduring utility of U.S. installations overseas.

**Host-Nation Conflicts.** All of the services are subject to disputes with the governments of host nations and their citizens over land use and the proximity of U.S. forces to civilian population centers and activities. Conflicts about land use have arisen because U.S. bases that were originally in remote locations have become increasingly surrounded by suburban or urban development. An example is the land occupied by the U.S. Yongsan Garrison in what is now downtown Seoul—land that local South Koreans envision using for other purposes. In various places around the world, U.S. training exercises conducted near sizable local populations have disrupted the lives of residents because of noise, destroyed private property, and resulted in the loss of life through accidents.[8] As U.S. military personnel come into closer proximity with spreading urban or suburban populations, such incidents could become more common and affect support for the continued presence of large U.S. forces on foreign soil.

**The Cost of Basing Forces Overseas.** Maintaining forward-based forces entails a marginal cost, in part because installations overseas, particularly in Europe, are more expensive to operate and support than those in the United States. Additional marginal costs include the family-separation pay given to military personnel on unaccompanied tours and the cost of moving active-duty service members, their goods, and sometimes their dependents to and from assignments overseas. The Congressional Research Service estimated that the total annual cost of basing 100,000 U.S. forces from all services in Europe rather than the United States was on the order of $1 billion to $2 billion in 1996.[9]

**The Ability of Forces Based Overseas to Respond to Likely Conflicts.** Administration officials have questioned whether U.S. forces that are stationed primarily in Germany and South Korea are positioned appropriately to respond to probable future conflicts. They argue that conflicts are much more likely to occur in Africa, Western Asia, or the Middle East than anywhere in Western Europe. Similarly, conflicts may occur in Asia at locations other than on the Korean Peninsula. (For example, civil unrest has occurred recently in Indonesia and the Philippines.)

Although all of the services have personnel stationed in Germany and all but the Navy in South Korea, that concern is most relevant for the Army because of its concen-

8. For example, two South Korean girls were killed in 2003 when they were struck by an Army armored vehicle during training exercises.

9. Stephen Daggett, *Defense Budget: Alternative Measures of Costs of Military Commitments Abroad*, CRS Report for Congress 95-726F (Congressional Research Service, June 16, 1995).

tration of forces in those countries.[10] Most of the Administration's public statements about altering the current basing of U.S. forces abroad appear to focus on Army units.

**The Utility of the Current Overseas Basing Structure.** Although Administration officials have questioned the usefulness of some of the military's existing overseas infrastructure, they have said that some bases have obvious enduring utility. For example, the Air Force's Ramstein and Osan air bases serve as major hubs in Germany and South Korea, respectively. Army and other personnel and some equipment pass through those facilities when they arrive from the United States or depart for other parts of the globe, such as the Middle East. Those large installations—in which the United States has invested heavily to expedite the movement of forces and equipment into and out of Europe and Asia—are of high strategic value, and the Administration has explicitly stated that it will retain them. The training areas at Grafenwoehr and Hohenfels, which provide facilities unavailable anywhere else in Europe, will also be retained.

### Issues Specific to the Army

As noted above, various characteristics set the Army apart in terms of forward basing: it has far more personnel stationed overseas than any other service, those forces are located in places that appear to be legacies of the Cold War, and Army units require the most time and expense to be transported to conflicts away from where they are based. For those reasons, many concerns about the present U.S. basing structure focus on that service.

**Army Forces in Europe.** The main concern expressed by Administration officials about the Army forces now based in Europe seems to be the amount of time they would need to respond to a conflict in the region. Although the two Army divisions stationed in Germany were well placed to defend NATO from Soviet attack, they cannot deploy quickly to conflicts outside Germany. For example, three months elapsed between the decision to move the 1st Armored Division from Germany to Iraq in March 2003 and its arrival in that theater.

Military and Administration officials have indicated that the need for U.S. intervention is much more likely in Africa, Eastern Europe, or Western Asia than in Western Europe. General James Jones, chief of U.S. European Command, said last year that "Africa is replete with ungoverned spaces for attracting the merchants of terrorism, radical fundamentalism, weapons of mass destruction and all kinds of criminality, and I think we're going to see more of that."[11] General Charles Wald, deputy commander of U.S. European Command, said that the area around the Caspian Sea should be of keen interest to Europeans and that ensuring the safe flow of oil from that region should be a NATO mission.[12] He also pointed out that the United States currently imports up to 15 percent of its oil from Nigeria and that the share could increase to 25 percent in the next decade, making that nation of strategic importance.[13]

Those statements by U.S. commanders in Europe suggest that the Administration may be assessing how to speed the deployment of U.S. forces to places such as Nigeria, Uganda, Azerbaijan, and Djibouti. (Nigeria and Baku, Azerbaijan, are sources of oil; Uganda and Djibouti are potential staging bases for conducting operations in Africa to counter instability and terrorism.) As was the case with Iraq, moving a division, or even part of one, from Germany to any of those locations would take a considerable amount of time. The two divisions based in Germany are heavy divisions (equipped with tanks and armored vehicles), so the most efficient way to transport their equipment is by sea.[14] Moving one heavy brigade combat team from Germany to locations in Africa or the Caspian region would take between 20 days and a month, and transporting an entire division's equipment would take another four days—in all cases, only about five days faster than moving the same types of units from

10. Air Force, Navy, and Marine Corps units can take a considerable amount of time to establish efficient operations in remote locations. Nevertheless, in some cases, they can provide a more rapid initial response than can Army forces that do not have staging bases near a conflict.

11. John T. Correll, "European Command Looks South and East," *Air Force Magazine*, December 2003.

12. Ibid.

13. Vince Crawley, "Oil May Drive Troop Staging," *Army Times,* September 22, 2003, p. 30.

14. The reason is that U.S. transport aircraft (C-17s) can carry only one M1 tank at a time. Moving an entire heavy division would require about 1,500 C-17 flights, and moving one brigade combat team from the division would take up to 500 flights. Since the U.S. military is projected to have only about 140 C-17s by 2005, transporting heavy divisions and brigades by air is not practical.

the United States.[15] Those lengthy deployment times have raised questions about the utility of the Army forces now based in Germany.

Another issue concerning those forces is the cost of keeping them in Europe rather than at bases in the continental United States. The Congressional Budget Office (CBO) estimates that it costs about $1 billion more per year to maintain about 56,000 Army forces in Germany than if those troops were stationed in the United States—both because running bases and providing family housing and schools is more expensive in Germany than in the United States and because the Army must pay for overseas allowances and moves to and from assignments in Europe. If those forces are not needed to respond to any likely future conflict in the immediate region, observers might ask, why should the United States spend $1 billion each year to keep them there?

**Army Forces in South Korea.** Concerns about the 28,000 Army forces stationed in South Korea differ from those associated with Army forces based in Europe. Very few defense analysts question the need to keep substantial U.S. forces based in South Korea to deter North Korea from invading or attacking its southern neighbor. Instead, their concerns relate to four main issues: the condition and location of U.S. bases in South Korea, the instability in Army units that results partly from supporting large numbers of one-year tours in South Korea, the quality of life of soldiers assigned to those tours, and whether Army units based in South Korea should be made more available to respond to conflicts elsewhere in the region.

*Problems with Bases in South Korea.* The condition and location of the Army's installations in South Korea are less than desirable. According to U.S. military officials in that country, many of the Army's bases are obsolete, poorly maintained, and in disrepair, including some Quonset huts from the Korean War era that still house soldiers.[16] Most lack the amenities found at other U.S. bases overseas, and soldiers assigned to them are authorized to receive hardship duty pay of $150 per month.

In addition, Army bases in South Korea are relatively small, spread out, and vulnerable. Units of the 2nd ID are scattered among 17 installations located north of the capital, Seoul, and within 30 miles of the North Korean border. That area is well within range of North Korean artillery placed along the demilitarized zone (DMZ) that runs between the two countries. Should North Korea attack South Korea, U.S. forces at those bases would be vulnerable to barrages from large numbers of artillery tubes. Secretary of Defense Donald Rumsfeld has argued that removing U.S. soldiers from such an immediate threat would give them an advantage in surviving and responding to an attack.[17]

Another issue about U.S. bases in South Korea that has been raised recently concerns the large U.S. enclave in the center of Seoul known as the Yongsan Garrison. That 640-acre installation was on the outskirts of the city when it was built, but it is now in downtown Seoul, occupying valuable real estate and causing tensions with the local populace.

*Instability in Army Units.* The need to support forces stationed in South Korea causes turbulence in Army units based in the continental United States (CONUS). Because duty in South Korea is considered hazardous and bases there are spartan, family members do not accompany 90 percent of the soldiers serving tours in South Korea. Unaccompanied tours are limited to one year to minimize family separation, which means that almost the entire population of Army personnel in South Korea turns over every year. That turnover has a ripple effect on Army units based in CONUS, which must provide soldiers to replace those leaving South Korea and integrate new personnel.[18]

CBO estimates that, on average, warfighting units in CONUS experience turnover of 37 percent of their enlisted personnel every year, as soldiers leave for tours outside the continental United States, take administrative as-

15. Those numbers are explained in detail in Chapter 3.

16. General Accounting Office, *Defense Infrastructure: Basing Uncertainties Necessitate Reevaluation of U.S. Construction Plans in South Korea*, GAO-03-643 (July 2003), p. 5.

17. See David J. Lynch, "DMZ Is a Reminder of Status in Korean Crisis," *USA Today,* December 23, 2003, p. 11; and Thom Shanker, "Rumsfeld Reassures Seoul on Regrouping G.I.s," *New York Times*, November 18, 2003, p. A10.

18. Although most personnel sent to South Korea each year come from CONUS-based units (because the Army generally tries not to assign soldiers to back-to-back tours outside the continental United States), some are drawn from the pool of new recruits completing their training.

signments in places such as the Pentagon, or leave the Army altogether.[19] Some Army officials, notably the former Secretary of the Army, Thomas White, have asserted that high turnover in Army units reduces their cohesion and warfighting capability. The need to replace virtually all of the enlisted personnel in South Korea each year contributes about 6 percentage points of the total 37 percent turnover in CONUS warfighting units, CBO estimates.[20]

*Quality of Life in South Korea.* Maintaining Army forces in South Korea on unaccompanied tours adversely affects the quality of soldiers' lives by contributing to family separation. An enlisted soldier spending 10 years in the Army could, on average, expect to spend a total of 0.6 years on unaccompanied tours, according to CBO's calculations. Although that is a small percentage overall, some specialties and junior enlisted personnel are more heavily represented in South Korea than in the Army as a whole, so their numbers could be much higher. Serving on unaccompanied tours has been shown to decrease the likelihood that a soldier will reenlist, which means that maintaining forces in South Korea under current basing arrangements may have an adverse effect on retention.[21]

*Availability of Army Units in South Korea.* Because the Army forces based in South Korea are generally viewed as a deterrent to hostile behavior by North Korea, the 2nd ID and its two brigades have been considered unavailable to participate in any operations outside the Korean Peninsula. (By contrast, Army units based in Germany have been used in operations in Bosnia, Kosovo, and Iraq.) The unavailability of the 2nd ID results partly because the division is based far from transportation hubs and partly because its units, which include many bulky and heavy vehicles, are not easy to deploy elsewhere.

Secretary Rumsfeld recently raised the possibility of realigning the Army's forces in South Korea to make them more suitable for use in regional contingencies throughout Asia.[22] He proposed making those forces more mobile by replacing their heavy armored vehicles with lighter and more modern vehicles and by moving them closer to transportation hubs south of Seoul. That and other alternatives for altering the overseas basing of Army forces are analyzed in the next chapter.

19. Personnel assignments and career tracks vary greatly between enlisted personnel and officers in the Army. This analysis focuses on the enlisted force because it represents the vast majority of Army personnel—approximately 400,000 out of the Army's total strength of about 480,000.

20. CBO used a model of personnel turnover in its analysis that is based on a model developed by RAND. In its analysis, RAND estimated similar rates for both total annual enlisted turnover and the contribution from the need to support tours in South Korea. See W. Michael Hix and others, *Personnel Turbulence: The Policy Determinants of Permanent Change of Station Moves,* MR-938-A (Santa Monica, Calif.: RAND, 1998).

21. See General Accounting Office, *Military Personnel: Longer Time Between Moves Related to Higher Satisfaction and Retention*, GAO-01-841 (August 2001).

22. Robert Marquand, "U.S. Redeployments Afoot in Asia," *Christian Science Monitor*, November 18, 2003.

CHAPTER

# 3

# Alternative Basing Schemes for Army Forces

As discussed in the previous chapter, critics have raised concerns about various aspects of the Army's overseas basing, including the extensive infrastructure that the Army maintains overseas to support its troops, the additional expense involved in stationing personnel outside the United States, the time needed to deploy Army forces in Germany to conflicts elsewhere, and the turnover in units based in the continental United States caused by the continual need to provide soldiers for units based in South Korea. This chapter explores ways to address some of those concerns by altering the basing of Army forces in Europe and South Korea. The Congressional Budget Office analyzed seven alternative basing schemes and compared their effects on the ability of Army forces to respond to conflicts overseas, on the quality of soldiers' lives, and on budgetary costs or savings.

## Policy Choices and Their Implications

Any proposed remedy to a concern about current basing will require trade-offs because it will incur additional costs or exacerbate some other problem. To demonstrate the effects of changing various aspects and policies that underlie the current basing of Army forces overseas, CBO examined the implications of varying four attributes of that basing (see Table 3-1):

- The size of the Army's overseas presence in Europe and South Korea (in terms of the number of personnel or combat units based there);
- The location of Army combat forces stationed in Europe and South Korea;
- The method used to sustain Army forces overseas—whether units are stationed permanently in one overseas location and individuals take turns serving in them, or (as in Iraq) entire units rotate from U.S. bases to overseas locations for short periods of time and then return home; and
- Whether family members accompany soldiers on individual tours overseas.

### Reducing the Number of Army Forces Overseas

Shrinking the Army's forward presence by moving personnel and forces back to the United States would address several concerns about current overseas basing. It would reduce the annual costs of maintaining those forces, the amount of family separation that soldiers experienced, and the extent of turnover in CONUS units. To illustrate the effect of large changes in overseas force structure, the alternatives in this report include two different size cuts in Army presence overseas—to about half of the current level and to just 5 percent to 10 percent of the current level.

The United States could realize significant savings—approaching $1 billion per year, CBO estimates—if 95 percent of the Army forces now stationed in Germany were moved back to CONUS. The reason is that costs for base operations, military housing, schools for Army children, and pay and allowances for personnel are lower in the United States than in Germany. If 95 percent of the Army forces stationed in South Korea were returned to the United States, smaller savings would result—more than $200 million annually.

**Table 3-1.**

## Attributes of the Overseas Basing of Army Forces

| | Current Basing | | Alternative Values Considered by CBO | |
|---|---|---|---|---|
| **Attribute** | **Germany** | **South Korea** | **Germany and Eastern Europe** | **South Korea** |
| Size of Overseas Presence | | | | |
| Army personnel | 56,000 | 28,000 | Half or almost none | Half or almost none |
| Combat forces | | | | |
| Divisions | 2 | 1 | 1 or none | none |
| Combat brigades | 4 | 2 | 2 or none | 1 or none |
| Location of Combat Forces | Germany | North of Seoul | Consolidated in Germany or moved to Eastern Europe | Consolidated north of Seoul or south of Seoul |
| Method of Sustainment | Permanent basing with individual rotations | Permanent basing with individual rotations | Temporary deployments with unit rotations | Temporary deployments with unit rotations |
| Tour Policy | 3-year tour accompanied by families | 1-year tour unaccompanied by families | 1-year tour unaccompanied by families | Small increase in share of tours that can be accompanied |

Source: Congressional Budget Office.

Relocating large numbers of overseas forces to the United States, however, would require finding new basing for them. A 50 percent reduction would mean bringing more than 40,000 soldiers back to the United States, which would increase the total Army population in CONUS by about 12 percent. A 95 percent reduction would mean the return of 80,000 soldiers, which would boost the number of Army personnel in CONUS by about 22 percent. Such large increases in the Army's CONUS population would have serious implications. Because of the various rounds of base realignment and closure (BRAC) that have occurred since the late 1980s, the Army has little excess capacity at its bases to absorb so many additional troops and units. A 2002 Army study suggests that virtually no excess barracks space exists at seven of the largest Army bases that would be expected to receive units returning from overseas (Forts Benning, Bragg, Campbell, Drum, Hood, Lewis, and Riley).[1] Two bases (Forts Polk and Bliss) together have about 3,300 excess barracks spaces, according to the study, but those barracks would need refurbishing. In addition, returning combat units would require maintenance and administrative facilities, most of which would probably need to be built from scratch. Constructing new housing units and facilities, or even refurbishing old ones, would be quite expensive—requiring a multibillion-dollar investment if the forces in Germany and South Korea were reduced by 50 percent or more, CBO estimates.

The BRAC round planned for 2005 could be complicated by the return of so many troops, according to Administration officials. Former DoD Comptroller Dov Zakheim said recently that "BRAC does . . . make it difficult to move our forces directly to where they ought to go if you don't want them to be overseas."[2] Moreover, since

1. See Department of the Army, the Office of Economic and Manpower Analysis and the Operations Research Center for Excellence, "Unit Rotation Study" (briefing prepared for Lt. Gen. John LeMoyne, July 10, 2002). However, DoD material supporting the Secretary of Defense's March 2004 certification of the need for the 2005 BRAC round indicates that overall, the Army's infrastructure exceeds its current needs by 29 percent. How much of that excess infrastructure might be suitable for basing units now located overseas is unclear.

2. Vince Crawley and Gina Cavallaro, "Base-Closing Politics Delay Troop Transfers from Europe," *Army Times*, February 16, 2004, p. 16.

moving troops back to the United States from overseas would require construction of new facilities, such construction would tip the Pentagon's hand as to which installations it would like to keep open after the 2005 BRAC round.[3] Some Members of Congress, including the Chairman of the Military Construction Subcommittee of the Senate Appropriations Committee, have argued that it makes no sense to contemplate closing bases in the United States if additional housing may be needed in the near future for forces returning from overseas.[4]

### Changing the Location of Army Forces Overseas

CBO examined several ways to alter where troops are based overseas to address concerns about the vulnerability of Army forces in South Korea and the time needed to deploy Army units to future conflicts. One way—moving troops in South Korea away from the demilitarized zone, perhaps to consolidated bases south of Seoul—could reduce the susceptibility of Army forces to attack by North Korean artillery close to the border. (CBO did not look at the option of moving Army forces in South Korea to bases anywhere else in the Pacific theater, for two reasons. First, those forces are stationed in South Korea specifically to deter attack by the North Koreans, and second, Marine Corps forces based in Okinawa already have the mission of responding to contingencies in the region.)

In Europe, moving combat units based in Germany to Eastern Europe could enable Army forces to respond to conflicts in the area more quickly. Today, forces going to Europe, Africa, or the Middle East would probably either deploy from Germany along with their equipment or deploy from the United States and meet up with equipment prepositioned aboard ships that are usually located at Diego Garcia in the Indian Ocean. CBO found that by comparison, basing Army combat brigades in Poland, Bulgaria, or Romania—locations that press articles indicate the Administration is considering—would give the Army quicker access only to certain areas. Specifically, deploying from Poland would be quicker only if forces were going to countries with ports on the Baltic Sea, such as Latvia, Estonia, Lithuania, and Russia (see Figure 3-1). Deploying from Romania or Bulgaria would be quicker to countries with ports on the Mediterranean Sea or Black Sea, including most of North Africa and the Caucasus region.

On the downside, however, establishing any new permanent bases (either in Eastern Europe or in South Korea) could require significant investment by the United States—$2 billion to $4 billion, CBO estimates. Pursuing any relocation of forces overseas might be difficult now because of the need to invest in overseas bases that could eventually be closed as U.S. forces were returned to the United States.

### Switching from Individual Rotations to Unit Rotations

CBO also looked at the possible implications of changing the way the Army maintains overseas presence. Instead of the current practice, in which Army units based overseas remain in place and individuals rotate through them, entire units could be based in the United States and then rotate to South Korea or Europe (or units based in Germany could rotate to Eastern Europe) on six-month or one-year deployments. Such a system would yield the benefits of bringing overseas forces back to the United States, such as lowering annual costs and decreasing turnover in CONUS units.

In addition, a rotational system would mesh well with the unit-manning scheme that the Army is introducing into its personnel and force management structure.[5] Under that scheme, the Army will synchronize personnel assignments with unit rotations and deployments in order to reduce turnover during the organization and training period leading up to a unit's deployment. (CBO estimates that under current policies, a typical unit could lose almost three-quarters of its enlisted personnel during the two years before a deployment.) According to Army leaders, unit manning will allow commanders to build a high level of cohesion in their units, thus improving the performance of brigade combat teams (BCTs), which may need to deploy to dangerous places on short notice. If that unit-manning scheme is applied to all active-duty brigades, as the Army says it plans to do, then a system that included rotating BCTs from CONUS to Europe and South Korea would allow greater unit cohesion than the current practice of moving individual soldiers into and out of units on a continual basis.

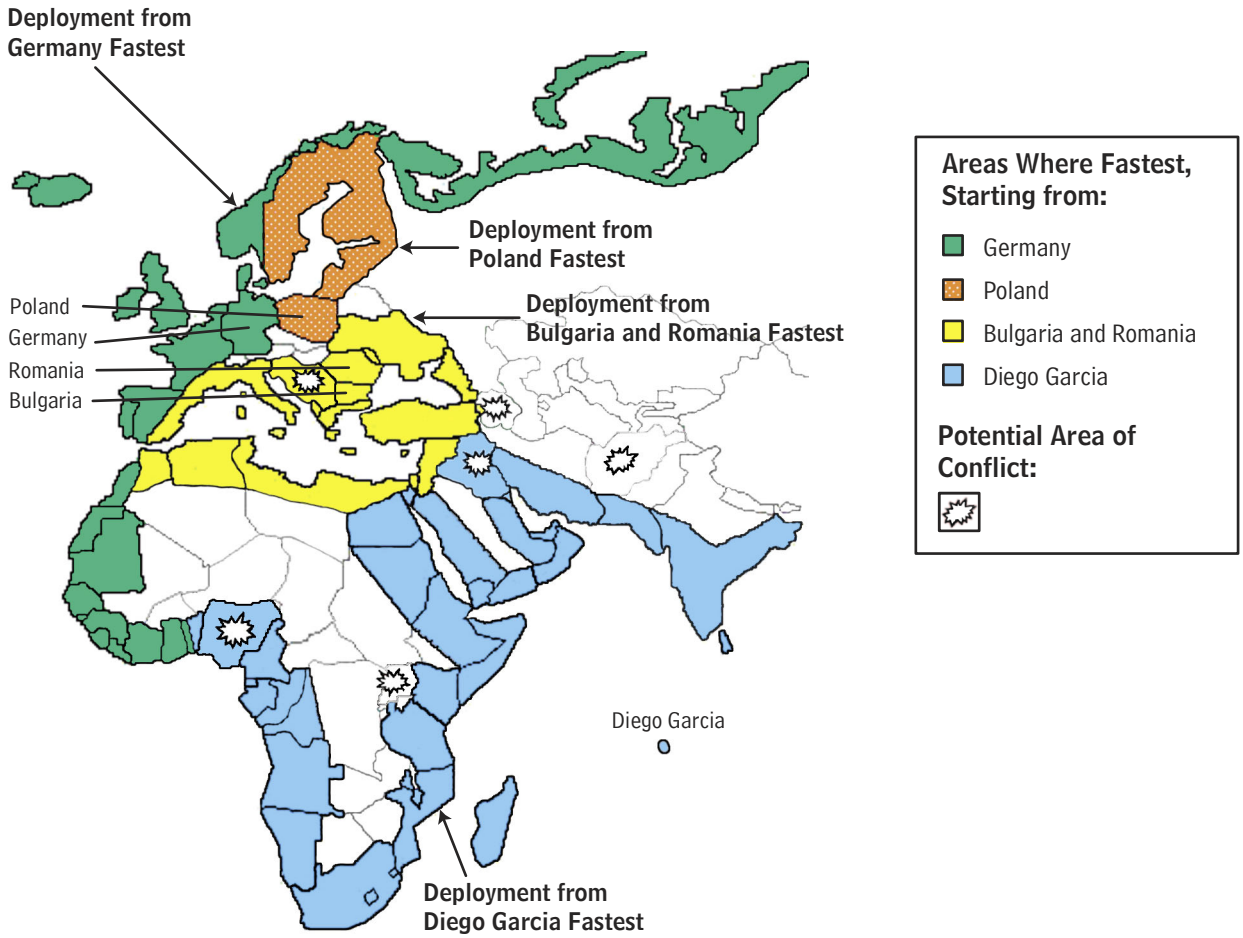
3. Ibid.

4. Senator Kay Bailey Hutchison, *Deployment of U.S. Forces in Europe*, Heritage Lecture No. 782 (Washington, D.C.: Heritage Foundation, April 2003), available at www.heritage.org/Research/Europe/hl782.cfm.

5. See "Unit Manning: How It Will Work," *Army Times*, September 15, 2003, p. 9.

**Figure 3-1.**

## Locations with the Fastest Deployment by Sea to Potential Areas of Conflict




Source: Congressional Budget Office.

Rotating units to maintain overseas presence, however, would have a deleterious effect on the availability of the Army's active-duty brigades for other contingencies. Multiple units are necessary to sustain the deployment of one unit overseas on rotation, since while that unit is deployed, other units are recovering from deployment, conducting training, or preparing to deploy. Typically, the period of recovery, training, and preparation lasts two, three, or even four times as long as the deployment, which means that a total of three to five units are needed to support each unit deployed.[6] In analyzing the ability of the United States to support the current occupation of Iraq, CBO assumed ratios of 3.2 to 4 units to each unit deployed.[7] (For a discussion of how CBO arrived at those ratios, see Appendix C.) With those ratios, the Army would need three to four brigades to support one BCT rotation to Europe or South Korea from CONUS. Thus, rotating units from CONUS to maintain a continuous presence overseas would tie up additional units that would be either deployed or recovering from recent rotations. As a result, the United States would have less capability than it does today to sustain any other long-term commitments.

6. The Marine Corps uses a cycle of two periods off and one period deployed to support its presence on Okinawa.

7. See Congressional Budget Office, *An Analysis of the U.S. Military's Ability to Sustain an Occupation of Iraq* (September 3, 2003), p. 11.

**Box 3-1.**

## The Options for Overseas Basing Analyzed in This Report

**Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas**

1A. Make European tours unaccompanied

1B. Make minor changes in German and South Korean basing and rotate brigade combat teams (BCTs) from Germany to forward operating bases in Eastern Europe

1C. Consolidate Army forces in South Korea at two bases south of Seoul and establish permanent bases in Eastern Europe

**Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half**

2A. Halve forces stationed overseas by returning combat forces based in Germany and South Korea to the continental United States (CONUS) and maintain the current level of overseas presence in those theaters by rotating six brigade combat teams from CONUS

2B. Halve the number of combat and support personnel stationed in Germany and South Korea and rotate one BCT from Germany to Eastern Europe

**Alternatives That Would Remove Almost All Army Forces Stationed Overseas**

3A. Return nearly all forces to CONUS and continuously rotate two BCTs to Europe and one to South Korea

3B. Leave only small forces in Germany and South Korea to support periodic exercises or the return of U.S. forces in a crisis

### Changing the Family Policy for Overseas Tours

The Army has a different policy for tours in Europe than for those in South Korea. Soldiers assigned to tours in Europe remain there for three years and can be accompanied by their families. Soldiers assigned to tours in South Korea go for one year, and in 90 percent of the cases, their families do not accompany them. CBO examined the effect of changing that policy as it applies to all tours in Europe and of changing the degree to which it applies in South Korea.

The need to support family members who accompany soldiers on assignment in Europe has led to the development of a large infrastructure there, including family housing and schools. Eliminating accompanied tours would eliminate the need for such extended infrastructure. However, doing that would have disadvantages, such as increasing the total time that soldiers spend away from their families and boosting annual turnover in CONUS units by about 25 percent (assuming that unaccompanied tours last for one year and accompanied tours for three years).

## Measures for Evaluating the Effects of Changes in Overseas Basing

To exemplify the specific advantages and disadvantages of varying those four attributes of overseas basing, CBO designed and analyzed seven alternative basing schemes. Most of them represent a combination of changes that would apply to Army forces in both Germany and South Korea.[8] The alternatives progress from relatively small changes to major shifts in policy and would result in widely varying levels of Army presence overseas (see Box 3-1). They incorporate several aspects of changes that the Administration has either announced formally or discussed informally. However, none of the alternatives reflect the Administration's official plans for overseas basing, because those plans are still being worked out and, when this report went to press, had not yet been officially released.

8. Although the changes in each theater could be made independently, the policy implications are in many cases the same for both theaters. In all cases, the discussion of the effects of an alternative addresses the implications for each theater individually as well as the combined effect on the Army as a whole.

CBO used several measures to compare the alternatives with each other and with the Army's current basing strategy. The first measure is the cost of implementing an alternative—including one-time costs to carry out the changes and any annual recurring costs or savings that might accrue thereafter. (The methods that CBO used to estimate costs or savings are explained in detail in Appendix B.) Because information was not available to compare costs with those of the Administration's plans, CBO instead compared the costs or savings that would result from each of the options with the costs of maintaining the basing structure as it existed at the end of 2003.

With some of the alternatives, funds for construction that would otherwise have been needed to replace current facilities at overseas bases (according to the 67-year schedule that is the Administration's goal) would not be necessary.[9] The potential savings that might be realized over 10 years are noted. Furthermore, some of the alternatives include construction of new facilities in South Korea, in which case that nation's government might assume some of the costs of construction, as it has in the past. Because CBO could not predict the extent to which South Korea would contribute to the costs of basing U.S. forces in that country, the estimate for each alternative includes a range of costs that the United States would bear if South Korea paid part of the construction expenses.[10]

The other measures that CBO used focus on U.S. military capability. Specifically, CBO looked at how a revised basing strategy might affect military capability in terms of several metrics:

- The time needed to deploy heavy units from Europe by sea to various possible sites of future conflicts, as cited in recent press articles—in particular, Nigeria, Uganda, Azerbaijan, and Djibouti.[11] Because all Army combat units now based in Germany are heavy forces equipped with tanks and armored vehicles, the only practical way to transport them to conflicts, especially in relatively remote locations, is by sea. For alternatives that would station or preposition lighter units overseas, CBO used the additional metric of changes in the time needed to deploy those lighter units by air.
- The availability of Army forces for duty in contingencies outside Europe or South Korea.
- The percentage of turnover (or turbulence, as the Army calls it) among enlisted personnel in units based in CONUS.
- The amount of family separation that the average enlisted soldier would experience during a 10-year career.

In addition, changing the basing of U.S. forces overseas could have political and military consequences, such as affecting relations with allies, deterring or encouraging attacksby hostile neighbors, and altering the stability of a region. CBO was unable to predict or quantify such consequences, so instead it chose to compare the alternatives on the basis of measurable effects on today's Army.

## Alternatives That Would Change the Army's Overseas Basing While Maintaining Current Force Levels

The Department of Defense could alter the basing of Army forces overseas in several ways to address concerns about the number and size of forces and installations (the Army's "footprint"), deployment times, and cost without affecting the current level of forward presence. One way would be to change current policy so that soldiers assigned to tours in Europe would not be accompanied by their families. Two other changes that public statements suggest are being considered by the Administration are consolidating bases in Germany and South Korea and basing some units (either permanently or temporarily)

9. For information about DoD's goals to sustain, restore, and modernize facilities, see Secretary of Defense Donald H. Rumsfeld, *Annual Report to the President and Congress, 2002*, p. 114, available at www.defenselink.mil/execsec/adr2002/pdf_files/chap9.pdf.

10. Preliminary plans for construction for the next 10 years indicate that the South Korean government may contribute up to 65 percent of construction costs for basing U.S. forces. Alternative 1B, however, would carry out basing changes in South Korea that are part of an agreement between the United States and South Korea under which the latter would pay 85 percent of costs.

11. Nigeria and Baku, Azerbaijan, are cited as places where the United States might need to protect sources of oil. Djibouti and Entebbe, Uganda, are cited as possible locations for staging bases to support the war on terrorism. See Vince Crawley, "Oil May Drive Troop Staging," *Army Times*, September 22, 2003, p. 30, and Eric Schmitt, "Pentagon Seeking New Access Pacts for Africa Bases," *New York Times*, July 5, 2003, p. A1.

**Table 3-2.**

## Location of Permanent Army Forces Under Current Basing and Alternatives 1A, 1B, and 1C

| | Europe | | | |
|---|---|---|---|---|
| | Germany | Eastern Europe | South Korea | Continental United States |
| **Current Basing** | | | | |
| Army Personnel | 56,000 | 0 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 4 | 0 | 2 | 23 |
| **Alternative 1A: Make European Tours Unaccompanied** | | | | |
| Army Personnel | 56,000 | 0 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 4 | 0 | 2 | 23 |
| **Alternative 1B: Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Eastern Europe** | | | | |
| Army Personnel | 56,000 | 0 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 4[a] | a | 2 | 23 |
| **Alternative 1C: Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe** | | | | |
| Army Personnel | 44,000 | 12,000 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 1 | 3 | 2 | 23 |

Source: Congressional Budget Office.

a. Brigade combat teams (BCTs) would rotate from Germany to Eastern Europe so that at any given time, two BCTs would be in Germany and two would be in Eastern Europe.

closer to locations of possible conflicts, such as in Eastern Europe. The first three options that CBO analyzed would make those changes, to differing degrees, while maintaining current force levels overseas (see Table 3-2).

### Alternative 1A: Make European Tours Unaccompanied

Following the approach that the Army uses in South Korea, this option would make 90 percent of tours in Europe unaccompanied to reduce the size and cost of the Army's infrastructure in the region. Thus, most of the approximately 60,000 soldiers assigned to Europe would serve one-year tours without their dependents. As a result, the Army would need to provide housing, schools, and other support for only a small fraction of the roughly 80,000 dependents of active-duty personnel stationed in Europe. However, because the Army would need to provide additional housing suitable for unaccompanied soldiers and would have to pay to move personnel every year rather than every three years, this alternative would cost $825 million up front to implement and about $75 million per year thereafter, CBO estimates (see Table 3-3).

The largest expense associated with this option would be a one-time investment of $1.7 billion for construction—primarily to build barracks in Europe for soldiers on unaccompanied tours (who, like single soldiers, typically live together in barracks). The Army could convert housing

**Table 3-3.**

## Costs and Savings of Alternatives 1A, 1B, and 1C Relative to Current Basing

(Millions of 2004 dollars)

| | Europe | South Korea | Total |
|---|---|---|---|
| **Alternative 1A: Make European Tours Unaccompanied** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 1,625 | 0 | 1,625 |
| New facilities in CONUS | 75 | 0 | 75 |
| Existing facilities | -875 | 0 | -875 |
| Equipment | 0 | 0 | 0 |
| Moving | 0 | 0 | 0 |
| **Total One-Time Costs** | 825 | 0 | 825 |
| Annual Costs or Savings (-) | | | |
| Base operations[a] | -50 | 0 | -50 |
| Rotations | 0 | 0 | 0 |
| Personnel[b] | 125 | 0 | 125 |
| **Total Annual Costs** | 75 | 0 | 75 |
| **Alternative 1B: Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Eastern Europe** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 1,275 | 350 to 2,175 | 1,625 to 3,450 |
| New facilities in CONUS | 0 | 0 | 0 |
| Existing facilities | -200 | -125 to -400 | -325 to -600 |
| Equipment | 0 | 0 | 0 |
| Moving | 25 | 50 | 75 |
| **Total One-Time Costs** | 1,100 | 275 to 1,825 | 1,375 to 2,925 |
| Annual Costs | | | |
| Base operations[a] | 150 | 0 | 150 |
| Rotations | 75 | 0 | 75 |
| Personnel[b] | 0 | 0 | 0 |
| **Total Annual Costs** | 225 | 0 | 225 |

**Continued**

**Table 3-3.**

**Continued**

(Millions of 2004 dollars)

| | Europe | South Korea | Total |
|---|---|---|---|
| | **Alternative 1C: Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe** | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 2,275 | 1,375 to 3,950 | 3,650 to 6,225 |
| New facilities in CONUS | 25 | 0 | 25 |
| Existing facilities | -725 | -250 to -750 | -975 to -1,475 |
| Equipment | 0 | 0 | 0 |
| Moving | 75 | 100 | 175 |
| **Total One-Time Costs** | 1,650 | 1,225 to 3,300 | 2,875 to 4,950 |
| Annual Costs or Savings (-) | | | |
| Base operations[a] | -25 | 0 | -25 |
| Rotations | 0 | 0 | 0 |
| Personnel[b] | 25 | 25 | 50 |
| **Total Annual Costs** | 0 | 25 | 25 |

Source: Congressional Budget Office.

Notes: These numbers represent incremental costs or savings (those that would occur relative to the cost of maintaining the current base structure). For more details about the components of these costs and savings, see Tables B-2 through B-4 in Appendix B.

CONUS = continental United States; BCTs = brigade combat teams.

a. Includes operating costs and recurring construction costs for existing bases and new forward operating bases.

b. Includes costs for housing, schools, allowances, and permanent-change-of-station moves.

units that are now used by soldiers with families into housing for unaccompanied personnel, which would be less expensive than constructing new barracks. But doing so would result in higher annual costs thereafter, because barracks are cheaper to operate and maintain than family housing units.

Nearly half of the $1.7 billion in new construction costs would be offset by money that the Army would save by cancelling construction projects that would otherwise be needed to replace facilities for soldiers' families in Europe on the schedule that DoD has set as its goal. CBO estimates that over the 10-year implementation period assumed in this analysis, those one-time construction savings would total $875 million, bringing the net cost of carrying out this option to $825 million.

On an ongoing basis, this approach would significantly reduce the size of the student body at DoD-supported schools in Europe. Currently, more than 20,000 dependent children of Army personnel in Europe attend DoD schools. If demand for those schools was reduced to a level commensurate with that experienced in South Korea, the number of students would fall to around 3,500, producing annual savings of about $125 million.[12] Another $50 million in annual savings would result from reduced construction costs for family housing.

12. That figure represents net savings after taking into account increased annual spending in the United States for additional DoD schools and aid to public schools for the larger number of soldiers' children who would remain in the United States while a parent was on duty in Europe.

**Table 3-4.**

## Family Separation and Unit Turnover for Enlisted Personnel Under Current Basing and Alternatives 1A, 1B, and 1C

| | Years Away from Home During a 10-Year Period | | | Annual Turnover in CONUS Units (Percent) |
|---|---|---|---|---|
| | Unaccompanied Tours | Time Deployed | Total | |
| Current Basing | 0.6 | 1.7 | 2.3 | 37 |
| Alternative 1A: Make European Tours Unaccompanied | 1.9 | 1.7 | 3.6 | 47 |
| Alternative 1B: Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Eastern Europe | 0.6 | 2.0 | 2.6 | 37 |
| Alternative 1C: Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe | 0.8 | 1.7 | 2.5 | 39 |

Source: Congressional Budget Office.

Note: CONUS = continental United States; BCTs = brigade combat teams.

Conversely, some annual costs would rise after this alternative was implemented. An additional $100 million per year would be needed to maintain quarters for soldiers in Europe and to pay housing allowances for families left in the United States. Moreover, the annual cost of moving soldiers and their belongings for a permanent change of station would rise by $225 million as a result of making PCS moves to Europe more frequent. Because those recurring costs would exceed the recurring savings described above, CBO estimates that converting three-year accompanied tours in Europe to one-year unaccompanied tours would end up raising annual costs by $75 million.

Besides costing more than the status quo, this alternative would adversely affect soldiers' overall quality of life and increase the turbulence in CONUS units. The total time that enlisted personnel spent away from their families on unaccompanied tours over 10 years would rise from an average of 0.6 years under current practices to an average of 1.9 years (see Table 3-4). Adopting this alternative would also result in shorter CONUS tours: they would last for an average of 2.1 years rather than the current 2.7 years. Those shorter assignments, combined with increased family separation, would be likely to decrease retention among enlisted personnel.[13] In addition, reducing the length of tours in Europe from three years to one year would increase annual turnover in CONUS units from 37 percent to 47 percent because enlisted personnel would be sent to units in Europe more frequently.

This approach would not change the size or locations of Army forces stationed overseas, so it would not alter the number of forces available for contingency operations or the time needed to deploy combat units to conflicts.

### Alternative 1B: Consolidate Bases in South Korea and Germany and Rotate Brigade Combat Teams from Germany to Eastern Europe

This alternative involves two sets of changes to respond to two different concerns. First, it would reduce the footprint of U.S. forces in Germany and South Korea by consolidating some of the smaller installations in those countries into a lesser number of larger compounds, in accord with existing Administration plans. Second, it would attempt to make Army forces in Europe more agile and responsive to future conflicts (or "expeditionary") by rotating brigade combat teams from Germany to austere forward operating bases (FOBs) in Eastern Europe. CBO estimates that those changes would cost between $1.4 billion and $2.9 billion to implement and then $225 million per year thereafter (see Table 3-3).

13. See General Accounting Office, *Military Personnel: Longer Time Between Moves Related to Higher Satisfaction and Retention*, GAO-01-841 (August 2001).

**The Efficient Basing Germany Initiative.** This option would carry out the Administration's Efficient Basing Germany (EBG) plan, which calls for closing 13 small bases in central Germany and moving the displaced units to a single installation in the Grafenwoehr area in eastern Germany. According to the Army, those changes will improve the readiness of the affected units of the 1st Armored Division (AD) by giving them modern facilities and immediate access to the training ranges at Grafenwoehr. It will also reduce the force-protection requirements and safety risks associated with those units' current bases. Further, the Army argues that the EBG plan will improve the well-being of soldiers and their families by providing them with large, well-staffed facilities in a modern environment.

CBO estimates that moving 3,400 personnel and their approximately 5,000 dependents and building new or renovated facilities for them would cost about $550 million. That cost would be partly offset by one-time construction savings of about $200 million from closing old, outdated facilities.

**Rotation of BCTs from Germany to Eastern Europe.** This alternative would also extend the Army's European presence farther east by setting up austere forward operating bases in three NATO countries—one base each in Romania, Bulgaria, and Poland—and rotating brigade combat teams there from Germany. General James Jones, commander of U.S. forces in Europe, and other Administration defense officials have endorsed the use of austere FOBs as launching points for operations in more-remote corners of the globe. In recent years, U.S. military aircraft have used bases in Romania and Bulgaria as staging areas for Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom. And since 1996, the United States and Britain have been sending units to exercises at the extensive Drawsko Pomorskie and Wedrzyn training areas and firing ranges in Poland once used by Soviet forces.

The three FOBs in this alternative would be set up at or near existing military facilities in Poland, Romania, and Bulgaria, using as a model Camp Bondsteel, a temporary base that provides housing for U.S. troops taking part in peacekeeping operations in Kosovo.[14] Such bases should be less expensive to build and maintain than the typical permanent installation in Germany. Nevertheless, they would provide some of the amenities of a permanent base, such as fitness facilities, laundries, and a post exchange.

In this option, combat teams of 4,000 soldiers from the four brigades stationed in Germany would rotate to those forward bases on six-month stints. The rotation schedule would be such that at any time, two BCTs would be in Germany and two in Eastern Europe (meaning that one of the three FOBs would be unoccupied at any given time). To avoid the necessity of transporting all of the equipment associated with two BCTs to and from Germany every six months, brigade-sized sets of equipment would be prepositioned at each of the three forward bases.[15]

The primary rationale for establishing forward operating bases in Eastern Europe would be to increase the Army's ability to respond quickly to conflicts. However, as discussed earlier, basing Army combat brigades in Poland, Bulgaria, or Romania would not necessarily provide much advantage in speeding deployment of BCTs to such potential hot spots as Nigeria, Uganda, Azerbaijan, and Djibouti. Only if the Army needed to send a heavy BCT to Baku, Azerbaijan, would deploying from any of the three Eastern European bases be quicker than current practice. That advantage would amount to reducing deployment time from the current 23 days to 17 days if bases in Romania or Bulgaria were used (see Table 3-5).

Another aspect of sending forces to conflicts is that BCTs rarely deploy to an operation without additional support from their parent division. This option would not base any division headquarters or support units in Eastern Europe. Rather, units of the 1st Armored Division and 1st Infantry Division not associated with their BCTs would remain in Germany.[16] Transporting those units' equipment—referred to as the division base—would require additional airlift or sealift and more time. As a consequence, the division base would generally arrive in the

14. The FOBs could be established at the Krzesiny Air Base outside Poznan, Poland; near the Black Sea port of Burgas or the Sarafovo airfield in Bulgaria; and at the Mihail Kogalniceanu Air Base or the Black Sea port of Constanta in Romania.

15. CBO assumed that the Army has, or will have in the next several years, enough excess equipment to preposition a heavy BCT set at each of the forward bases.

16. Besides BCTs, a division includes headquarters, helicopters, some artillery units, maintenance units, and other supporting elements.

**Table 3-5.**

## Time Needed to Deploy a Heavy Brigade Combat Team by Sea

(Days)

| | Destination | | | |
|---|---|---|---|---|
| | Nigeria | Azerbaijan[a] | Uganda | Djibouti |
| **Under Current Basing** | | | | |
| Diego Garcia[b] | **19** | **23** | **20** | **12** |
| Germany | 20 | 24 | 32 | 21 |
| **With Bases in Eastern Europe** | | | | |
| Bulgaria | 20 | **17** | 26 | 15 |
| Diego Garcia[b] | **19** | 23 | **20** | **12** |
| Germany | 20 | 24 | 32 | 21 |
| Poland | 21 | 24 | 32 | 22 |
| Romania | 20 | **17** | 26 | 15 |
| Change in Shortest Time from Current Basing | 0 | -6 | 0 | 0 |

Source: Congressional Budget Office.

Note: Numbers in bold indicate the shortest times to a particular destination.

a. Specifically Baku, Azerbaijan.

b. Afloat set of equipment for a brigade combat team.

theater of operations four to 11 days after the BCT, depending on the destination. Because this alternative would not alter the stationing of the two division bases now in Germany, it would not speed their deployment to conflicts in the region.

Alternative 1B would have two main drawbacks compared with the current basing of forces in Europe. First, constantly rotating BCTs from Germany to Eastern Europe could degrade their readiness and availability to deploy rapidly to operations elsewhere. In this option, two of the four BCTs now stationed in Germany would be forward-deployed to Eastern Europe for six months, and the other two would have just returned from such a rotation. In many cases, units returning from a rotation need three to six months to reach a high level of readiness again, because returning soldiers tend to take leave, spend time with their families, or report for school or new assignments that were deferred while they were on rotation. If this alternative was adopted, the two BCTs recovering from rotation, as well as the ones deployed to Eastern Europe, would probably not be immediately available for other missions. That would mark a change from the current availability of combat brigades stationed in Germany, which have participated extensively in operations in Bosnia, Kosovo, and Iraq.

How would the unavailability of the four brigades based in Europe affect the Army's ability to conduct other missions? Under the current basing scheme, the Army could sustainably keep a force of 44,000 to 64,000 active-duty personnel deployed to contingencies outside the United States or Europe, CBO estimates (see Figure 3-2).[17] If four brigades were unavailable to support the rotations needed to maintain operations elsewhere, that number would fall by 6,000 to 8,000—to a range of 38,000 to 56,000 personnel.

A second disadvantage of Alternative 1B would be the increased family separation experienced by soldiers stationed in Germany. Because of the austere conditions at the FOBs, family members would not accompany soldiers on rotations there. As a result, the amount of time that families of soldiers assigned to deployable units were separated would increase from the current average of 85 days per year to 97 days per year.[18] Soldiers do not spend their entire career in deployable units, however, so the current time spent deployed over a 10-year career is considerably less than 850 days—closer to 630 days, or 1.7 years. This alternative would raise that time by 18 percent, to an average of 2.0 years (see Table 3-4).

The total time that a soldier is away from his or her family is a combination of time spent deployed to training exercises and operations and time spent on unaccompanied tours. The frequency of unaccompanied tours over-

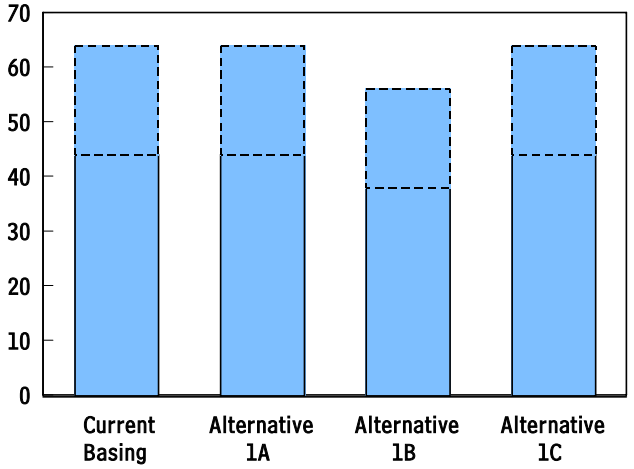
17. That estimated range is based on rotation ratios of 3.2:1 to 4.1:1 (as explained in Appendix C). It assumes that only active Army forces would sustain the deployment, that no active forces were deployed elsewhere (such as Afghanistan or the Sinai) on a continuing basis, and that no brigades were designated as ready brigades and unavailable for deployment. It does assume, however, that two active brigades would be upgrading their equipment as part of the Army's transformation plan and would be unavailable for operations.

18. Those numbers represent the time deployed to training exercises and operations averaged over all of the soldiers in deployable units. Some soldiers would spend much more time deployed, and some almost none. See Ronald E. Sortor and J. Michael Polich, *Deployments and Army Personnel Tempo*, MR-1417-A (Santa Monica, Calif.: RAND, 2001).

**Figure 3-2.**

## Army Personnel Available for Sustained Deployment to Overseas Operations Under Alternatives 1A, 1B, and 1C

(Thousands of active-duty personnel)




Source: Congressional Budget Office.

Note: Areas with dashed lines represent ranges based on differing assumptions about rotation ratios (see Appendix C).

seas would not change under this alternative. Consequently, total family separation would increase by only 13 percent: from the current average of 2.3 years over a 10-year career to 2.6 years. Although it is impossible to predict what effect that increase would have on soldiers' morale, the relatively short and predictable rotations to Eastern Europe might not adversely affect retention, judging from experience.[19]

Setting up three FOBs in Eastern Europe and rotating two BCTs there every six months would entail both one-time and recurring costs. CBO estimates that the three austere bases in Eastern Europe would cost a total of about $750 million to establish and about $150 million a year to operate and maintain.[20] Rotating two BCTs from Germany every six months would require another $75 million a year, bringing the total annual costs of this alternative to $225 million.

Several defense analysts have suggested that significant logistical costs might be associated with shifting forces from Germany to Eastern Europe. According to Prof. Frederick Kagan of the U.S. Military Academy, besides paying for the new bases, the United States might have to invest significant funds to create or upgrade infrastructure in Poland, Bulgaria, and Romania to bring training areas up to U.S. standards.[21] Other analysts have argued that even basic services—such as clean and safe drinking water, reliable electrical power, and proper sewage treatment—are not available on a consistent basis in Eastern Europe and that providing them will require a major U.S. investment.[22]

In addition, Stuart Drury of the Office of the Joint Chiefs of Staff argues that deploying to conflicts would be much more difficult from Eastern European countries because many roads there are not capable of accommodating military traffic and many railroads are narrow-gauge and ill-suited for large military cargo.[23] Finally, he points out, Black Sea ports are not capable of handling the same volume of cargo as the ports of Rotterdam in Holland or Bremerhaven in Germany. Moreover, transiting out of the Black Sea is often slow because of bottlenecks at the Bosporus and Dardanelles. In the past, NATO has invested funds to improve the transportation infrastructure of its newest members, including Poland and Bulgaria; thus, future NATO investments could include upgrades to seaports, training ranges, and railroad tracks that would address some of those concerns.

**The Land Partnership Plan in South Korea.** In addition to the various changes in European bases and operations, this option would consolidate the Army's bases in South Korea as outlined in the Land Partnership Plan (LPP). That plan, as agreed to by representatives of the United States and the Republic of Korea in March 2002, would

19. James Hosek and Mark Totten, *Does Perstempo Hurt Reenlistment? The Effect of Long or Hostile Perstempo on Reenlistment*, MR-990-OSD (Santa Monica, Calif.: RAND, 1998).

20. Those estimates assume that the United States would have to bear the full expense of building and operating the FOBs, including costs of utilities, support and reception, security, and similar services. It is possible that the host nations might pay some of those costs, but in the absence of any historical precedent, and considering the state of the Polish, Bulgarian, and Romanian economies, CBO assumed that the United States would bear the full cost.

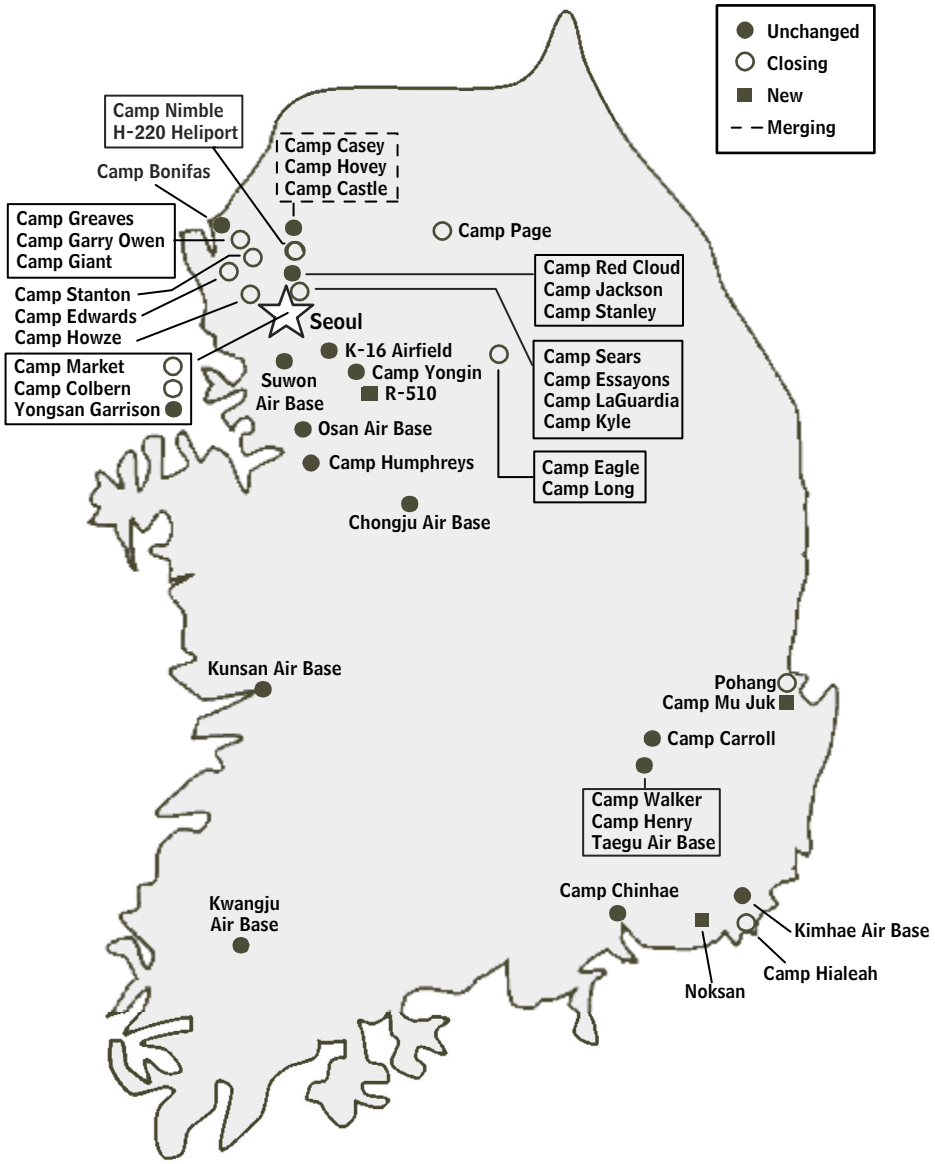
21. Statement of Frederick W. Kagan, Associate Professor of Military History, U.S. Military Academy, before the House Armed Services Committee, February 26, 2003.

22. Stuart P. Drury, *The Argument Against Relocating U.S. Forces in Europe* (National Defense University, April 24, 2003), p. 9, available at www.ndu.edu/library/n4/n035605i.pdf.

23. Ibid., p. 10.

**Figure 3-3.**

## Changes to U.S. Installations in South Korea Under the Land Partnership Plan




Source: General Accounting Office, *Defense Infrastructure: Basing Uncertainties Necessitate Reevaluation of U.S. Construction Plans in South Korea,* GAO-03-643 (July 2003).

reduce the number of U.S. troop installations by 18, primarily by closing and consolidating many of the bases north of Seoul (see Figure 3-3). According to the General Accounting Office, many of the facilities slated to be closed are outdated and provide few amenities for soldiers.[24] The LPP would not alter the overall level of Army forces in South Korea or change any policies affecting personnel there. Rather, it would make the basing structure in South Korea less dispersed and would replace or modernize some of the most outmoded facilities.

The total cost to the United States of implementing the LPP would depend on how much of the relocation expense South Korea was willing to bear. Construction costs to carry out the plan would total approximately $2.2 billion, CBO estimates. However, the South Korean

24. General Accounting Office, *Defense Infrastructure: Basing Uncertainties Necessitate Reevaluation of U.S. Construction Plans in South Korea,* GAO-03-643 (July 2003).

**Table 3-6.**

## Effect of Alternatives 1A, 1B, and 1C on the Time Needed to Deploy a Heavy Brigade Combat Team by Sea

(Days)

| | Destination | | | |
|---|---|---|---|---|
| | Nigeria | Azerbaijan[a] | Uganda | Djibouti |
| Shortest Time Based on Current Basing | 19 | 23 | 20 | 12 |
| Change in Shortest Time from Adopting Alternative[b] | | | | |
| Alternative 1A: Make European tours unaccompanied | 0 | 0 | 0 | 0 |
| Alternative 1B: Make minor changes in German and South Korean basing and rotate BCTs from Germany to Eastern Europe | 0 | -6 | 0 | 0 |
| Alternative 1C: Consolidate bases in South Korea and establish permanent bases in Eastern Europe | 0 | -6 | 0 | 0 |

Source: Congressional Budget Office.

a. Specifically Baku, Azerbaijan.

b. Based on deploying from the closest location in Europe or using the set of equipment prepositioned afloat in Diego Garcia.

government had at one point agreed to assume as much as 85 percent of the cost of carrying out the LPP, which would reduce the U.S. share of the up-front investment to $350 million.[25] In addition, CBO estimates, the plan would produce one-time savings of $125 million to $400 million by closing outmoded facilities.[26]

Implementing the Land Partnership Plan could have various benefits, such as improving conditions for Army personnel in South Korea and easing tensions between the United States and South Korea over land use. However, agreements reached between high-ranking U.S. and South Korean officials in the summer of 2003 may have superceded the LPP with a much more far-reaching realignment of U.S. bases (considered in Alternative 1C below).

**Combined Effects of Alternative 1B.** Overall, this option would reduce the number of Army bases in Germany by 13 (5 percent) and the number in South Korea by 18 (23 percent). It would also establish a presence in Poland, Romania, and Bulgaria by building austere forward operating bases. Units rotating from Germany to those bases could deploy more quickly to areas in the Mediterranean and the Caspian region, though not to Africa or the Middle East (see Table 3-6). However, rotating units to Eastern Europe would reduce the number of Army forces immediately available for other missions and increase family separation. It would have no effect on turnover in CONUS units.

According to CBO's estimates, establishing this basing structure in both Europe and South Korea would require a total up-front investment ranging from $1.4 billion to $2.9 billion—$1.1 billion for construction and moving costs in Europe and $275 million to $1.8 billion for corresponding costs in South Korea (depending on the U.S. share). After implementation, this alternative would cost the Army an additional $225 million per year, mainly to operate the FOBs in Eastern Europe and support rotations to them.

### Alternative 1C: Establish Permanent Bases in Eastern Europe and Consolidate Forces in South Korea at Two Bases South of Seoul

This approach would make more-extensive changes in both theaters than would the previous alternative. It would extend the Army's full-time presence in Europe farther east by establishing three permanent bases in Eastern Europe rather than three austere forward bases. In addition, it would reduce the vulnerability of U.S. forces in

25. Ibid., p. 11.

26. The range of savings reflects cost sharing by the South Korean government of as much as 65 percent of construction that had been planned at those facilities.

South Korea by moving them to two consolidated bases south of Seoul rather than keeping the numerous installations envisioned in the Land Partnership Plan. Because of its broader scope, this alternative would cost far more to implement than the previous options: a total of $2.9 billion to $5.0 billion, CBO estimates. After that, however, it would add only $25 million to the Army's annual costs (see Table 3-3 on page 24).

**Effects of Alternative 1C on Forces in Europe.** This option would relocate three brigade combat teams from Germany to permanent installations in Eastern Europe—one each in Poland, Romania, and Bulgaria. (The two division headquarters and one BCT would remain based in Germany, as they are now.) This option would therefore yield the same improvements in deployability as the previous alternative, but it would not require the constant rotation of BCTs. Furthermore, the Army could maintain a presence in all three countries continuously and thus would not need to keep duplicate sets of equipment at bases in Germany and Eastern Europe.

To avoid the need to establish expensive family-support infrastructure at the new bases—each of which would host about 4,000 soldiers—tours in Eastern Europe would be unaccompanied and last for one year. Those bases would not be as elaborate as the ones that are now home to U.S. forces in Germany; however, building them would still cost more than $2 billion, CBO estimates. In addition, moving the units and their equipment to Eastern Europe would entail one-time costs of $75 million, and keeping families in the United States that would now be sent overseas would require DoD to build additional dependent schools in the United States, at a cost of $25 million. On the flip side, reducing the number of soldiers based in Germany would yield one-time savings of $725 million from canceling construction projects there, CBO estimates. Thus, the total up-front cost of establishing a permanent military presence in Eastern Europe under this option would be almost $1.7 billion. After that, however, additional annual costs would be negligible, in CBO's estimation.

Compared with the current basing of Army forces in Europe, this alternative would have the advantage of extending the Army's presence eastward and speeding deployments to the Mediterranean, Black Sea, and Caspian regions by six days. If the heavy BCT remaining in Germany was replaced by a lighter Stryker BCT, airlift could be used to deploy it to conflicts in the region in less time than a heavy BCT would need to deploy by sea. Furthermore, the Stryker BCT could deploy to locations such as Baku by air far faster than a similar unit could deploy from CONUS—in roughly nine days rather than about 20 days, based on an analysis by RAND.[27]

This alternative would have several disadvantages, however, compared with the current basing of Army forces in Europe. First, the 12,000 soldiers who would be on unaccompanied tours in Eastern Europe would experience greater family separation. Second, turbulence in CONUS units would increase slightly in order to support more one-year tours. Third, any logistics costs associated with upgrading infrastructure in Eastern Europe would apply to this alternative as well as to Alternative 1B.

This option might also violate existing treaties and agreements between the United States and Russia. The Founding Act on Mutual Relations, Cooperation, and Security Between NATO and the Russian Federation, which Russia and all NATO members signed in 1997, has reportedly been interpreted by Russia as a promise by NATO that its members will not permanently station forces in Eastern Europe as the alliance grows.[28] Furthermore, basing U.S. soldiers in Eastern Europe could violate limits on troops and weapons contained in the Conventional Forces in Europe (CFE) Treaty, which were the result of negotiations among many parties in the 1980s and subsequent rounds in the 1990s. Russia might strongly object to the permanent basing of U.S. forces in Eastern Europe, especially if it violated the CFE treaty's regional ceilings on equipment.

**Effects of Alternative 1C on Forces in South Korea.** This alternative would make far more extensive changes in South Korea than the previous option because it would consolidate all U.S. forces at two large bases south of Seoul—Camp Humphreys and nearby Osan Air Base. That relocation would put Army personnel out of range of North Korean artillery and shut many isolated and ob-

27. Alan Vick and others, *The Stryker Brigade Combat Team: Rethinking Strategic Responsiveness and Assessing Deployment Options,* MR-1606-AF (Santa Monica, Calif.: RAND, 2002).

28. Drury, *The Argument Against Relocating U.S. Forces in Europe*, p. 11.

solete facilities. Furthermore, by closing the Yongsan Garrison in Seoul, it would remove U.S. forces from an urban area with a high population density. Moreover, by basing all Army forces within a short distance of Osan Air Base, this approach would facilitate the movement of units and personnel into and out of the country.

Concentrating U.S. forces in two enclaves would make it easier to support a larger number of Army dependents in South Korea, because soldiers would no longer be scattered among numerous remote outposts. Thus, this alternative would increase the share of soldiers on tour in South Korea who could be accompanied by their families from the current 10 percent to 25 percent.[29] As a result, of the 28,000 Army personnel stationed in South Korea, about 7,000 would be on accompanied (three-year) tours, compared with about 2,800 under current policy.

The Administration has reportedly been negotiating with the South Korean government to work out the details of the basing changes outlined in this alternative.[30] Although those details have not been officially announced, Secretary Rumsfeld and other Administration officials have alluded to the advantages of such changes, saying it would be desirable to concentrate U.S. forces at more-efficient facilities and remove them from the immediate range of North Korean artillery, thereby making them more survivable and better able to respond to a North Korean attack.

In the absence of detailed Administration plans, CBO estimated that building and refurbishing facilities at Camp Humphreys and Osan Air Base to house 28,000 Army personnel could cost roughly $4 billion. Another $100 million could be needed to move units from their current bases to the new facilities. The Administration is still negotiating with the South Korean government about the specifics of the planned relocations, particularly that of Yongsan Garrison, so it is not clear how much of the relocation costs South Korea might bear. On the basis of previous cost-sharing agreements, CBO assumed that South Korea might pay up to 65 percent of the costs, meaning that U.S. costs for the construction in South Korea associated with this alternative would range from $1.4 billion to $4.0 billion (see Table 3-3 on page 24). Using the same cost-sharing range, CBO estimated that the United States might save $250 million to $750 million by canceling planned construction projects in South Korea while this alternative was being implemented. As a result, the net one-time costs in South Korea, including moving costs, could range from $1.2 billion to $3.3 billion.

Once implemented, those changes in South Korea would have relatively small effects on costs, family separation, and personnel turnover. As a result of increasing accompanied tours in that country, the Army would see its annual costs rise by $25 million, CBO estimates. And although the quality of some soldiers' lives would improve, family separation for the average enlisted soldier over a 10-year period would decrease by just 0.1 years (36 days). Likewise, turnover in CONUS units would decline by less than 1 percentage point.

**Combined Effects of Alternative 1C.** Basing Army forces in Eastern Europe, as envisioned in this option, would enable them to deploy more quickly to the Caspian region. But stationing Army personnel there on one-year unaccompanied tours, even when combined with the reduction in such tours in South Korea, would raise the total number of unaccompanied Army tours worldwide by roughly 8,000. That increase would boost total family separation above the current level and increase turnover in CONUS units slightly (see Table 3-4 on page 26).

In the long run, consolidating bases in South Korea could improve relations between that nation and the United States. However, permanently moving forces from Germany to Eastern Europe could raise concerns with Russia that would need to be addressed.

Finally, this alternative would require a net one-time investment of $2.9 billion to $5.0 billion: approximately $1.7 billion to build new bases in Eastern Europe and move Army forces there, and the remainder to consolidate bases in South Korea. But it would yield minimal annual savings to offset those one-time costs (see Table 3-3 on page 24).

29. In April 2003, General Leon LaPorte, commander of U.S. forces in Korea, advocated increasing the share of accompanied tours to 25 percent. Roughly half of the soldiers who are assigned to South Korea are married.

30. See Norimitsu Onishi, "U.S. and South Korea Try to Redefine Their Alliance," *New York Times*, December 26, 2003; and Martin Nesirky, "U.S. in South Korea to Cut DMZ Role but Still in Charge," *Reuters*, April 27, 2004.

## Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half

Although the Administration has indicated that the size of Army forces based overseas will probably decline, it has not officially said where or by how much. To illustrate a range of possibilities, the rest of the options examined in this study would reduce the number of Army personnel permanently stationed in Europe and Asia, returning between 38,000 and 80,000 of them to the United States. In some cases, those approaches would also alter the level of overseas presence provided by the Army and introduce unit rotations. Returning such large forces to the continental United States would most likely require significant refurbishment of current U.S. bases and could affect some of the closures of facilities being contemplated as part of the 2005 round of base realignment and closure.

Two options that CBO examined would move roughly half of the Army forces now stationed in Germany and South Korea to the United States but result in different levels of overseas presence. Alternative 2A would relocate all of the combat forces (brigades and divisions) stationed in those countries to CONUS, leaving the support forces currently based there in place. It would then rotate BCTs from CONUS to maintain roughly the same level of overseas presence as exists today. That alternative would cost more to implement than any other approach considered in this study: $8.4 billion to $9.4 billion. Alternative 2B would cut the amount of Army presence overseas by moving roughly half of both the combat and support forces now based in Germany and South Korea to CONUS, with only periodic rotations of one BCT from Germany to Eastern Europe. That option would cost less to carry out, $4.8 billion to $5.8 billion, and could result in recurring savings of $500 million per year.

### Alternative 2A: Halve the Forces Stationed Overseas and Maintain the Current Level of Overseas Presence by Rotating Six BCTs from CONUS

Some Administration officials, including the commander of U.S. forces in Europe, have suggested that rotating units from the United States to overseas bases on periodic deployments would be preferable to the current basing scheme. The Marine Corps uses such a system to sustain its presence on Okinawa: it rotates units to the island from the United States for seven-month tours and then replaces them with fresh units. This alternative would follow the lead of the Marines by rotating Army units from the United States for six-month tours in Germany and South Korea to maintain the current level of combat presence there.

**Effect of Alternative 2A on Forces in Europe.** Under this option, all of the units associated with the 1st AD and 1st ID in Germany would return to the United States. That move would mean relocating about 25,000 Army personnel (see Table 3-7) and 33,000 family members. To maintain essentially the same level of Army presence in Europe, four BCTs of 4,000 personnel each would be sent to Europe every six months for temporary deployments—three to new forward operating bases in Poland, Bulgaria, and Romania and one to an existing base in Germany.

Those changes would entail one-time costs on the order of $4.2 billion, CBO estimates, with the bulk of the money paying for construction (see Table 3-8). About $1 billion would be needed to build three FOBs in Eastern Europe and to refurbish one base in Germany. A much greater amount—about $2.8 billion—would be necessary to build or refurbish facilities in the United States to house the returning units. However, cutting the number of forces stationed in Germany by half would yield one-time construction savings of $1.5 billion.

The Army could avoid shipping the rotating units' equipment from CONUS to Europe and back every six months by maintaining duplicate sets of equipment in Europe. If the Army wished to draw on its entire pool of 33 active brigades—five of which are scheduled to be equipped with Stryker vehicles—to support the rotations, it would need to preposition equipment suitable for those brigades in Europe.[31] Therefore, CBO's estimate of the costs of this alternative includes $1.6 billion to purchase a set of equipment for a Stryker brigade combat team (SBCT).

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31. CBO's analysis is based on the structure of the Army as it stood at the end of fiscal year 2003, which included 33 active brigades. In early calendar year 2004, the Army announced that it will reorganize its combat structure to create 43 to 48 brigades. The Army has said it does not plan to increase its overall number of personnel to carry out the restructuring. Presumably, then, the new, more numerous BCTs will be smaller than those based on the current structure. As a result, more of the new BCTs—or additional support units—will be needed to maintain the same level of overseas presence.

**Table 3-7.**

## Location of Permanent Army Forces Under Current Basing and Alternatives 2A and 2B

| | Germany | Eastern Europe | South Korea | Continental United States |
|---|---|---|---|---|
| **Current Basing** | | | | |
| Army Personnel | 56,000 | 0 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 4 | 0 | 2 | 23 |
| **Alternative 2A: Cut Overseas Forces by Half and Rotate Six BCTs from CONUS to Europe and South Korea** | | | | |
| Change from Current Basing | | | | |
| Army personnel | -25,000 | 0 | -13,000 | 38,000 |
| Divisions | -2 | 0 | -1 | 3 |
| Combat brigades | -4 | 0 | -2 | 6 |
| Result | | | | |
| Army personnel | 31,000 | 0 | 15,000 | 393,000 |
| Divisions | 0 | 0 | 0 | 9 |
| Combat brigades | a | b | c | 29[d] |
| **Alternative 2B: Cut Overseas Forces by Half and Rotate One BCT from Germany to Eastern Europe** | | | | |
| Change from Current Basing | | | | |
| Army personnel | -29,000 | 0 | -13,000 | 42,000 |
| Divisions | -1 | 0 | 0 | 1 |
| Combat brigades | -2 | 0 | -1 | 3 |
| Result | | | | |
| Army personnel | 27,000 | 0 | 15,000 | 397,000 |
| Divisions | 1 | 0 | 1[e] | 7[e] |
| Combat brigades | 2[f] | f | 1 | 26 |

Source: Congressional Budget Office.

Note: BCTs = brigade combat teams; CONUS = continental United States.

a. Brigades would rotate from CONUS so that, at any given time, one would be in Germany.

b. Brigades would rotate from CONUS so that, at any given time, three would be in Eastern Europe.

c. Brigades would rotate from CONUS so that, at any given time, two would be in South Korea.

d. Brigades rotating from CONUS to Europe and South Korea would mean that, at any given time, 23 brigades would be in CONUS.

e. The division headquarters and some additional units from the divison base would remain in South Korea.

f. Brigades would rotate from Germany periodically so that one would be in Eastern Europe about 50 percent of the time.

**Table 3-8.**

## Costs and Savings of Alternatives 2A and 2B Relative to Current Basing

(Millions of 2004 dollars)

| | Europe | South Korea | Total |
|---|---|---|---|
| **Alternative 2A: Cut Overseas Forces by Half and Rotate Six BCTs from CONUS to Europe and South Korea** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 1,000 | 1,275 to 2,800 | 2,275 to 3,800 |
| New facilities in CONUS | 2,750 | 1,425 | 4,175 |
| Existing facilities | -1,525 | -300 to -850 | -1,825 to -2,375 |
| Equipment | 1,550 | 1,550 | 3,100 |
| Moving | 375 | 275 | 650 |
| **Total One-Time Costs** | **4,150** | **4,225 to 5,200** | **8,375 to 9,350** |
| Annual Costs or Savings (-) | | | |
| Base operations[a] | -75 | 75 | 0 |
| Rotations | 200 | 100 | 300 |
| Personnel[b] | -200 | -100 | -300 |
| **Total Annual Costs or Savings** | **-75** | **75** | **0** |
| **Alternative 2B: Cut Overseas Forces by Half and Rotate One BCT from Germany to Eastern Europe** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 750 | 825 to 2,350 | 1,575 to 3,100 |
| New facilities in CONUS | 3,200 | 1,425 | 4,625 |
| Existing facilities | -1,775 | -300 to -850 | -2,075 to -2,625 |
| Equipment | 0 | 0 | 0 |
| Moving | 425 | 275 | 700 |
| **Total One-Time Costs** | **2,600** | **2,225 to 3,200** | **4,825 to 5,800** |
| Annual Costs or Savings (-) | | | |
| Base operations[a] | -200 | 0 | -200 |
| Rotations | 25 | 0 | 25 |
| Personnel[b] | -225 | -100 | -325 |
| **Total Annual Savings** | **-400** | **-100** | **-500** |

Source: Congressional Budget Office.

Notes: These numbers represent incremental costs or savings (those that would occur relative to the cost of maintaining the current base structure). For more details about the components of these costs and savings, see Tables B-2 through B-4 in Appendix B.

CONUS = continental United States; BCTs = brigade combat teams.

a. Includes operating costs and recurring construction costs for existing bases and new forward operating bases.

b. Includes costs for housing, schools, allowances, and permanent-change-of-station moves.

Once those changes were implemented, they would produce $75 million in net annual savings, CBO estimates. The reason is that the lower costs of supporting fewer bases and dependents in Germany would more than offset the additional costs of operating three FOBs in Eastern Europe and rotating forces through them.

The main advantage of this alternative would be to reduce the U.S. footprint in Germany. In addition, like Alternatives 1B and 1C, this option would speed deployment of heavy BCTs to the Mediterranean, Black Sea, and Caspian regions. Moreover, by prepositioning equipment for an SBCT, which can feasibly be transported by air, this alternative would make it possible to deploy an SBCT to conflicts in the region faster than such a unit could be deployed from CONUS under current basing arrangements.

Among its disadvantages, Alternative 2A could harm soldiers' quality of life and decrease retention by causing additional family separation. Currently, soldiers serving in Europe can take their families with them. Under this option, however, the 16,000 soldiers serving in Europe on rotations with BCTs would be deployed without their families. According to the head of the Army Personnel Command's retention office, relying on rotational forces in Europe would take a substantial toll on retention: in the late 1990s, soldiers with families who returned to U.S.-based units from six-month deployments overseas had 39 percent lower retention rates than similar soldiers who returned from tours in Europe with their families.[32] That experience suggests that the European portion of this alternative—which would increase average family separation because of deployment by about 30 percent—could hurt Army retention.

In addition, although this option would reduce some deployment times for BCTs, the same cannot be said for the time needed to get the rest of a division (the division base) to locations of possible conflicts. Indeed, this alternative could result in a small delay compared with current basing, because no divisional units would remain in Germany. As a result, such units, or their equipment, would have to come either from the United States, where the divisions would be based, or from prepositioned stocks in Qatar.[33] For operations in Nigeria, deploying a division base from the United States would take no longer than it would take from Germany (see Table 3-9). But for operations in Azerbaijan, Uganda, or Djibouti, it would take three days longer to move a division base from the United States than from Germany.

**Table 3-9.**

## Time Needed to Deploy a Division Base by Sea

(Days)

| | Destination | | | |
|---|---|---|---|---|
| | Nigeria | Azerbaijan[a] | Uganda | Djibouti |
| Germany | **25** | **28** | 36 | 25 |
| Qatar[b] | 28 | 29 | **27** | **18** |
| United States | **25** | 31 | 39 | 28 |

Source: Congressional Budget Office.

Note: Numbers in bold indicate the shortest times to a particular destination.

a. Specifically Baku, Azerbaijan.

b. Prepositioned division set of equipment.

For those areas, equipment sets prepositioned in Qatar could reach the theater most quickly, but those sets do not include the approximately 80 helicopters associated with a division.[34] Assuming that the helicopters could be airlifted in the two to four weeks it would take for the rest of the division's equipment to arrive by sea, then relying on the prepositioned division base at Qatar would be more timely than waiting for equipment to arrive from the United States. Nevertheless, for operations in Baku, Azerbaijan, deploying the division base from Qatar would take only one day longer than it would now take to deploy that base from Germany.

**Effect of Alternative 2A on Forces in South Korea.** As it would with forces in Europe, this alternative would move the 2nd Infantry Division and its units from South Korea to the United States and then rotate two BCTs continuously back to South Korea. Those changes would mean

32. Jon R. Anderson, "Transforming EUCOM, Part 4: Efforts to Build a Mobile Force Could Close Some Bases in Europe," *European Stars and Stripes*, June 18, 2003.

33. The United States currently has equipment for several units from a division base prepositioned in Qatar. The equipment includes that for a divisional cavalry squadron, an aviation brigade (exclusive of helicopters), artillery units, and some engineering equipment, such as bulldozers and bridgelayers.

34. The Army does not preposition helicopters in part because it does not have excess helicopters available in its inventory.

**Table 3-10.**

## Effect of Alternatives 2A and 2B on the Time Needed to Deploy Army Units by Sea

(Days)

| | Destination | | | | |
|---|---|---|---|---|---|
| | Nigeria | Azerbaijan[a] | Uganda | Djibouti | South Korea |
| **Heavy Brigade Combat Team** | | | | | |
| Shortest Time Based on Current Basing | 19 | 23 | 20 | 12 | 0 |
| Change in Shortest Time from Adopting Alternative[b] | | | | | |
| Alternative 2A: Cut overseas forces by half and rotate six BCTS from CONUS to Europe and South Korea | 0 | -6 | 0 | 0 | 0 |
| Alternative 2B: Cut overseas forces by half and rotate one BCT from Germany to Eastern Europe | 0 | -6 | 0 | 0 | 0 |
| **Division Base** | | | | | |
| Shortest Time Based on Current Basing[c] | 25 | 28 | 27 | 18 | 0 |
| Change in Shortest Time from Adopting Alternative[c] | | | | | |
| Alternative 2A: Cut overseas forces by half and rotate six BCTS from CONUS to Europe and South Korea | 0 | +1 | 0 | 0 | +23 |
| Alternative 2B: Cut overseas forces by half and rotate one BCT from Germany to Eastern Europe | 0 | 0 | 0 | 0 | 0 |

Source: Congressional Budget Office.

Note: BCTs = brigade combat teams; CONUS = continental United States.

a. Specifically Baku, Azerbaijan.

b. Based on deploying from the closest location in Europe or using the set of equipment prepositioned afloat in Diego Garcia to European or African destinations.

c. Based on deploying from Germany or Qatar to European or African destinations and from South Korea or Hawaii to Asian destinations.

restationing 13,000 personnel to the United States and rotating 8,000 soldiers to South Korea every six months. As a result, the total number of Army personnel in South Korea at any given time would be 5,000 less than the current level of 28,000. To enhance the survivability of the rotating forces, they would be based at two consolidated camps south of Seoul, as in Alternative 1C.

Because new basing would be needed in both South Korea and the United States, the Korean portion of this alternative would require at least as much up-front investment as the European portion: $4.2 billion to $5.2 billion, CBO estimates. The one-time costs to move units to the United States and base them there would total about $1.7 billion, and the costs for new bases in South Korea would range from $1.3 billion to $2.8 billion (depending on cost-sharing agreements with the South Koreans). Additional one-time costs of about $1.6 billion would result from buying an SBCT equipment set to preposition in South Korea to accommodate any Stryker brigades taking part in the rotations there. Those one-time costs would be offset slightly by one-time savings of $300 million to $850 million from canceling construction projects in South Korea.

Thereafter, rotating two BCTs to South Korea twice a year and maintaining their equipment and facilities would add about $175 million to the Army's annual costs. However, lower costs for PCS moves and for allowances to soldiers based overseas would save about $100 million per year, resulting in net annual costs of about $75 million for the Korean part of this option.

**Table 3-11.**

## Family Separation and Unit Turnover for Enlisted Personnel Under Current Basing and Alternatives 2A and 2B

| | Years Away from Home During a 10-Year Period | | | Annual Turnover in CONUS Units (Percent) |
|---|---|---|---|---|
| | Unaccompanied Tours | Time Deployed | Total | |
| Current Basing | 0.6 | 1.7 | 2.3 | 37 |
| Alternative 2A: Cut Overseas Forces by Half and Rotate Six BCTS from CONUS to Europe and South Korea | 0.3 | 2.4 | 2.7 | 32 |
| Alternative 2B: Cut Overseas Forces by Half and Rotate One BCT from Germany to Eastern Europe | 0.3 | 1.8 | 2.1 | 31 |

Source: Congressional Budget Office.

Note: CONUS = continental United States; BCTs = brigade combat teams.

The advantages of this alternative, compared with current basing of U.S. forces in South Korea, would be to reduce the number of one-year unaccompanied tours, decrease turnover in CONUS units, and remove U.S. troops from locations close to the DMZ. However, this alternative would also move the 2nd ID's division base from South Korea to CONUS. Since the Army has no division-base equipment prepositioned anywhere in the Asian or Pacific region, divisional units would have to deploy from Hawaii in the event of a crisis on the Korean peninsula. It could take more than three weeks for elements of the 25th Infantry Division based in Hawaii to reinforce the brigades in South Korea, which means that the BCTs in South Korea would have to operate without support from that division's helicopters, artillery, and many trucks and resupply vehicles during those weeks. Nevertheless, the BCTs would have other possible sources of support, such as the considerable assets that the Army would retain in South Korea and the assets of the U.S. Air Force and the South Korean military.

**Combined Effects of Alternative 2A.** The overall effect of this approach would be to station an additional six brigade combat teams and three division headquarters and associated units—with a total of 38,000 soldiers—in CONUS. Moving so many troops and large units to the United States would most likely require new facilities or significant refurbishment of existing U.S. bases, which CBO estimates could cost about $4.2 billion.

Overall, this alternative would have several advantages. It would speed up deployment of brigade combat teams to the Caspian and Mediterranean regions by six days, reduce turnover in CONUS units from 37 percent to 32 percent by reducing one-year tours, and move Army forces in South Korea to less vulnerable locations (see Tables 3-10 and 3-11). It would also mesh well with the unit-manning scheme that the Army is introducing into its personnel and force management structure.

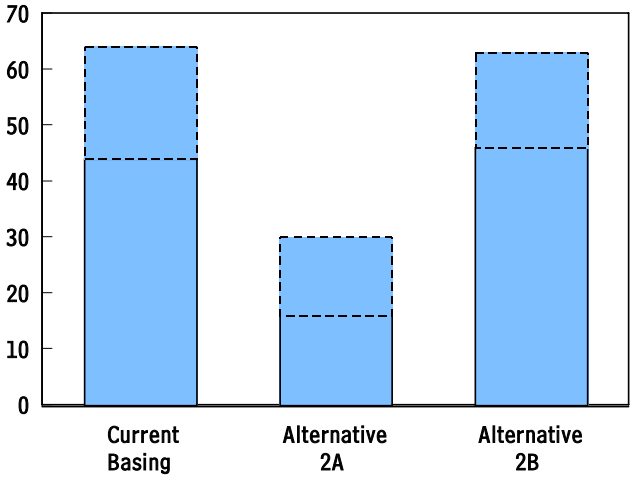
This option would have a negative effect, however, on the readiness and availability of the Army's active brigades. Assuming that 3.2 to 4.0 units are necessary to sustain the deployment of one unit overseas on rotation (see Appendix C), the Army would need 19 to 24 brigades to support the four-BCT rotations to Europe and the two-BCT rotations to South Korea. With BCTs tied up in Europe and South Korea or recovering from recent rotations, the Army would have less capability than it does today to sustain other long-term commitments. CBO estimates that the active Army would be able to maintain a deployed force of only 16,000 to 30,000 troops overseas—less than half the number that can be sustained under today's basing structure (see Figure 3-4).

In addition, this option's rotational approach would increase family separation, potentially harming retention. Although the average amount of time that enlisted personnel spent on unaccompanied tours would decrease, their time spent on deployments would rise significantly (see Table 3-11). All told, total family separation over a 10-year period would increase by about 17 percent, from an average of 2.3 years to 2.7 years. According to some of

**Figure 3-4.**

## Army Personnel Available for Sustained Deployment to Overseas Operations Under Alternatives 2A and 2B

(Thousands of active-duty personnel)




Source: Congressional Budget Office.

Note: Areas with dashed lines represent ranges based on differing assumptions about rotation ratios (see Appendix C).

the Army's retention experts, such a large increase could reduce retention, perhaps seriously.

### Alternative 2B: Halve the Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe

This alternative is based on the premise that although the United States should maintain a military presence in both Europe and South Korea, the current global environment allows the size of that presence to be reduced. This option would cut the level of both combat and support units based in South Korea and Germany approximately in half and restation those forces in the United States. Specifically, one division, with its two combat brigades, and 14,500 support and administrative personnel would remain in Germany; one brigade combat team, some divisional units (including the headquarters), and about 9,000 support and administrative personnel would stay in South Korea. This option would also rotate combat forces from Germany to forward operating bases in Eastern Europe.

**Effect of Alternative 2B on Forces in Europe.** Under this alternative, Army forces in Europe would be reduced by 29,000 personnel, with all units associated with the 1st AD and some from the V Corps returning to CONUS. The 1st ID would remain in Germany, and the 173rd Airborne Brigade would remain in Italy. As in Alternative 1B, three FOBs would be built (one each in Poland, Romania, and Bulgaria), and the two brigades remaining in Germany would rotate to those bases periodically—say, for one three-month exercise per year for each brigade. The Army would preposition equipment sets at each of the FOBs so units could deploy from them to a crisis should the need arise.

The up-front costs of making those changes in Europe would total $2.6 billion, CBO estimates—$425 million to move units to CONUS, $3.2 billion for new basing there, and $750 million for FOBs in Eastern Europe, offset by $1.8 billion in savings from canceled construction in Germany (see Table 3-8 on page 36). Recurring savings from those changes would amount to $400 million a year, CBO estimates, primarily because restationing forces now in Europe to the United States would lower the costs of overseas allowances, base operations, and PCS moves.

Like Alternatives 1B, 1C, and 2A, this option could speed deployment of a BCT to the Mediterranean, Black Sea, and Caspian regions. However, it would suffer from less-pronounced disadvantages than the other alternatives. Although it would increase family separation and reduce the number of forces available for other contingencies, those effects would be small. Average time deployed over 10 years would rise by 6 percent, from a total of 1.7 years to 1.8 years. Similarly, rotating brigades periodically from Germany to Eastern Europe might reduce the number of troops available for ongoing operations outside Europe by, at most, 3,000 soldiers, or 5 to 7 percent.

**Effect of Alternative 2B on Forces in South Korea.** By cutting the Army's permanent presence in South Korea to about 15,000 personnel, this option could save about $100 million a year and reduce both turnover in CONUS units and family separation due to unaccompanied tours. The total average time that enlisted personnel would spend on unaccompanied tours over 10 years would decline from 0.6 years to 0.3 years. And turnover among enlisted personnel in CONUS units would drop from 37 percent to 31 percent (see Table 3-11 on page 39).

CBO estimates that the one-time costs to move about 13,000 troops from South Korea—7,000 of which would be associated with one brigade and additional units from the 2nd ID—to the United States and provide basing for them would total about $1.7 billion. The costs to consolidate the remaining Army forces in South Korea at Camp Humphreys and Osan Air Base south of Seoul would range from $825 million to $2.4 billion. Taking into account the savings from canceled construction projects, the total up-front costs to implement the Korean portion of this alternative would range from $2.2 billion to $3.2 billion, CBO estimates (see Table 3-8 on page 36).

**Combined Effects of Alternative 2B.** By basing a larger percentage of Army forces in the United States than is now the case, this alternative would lower annual costs by $500 million, reduce turnover in CONUS units by 16 percent, and reduce family separation for enlisted soldiers by 9 percent. In addition, by removing one combat brigade from South Korea, it would slightly increase the combat forces that would be based in CONUS and thus available for other contingencies. However, because this alternative would periodically rotate BCTs in Europe, the extra brigade available in CONUS could, under some assumptions, be offset by the increased demand on brigades in Europe. As a consequence, this alternative would result in roughly the same number of forces being available for sustained overseas operations as under current basing: 46,000 to 63,000 personnel (see Figure 3-4).

CBO estimates that Alternative 2B would require a one-time investment of $4.8 billion to $5.8 billion. Funds would be needed to move forces to the United States and provide basing for them ($5.3 billion), establish three forward operating bases in Eastern Europe ($750 million), and consolidate bases in South Korea ($825 million to $2.4 billion). Those costs would be offset by $2.1 billion to $2.6 billion in savings that CBO estimates would result from the reduced need for construction projects to replace facilities in Europe and South Korea on a 67-year cycle.

This option would reduce the level of U.S. combat presence overseas, which could entail some security risks, particularly in South Korea. Some observers would argue that now is not the time to reduce forces in that country, especially when North Korea is apparently making progress toward developing the capability to produce nuclear-armed missiles. However, although this alternative would cut Army forces in South Korea by 13,000 personnel (including one combat brigade), in the event of a crisis the United States could still call on the combat power of the Marine division stationed in Okinawa and three Air Force fighter wings based in South Korea and Japan, as well as the South Korean military.

## Alternatives That Would Remove Almost All Army Forces Stationed Overseas

Although the Administration has not suggested such a dramatic change in the near future, CBO also examined two alternatives that would return almost all of the Army forces now stationed in Germany and South Korea to the United States. Such a large-scale relocation would require a net one-time investment of $6.8 billion to $7.4 billion, CBO estimates, but thereafter it would save at least $900 million a year compared with current basing. The first of these two alternative would rotate a few brigade combat teams overseas; the second would keep most Army forces in CONUS, deploying them overseas only when necessary.

### Alternative 3A: Return Nearly All Forces to CONUS and Continuously Rotate Three BCTs Overseas

This option would move most of the Army's current forces in Germany and South Korea back to the United States and set up limited rotations of combat teams overseas. Rather than rotating six BCTs (four to Europe and two to South Korea) as in Alternative 2A, this option would rotate only two BCTs to Europe and one to South Korea.

**Effect of Alternative 3A on Forces in Europe.** Some 50,000 soldiers, all combat units, and most other Army units in Germany would be restationed in CONUS under this alternative. About 3,000 personnel would remain in Germany for administrative and reception purposes. Another 3,000 would move to Eastern Europe, where the Army would set up three FOBs and permanently station 1,000 troops at each one (see Table 3-12). In addition, two BCTs from CONUS would rotate to those bases every six months, for a total of four rotations each year. Thus, at any given time, two BCTs would be in Eastern Europe, occupying two of the three forward bases.

This alternative would make the Army's presence in Europe similar in nature to the presence it has had in the Middle East since the early 1990s. Between the two wars

**Table 3-12.**

## Location of Permanent Army Forces Under Current Basing and Alternatives 3A and 3B

| | Germany | Eastern Europe | South Korea | Continental United States |
|---|---|---|---|---|
| **Current Basing** | | | | |
| Army Personnel | 56,000 | 0 | 28,000 | 355,000 |
| Divisions | 2 | 0 | 1 | 6 |
| Combat Brigades | 4 | 0 | 2 | 23 |
| **Alternative 3A: Return Almost All Overseas Forces to CONUS and Rotate Three BCTs to Europe and South Korea** | | | | |
| Change from Current Basing | | | | |
| Army personnel | -53,000 | 3,000 | -27,000 | 77,000 |
| Divisions | -2 | 0 | -1 | 3 |
| Combat brigades | -4 | 0 | -2 | 6 |
| Result | | | | |
| Army personnel | 3,000 | 3,000 | 1,000 | 432,000 |
| Divisions | 0 | 0 | 0 | 9 |
| Combat brigades | 0 | a | b | 29[c] |
| **Alternative 3B: Eliminate Virtually All Army Presence Overseas** | | | | |
| Change from Current Basing | | | | |
| Army personnel | -54,000 | 1,000 | -27,000 | 80,000 |
| Divisions | -2 | 0 | -1 | 3 |
| Combat brigades | -4 | 0 | -2 | 6 |
| Result | | | | |
| Army personnel | 2,000 | 1,000 | 1,000 | 435,000 |
| Divisions | 0 | 0 | 0 | 9 |
| Combat brigades | 0 | 0 | 0 | 29 |

Source: Congressional Budget Office.

Note: CONUS = continental United States; BCTs = brigade combat teams.

a. Brigades would rotate from CONUS so that, at any given time, two would be in Eastern Europe.

b. Brigades would rotate from CONUS so that, at any given time, one would be in South Korea.

c. Brigades rotating from CONUS to Europe and South Korea would mean that, at any given time, 26 brigades would be in CONUS.

**Table 3-13.**

## Costs and Savings of Alternatives 3A and 3B Relative to Current Basing

(Millions of 2004 dollars)

| | Europe | South Korea | Total |
|---|---|---|---|
| **Alternative 3A: Return Almost All Overseas Forces to CONUS and Rotate Three BCTs to Europe and South Korea** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 750 | 225 | 975 |
| New facilities in CONUS | 5,650 | 2,950 | 8,600 |
| Existing facilities | -3,125 | -300 to -850 | -3,425 to -3,975 |
| Equipment | 0 | 0 | 0 |
| Moving | 750 | 450 | 1,200 |
| **Total One-Time Costs** | **4,025** | **2,775 to 3,325** | **6,800 to 7,350** |
| Annual Costs or Savings (-) | | | |
| Base operations[a] | -450 | -25 | -475 |
| Rotations | 100 | 50 | 150 |
| Personnel[b] | -400 | -200 | -600 |
| **Total Annual Savings** | **-750** | **-175** | **-925** |
| **Alternative 3B: Eliminate Virtually All Army Presence Overseas** | | | |
| One-Time Costs or Savings (-) | | | |
| Construction | | | |
| New facilities overseas | 500 | 225 | 725 |
| New facilities in CONUS | 6,075 | 2,950 | 9,025 |
| Existing facilities | -3,350 | -300 to -850 | -3,650 to -4,200 |
| Equipment | 0 | 0 | 0 |
| Moving | 800 | 450 | 1,250 |
| **Total One-Time Costs** | **4,025** | **2,775 to 3,325** | **6,800 to 7,350** |
| Annual Savings (-) | | | |
| Base operations[a] | -525 | -25 | -550 |
| Rotations | 0 | 0 | 0 |
| Personnel[b] | -425 | -200 | -625 |
| **Total Annual Savings** | **-950** | **-225** | **-1,175** |

Source: Congressional Budget Office.

Notes: These numbers represent incremental costs or savings (those that would occur relative to the cost of maintaining the current base structure). For more details about the components of these costs and savings, see Tables B-2 through B-4 in Appendix B.

CONUS = continental United States; BCTs = brigade combat teams.

a. Includes operating costs and recurring construction costs for existing bases and new forward operating bases.

b. Includes costs for housing, schools, allowances, and permanent-change-of-station moves.

in Iraq, the Army rotated units to Kuwait every four months for training exercises as well as to provide a level of presence in the region. Beginning in 1999, those rotating units were supported by several hundred Army personnel permanently stationed in Kuwait.

U.S. presence in Europe would be much less noticeable and obtrusive under this option than it is today, and the cost of supporting it would be much smaller: $750 million less per year than under current basing (see Table 3-13 on page 43). The time needed to deploy a BCT to Azerbaijan would decrease, but deployment time for a division base would increase because the base would have to be sent from CONUS or drawn from prepositioned stocks in Qatar (see Table 3-14).

One-time costs to implement the European portion of this alternative would amount to about $7.2 billion, CBO estimates—$5.7 billion for basing in CONUS, $750 million for FOBs in Eastern Europe, and $750 million for moving units from Germany to the United States. Those costs would be offset by one-time savings of $3.1 billion in planned construction, resulting in a net up-front cost of $4.0 billion.

**Effect of Alternative 3A on Forces in South Korea.** In a similar vein, this option would move 27,000 of the Army's 28,000 personnel from South Korea to CONUS and would rotate one BCT back from CONUS on a continuing basis to maintain a presence there. The remaining 1,000-person reception force, rotated BCT, and preposi-

**Table 3-14.**

## Effect of Alternatives 3A and 3B on the Time Needed to Deploy Army Units by Sea

(Days)

| | Destination | | | | |
|---|---|---|---|---|---|
| | Nigeria | Azerbaijan[a] | Uganda | Djibouti | South Korea |
| **Heavy Brigade Combat Team** | | | | | |
| Shortest Time Based on Current Basing | 19 | 23 | 20 | 12 | 0 |
| Change in Shortest Time from Adopting Alternative[b] | | | | | |
| Alternative 3A: Return almost all overseas forces to CONUS and rotate three BCTs to Europe and South Korea | 0 | -6 | 0 | 0 | 0 |
| Alternative 3B: Eliminate virtually all Army presence overseas | 0 | 0 | 0 | 0 | +7 |
| **Division Base** | | | | | |
| Shortest Time Based on Current Basing[c] | 25 | 28 | 27 | 18 | 0 |
| Change in Shortest Time from Adopting Alternative[c] | | | | | |
| Alternative 3A: Return almost all overseas forces to CONUS and rotate three BCTs to Europe and South Korea | 0 | +1 | 0 | 0 | +23 |
| Alternative 3B: Eliminate virtually all Army presence overseas | 0 | +1 | 0 | 0 | +23 |

Source: Congressional Budget Office.

Note: BCTs = brigade combat teams; CONUS = continental United States.

a. Specifically Baku, Azerbaijan.

b. Based on deploying from the closest location in Europe or using the set of equipment prepositioned afloat in Diego Garcia to European or African destinations.

c. Based on deploying from Germany or Qatar to European or African destinations and from South Korea or Hawaii to Asian destinations.

**Table 3-15.**

## Family Separation and Unit Turnover for Enlisted Personnel Under Current Basing and Alternatives 3A and 3B

| | Years Away from Home During a 10-Year Period | | | Annual Turnover in CONUS Units (Percent) |
|---|---|---|---|---|
| | Unaccompanied Tours | Time Deployed | Total | |
| Current Basing | 0.6 | 1.7 | 2.3 | 37 |
| Alternative 3A: Return Almost All Overseas Forces to CONUS and Rotate Three BCTs to Europe and South Korea | 0.1 | 2.1 | 2.2 | 28 |
| Alternative 3B: Eliminate Virtually All Army Presence Overseas | 0.1 | 1.7 | 1.8 | 28 |

Source: Congressional Budget Office.

Note: CONUS = continental United States; BCTs = brigade combat teams.

tioned equipment would be located at a single consolidated base south of Seoul. Like Alternative 2A, this option would not leave a division base in South Korea, which means that elements from the 25th ID in Hawaii would need to deploy to that country in the event of a crisis, adding more than three weeks to the current deployment time (see Table 3-14).

CBO estimates that returning the Army forces now in South Korea to the United States would save $175 million a year. Before it could realize those recurring savings, however, the Army would need to spend a total of $3.6 billion—including $3.0 billion to provide basing in CONUS for the returned units, $450 million to move them from South Korea, and $225 million to build a new consolidated base south of Seoul. At the same time, this option would avoid $300 million to $850 million in construction costs in South Korea, resulting in a net one-time cost of $2.8 billion to $3.3 billion (see Table 3-13 on page 43).

**Combined Effects of Alternative 3A.** Overall, this approach would base more than 95 percent of the Army's forces in the United States and rely on short-term rotations to provide limited overseas presence. It would reduce the number of troops stationed overseas by a total of 77,000 and decrease the number of unaccompanied tours by 21,000. Consequently, this alternative would significantly lessen annual turnover among enlisted personnel in CONUS units: from the current level of 37 percent to 28 percent (see Table 3-15). It would also save $925 million annually by lowering the costs associated with maintaining forces overseas.

Besides those advantages, this option would have several drawbacks. As in Alternative 2A, the Army's BCT in South Korea would have to operate without the support of a division base during the three weeks that the base might take to arrive from Hawaii. Furthermore, despite the concentration of forces in CONUS, the Army would have fewer troops available for other contingencies than it does today. The need to maintain two brigade rotations to Europe and one to South Korea would limit the force that the active Army could sustain overseas to 35,000 to 49,000 personnel, compared with 44,000 to 64,000 under the current basing structure (see Figure 3-5). Finally, although this approach might eliminate the need for $3.4 billion to $4 billion in overseas construction, CBO estimates, it would still require a significant up-front investment to carry out: $6.8 billion to $7.4 billion.

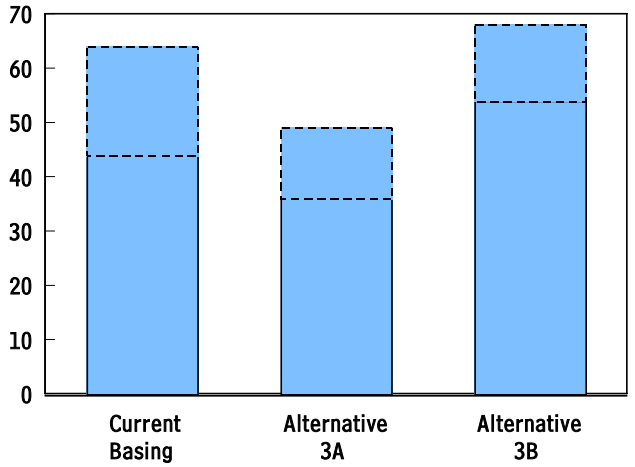
### Alternative 3B: Eliminate Virtually All Army Presence Overseas

The final option in this analysis would return almost all troops from Germany and South Korea to CONUS, leaving only small reception forces in Germany, Eastern Europe, and South Korea to maintain prepositioned equipment and provide support for occasional exercises. Thus, the Army's presence outside Italy would be only periodic, akin to U.S. presence in other countries that host prepositioned U.S. equipment, such as Qatar and Bahrain before Operation Iraqi Freedom.

**Figure 3-5.**

## Army Personnel Available for Sustained Deployment to Overseas Operations Under Alternatives 3A and 3B

(Thousands of active-duty personnel)




Source: Congressional Budget Office.

Note: Areas with dashed lines represent ranges based on differing assumptions about rotation ratios (see Appendix C).

Such an approach would have numerous benefits. The Army's annual costs would decline by $1.2 billion, CBO estimates. By retaining prepositioned sets of equipment for a heavy brigade in Germany, Romania or Bulgaria, and South Korea, the United States would be able to deploy BCTs to most locations in the same time frame as with current basing. (The one exception would be the added time necessary for Army units to respond to a crisis in South Korea, discussed below.) Moreover, by all but eliminating unaccompanied tours, this option would reduce both average family separation and turnover in CONUS units by more than 20 percent from current levels. And without brigades tied to the defense of South Korea or rotating to Eastern Europe, the Army would have an additional 4,000 to 10,000 active-duty soldiers available for other contingencies (see Figure 3-5).

Of course, this alternative would represent a significant departure from the U.S. military posture of the past half century. Not only has the Army maintained a significant combat presence in Germany and South Korea during that time, but it has also invested in a substantial support and mobility infrastructure in those countries, much of which would be abandoned under this alternative.

Moreover, unlike all of the other alternatives examined in this study, this option would not leave any BCTs in South Korea. As a result, it would increase the time needed for Army forces to respond to a crisis in that country. Although a set of equipment for a brigade combat team would be prepositioned in South Korea, the personnel associated with a BCT would require five to seven days to fly to South Korea from CONUS, retrieve their equipment, and organize themselves into a fighting force—meaning that it could take a week for the U.S. Army to respond to a North Korean attack with an armored force (see Table 3-14 on page 44). Of course, the South Korean army, which has 560,000 soldiers and 22 divisions, would be able to respond immediately, as could the South Korean air force and the three U.S. fighter wings stationed in South Korea and Japan. Thus, the absence or presence of one Army brigade at the onset of hostilities might not be crucial. However, the brigade's deterrent value might be of greater importance than its tactical contribution.

Like the previous alternative, this option would require a net one-time investment of $6.8 billion to $7.4 billion to carry out, CBO estimates. Constructing facilities in the United States would cost $6.1 billion for forces returning from Europe and $3.0 billion for forces coming from South Korea. In addition, the Army would probably need to spend $500 million for one FOB in Germany and another in Bulgaria or Romania (for equipment and periodic exercises) and $225 million for a reception base south of Seoul. Finally, moving units from Europe and South Korea to CONUS would cost $800 million and $450 million, respectively. Those various costs would be partly offset by one-time savings of $3.7 billion to $4.2 billion from canceling construction projects planned for South Korea and Germany (see Table 3-13 on page 43).

## Conclusions

Because the United States has invested heavily over the past 50 years in base infrastructure for troops stationed overseas, any major shifting of forces would require a significant expenditure to replicate that infrastructure somewhere else. Even options to reduce the footprint of Army forces in Europe or South Korea that the Administration is considering involve expanding and refurbishing bases in the continental United States to accept forces removed from Europe, establishing forward operating bases in new locations outside western Europe, and building new consolidated facilities in South Korea. Because soldiers' morale is important to the Army, it wants to build any new

bases or facilities to standards that would enhance soldiers' quality of life. The only exception might be new forward operating bases, which could be located in Eastern Europe or Africa and house transient units—those serving stints of, at most, six months.

CBO's analysis suggests that there would be little annual savings to offset the substantial up-front investment needed to restation U.S. forces unless overseas presence was reduced significantly. If that was the case, annual savings might total more than $1 billion, but the net initial investment would amount to about $7 billion (see Table 3-16).

Improvements resulting from the restationing of U.S. forces overseas could include political and military benefits, such as regional stability, which CBO did not attempt to measure, as well as an increase in the Army's ability to respond to far-flung conflicts, which CBO did examine and found to be small. The reason for the relatively small increase is that the United States and Germany have invested heavily in the German transportation network, with the result that U.S. military equipment based in Germany can move to large port and air facilities on good roads and an extensive rail network. That is not the case for locations in Eastern Europe or Africa. Furthermore, the time required to deploy heavy units by sea to many potential trouble spots is not significantly shorter from Eastern Europe than it is from Germany. Moreover, for many ports in Africa, it takes much longer to deploy a heavy brigade combat team from Eastern Europe than to deliver the prepositioned set of equipment that is maintained on board ships at Diego Garcia in the Indian Ocean.

Maintaining overseas presence through rotations from CONUS rather than permanently stationing forces in Europe and South Korea would have the advantage of shrinking the U.S. footprint abroad. It would reduce the need for infrastructure overseas for both troops and families, and it would lessen turnover in Army units, potentially enhancing cohesion. It would also fit well with the Army's proposed conversion to unit manning. Moreover, synchronizing unit-manning schedules with deployment rotations should avoid some of the problems the Army is now experiencing with its individual rotation system.

However, the Army has argued in the past that it needs three to five units (in various stages of recovery, training, or transit) to keep one unit deployed at any given time. Trying to sustain a rotation of six brigade combat teams overseas—four to Europe and two to South Korea—with the Army's 33 active brigades could be difficult and might leave few brigades available for other missions (see Figure 3-6 on page 50). Furthermore, maintaining a presence in Europe based on unaccompanied rotations would be a change from today's practice, in which soldiers serving individual tours in Europe can take their families. Unaccompanied deployments to Europe from CONUS, though probably short, would increase family separation over the long run and could decrease retention.

In short, whatever major changes the United States makes in its strategy for overseas basing will be costly. In the first half of the 1990s, the Department of Defense greatly reduced the size of the forces it based in Europe, but it also shrank the active-duty military as a whole. Consequently, DoD did not need to provide new housing, basing, and infrastructure for displaced troops at that time. Today, however, there is very little demand for reducing the size of the U.S. military. As a result, any changes in basing will mean that infrastructure that the United States has built overseas during the past half century will be returned to the host nations and will need to be replicated elsewhere, either in the United States, at new locations in Europe, or in South Korea.[35]

35. In the past, the United States has received relatively little remuneration for facilities that it has turned over to host countries. For example, while reducing its forces in Germany in the mid-1990s, the United States returned hundreds of facilities to the German government, for which it received about $3 million in cash and about $200 million in improvements (such as maintenance of sewer systems and modernization of barracks) at remaining U.S. facilities in Germany; see General Accounting Office, *European Drawdown: Status of Residual Value Negotiations in Germany,* GAO/NSIAD-94-195BR (June 1994). In South Korea, the government is assuming some of the costs for relocation of U.S. troops in exchange for the return of installations being vacated by those troops.

**Table 3-16.**

## Comparison of All of the Alternatives with Current Basing

| | Army Forces Stationed Overseas | | Costs or Savings (-) (Millions of 2004 dollars) | | Army Personnel Available for Operations[a] | |
|---|---|---|---|---|---|---|
| | Germany and Eastern Europe | South Korea | One-Time | Annual | Assuming High Rotation Ratio | Assuming Low Rotation Ratio |
| **Current Basing** | 56,000 | 28,000 | n.a. | n.a. | 44,000 | 64,000 |
| | **Change from Adopting Alternative** | | | | | |
| **Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas** | | | | | | |
| 1A: Make European Tours Unaccompanied | 0 | 0 | 825 | 75 | 0 | 0 |
| 1B: Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Austere Bases in Eastern Europe | 0 | 0 | 1,375 to 2,925 | 225 | -6,000 | -8,000 |
| 1C: Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe | 0 | 0 | 2,875 to 4,950 | 25 | 0 | 0 |
| **Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half** | | | | | | |
| 2A: Halve Forces Stationed Overseas and Maintain Current Level of Overseas Presence by Rotating Six BCTs from CONUS | -25,000 | -13,000 | 8,375 to 9,350 | 0 | -28,000 | -34,000 |
| 2B: Halve Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe | -29,000 | -13,000 | 4,825 to 5,800 | -500 | +2,000 | -1,000 |
| **Alternatives That Would Remove Almost All Army Forces Stationed Overseas** | | | | | | |
| 3A: Move Nearly All Forces to CONUS and Continuously Rotate Three BCTs to Europe and South Korea | -50,000 | -27,000 | 6,800 to 7,350 | -925 | -9,000 | -15,000 |
| 3B: Eliminate Virtually All Army Presence Overseas | -53,000 | -27,000 | 6,800 to 7,350 | -1,175 | +10,000 | +4,000 |

Continued

Source: Congressional Budget Office.

Note: BCTs = brigade combat teams; CONUS = continental United States; n.a. = not applicable.

a. Assuming use of active-duty forces only.

**Table 3-16.**

## Continued

| | Number of Days to Deploy | | | | Years of Family Separation for Enlisted Personnel Over 10 Years | | | Annual Turnover in CONUS Units (Percent)[e] |
|---|---|---|---|---|---|---|---|---|
| | To European Theater (Baku, Azerbaijan) | | To Asian Theater (South Korea) | | | | | |
| | Heavy BCT[b] | Division Base[c] | Heavy BCT | Division Base[d] | Unaccompanied Tours | Time Deployed | Total | |
| **Current Basing** | 23 | 28 | 0 | 0 | 0.6 | 1.7 | 2.3 | 37 |
| | | | **Change from Adopting Alternative** | | | | | |
| **Alternatives That Would Maintain the Current Level of Army Forces Stationed Overseas** | | | | | | | | |
| 1A: Make European Tours Unaccompanied | 0 | 0 | 0 | 0 | +1.3 | 0 | +1.3 | +10 |
| 1B: Make Minor Changes in German and South Korean Basing and Rotate BCTs from Germany to Austere Bases in Eastern Europe | -6 | 0 | 0 | 0 | 0 | +0.3 | +0.3 | 0 |
| 1C: Consolidate Bases in South Korea and Establish Permanent Bases in Eastern Europe | -6 | 0 | 0 | 0 | +0.2 | 0 | +0.2 | +2 |
| **Alternatives That Would Cut the Level of Army Forces Stationed Overseas in Half** | | | | | | | | |
| 2A: Halve Forces Stationed Overseas and Maintain Current Level of Overseas Presence by Rotating Six BCTs from CONUS | -6 | +1 | 0 | +23 | -0.3 | +0.7 | +0.4 | -5 |
| 2B: Halve Forces Stationed Overseas and Rotate One BCT from Germany to Eastern Europe | -6 | 0 | 0 | 0 | -0.3 | +0.1 | -0.2 | -6 |
| **Alternatives That Would Remove Almost All Army Forces Stationed Overseas** | | | | | | | | |
| 3A: Move Nearly All Forces to CONUS and Continuously Rotate Three BCTs to Europe and South Korea | -6 | +1 | 0 | +23 | -0.5 | +0.4 | -0.1 | -9 |
| 3B: Eliminate Virtually All Army Presence Overseas | 0 | +1 | +7 | +23 | -0.5 | 0 | -0.5 | -9 |

b. Based on deploying from the closest location in Europe or using the set of equipment prepositioned afloat in Diego Garcia.

c. Based on deploying from Germany or Qatar.

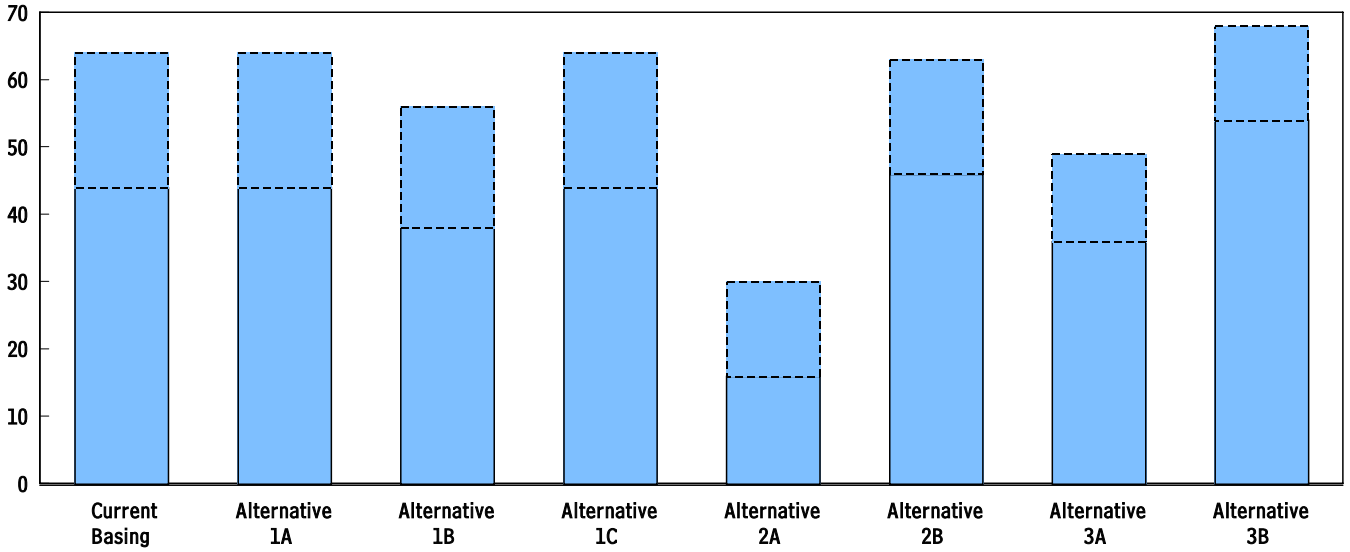
d. Based on deploying from South Korea or Hawaii.

e. The current level of annual turnover is shown in percent, and changes from that level are shown in percentage points.

**Figure 3-6.**

## Army Personnel Available for Sustained Deployment to Overseas Operations Under All of the Alternatives

(Thousands of active-duty personnel)




Source: Congressional Budget Office.

Note: Areas with dashed lines represent ranges based on differing assumptions about rotation ratios (see Appendix C).

APPENDIX

# A

# Current Basing of Air Force, Navy, and Marine Corps Forces Overseas

Although it touched on all of the services, Chapter 2 focused in detail on the Army forces now stationed in Europe and East Asia. This appendix completes the picture by providing similar detail about the other services' personnel and bases in those two important regions.

The Air Force, Navy, and Marine Corps have fewer forces stationed in Europe than the Army does and a more widely scattered infrastructure and basing network. The Air Force has the second largest presence in Europe after the Army, with 34,000 active-duty personnel based there. The Navy and Marine Corps have much smaller contingents in Europe, with 10,000 personnel and 1,000 personnel, respectively, based on shore.[1]

Together, the Air Force, Navy, and Marine Corps outnumber the Army in East Asia, with a total of 49,000 active-duty personnel on shore.[2] Unlike the Army, which is focused on South Korea, those services' bases and forces are concentrated in Japan. On the basis of replacement value, Navy, Marine Corps, and Air Force installations in Japan represent 88 percent of the three services' investment in East Asia.

## The Air Force in Europe

The Air Force has 34,000 personnel stationed in Europe, scattered across the region. As with the Army, the largest contingent is based in Germany, which hosts 15,000 Air Force personnel (see Table A-1). But the Air Force also has relatively large numbers in the United Kingdom (10,000) and Italy (4,000). The remaining 5,000 Air Force personnel are dispersed among bases in Turkey, Portugal, Greenland, and various other European countries.

Three major Air Force combat units are based in Europe: the 52nd Fighter Wing in Germany, the 48th Fighter Wing in the United Kingdom, and the 31st Fighter Wing in Italy. Together, those three units account for about 14,000 service members, or about 40 percent of the Air Force personnel based in Europe. The other 20,000 personnel are associated with support or administrative units.

Like its forces, the Air Force's installations are scattered throughout Europe. The largest number are in Germany (55 out of 201). Of those, the air base at Ramstein, which hosts the 86th Airlift Wing, is the main hub for U.S. forces from all of the services flying to or from other parts of the world, including the United States and the Middle East. It occupies 3,100 acres and has a replacement value of $3.1 billion, the second highest of any U.S. military facility in Europe (behind the naval air station at Keflavik, Iceland).[3] In addition, Spangdahlem Air Base, which is home to the 52nd Fighter Wing, is valued at $1.5 billion.

1. The Navy and Marine Corps have additional personnel based on board ships that may be anchored in European waters.

2. The discussion of forces based in East Asia and the Pacific does not include those based in Hawaii or U.S. territories, such as Guam.

3. Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf.

**Table A-1.**

## U.S. Bases and Forces Stationed in Europe, by Service

| | Forward-Based Personnel (Thousands) | | | Installations | | |
|---|---|---|---|---|---|---|
| | Combat | Support and Administration | Total | Total Number | Number with Replacement Value of More Than $1 Billion | Total Replacement Value[a] (Billions of dollars) |
| Army (Total Europe) | 26 | 34 | 60 | 294 | 3 | 33 |
| Air Force | | | | | | |
| Germany | 5 | 10 | 15 | 55 | 2 | 9 |
| Greenland | 0 | * | * | 1 | 1 | 3 |
| Italy | 4 | * | 4 | 34 | 0 | 2 |
| Portugal | 0 | 1 | 1 | 20 | 0 | 1 |
| Turkey | 0 | 2 | 2 | 19 | 1 | 1 |
| U.K. | 5 | 5 | 10 | 50 | 1 | 5 |
| Other | 0 | 2 | 2 | 22 | 0 | 1 |
| Subtotal | 14 | 20 | 34 | 201 | 5 | 22 |
| Navy[b] | | | | | | |
| Iceland | 0 | 1 | 1 | 1 | 1 | 3 |
| Italy | 0 | 5 | 5 | 5 | 0 | 2 |
| Spain | 0 | 1 | 1 | 4 | 1 | 1 |
| U.K. | 0 | 1 | 1 | 3 | 0 | ** |
| Other | 0 | 1 | 1 | 2 | 0 | ** |
| Subtotal | 0 | 10 | 10 | 15 | 2 | 7 |
| Marine Corps[b] | 0 | 1 | 1 | 0 | 0 | 0 |
| **Total** | **40** | **65** | **105** | **510** | **10** | **62** |

Source: Congressional Budget Office based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report, Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf; Department of Defense, Washington Headquarters Services, Directorate of Information Operations and Reports, *Department of Defense Active-Duty Personnel Strengths by Regional Area and by Country (309A)* (September 30, 2002); and other Defense Department data.

Note: * = less than 500; ** = less than $500 million; U.K. = United Kingdom.

a. Includes the replacement value of excess facilities that the United Sates still owns.

b. Onshore personnel only.

The Air Force has three other installations in Europe with replacement values exceeding $1 billion: one in Greenland, one in Turkey, and one in the United Kingdom. Although the Air Force has few people stationed in Greenland, it maintains a facility in Thule with an early-warning radar that will provide a vital link in any system to defend the United States and its allies from ballistic missiles. The Thule installation represents a U.S. investment of $2.7 billion. In Turkey, Incirlik Air Base, valued at $1.1 billion, is home to the 39th Air Base Wing and serves as a prime staging location to reach many of the world's trouble spots. In the United Kingdom, the air base at Lakenheath (home of the 48th Fighter Wing) has a replacement value of $1.5 billion.

## The Navy and Marine Corps in Europe

The Navy and Marine Corps have far fewer personnel and installations ashore in Europe than the Army or the Air Force, and neither service has any combat forces based on shore in Europe. The Navy divides 10,000 support and administrative personnel among 15 installations, including two air stations (one in Iceland and one in Italy). The Marine Corps has about 1,000 support and administrative personnel based at other services' facilities (the Marines do not have any bases in Europe).

One of the Navy's installations, the Keflavik Air Station in Iceland, represents the largest U.S. military investment in Europe—with an estimated replacement value of $3.4 billion. The base is a legacy of World War II, when the British and then the Americans used it as a staging area to defend North Atlantic shipping routes. The base served a similar role during the Cold War and now supports maritime patrol and air-defense activities as well as aircraft traveling between North America and Europe.

## The Air Force in East Asia and the Pacific

The Air Force has three fighter wings and two additional fighter squadrons stationed in East Asia, accounting for approximately 14,000 of the 23,000 airmen based in the region (the rest are assigned to administrative or support units). The 8th Fighter Wing and the 51st Fighter Wing are based in South Korea, along with the 7th Air Force and supporting units. The 35th Fighter Wing and two F-15 squadrons of the 18th Composite Wing are based in Japan, as well as the 5th Air Force, the 374th Airlift Wing, and various supporting units. Overall, most of the Air Force personnel stationed in South Korea are associated with combat units, whereas about half of the Air Force personnel based in Japan are assigned to support and administrative units (see Table A-2).

To support and house its forces in Asia, the Air Force maintains a total of 67 installations. Of those, 44 are in Japan and 19 are in South Korea.[4] The largest are the Kadena Air Base and the nearby Kadena Ammunition Storage Annex in Japan (more than 11,000 acres and a value in excess of $5 billion) and the Misawa Air Base in Japan (almost 4,000 acres and a value of $4 billion). Facilities in Japan also include five housing annexes for personnel and their families, several communications stations, and two air ranges.

Air Force installations in South Korea are not as extensive as those in Japan, but they do include two large air bases. One is at Kunsan, on the southwestern coast more than 100 miles south of the border, and is home to the 8th Fighter Wing. The other is at Osan, less than 50 miles south of the border, making it the closest major U.S. air base to North Korea. The 7th Air Force and the 51st Fighter Wing are based at Osan along with other units. Those two bases occupy 2,600 and 1,800 acres, respectively, and together are valued at a total of $3.2 billion.

## The Navy in East Asia and the Pacific

All told, the Navy has about 6,000 personnel stationed ashore in Japan and a total of 12 installations to support them. The base at Yokosuka—which encompasses six separate installations—is the Navy's largest and most strategically important overseas base in the world. It houses the Seventh Fleet and is home port for the aircraft carrier Kitty Hawk. Yokosuka's features include a ship repair facility and the Fleet and Industrial Supply Center (the largest naval facilities of their type in the Western Pacific), a hospital, a communications station, and various facilities to support fleet activities and personnel. All told, the base has a value of $5.7 billion.

The Navy also operates a base in Japan at Sasebo, where elements and the commander of the Amphibious Squadron Eleven are based. That base includes much less exten-

4. The Air Force also has three installations in Australia and one in Singapore.

**Table A-2.**

## U.S. Bases and Forces Stationed in East Asia and the Pacific, by Service

| | Forward-Based Personnel (Thousands) | | | Installations | | |
|---|---|---|---|---|---|---|
| | Combat | Support and Administration | Total | Total Number | Number with Replacement Value of More Than $1 Billion | Total Replacement Value[a] (Billions of dollars) |
| Army | 13 | 17 | 30 | 95 | 2 | 11 |
| Air Force | | | | | | |
| Japan | 7 | 7 | 14 | 44 | 3 | 14 |
| South Korea | 7 | 3 | 10 | 19 | 2 | 4 |
| Other | 0 | * | * | 4 | 0 | ** |
| Subtotal | 14 | 10 | 23 | 67 | 5 | 18 |
| Navy[b] | | | | | | |
| Japan | 0 | 6 | 6 | 12 | 6 | 9 |
| South Korea | 0 | 0 | 0 | 2 | 0 | ** |
| Other | 0 | * | * | 2 | 0 | ** |
| Subtotal | 0 | 6 | 6 | 16 | 6 | 9 |
| Marine Corps[b] | | | | | | |
| Japan | 10 | 10 | 20 | 2 | 2 | 6 |
| **Total** | **37** | **43** | **79** | **180** | **15** | **44** |

Source: Congressional Budget Office based on data from Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report, Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf; Department of Defense, Washington Headquarters Services, Directorate of Information Operations and Reports, *Department of Defense Active-Duty Personnel Strengths by Regional Area and by Country (309A)* (September 30, 2002); and other Defense Department data.

Notes: * = less than 500; ** = less than $500 million.

Excludes forces based in Hawaii or U.S. territories, such as Guam.

a. Includes the replacement value of excess facilities that the United Sates still owns.

b. Onshore personnel only.

sive facilities than Yokosuka, with an estimated replacement value of $1.2 billion.

The other Navy installation of note in Japan is Atsugi Naval Air Facility, which is home to Carrier Air Wing Five (CVW-5), the Navy's only forward-stationed air wing. CVW-5 comprises eight squadrons, including four equipped with F-18s, and about 2,000 personnel.[5] It is permanently attached to the Kitty Hawk, which means when that carrier is under way, CVW-5 deploys on board it. When the Kitty Hawk is in port, however, the air wing returns to its home base at Atsugi. The Atsugi facility covers 2,600 acres and has an estimated replacement value of $1.9 billion.

Navy forces and installations in South Korea are much smaller than those in Japan. The main role of U.S. naval

5. Those personnel are not included in the tallies of Navy personnel based on shore.

personnel in South Korea is to provide leadership and expertise in naval matters to area military commanders. Consequently, no naval personnel are permanently assigned to that country, and naval facilities share a base (Yongsan Garrison in downtown Seoul) with the Army. Elsewhere in East Asia and the Pacific, the Navy maintains small facilities in Australia, where it operates a communications station, and in Singapore, Hong Kong, and Indonesia.

## The Marine Corps in East Asia and the Pacific

The Marine Corps's only significant Asian presence is in Japan, where it has about 20,000 active-duty personnel stationed. Most of those troops are located on the island of Okinawa, at installations that occupy a significant portion of the island and represent a major U.S. investment. Those forces include the Marines' only division-sized unit stationed overseas: the III Marine Expeditionary Force (MEF), whose mission is to support contingency plans and operations in the Western Pacific and Indian Ocean regions. The III MEF, with a total of 17,000 personnel, has been based on Okinawa since 1971. Its subordinate units include the First Marine Air Wing and the Third Marine Division.

To support those units, the Marines maintain two large installations in Japan. Camp Butler, on Okinawa, is made up of several facilities that cover a total of 78,500 acres and have a replacement value of $4.8 billion. The Iwakuni Air Station on the island of Honshu, which is home to around half of the 1st Marine Air Wing, covers about 6,600 acres and has a replacement value of about $1.7 billion. (Other units assigned to that air wing, including its headquarters, are based on Okinawa.)

APPENDIX

# B

# How CBO Estimated the Costs of the Alternatives in This Report

The cost estimates for the alternative basing structures described in this study have two major components: one-time costs or savings that would arise during a 10-year phase-in period, when new facilities would be constructed and units relocated to their new bases, and annual costs or savings that would occur once the phase-in period was over. This appendix describes the methods that the Congressional Budget Office (CBO) used to estimate those costs for a variety of factors, such as construction, relocation of personnel, equipment purchases, base operations, housing, and so on. Those estimates represent incremental costs—the costs or savings that would occur relative to the total cost of maintaining the current overseas basing structure. They are not relative to the cost of the Army's plans because specific details about those plans were not available to CBO.

The estimates of both up-front costs and subsequent recurring costs or savings are presented in 2004 dollars. A net-present-value analysis—which would put the two types of costs in comparable terms by considering the effects of inflation and the opportunity cost of money—could not be done for these alternatives. Such an analysis requires a more complete understanding of the time pattern of costs and savings than now exists.

The actual costs or savings of rebasing U.S. troops depend on specifics about the size, type (combat or support), and location of units that would be relocated. Because all of those factors are unknown at this time, the cost estimates in this report are necessarily uncertain. To produce those estimates, CBO developed generalized cost factors and methodologies that could be applied to all of the alternatives. Those factors and estimates are discussed in detail below and summarized in Table B-1.

CBO collected data from a wide range of sources to construct cost factors and estimates for the alternatives in this study. Data on construction costs came from the Department of Defense's (DoD's) *Base Structure Report.*[1] Preliminary cost estimates for the Efficient Basing Germany initiative in Europe and the South Korean Land Partnership Plan were based on briefings and data from the Army. Factors for estimating the costs of constructing and operating forward bases were based on costs presented in recent budget-justification materials for operations in Kosovo and for the Army's operation and maintenance budget accounts. Cost estimates for construction and operation of military housing were based on the Army's recently published master plans for family housing and barracks. Data for estimating the costs of building and operating DoD schools came from annual reports and budget-justification materials for the DoD dependents' education system and from Impact Aid reports by the Department of Education.[2] Cost-of-living allowances for overseas stationing were calculated from Army pay tables,

1. Department of Defense, Office of the Deputy Under Secretary of Defense for Installations and Environment, *Department of Defense Base Structure Report: Fiscal Year 2003 Baseline* (June 2003), available at www.defenselink.mil/news/Jun2003/basestructure2003.pdf.

2. When service members' children attend public schools rather than DoD schools, public school districts receive Impact Aid payments from the Department of Education to make up for the fact that many active-duty military personnel do not pay property taxes, the traditional source of school funding.

**Table B-1.**

## Summary of Cost Factors Used in the Estimates

(2004 dollars)

| | CONUS | Europe | South Korea | Unit of Measurement |
|---|---|---|---|---|
| **One-Time, Nonrecurring Costs or Savings** | | | | |
| Construction of Permanent Bases[a] | | | | |
| Headquarters, operations facilities, infrastructure | 82,000 | 126,000 | 110,000 | Cost per person |
| MWR facilities | 7,600 | 9,300 | 8,100 | Cost per person |
| Barracks | 26 million/ 400 personnel | 21 million/ 350 personnel | 18 million/ 350 personnel | Cost/number of personnel per barrack |
| Schools for dependents | 12 million | 14 million | 13 million | Average cost of school with 450 spaces |
| Cancelled Overseas Construction[a] | n.a. | 61,000 | 31,000 | Savings per person |
| Construction of Forward bases | n.a. | 250 million | 225 million | Cost per base |
| New Prepositioned Equipment | n.a. | 1.6 billion | 1.6 billion | Cost per brigade set |
| Relocation of Units | n.a. | 15,000/7,000 | 17,000/5,000 | Cost per person for movement to CONUS/intratheater movement |
| **Annual Recurring Costs or Savings (After 10-Year Transition)** | | | | |
| Operation of Permanent Bases | 27,000 | 36,000 | 28,000 | Cost per person |
| Operation of Forward Bases | n.a. | 50 million | 40 million | Cost per base |
| Troop Rotations to Forward Bases | n.a. | 26 million/ 17 million | 26 million/n.a. | Six-month rotation of a brigade from CONUS/intratheater rotation |
| Cancelled Overseas Construction | n.a. | 2,400 | 200 | Savings per person |
| Housing | | | | |
| Barracks[b] | 5,000/ 30 percent | 5,000/ 45 percent | 5,000/ 90 percent | Cost per person/percentage of troops in barracks |
| DoD-owned family housing[b,c] | n.a. | 12,700/ 40 percent | 25,000/ 5 percent | Cost per family/percentage of troops in DoD-owned family housing |
| DoD-leased family housing | n.a. | 14,000/ 10 percent | 29,300/ 5 percent | Cost per family/percentage of troops in DoD-leased family housing |
| Housing allowances[d] | 11,400/ 70 percent | 12,600/ 5 percent | n.a. | Average cost per person/percentage of troops receiving a housing allowance |
| Education of Dependents | | | | |
| DoD dependent schools | 11,400/ 15 percent | 12,600 | 12,600 | Cost per student/percentage of children in DoD schools |
| Public school districts (Impact Aid) | 6,000/ 85 percent | n.a. | n.a. | Cost per student/percentage of children in public schools |

Continued

**Table B-1.**

**Continued**

(2004 dollars)

| | CONUS | Europe | South Korea | Unit of Measurement |
|---|---|---|---|---|
| | | **Annual Recurring Costs (Continued)** | | |
| Special Pay and Allowances | | | | |
| Overseas cost-of-living allowance | n.a./n.a. | 5,100/9,000 | 1,000/4,200 | Average cost per person/average for accompanied personnel |
| Family-separation allowance | 1,200 | 1,200 | 1,200 | Cost per family (unaccompained) |
| Permanent-Change-of Station Moves | | | | |
| To or from CONUS | 5,600/9,400 | 6,900/11,500 | 6,900/11,500 | Cost per unmarried soldier/family (every three years) |
| Overseas one-year unaccompanied tour | n.a. | 2,000 | 2,000 | Cost per person |

Source: Congressional Budget Office.

Note: CONUS = continental United States; MWR = morale, welfare, and recreation; n.a. = not applicable; DoD = Department of Defense.

a. The cost factors displayed for construction in South Korea assume that the United States would pay 100 percent of the costs. The final estimates (shown in Table B-3) assume that the South Korean government would pay between zero and 85 percent of the costs. European construction costs for headquarters and infrastructure reflect costs in Eastern Europe. Construction in Western Europe, as in Alternative 1B, would cost about 20 percent less.

b. Cost factors for DoD-owned barracks and family housing do not include construction. Construction costs or savings from the elimination of family housing are included in the factor for canceled overseas construction.

c. Currently, about 20 percent of troops based in CONUS live in DoD family housing. However, CBO assumes that families relocated to CONUS from overseas bases would instead receive a housing allowance to buy or rent their own units or would use privatized housing. In alternatives in which families would be relocated from current overseas bases to new overseas bases, CBO assumes that all new family housing would be leased.

d. In addition to the percentage shown, troops on overseas unaccompanied tours receive housing allowances for their families in CONUS.

and estimates for the relocation of troops, base operations, and permanent-change-of-station moves were based on top-level data extracted from Army military personnel and operations and maintenance budget data and from cost models.

## Methodologies for Estimating One-Time Costs or Savings

The one-time, or nonrecurring, costs of construction and relocation for each alternative depend on the location, size, and number of new bases required. Building new bases would be more expensive overseas than in the United States because of higher construction costs and the need for additional infrastructure improvements. Forces relocated to the United States could in some cases use existing buildings and infrastructure, which would help decrease construction costs. Construction costs also could be offset to some degree by canceling construction projects in Europe or South Korea that would no longer be necessary.

CBO assumed that the phase-in period for completing all of the alternatives is 10 years, during which new facilities would be built or renovated to accommodate the relocated units. In reality, some or all of the units could be relocated sooner than 10 years, at which time some annual recurring costs or savings would begin to accrue. However, because of the number of troops involved and the long lead times necessary for construction, the full cost and benefits of the transition would not be realized until long after the troops were physically relocated.

### Construction of Permanent Bases

The largest one-time cost of rebasing Army troops would be for the construction and renovation of facilities—in-

cluding unit headquarters, maintenance and other operations-related facilities, base infrastructure (such as sidewalks and utilities), and barracks and cafeterias to house and feed the troops. The Army would also need to build new commissaries and exchanges and, in some locations, schools for soldiers' children. CBO estimated costs for four categories of construction:

- Headquarters, operations-related facilities, and base infrastructure;
- Morale, welfare, and recreation (MWR) facilities;
- Barracks and family housing; and
- Schools for dependent children.

In the absence of specific Army plans, CBO assumed that requirements for the first two categories would generally be the same no matter where troops were based, whereas requirements for housing and schools would most likely vary by location. (The exception would be construction of forward operating bases, which was estimated separately in this analysis.)

Ideally, the first step in estimating the construction costs for each alternative would be to quantify the amount of excess facilities available in the United States, Europe, and South Korea. The next step would be to analyze the facility needs of each unit designated for relocation. The Army has a model called the Real Property Planning and Analysis System (RPLANS) that is designed to perform those analyses. The Army denied CBO's request for access to the RPLANS model, so instead, CBO examined costs for recent analogous construction projects and used that information to develop generalized construction-cost factors. Those factors take into account project location (continental United States, Europe, or South Korea) and whether the Army can use existing facilities in those locations.

For the most part, CBO's cost estimates for construction represent the total cost of building new facilities or renovating existing ones. For construction in Europe, CBO assumed that the United States would pay 100 percent of that cost. For construction in South Korea, CBO used various assumptions about contributions from the host nation, with the U.S. share of construction costs ranging from about 35 percent to 100 percent in Alternatives 1C, 2A, and 2B. For Alternative 1B, CBO assumed that the U.S. share would range from about 15 percent to 100 percent, on the basis of preliminary discussions and data related to the Land Partnership Plan.

**Headquarters, Operations Facilities, and Base Infrastructure.** CBO collected costs and technical descriptions of recent brigade-sized construction projects to estimate the costs of building headquarters, maintenance and other operations-related facilities, and base infrastructure. The most analogous project for estimating purposes is the ongoing construction at Grafenwoehr, Germany—a project in which various components of a brigade combat team (about 3,400 soldiers in all) are being consolidated at one facility. Grafenwoehr is a useful example because it involves both the construction of new facilities and the renovation of existing buildings. CBO expects that both new construction and renovation would also occur if troops were relocated to the continental United States. According to briefings from the Army's 5th Signal Command, recent cost estimates for the Grafenwoehr project total almost $400 million (excluding the costs of barracks and family housing). That $400 million figure covers a wide assortment of buildings and infrastructure needed for a brigade-sized unit, including headquarters facilities, maintenance shops, storage facilities, and improvements to utilities and other infrastructure.

CBO used the Grafenwoehr costs to create per-person cost factors, which could be applied to the force levels and locations discussed in each alternative.[3] CBO then applied location-adjustment factors from the Army Corps of Engineers to the per-person costs to account for the differences in construction costs between Europe, South Korea, and the United States. For alternatives requiring construction in Eastern Europe and South Korea, CBO added another 25 percent to costs to account for the fact that those locations might not have as many existing facilities as Europe or the United States and thus could require more new facilities and infrastructure. Those calculations produced per-person construction costs for headquarters, operations facilities, and infrastructure of

3. Measuring construction costs on a per-person basis suggests a linear relationship between cost and number of people. In reality, there would be a substantial amount of overhead and other fixed costs that would depend on the overall size and number of facilities that would be constructed and occupied—numbers that are unknown at this time. The construction estimates in this study assume that relocated Army units would occupy facilities sufficient in size to house one brigade each.

$82,000 for soldiers relocated to the continental United States (CONUS), $110,000 for troops relocated within South Korea, and $126,000 for troops moved from Germany to Eastern Europe (see Table B-1).

**Morale, Welfare, and Recreation Facilities.** U.S. military bases typically include such MWR facilities as commissaries, exchanges, recreation centers, movie theaters, and bowling alleys. Using planning cost factors from the Army Corps of Engineers, CBO estimated that building enough of those facilities in the United States to serve about 5,000 troops would cost approximately $38 million, which translates into a per-person cost of $7,600. CBO estimated that building those same facilities in South Korea and Europe would cost about $8,100 and $9,300 per person, respectively, with location-adjustment factors included.

**Barracks and Housing.** Troop barracks and family housing constitute much of the value of U.S. military facilities. Unlike the construction categories discussed above, troop housing does not easily lend itself to using one per-person cost factor because housing for soldiers can take several forms, each of which has a different cost. Possible housing options include living in barracks, military-owned family housing, or government-leased housing or receiving a monthly allowance to rent or buy housing in the private sector. In addition, the manner in which soldiers are housed often varies by location. For instance, a higher percentage of troops live in barracks at overseas bases than in the United States because they are not as likely to be accompanied by their dependents.

In estimating the cost of housing construction, CBO included only costs associated with building new barracks for unmarried or unaccompanied personnel. CBO assumed that any change in requirements for family housing that resulted from the alternatives in this study would be addressed through housing allowances in CONUS or leased housing in overseas locations. (Costs or savings for those requirements would be of a recurring nature and are discussed in the section on recurring costs.)

Using information about recent construction projects contained in the Army's budget-justification materials, CBO estimated that a typical barrack in an overseas location would hold about 350 personnel and cost about $20 million. CBO also estimated that a typical barrack in CONUS would house about 400 personnel and cost about $26 million. (Apart from housing more personnel, barracks in CONUS are typically larger in terms of square footage per person, which is why they are more expensive. The size of overseas barracks, especially in South Korea, is often limited by land constraints.) Because many troops assigned overseas are unaccompanied, relocating them to or within overseas locations would require building more barracks spaces than if they were relocated to CONUS.

For Alternative 1A, which would make all tours in Europe unaccompanied, CBO assumed that space for about 28,000 unaccompanied personnel would need to be constructed. However, it is possible that vacated family housing could be converted for that purpose, which would lower the overall one-time cost of the alternative.

**Schools for Dependent Children.** About 21,000 children of Army personnel are educated in schools operated by DoD in Europe. Another 1,600 Army children are enrolled in DoD schools in South Korea. Any relocation of Army personnel to new overseas bases would most likely require the construction of DoD schools.

For the options in which troops would be restationed to CONUS, CBO assumed that DoD would need to construct school spaces for only about 15 percent of the children who would return to the United States—about the same percentage as the share of military children in CONUS who now attend DoD schools. CBO assumed that the other 85 percent of returning children (as many as 18,000) would enroll in local school districts, although the percentage could be higher near large cities and lower in more remote areas. DoD would not incur construction costs for students who attended local district schools, but the federal government would incur annual costs for additional Department of Education Impact Aid (discussed below in the section on recurring costs).

On the basis of data in recent budget-justification materials provided by DoD, CBO estimated that each new DoD school built in CONUS would have spaces for about 450 children and would cost about $12 million. Constructing a DoD school overseas would be slightly more expensive: $13 million in South Korea and $14 million in Europe, CBO estimated.

### Cancelled Overseas Construction

A review of recent plans cited by the General Accounting Office and the Future Years Defense Program suggests that the Army will need to make a significant investment

to renew facilities in Europe and South Korea if troops remain at their current locations.[4] Moving units to CONUS or to new bases overseas would eliminate the need to fund construction projects to maintain those older facilities, producing savings that would partly offset the construction costs described above. Because DoD has not made public any decisions about the future size of the permanent Army presence overseas, CBO cannot estimate with any accuracy the annual funding level needed to maintain the facilities associated with that overseas presence.

Instead, CBO developed a 10-year estimate of funding requirements for Europe and South Korea on the basis of DoD's 2003 *Base Structure Report*. That report includes measures of plant replacement value (PRV)—DoD's estimate of the cost to replace all of the facilities on U.S. military bases in a region using current construction standards. The estimated PRV for Army bases in Germany totals about $30 billion; the PRV for South Korea is almost $8 billion. Not all of the facilities in those areas require replacement, however. About 25 percent of the $30 billion and $8 billion figures represents excess facilities or those operated by foreign governments, which would probably not need to be replaced. CBO adjusted the PRVs downward by 25 percent and then divided them by 67—DoD's target average replacement age for its facilities—to estimate the annual construction budgets needed to keep Army facilities in Europe and South Korea at acceptable standards.

By CBO's calculation, those budgets would total about $340 million a year for Germany and $90 million a year for South Korea (assuming that the United States paid the entire cost). Assuming that the alternatives in this study would be phased in over 10 years, CBO estimated that potential savings from forgoing all construction and maintenance of Army facilities in Germany over that period would total $3.4 billion. Similar savings from forgoing all construction and maintenance of Army facilities in South Korea would total almost $900 million. CBO then estimated construction savings for each alternative on the basis of the number of troops that would be restationed to CONUS or other locations.

### Construction of Forward Operating Bases

In several of the alternatives in this study, permanent U.S. presence overseas would be replaced with equipment prepositioned in a region and periodic rotations of units to forward bases. In those alternatives, each of the forward bases would be sized to accommodate brigade-sized units and have facilities and functions similar to that of Camp Bondsteel in Kosovo. On the basis of data reported for the construction of Camp Bondsteel, CBO estimated that each forward operating base would cost about $250 million to build—including about $100 million for storage, maintenance, and operations-related facilities and $150 million for barracks and other troop-support facilities and infrastructure.

### Purchases of Prepositioned Equipment

Additional military equipment would need to be prepositioned overseas under several of the alternatives. Because of the ongoing unit transformations in which some of the Army's heavy brigades are being converted to the lighter Stryker brigade configuration, CBO believes that enough excess military equipment could be available to provide the additional brigade sets needed for those alternatives.

The exception is Alternative 2A, which would maintain current U.S. troop levels in Europe and South Korea by using continuous six-month rotations. The demands of that rotation schedule would probably require rotating almost every type of combat unit to those locations, including the new Stryker brigades. Thus, for Alternative 2A, CBO assumed that the Army would need to purchase Stryker brigade sets to preposition in both South Korea and Europe. Buying equipment to outfit an additional Stryker brigade would cost about $1.6 billion, CBO estimated from data in Army budget-justification materials.

### Relocation of Units to New Bases

Relocating U.S. forces to new bases would require transporting substantial amounts of equipment and moving thousands of soldiers and their families. Using data from Army budget-justification materials and operation and maintenance cost models, CBO estimated that moving a division from an overseas base back to the United States would result in a one-time cost of about $200 million, or $15,000 per person.[5] Relocating a unit up to 500 miles

4. See General Accounting Office, *Defense Infrastructure: Basing Uncertainties Necessitate Reevaluation of U.S. Construction Plans in South Korea*, GAO-03-643 (July 2003).

5. The cost of relocating units to new bases would depend on the type of units being moved. For instance, a heavy armor unit would have much more expensive transportation requirements than a finance unit. In estimating relocation costs for this study, CBO calculated a per-person cost factor based on a division-sized unit, which allows various unit types to be factored in and properly weighted.

(such as from positions near the Korean demilitarized zone to areas south of Seoul) would cost about $5,000 per person, in CBO's estimate. Relocating a unit up to 1,000 miles (such as from Germany to new bases in Eastern Europe) would cost $7,000 per person. (Costs do not change proportionately with distance because of the fixed costs of preparing and packing equipment and other items.)

Those costs include relocating civilian employees of the Army who are U.S. citizens. CBO estimated that as many as 10,000 such civilians in Europe and 2,000 in South Korea could be affected by the alternatives in this study.

## Methodologies for Estimating Recurring Costs or Savings

Once the relocation of troops and their families was complete, annual costs or savings would occur. CBO's estimates of those recurring costs or savings are driven by two main factors—the number of personnel and dependents that would be relocated to the continental United States from overseas bases, and the number of unit rotations that would be made to and from overseas bases, including any new forward operating bases. Because it costs more to house and operate forces overseas, relocating troops and their families to CONUS would save money on base operations, family housing, dependent schools, overseas cost-of-living allowances, and permanent-change-of-station (PCS) moves. Savings would also result from not having to invest in existing infrastructure overseas, which is typically more expensive to rebuild and maintain than in the United States.

### Operation of Permanent Bases

The category of base operations refers to the service contracts and logistics required to run military bases. It includes delivery of supplies, such as food and spare parts, as well as contract support to operate base facilities and provide technical assistance. The cost of transporting supplies and contracting for support can vary significantly by location. CBO used data from operation and support cost models to calculate region-specific average operations costs for bases located in CONUS, South Korea, and Europe. It then converted those average costs into per-person factors that could be applied to the force levels associated with the alternatives in this study.

The average cost for base operations is higher overseas than in CONUS. Europe has the highest average cost (about $36,000 per person), followed by South Korea (about $28,000 per person after host-nation contributions), and the United States (about $27,000 per person). Those estimates exclude compensation for military personnel and the cost of operating barracks and family housing, which are treated separately in CBO's analysis.

### Operation of Forward Bases

For the alternatives that would replace permanent overseas presence with periodic troop rotations to forward bases, CBO used data from operation and support cost models to estimate average operations costs for a brigade-sized base in Europe and South Korea. Adjusted to account for the reduced infrastructure and amenity requirements of a less permanent facility, the annual fixed cost of operating a forward base would total about $50 million in Europe and $40 million in South Korea, CBO estimated.

### Troop Rotations

Besides the fixed cost of operating forward bases, the Army would incur expenses to rotate units to those bases on a periodic basis—including transportation costs for personnel, family-separation pay, and some additional support costs. Those costs would not include the cost of moving heavy equipment, since equipment would be prepositioned at those bases. Using data from operation and support models, CBO estimated that rotating troops from CONUS to forward bases in South Korea and Europe for six months at a time would cost about $26 million per brigade-sized unit. Conducting six-month rotations of troops between Germany and forward operating bases in Eastern Europe would cost about $17 million per brigade.

### Cancelled Overseas Construction

As mentioned above, relocating units to CONUS would allow the Army to cancel planned construction projects overseas. Such restationing would also produce recurring construction savings over the long term, because all facilities, no matter where they are located, will eventually require replacement or modification. Savings would occur because the costs to replace or modify facilities would be less in the United States than in Europe or South Korea.

To estimate those long-term annual savings, CBO began with the annual plant replacement values it used to calculate one-time construction savings: $340 million for Germany and $90 million for South Korea. It applied location-adjustment factors from the Army Corps of En-

gineers to calculate a comparable PRV for base facilities in CONUS to examine the difference between replacing those facilities overseas and replacing them in the United States.

CBO treated the PRV related to family housing separately, because it assumed that no new family housing would be built as a result of relocating units to new bases (for reasons discussed in the housing section below). As a result, the entire annual replacement value of affected family housing would be counted as savings. That is especially important for alternatives that involve bases in Europe, where the annual PRV for family housing is about $90 million, CBO estimated.

According to that method, relocating troops from Europe to CONUS would save about $2,400 per person on construction each year, and relocating troops from South Korea would save $200 per person.[6] The savings for South Korea should theoretically be a range because some of the facilities there would probably otherwise have been replaced by the South Korean government. However, even if the United States realized the full $200 savings per person, total annual construction savings from relocating troops from South Korea would not be significant.

### Housing

As with the estimates of one-time costs to construct military housing, estimates of annual costs or savings for operating soldiers' and dependents' housing also depend on the location and type of housing used.

**Barracks.** As discussed above, the percentage of troops housed in barracks tends to be higher overseas than in the United States. Consistent with housing reports published in the Army's master plans for barracks and family housing, CBO assumed that about 90 percent of the troops assigned to South Korea under the alternatives would be housed in barracks, compared with about 45 percent for Germany and 30 percent for CONUS.[7] The Army does not publish information about the cost of operating individual barracks, so CBO used operation and support budget data and cost factors to calculate an annual cost for operating barracks—about $5,000 per person.

**Family Housing.** The most expensive form of military housing is family housing owned or leased by DoD. Using data from DoD housing reports, CBO estimated that the annual cost to operate a unit of family housing averages about $25,000 in South Korea, $12,700 in Europe, and $8,000 in CONUS. (Those amounts exclude costs for long-term major construction, which are estimated separately.) The demand for and availability of DoD family housing varies by location. Analysis of the Army Family Housing Master Plan suggests that about 10 percent of soldiers stationed in South Korea use family housing, compared with 50 percent in Europe and about 20 percent in CONUS. (That 20 percent figure excludes families who receive housing allowances.)

In producing the estimates for this study, CBO assumed that the military would not build new government-owned housing under any of the alternatives. Instead, CBO assumed that soldiers with families who relocated to CONUS would receive housing allowances to live in privatized housing or privately owned units. Likewise, CBO assumed that military families who were relocated to new overseas bases would occupy local housing leased by DoD. (However, if soldiers were relocated to remote areas with limited options for family housing, the Army might need to build such housing, which would increase the one-time costs of some of the alternatives.)

**Housing Allowances.** Currently, about half of all troops in the United States receive an allowance to live in privately owned housing or housing provided under the military housing privatization initiative. On the basis of Army budget-justification data, CBO estimated that the allowance averages about $11,400 per soldier, although the actual amount depends on a soldier's rank, number of dependents, and location.

In estimating the costs of the alternatives, CBO assumed that about 70 percent of troops relocated to CONUS would receive a housing allowance. That figure is larger than the current percentage because CBO assumed that troops with dependents who were relocated to CONUS would receive an allowance to live in privatized or private-sector family housing rather than live in newly built Army-owned housing. CBO also accounted for the fact that many soldiers stationed in South Korea receive hous-

6. That large difference in construction savings between Germany and South Korea is attributable to the larger proportion of family housing and other infrastructure in Germany as well as to the higher overall construction costs there.

7. Department of the Army, Office of the Assistant Chief of Staff for Installation Management, *Army Barracks Master Plan, Fiscal Year 2002* (June 2002) and *Army Family Housing Master Plan, FY03-09* (President's budget version, February 2003).

ing allowances to support their families back in the United States. CBO assumed that in Alternatives 1A and 1C, which would reduce the number of accompanied tours to Europe, soldiers who left their families in CONUS would also draw housing allowances while living in barracks.

### Schools for Dependent Children

The annual cost of operating DoD schools overseas is about $12,600 per student, CBO estimates, 10 percent higher than the cost of operating DoD schools in CONUS. Thus, relocating dependents from overseas bases to the United States would save money. In estimating the cost of providing dependent education, CBO assumed that DoD would create spaces for about 15 percent of the children relocated to CONUS and that the other 85 percent would attend public schools—consistent with current percentages. (For dependents attending public schools, Impact Aid averages about $6,000 per student, according to data from the Department of Education.) The actual number of additional spaces that DoD would need to create in CONUS would depend on where units were ultimately relocated. If they were based near large cities and population areas, local school districts should have sufficient facilities to absorb the additional students. But if units were relocated to more-remote areas, DoD would probably need to provide additional school spaces.

### Special Pay and Allowances

Troops stationed overseas currently receive a cost-of-living allowance to offset the greater expense of personal goods and services in those locations. DoD's cost-of-living-adjustment pay tables suggest that the annual cost of furnishing those allowances averages about $1,000 per person in South Korea and about $5,100 per person in Europe. (The actual amount of the allowance depends on location and whether the service member is accompanied by dependents.)

Alternatives that returned personnel to the United States would save money because fewer soldiers would be eligible for the cost-of-living allowance. Conversely, options that increased the number of accompanied tours in South Korea would raise the costs associated with cost-of-living allowances.

Alternatives that altered the number of accompanied overseas tours would also affect the number of soldiers eligible for another type of special pay: family-separation allowances. Under current law, soldiers collect $250 a month when on assignments that separate them from their families. The authority to provide that allowance will expire at the end of fiscal year 2004 unless the authorization is extended. If not, family-separation allowances will drop back to $100 per month—the level paid before April 2003. The estimates in this study assume payments at the $100 per month level.

### Permanent-Change-of-Station Moves

One drawback of stationing troops overseas is the cost of transporting personnel and their belongings to new duty stations. Costs can be especially high if the soldiers are accompanied by their families, requiring the transportation of household goods. Using operation and maintenance budget data provided by the Army, CBO estimated that the average cost of a PCS move to or from an overseas location is about $9,200. (Actual costs are higher for families and lower for single service members.) By comparison, the average cost of a typical move within the continental United States is about $7,500. That difference suggests that relocating troops to CONUS would result in lower overall PCS costs. Those savings would be magnified by the fact that each rotation involves two PCS moves: one for the soldier leaving a duty station and another for the new arrival.

Several of the alternatives (1A and 1C) would produce higher annual PCS costs because they would implement one-year unaccompanied tours in Europe. A typical PCS move for a one-year unaccompanied overseas tour costs only about $2,000, CBO estimated.[8] However, those moves would happen every year instead of the more typical three-year tours, eliminating any savings that would result from not having to move families overseas. Additional costs would also occur because of increased movement of families between locations in the United States. Most soldiers' families would either remain in place until the soldiers returned from the unaccompanied tours or move to their next CONUS duty station (if known). However, a small number—10 percent, CBO assumed—would make an additional PCS move within the United States once when their soldiers departed for overseas duty and another when those soldiers returned.

8. Troops assigned to such tours are limited in the amount of personal belongings they may bring with them, which is why those moves cost significantly less than a regular three-year move.

## Results of the Cost Analysis

CBO produced cost estimates for each of the proposed alternatives using the cost factors described above. Not all of those factors apply to every option (see Table B-2). For instance, unlike the other alternatives, 1A would not involve relocating any units, and 2A would require the Army to purchase additional equipment. Alternatives 1A and 1C would increase some PCS costs, whereas the other options would create savings in that category.

### Alternatives That Would Maintain Current Force Levels Overseas

As detailed in Chapter 3, the first set of options for changing the Army's overseas basing would retain the current level of U.S. forward presence. Alternative 1A, which would eliminate accompanied tours in Europe, would entail one-time costs of about $825 million, CBO estimates—comprising about $1.6 billion to build new housing for unaccompanied personnel in Europe, partly offset by eliminating the need to maintain and upgrade family housing units there (see Table B-3). Once Alternative 1A was fully implemented, it would produce net annual costs of about $75 million (see Table B-4). Although savings would result from the reduced need for DoD dependents' schools in Europe and for overseas cost-of-living allowances, those savings would be more than offset by the cost of rotating the entire force in Europe on an annual basis and paying housing allowances for families in CONUS.

Alternatives 1B and 1C would relocate units based in South Korea and Europe to new bases in those theaters. In Alternative 1B, troops in South Korea would be moved to locations north of Seoul; in Alternative 1C, they would be moved to two locations south of the capital. Both options would also relocate troops in Germany to positions farther east. The total one-time costs of implementing Alternative 1B would range from $1.4 billion to $2.9 billion, CBO estimates, reflecting modest troop movements similar to the plans discussed as part of the Efficient Basing Germany initiative in Europe and the Land Partnership Plan in South Korea. Alternative 1C would require higher one-time costs, between $2.9 billion and $5.0 billion, because of the larger number of troops that would be relocated. (In both cases, the range of costs reflects varying assumptions about what portion of new construction might be paid for by the South Korean government.)[9] Conversely, Alternative 1C would not result in any significant annual costs or savings once it was implemented, CBO estimates, whereas Alternative 1B would cost about $225 million per year because of the requirement to rotate units to new forward operating bases in Eastern Europe.

### Alternatives That Would Halve Army Forces Overseas

Alternatives 2A and 2B would reduce the level of Army forces based in Germany and South Korea by about one-half. In Alternative 2A, however, the U.S. military would maintain its current level of combat presence in Europe and South Korea by rotating troops there from CONUS. That option would have the highest one-time costs of any alternative in this study—$8.4 billion to $9.4 billion—because of the need to build and operate forward bases and buy equipment for prepositioning. After that, however, the total recurring costs of Alternative 2A would be insignificant, CBO estimates.

Alternative 2B would have far lower one-time costs—$4.8 billion to $5.8 billion—because it would involve the construction of fewer forward operating bases and would not require the purchase of two prepositioned sets of equipment for Stryker brigade combat teams. The need to operate fewer forward bases and conduct fewer rotations from CONUS would also reduce recurring costs, so on net, Alternative 2B would save about $500 million per year.

### Alternatives That Would Remove Almost All Army Forces from Germany and South Korea

The last two options, Alternatives 3A and 3B, would return almost all Army troops in South Korea and Germany to the continental United States. Although those alternatives would require significant up-front spending for construction in CONUS, they would offer the greatest potential for annual savings thereafter. CBO estimates that building new bases in CONUS to house and support the relocated soldiers and their dependents would cost a total of $8.6 billion for Alternative 3A and $9.0 billion

9. In calculating total net costs or savings, the relationship between construction costs and savings is treated as complementary. For instance, if CBO assumes that the South Korean government will pay for 65 percent of the cost of new bases, it also assumes that the government would have paid for 65 percent of the construction required to maintain the existing base structure—in which case, the savings that would accrue to the United States from cancelled construction projects at current bases would be only about 35 percent of the total cost of those projects.

**Table B-2.**

## Categories of Potential Costs or Savings for Each Alternative

| | Alt. 1A | Alt. 1B | | Alt. 1C | | Alt. 2A | | Alt. 2B | | Alt. 3A | | Alt. 3B | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Europe | Europe | South Korea | Europe | South Korea | Europe | South Korea | Europe | South Korea | Europe | South Korea | Europe | South Korea |
| **One-Time, Nonrecurring Costs (+) or Savings (–)** | | | | | | | | | | | | | |
| Construction of Permanent Bases | | | | | | | | | | | | | |
| Headquarters, operations facilities, infrastructure | | + | + | + | + | + | + | + | + | + | + | + | + |
| MWR facilities | | + | + | + | + | + | + | + | + | + | + | + | + |
| Barracks | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Schools for dependents | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cancelled Overseas Construction | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Construction of Forward Bases | | + | | | | + | + | + | | + | + | + | + |
| New Prepositioned Equipment | | | | | | + | + | | | | | | |
| Relocation of Units | | + | + | + | + | + | + | + | + | + | + | + | + |
| **Annual Recurring Costs (+) or Savings (–)** | | | | | | | | | | | | | |
| Operation of Permanent Bases | | | | | | – | – | – | – | – | – | – | – |
| Operation of Forward Bases | | + | | | | + | + | + | | + | + | + | + |
| Troop Rotations to Forward Bases | | + | | | | + | + | + | | + | + | | |
| Cancelled Overseas Construction | – | – | – | – | – | – | – | – | – | – | – | – | – |
| Housing | | | | | | | | | | | | | |
| Barracks | + | | | + | – | – | – | – | – | – | – | – | – |
| DoD-owned family housing | – | – | – | – | – | – | – | – | – | – | – | – | – |
| DoD-leased family housing | – | + | + | – | + | – | – | – | – | – | – | – | – |
| Housing allowances | + | | | + | – | + | + | + | + | + | + | + | + |
| Education of Dependents | | | | | | | | | | | | | |
| DoD dependent schools | – | | | – | + | – | – | – | – | – | – | – | – |
| Public school districts (Impact Aid) | + | | | + | – | + | + | + | + | + | + | + | + |
| Special Pay and Allowances | | | | | | | | | | | | | |
| Overseas cost-of-living allowances | – | | | – | + | – | – | – | – | – | – | – | – |
| Family-separation allowances | + | | | + | – | a | – | a | – | a | – | | – |
| Permanent-Change-of-Station Moves | + | | | + | – | – | – | – | – | – | – | – | – |

Source: Congressional Budget Office.

Note: MWR = morale, welfare, and recreation; DoD = Department of Defense.

a. Included in the category "Troop Rotations to Forward Bases."

for Alternative 3B. However, between 40 percent and 50 percent of those construction costs could be offset by canceling planned overseas construction. Thus, on net, the one-time cost of implementing either Alternative 3A or 3B would range from $6.8 billion to $7.4 billion (taking into account moving and other types of costs besides construction).

After a 10-year phase-in period, Alternative 3B would yield annual savings of $1.2 billion, mainly from the lower costs associated with operating bases in the United States and from not having to pay overseas cost-of-living allowances. Annual savings from Alternative 3A would be lower, about $925 million, because of the cost of periodic rotations to forward bases in Europe and South Korea.

**Table B-3.**

## One-Time Costs or Savings of the Alternatives

(Millions of 2004 dollars)

| Alternative and Theater | Construction of Permanent Bases | | Cancelled Overseas Construction[a] | Construction of Forward Bases | New Pre-Positioned Equipment | Relocation of Units | Total Net Nonrecurring Costs |
|---|---|---|---|---|---|---|---|
| | CONUS | Overseas[a] | | | | | |
| 1A: Make European Tours Unaccompanied | | | | | | | |
| Europe | 75 | 1,625 | -875 | 0 | 0 | 0 | 825 |
| 1B: Make Minor Changes in Basing | | | | | | | |
| Europe | 0 | 525 | -200 | 750 | 0 | 25 | 1,100 |
| South Korea | 0 | 350 to 2,175 | -125 to -400 | 0 | 0 | 50 | 275 to 1,825 |
| 1C: Make Extensive Changes in Basing | | | | | | | |
| Europe | 25 | 2,275 | -725 | 0 | 0 | 75 | 1,650 |
| South Korea | 0 | 1,375 to 3,950 | -250 to -750 | 0 | 0 | 100 | 1,225 to 3,300 |
| 2A: Maintain Current Combat Presence Overseas with Unit Rotations from CONUS | | | | | | | |
| Europe | 2,750 | 0 | -1,525 | 1,000 | 1,550 | 375 | 4,150 |
| South Korea | 1,425 | 825 to 2,350 | -300 to -850 | 450 | 1,550 | 275 | 4,225 to 5,200 |
| 2B: Halve Overseas Combat Presence | | | | | | | |
| Europe | 3,200 | 0 | -1,775 | 750 | 0 | 425 | 2,600 |
| South Korea | 1,425 | 825 to 2,350 | -300 to -850 | 0 | 0 | 275 | 2,225 to 3,200 |
| 3A: Maintain Reduced Combat Presence Overseas with Unit Rotations from CONUS | | | | | | | |
| Europe | 5,650 | 0 | -3,125 | 750 | 0 | 750 | 4,025 |
| South Korea | 2,950 | 0 | -300 to -850 | 225 | 0 | 450 | 2,775 to 3,325 |
| 3B: Return Virtually All Overseas Forces to CONUS | | | | | | | |
| Europe | 6,075 | 0 | -3,350 | 500 | 0 | 800 | 4,025 |
| South Korea | 2,950 | 0 | -300 to -850 | 225 | 0 | 450 | 2,775 to 3,325 |

Source: Congressional Budget Office.

Notes: These numbers represent incremental costs or savings (those that would occur relative to the cost of maintaining the current basing structure).

CONUS = continental United States.

a. The ranges for construction costs and savings for South Korea reflect differing assumptions about the share of construction costs that would be paid by the South Korean government. For almost all alternatives that share ranges between zero and 65 percent of the total cost. The exception is Alternative 1B, which assumes that between zero and 85 percent of the cost would be paid by the South Korean government. In calculating total net costs or savings the relationship between construction costs and savings are treated as complementary. For instance, if CBO assumes that the South Korean government pays for 65 percent of the cost of new bases, it also assumes that the government would have paid for 65 percent of the construction required to maintain the existing base structure. In that case, the savings that would accrue to the United States from cancelled construction projects at current bases would only be about 35 percent of the total cost of those projects.

**Table B-4.**

## Annual Costs or Savings of the Alternatives

(Millions of 2004 dollars)

| Alternative and Theater | Operation of Permanent Bases | Operation of Forward Bases | Troop Rotations to Forward Bases | Cancelled Overseas Construction | Housing[a] | Education of Dependents | Special Pay and Allowances | PCS Moves | Total Net Recurring Costs or Savings |
|---|---|---|---|---|---|---|---|---|---|
| 1A: Make European Tours Unaccompanied | | | | | | | | | |
| Europe | 0 | 0 | 0 | -50 | 100 | -125 | -75 | 225 | 75 |
| 1B: Make Minor Changes in Basing | | | | | | | | | |
| Europe | 0 | 150 | 75 | * | * | 0 | 0 | 0 | 225 |
| South Korea | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | * |
| 1C: Make Extensive Changes in Basing | | | | | | | | | |
| Europe | 0 | 0 | 0 | -25 | 25 | -25 | -25 | 50 | * |
| South Korea | 0 | 0 | 0 | 0 | 50 | * | * | -25 | 25 |
| 2A: Maintain Current Combat Presence Overseas with Unit Rotations from CONUS | | | | | | | | | |
| Europe | -225 | 200 | 200 | -50 | * | -50 | -125 | -25 | -75 |
| South Korea | * | 75 | 100 | * | -25 | * | -25 | -50 | 75 |
| 2B: Halve Overseas Combat Presence | | | | | | | | | |
| Europe | -275 | 150 | 25 | -75 | * | -50 | -150 | -25 | -400 |
| South Korea | * | 0 | 0 | * | -25 | * | -25 | -50 | -100 |
| 3A: Maintain Reduced Combat Presence Overseas with Unit Rotations from CONUS | | | | | | | | | |
| Europe | -475 | 150 | 100 | -125 | 25 | -125 | -250 | -50 | -750 |
| South Korea | -25 | b | 50 | * | -50 | * | -50 | -100 | -175 |
| 3B: Return Virtually All Overseas Forces to CONUS | | | | | | | | | |
| Europe | -500 | 100 | 0 | -125 | 25 | -125 | -275 | -50 | -950 |
| South Korea | -25 | b | 0 | * | -50 | * | -50 | -100 | -225 |

Source: Congressional Budget Office.

Notes: These numbers represent incremental costs or savings (those that would occur relative to the cost of maintaining the current basing structure).

* = between -$13 million and $13 million; PCS = permanent change of station; CONUS = continental United States.

a. Does not include costs or savings related to long-term construction of family housing or barracks, which are included under canceled overseas construction.

b. In these alternatives, Camp Humphreys would be converted into a forward satellite base. Because that camp is an existing facility, CBO does not assign a significant marginal cost for operating it.

APPENDIX

# C

# Deployment Tempo and Rotation Ratios for Active Army Forces

To analyze how many active-duty troops the Army would have available for other long-term commitments if it rotated brigades overseas from the United States on temporary deployments, the Congressional Budget Office (CBO) had to make assumptions about rotation ratios—the number of units necessary to support one unit on a rotational deployment. This appendix examines the factors underlying the rotation ratios that CBO used in its analysis.

Unlike the Marine Corps, which has routinely maintained about 25 percent of its infantry battalions at sea or on Okinawa, Army units and personnel were not subject to long deployments on a continuing basis until the mid-1990s. At that time, the Army began keeping 5 percent of its deployable force in operations overseas—a practice that some defense analysts and Army officials feared would harm readiness and troop morale.

The level of forces that the Army can sustain overseas depends on how much of the service is deployable and how much time, on average, those soldiers can spend away from home and still maintain sufficient levels of training and an acceptable quality of life. If deployment duty to overseas operations is shared equally among all personnel in the Army's active component who can be deployed, the average amount of time in a given year that a soldier assigned to a deployable unit spends deployed will be roughly proportional to the amount of the force deployed. In the late 1990s, the 5 percent of deployable forces that the Army maintained overseas meant that the average soldier in a deployable unit spent about 20 days per year in overseas operations. (That soldier also spent more than 60 days away from home each year for training and joint exercises.)

Under current practices, not all of the Army's 480,000 active-component personnel are immediately available for deployment. About 110,000 soldiers are assigned to duties—such as recruiting—that are not associated with units available to deploy.[1] At any one time, another 68,000 or so personnel are not available to deploy because they are in training, in school, in transit between assignments, or are sick. That leaves about 300,000 active-component Army personnel who are assigned to units—such as armor battalions or military police companies—that can be sent to operations overseas. It is from that pool of 300,000 that active-component Army forces for operations in Bosnia, Kosovo, Afghanistan, and Iraq are drawn.

The level of overseas operations that the Army can sustain with a given force will be determined by the deployment tempo (or time away from the home station) that is deemed acceptable and not too taxing on military personnel. As mentioned above, the levels of deployment that the Army experienced in the late 1990s, which resulted in an average of 20 days per year deployed to operations, were considered by some observers to be too taxing.[2] The appropriate deployment tempo—and therefore the required rotation ratio—is a matter of policy judgment. One benchmark, however, was set by the Congress in the

1. An enlisted soldier may typically spend two or three years in a nondeployable assignment (such as recruiting) and then move to an assignment in a deployable unit.

2. That level of deployment represents an average for the entire 300,000-person deployable force. Some types of soldiers, and soldiers in some types of deployable units, experienced much higher levels of deployment during that period, and others experienced lower levels.

National Defense Authorization Act for Fiscal Year 2000, which established a program that would pay military personnel from any service a bonus of $100 for each day of deployment above a certain threshold. Originally set at 250 days in a 365-day period, the threshold was later amended to 400 days in a 730-day period.[3] That level of deployment translates to an average deployment rate of 200 days per year, or 55 percent of the time.[4]

The Congress defined deployment days to include not only days spent overseas for operations such as Iraqi Freedom but also days spent away from home at training ranges and on joint exercises. A study by RAND found that soldiers in deployable units spent an average of 63 days per year away from home for training and at joint exercises in 2000.[5] That pace would leave a maximum of about 140 days per year, on average, below the Congressional threshold that military personnel could be deployed to operations.[6]

Assuming that all deployable units were equally likely to be sent to operations overseas, limiting deployed time to 140 days per year—or 38 percent of the time—would yield a cap of 38 percent on the share of deployable active-duty Army forces that could be deployed overseas for an extended period. Put another way, the ratio of total deployable forces to those that could be sustained overseas (referred to as the rotation base) would be approximately 3:1.

If higher or lower deployment levels were deemed acceptable, then lower or higher rotation ratios, respectively, would be required. For example, deployment levels that required soldiers to be away from home for all but 30 days of leave per year (335 days, or 92 percent of the time) would require a small rotation base: only slightly more than 1. However, such a high level of deployment —roughly equal to three-quarters of the deployable force, and much higher than the current level of active Army forces deployed worldwide—would be hard to sustain for a long period. Conversely, if the need for both individual and collective training, as well as preparation and recovery, limited the average amount of time spent deployed to operations to 90 days per year (or 42 percent of the time, including training and exercises), a total of four soldiers in deployable units would be needed to support each service member deployed overseas.[7]

That requirement could be further increased—to a ratio of 5:1—if 20 percent of the Army's deployable units were not available or not suitable to be used in overseas operations, or if other factors (such as transit time and time when incoming and outgoing units overlap) reduced the efficiency of the unit rotation scheme to 80 percent rather than the 100 percent that CBO assumed in deriving the lower ratios (see Table C-1 and Figure C-1). In-

**Table C-1.**

## Effect of Various Deployment Tempos on Rotation Ratios for Active-Component Units

| Deployment Tempo | Rotation Ratio: At 80 Percent Efficiency | Rotation Ratio: At 100 Percent Efficiency |
|---|---|---|
| 335 Days per Year (For all activities) | 1.7:1 | 1.3:1 |
| Congressional Threshold (200 days per year for all activities) | 3.2:1 | 2.7:1 |
| 90 Days per Year Deployed to Operations | 5.1:1 | 4.0:1 |

Source: Congressional Budget Office.

3. That change was enacted in the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2003.

4. The Department of Defense has been operating under a temporary waiver from that restriction since September 11, 2001.

5. Ronald E. Sortor and J. Michael Polich, *Deployments and Army Personnel Tempo,* MR-1417-A (Santa Monica, Calif.: RAND, 2001).

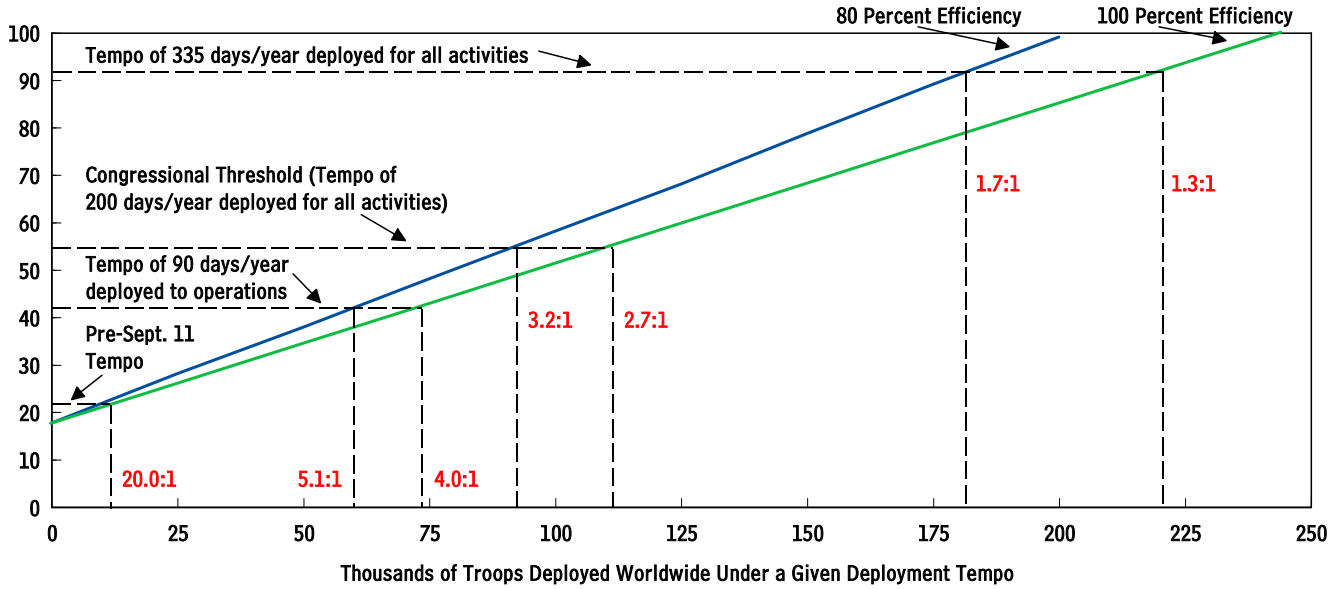
6. The deployment rates and ratios discussed in this analysis apply only to the 300,000 soldiers who are in deployable units. By definition, soldiers in other assignments do not deploy. If the total number of days deployed was averaged across the entire active-component Army of 480,000 personnel, the average deployment rate would be lower.

7. The authors of a recent RAND publication argue that reducing the time between six-month deployments below 18 months—or increasing the fraction of time spent deployed to more than 25 percent—would place considerable stress on units. See W. Michael Hix, J. Michael Polich, and Thomas P. Lippiatt, *Army Stationing and Rotation Policy,* DB-421-A (Santa Monica, Calif.: RAND, 2003), pp. 30-31.

**Figure C-1.**

## Average Share of Time That a Soldier in an Average Unit Would Spend Deployed Under Various Deployment Tempos

(Percentage of time deployed)



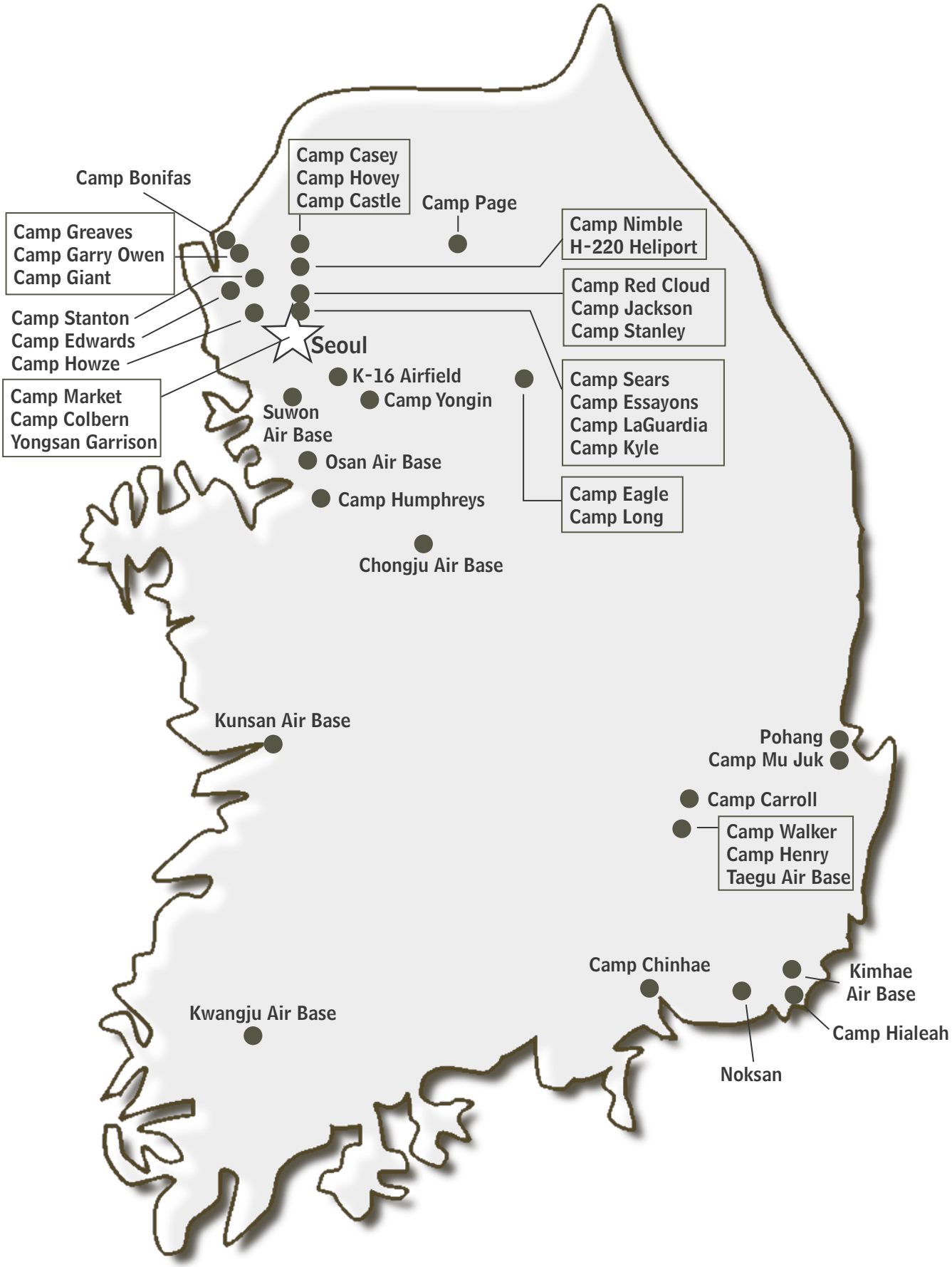

Source: Congressional Budget Office based on Ronald E. Sortor and J. Michael Polich, *Deployments and Army Personnel Tempo,* MR-1417-A (Santa Monica, Calif.: RAND, 2001) and on data from the Department of Defense.

Note: The ratios shown in this figure are the rotation ratios implied by the various deployment tempos and efficiency levels.

deed, the rates at which the levels of deployed soldiers were supported in the late 1990s suggest that 80 percent is more representative of the efficiency that the Army has demonstrated in the past—when 5 percent of the Army was deployed 6 percent of the time.[8] Further justification for higher rotation ratios comes from Army analysts, who argue that a ratio of 5:1 is necessary to give units enough time to prepare, recover, and train for combat-related tasks without placing them and their personnel under undue stress.[9]

In summary, this analysis suggests that the Army would need a deployable rotation base of active-component forces that ranged from slightly more than one to five times the size of the forces maintained overseas. Intermediate values of three and four, however, seem to fall within the range of rotation bases that can be expected to be feasible over the long run.

8. See Sortor and Polich, *Deployments and Army Personnel Tempo.*

9. Briefing by the Army's Rotation, Manning, and Mobilization Task Force, October 18, 2002.

## Selected U.S. Military Facilities in South Korea