

NATO'S STRATEGIC CHOICES: DEFENSE PLANNING AND  
CONVENTIONAL FORCE MODERNIZATION

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# NATO'S STRATEGIC CHOICES: DEFENSE PLANNING AND CONVENTIONAL FORCE MODERNIZATION<sup>1</sup>

James A. Thomson

## I. INTRODUCTION

To the extent that "strategic choices" implies choices among a broadly conceived set of alternative objectives, means, and employment of means to achieve objectives, NATO has essentially no choices at this time. NATO's principal strategic problem is the declining credibility of nuclear escalation threats to deter Warsaw Pact conventional aggression. But political, technological, fiscal, and manpower constraints foreclose strategic choices that would decisively alter this situation and sharply limit the range of realistic choice to quite modest changes in NATO's conventional defense posture.

This paper briefly reviews NATO's overall strategy, examines alternatives that appear to be ruled out by current constraints, and outlines a set of actions that would help improve NATO's conventional defenses. In particular, it argues that:

- Considerable changes are needed in the NATO defense planning process so that NATO can better set priorities and improve defense efficiency.
- To minimize the effect of cost and manpower constraints on force modernization, NATO needs to pay special attention to deficiencies in the weapons acquisition process.
- To maximize the value of marginal resources, NATO needs to concentrate its force improvement efforts on two priority programs--one to preserve the survivability of NATO air

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<sup>1</sup>This paper was presented at the 27th Annual Conference of the International Institute for Strategic Studies (IISS), "Power and Policy: Doctrine, The Alliance and Arms Control," held in Berlin, West Germany, 12-15 September 1985.

operations, and the other to increase the operational reserves available to NATO.

## II. NATO'S STRATEGIC ALTERNATIVES AND CONSTRAINTS

For the purpose of this paper, NATO's current military strategy can be defined as operating on two levels:<sup>2</sup>

- Deterrence strategy, especially the role of nuclear weapons.
- Military operational strategy, especially the employment of conventional forces.

Numerous recent proposals have called for considerable alterations in NATO's current strategy on these two levels. However, NATO's strategic flexibility is seriously constrained by political, fiscal, manpower, and technological realities. On the one hand, increasing Western concerns about the early use of nuclear weapons in Europe and advances in technology encouraged a search for alternative strategies. On the other hand, faltering commitments to defense spending, reductions in available manpower, technological uncertainties, and political concerns regarding the nature of these new alternatives limit NATO's maneuverability and force the Alliance to accept the strategic status quo.

### **Deterrence Strategy**

NATO's deterrent strategy continues to be based upon a Western recognition of conventional force insufficiency and therefore relies heavily on threats of nuclear escalation to deter both conventional and nuclear war. The underlying premise of this level of strategy is that any Warsaw Pact attack on NATO would be the result of a Soviet miscalculation concerning NATO's resolve to use whatever weapons are

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<sup>2</sup>An additional element of NATO's overall strategy is its political strategy toward the Soviet Union. This strategy, codified in the Harmel report, is based on a policy of defense and detente or, in other words, competition and cooperation. Because this paper emphasizes military strategy, political problems arising from U.S.-European differences over this level of strategy are factored in according to how they affect some aspects of the military debate.

needed to protect NATO. In this context, nuclear escalation is designed to have political and psychological effects upon the minds of the Soviet leadership, causing them to recalculate and halt their aggression.

Two trends challenge NATO's reliance on nuclear escalation: the reduced deterrent value of NATO's nuclear forces to conventional attack, and the declining political support for NATO's first-use doctrine. The first trend stems from strategic parity, which has reduced the credibility of threats of early and rapid nuclear escalation, especially onto Soviet territory, although by what degree is unknowable. The second trend, which is related to the first, is apparent in political statements of support for a no-first-use doctrine, which was stimulated in part by the "Gang of Four's" article<sup>3</sup> in 1982.

In the face of these challenges to reliance on nuclear escalation, at least three alternative paths are available: strengthening nuclear deterrence; moving from offensive to defensive deterrence; and changing from nuclear to conventional deterrence.

**Strengthened Nuclear Deterrence.** NATO has been struggling with the reduced deterrent value of its nuclear forces almost from the beginning of its history. As Soviet forces passed various milestones marked "strategic parity," the credibility of NATO's nuclear threats was put in jeopardy. The centerpiece of this struggle to offset the effects of strategic parity has been the NATO strategy of flexible response and associated changes in U.S. nuclear employment policy. These have sought to keep NATO's nuclear threats credible by introducing the concept of graduated escalation, supported, for example, by NATO's selected nuclear employment options (SEPs) and U.S. limited nuclear options (LNUOs). In addition, targeting doctrine has increasingly emphasized strikes on Soviet military forces, rather than Soviet cities. Over the years, force structure changes, especially capabilities for more precise and controlled nuclear strikes, have supported this doctrinal shift. Perhaps the most visible, and arguably the most important, change in force structure, aimed at shoring up the credibility of NATO's escalation strategy was the decision to deploy INF missiles. These filled a "gap" in NATO's spectrum of graduated escalation options.

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<sup>3</sup>McGeorge Bundy, George F. Kennan, Robert S. McNamara, and Gerard Smith, "Nuclear Weapons and the Atlantic Alliance," *Foreign Affairs*, Vol. 60, No. 4, Spring 1982: 753.

More is needed to offset the effects of strategic parity. For example, NATO's stockpile of short-range theater nuclear weapons--the most crucial category of weapons from the standpoint of credible first-use threats--is aged and has a number of operational problems. Yet in the post-INF environment, programs for improving such forces could easily run afoul of political obstacles. Thus, NATO may even have problems maintaining the credibility of its escalation threats.

Nuclear modernization programs cannot be expected to alter fundamentally the need to rely on nuclear escalation threats. The best that can be hoped for is that they will help maintain credibility.

**The SDI Alternative.** Another highly touted alternative--the U.S. Strategic Defense Initiative (SDI)--is also unlikely to alter fundamentally NATO's continuing need to rely on nuclear escalation for deterrence. The SDI was supposed to have ushered in a new era, based on a concept of deterrence in which nuclear offensive threats would have played little if any role. Nationwide (area) defenses would be deployed in the United States, the Soviet Union, and Europe in a cooperative fashion to protect population, economies, and military forces from nuclear attack.

Both technological uncertainties and political difficulties raise serious questions about this concept. On the technological side, numerous questions have been raised about the SDI's ability to prevent the Soviet Union from attacking the United States and Europe with nuclear weapons. The most serious questions revolve around the cost effectiveness and vulnerability of the defenses. On the political side, Europe has raised several objections, the most important of which concern the deterrence of Soviet conventional attack when a Soviet version of SDI would render U.S. nuclear weapons ineffective.<sup>4</sup>

In the face of technological uncertainties, and perhaps European political objections, the U.S. administration appears to be scaling back its concept toward (or at least complementing it with) a concept in

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<sup>4</sup>These objections are based upon a concern that the Soviet Union would respond to the U.S. SDI with one of their own. They would presumably be downplayed should the Soviet Union deploy effective strategic defenses in the absence of a U.S. SDI program.

which the deployed SDI would contribute to deterrence by reducing the vulnerability of critical Western military assets.<sup>5</sup> If NATO could greatly increase the price to the Soviet Union of attacking such assets as ICBMs, command and control facilities, ports and airfields, deterrence would obviously be served. But at the present time, there are many open questions about the feasibility of this concept, as well as about the more ambitious original concept: Could the Soviet Union counter the West's defenses by the deployment of offensive forces that are less expensive than the defenses? (That is the so-called marginal cost-exchange criterion spelled out by Paul Nitze.) Another question is whether the Soviets could easily defeat the defense by attacking it (the defense survivability criterion). The answers to these and other questions will probably not be known for some time, because they depend upon a detailed knowledge of the defense system and a complex analysis of the interactions among the offensive, defensive, and defense suppression forces for each class of military assets that the defensive forces might be deployed to defend. And the analysis must also address whether alternative means of reducing the vulnerability of the military assets would be more cost-effective than the defenses themselves.

So until it passes its feasibility tests, SDI does not offer an alternative deterrence concept for Europe. And even if it passes the tests, the more recent SDI deterrence concept described here would not fundamentally change NATO's reliance on nuclear weapons. For example, by threats of nuclear escalation, NATO would have to continue to deter the Red Army from invading Western Europe.

**The Conventional Deterrent Alternative.** Despite the interest in providing a conventional deterrent alternative, as suggested by the Gang of Four, among others, it appears to be out of the question for political, economic, and manpower reasons. There are no good estimates of what size force would be needed for true conventional deterrence, but

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<sup>5</sup>This concept presumes, of course, that the West would maintain a considerable edge over the USSR in SDI-like capabilities. Otherwise, the reduction in Soviet vulnerabilities caused by the Soviet SDI would leave the West with no net advantage, or perhaps a negative one, given the West's reliance on nuclear escalation for deterrence. Whether the West could maintain an edge indefinitely, or it would--like MIRV--be lost, is an important but open question.

they are obviously larger than today's force of roughly 30 divisions in peacetime in the Central regions (a force that would grow to roughly 50 after mobilization). The original 1952 Lisbon goals of 50 active and 46 reserve divisions and 4000 aircraft are so out of date as to be worthless. In a recent article, Andrew Hamilton provides a rationale for an additional 20-45 equivalent heavy combat divisions which are stronger divisions than the average NATO division today.<sup>6</sup> An estimate based upon the need for a perceived conventional balance might call for NATO's deploying in Central Europe combat capability equivalent to the Warsaw Pact's 57 divisions and associated tactical air power; that would require a roughly 50 percent growth in NATO's ground and tactical air forces. In any case, conventional deterrence would require substantial force growth.

That simply is not in the cards: The money and manpower will not be available, especially in Europe, which would have to contribute the lion's share of the resources needed for conventional deterrence. Although NATO nations reportedly did better in meeting the 3 percent real growth goal in 1984 than in the previous few years, the long-term trend in Europe is toward tighter defense budgets, including in Britain and Germany, the European countries with the largest defense efforts.

Britain has announced that real increases in defense will end after fiscal year 1985-1986; defense spending may even decline in real terms according to the House of Commons' Select Defence Committee.<sup>7</sup> When these fiscal restrictions are combined with the failure of former Secretary of State for Defence John Nott's effort to rationalize Britain's defense program by phasing out certain out-of-area air and sea capabilities, questions must be raised about Britain's ability to maintain the strength and quality of the British Army of the Rhine. These questions are magnified by the looming cost of *Trident* in Britain's defense budget and the unforeseen cost growth in such programs as *Nimrod*, Britain's contribution to the NATO AWACs effort.

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<sup>6</sup>Andrew Hamilton, "Redressing the Conventional Balance: NATO's Reserve Military Manpower," *International Security*, Summer 1985.

<sup>7</sup>*Financial Times*, June 11, 1985, p. 8.



Although West Germany faces similar fiscal constraints and escalating cost growth in its procurement program,<sup>8</sup> perhaps more important is its looming manpower shortage. The number of potential recruits is expected to drop from the current 300,000 to fewer than 160,000 in the mid-1990s.<sup>9</sup> By 1992, without changes in policy, the strength of the Bundeswehr would drop. The Federal Defense Ministry has announced a package of measures designed to maintain Bundeswehr strength, but the most recent White Paper admits that even with these, that strength may drop by about 25,000 by the mid-1990s. Whether all these measures will ultimately be adopted remains to be seen. Questions have been raised about the effectiveness of some of the measures, especially those designed to attract skilled recruits into the armed forces.

The smaller countries face similar, if not more serious, financial and manpower problems. Belgium's defense budget, for example, has been declining in real terms--roughly 10 percent over the last five years. And other countries face serious political problems in maintaining defense budget growth. Denmark's small defense effort and aging defense equipment inventory--long a target of U.S. criticism--has come under increasing criticism in Europe as well.

Even if NATO were to achieve three percent real growth, there is no reason to expect that the current resource constraints will ever be altered in such a way as to permit a decisive increase in the size of NATO forces and thus an alteration of basic deterrence strategy. Many Americans have long argued that Europe's defense efforts are held down by the "free rider" effect--so long as the United States provides substantial resources for Europe's defenses, Europe has no reason to increase its efforts. Such notions have been partly behind many U.S. proposals to reduce U.S. troop strength in Europe to induce European defense growth. However, a detailed study of the pattern of Alliance defense spending indicates that the free-rider effect, although real, is far less important than two other factors in European decisions on

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<sup>8</sup>*Wirtschaft Woche*, May 8, 1985, p. 46.

<sup>9</sup>*The Economist*, June 29, 1985.

defense spending: national economic well-being and perceptions of the seriousness of the threat to the nation's survival.<sup>10</sup> Prospects are slim to zero that Europe's continued economic stagnation will be ended by an extended period of great economic growth that would permit decisive increases in defense efforts. In any case, the second factor would militate against the defense sector's becoming the beneficiary of economic gains. Despite all the efforts of the United States, and of their own political leaders to "educate" them, European publics do not feel an imminent threat to their survival. Only an extended period of substantially increased East-West tensions, clearly the fault of the USSR, is likely to change the situation.

Recent years have seen many proposals for creating a true conventional deterrent based upon technological force improvements rather than a large force buildup,<sup>11</sup> arguing that the West's technological advantage will allow a reduction in NATO's reliance on nuclear escalation by SDI or conventional deterrence. To an extent, this is true. But although the West needs to exploit its inherent technological advantage over the Warsaw Pact, there is no technological panacea waiting around the corner that is likely to make a decisive alteration in the character of the East-West military balance, unless SDI provides decisive advantages in the conventional sphere (e.g., by negating the conventional tactical ballistic missile threat at lower cost than alternatives). Moreover, technology is expensive, its actual performance in war unknown, and its advantage fleeting, for the Soviet Union has proved adept at catching up in the field of military technology--MIRV and modern cruise missiles being recent spectacular advances.

Thus, NATO's ability to alter its deterrence strategy is almost nonexistent. Political compromises will continue to freeze NATO's nuclear posture, probably increasing reliance on medium- and intermediate-range forces, while maintaining the European-preferred

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<sup>10</sup>E. Don, Ph.D. Dissertation, Rand Graduate Institute (currently unpublished), 1985.

<sup>11</sup>See, for example, "Strengthening Conventional Deterrence in Europe: Proposals for the 1980s," Report of the European Security Study (ESECS), Nimrod Press, Boston, 1983.

doctrinal reliance on the threat of early and rapid nuclear escalation for deterrence. Although in my view that situation is not comfortable, it may not have an alternative.

### **Military Operational Strategy<sup>12</sup>**

NATO's military operational strategy continues to be guided by the doctrine of forward defense. NATO forces seek to meet Warsaw Pact aggression as far forward as possible, fighting a defensive battle on NATO territory just inside the border with the Warsaw Pact. This strategy is to be implemented through the use mainly of mechanized ground forces and tactical air power; the latter is expected to help overcome the larger numerical Warsaw Pact ground force advantage.<sup>13</sup>

With options for conventional deterrence based on substantial force growth blocked, many analysts have suggested considerable changes in NATO's conventional force operational strategy. One motivation for these suggestions is the premise that NATO can make up for its conventional insufficiency by using its forces more cleverly. An increasingly offensive Soviet operational strategy that presents serious challenges to NATO's ability to execute forward defense is another motivation. Recent analysis of the importance of Soviet second echelon forces and offensive air superiority missions suggests to many that the Soviets are now in a better position to disrupt NATO's "static" forward defense line. Most of the proposals for a changed operational strategy would move away from the forward defense strategy by either increasing or eliminating NATO's use of offensive conventional force actions.

One class of strategies would have NATO launch strategic counteroffensives into Warsaw Pact territory following a Warsaw Pact attack on NATO. Samuel Huntington, for example, has argued on deterrence grounds for a strategy aimed at liberating East Germany and Czechoslovakia in the event of war. His argument, similar to the one that dominates nuclear deterrence thought, is that the West should

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<sup>12</sup>I am indebted to John Van Oudenaren for suggestions concerning this section.

<sup>13</sup>For a description of NATO's current operational strategy, see P. Karber, "In Defense of Forward Defense," *Armed Forces Journal International*, May 1984.

threaten the East the same way that the East threatens the West. Although this is an appealing argument, it has been widely rejected in Western Europe on political grounds.<sup>14</sup>

Offensive strategies are not generally popular in Western Europe. They are seen as inconsistent with the defensive nature of the Alliance. And many in Europe object to American proposals for what could be perceived as offensively oriented strategies on the grounds that these could raise East-West tensions and undermine the quest for long-term political change in Central Europe. Thus, even more modest proposals suffer the same fate. The U.S. Army's AirLand Battle doctrine has become something of a political pariah in Europe because of its emphasis on the so-called "deep battle" and the suggestion that this might be conducted by ground as well as air forces.

At the opposite extreme is a class of strategies that would move away from forward defense by trading space for time, a more defensive oriented strategy. The most well-known of these has been put forward by such German defense thinkers as Horst Afheldt and Hans-Jochem Loeser. Such concepts usually involve area defense strategies, in which a Warsaw Pact advance would be slowly absorbed by attrition inflicted by small units distributed around the countryside. In some cases, elements of the so-called peace movement have adopted such proposals on the grounds that they would reduce defense budgets, help solve the manpower problem, and avoid the appearance of an offensive posture toward the East. The West German government has been no more enthusiastic about these proposals than about the offensively oriented ones: strategies that do not attempt to defend all of the national territory or that ensure a conventional battle fought over considerable depth of German soil are unacceptable.

Another set of proposals, which are more consistent with the concept of forward defense but would greatly alter NATO's operational strategy, has also not fared well politically: barriers. Of course,

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<sup>14</sup>In any case, Huntington's strategy would probably require a substantial buildup of conventional forces. Without such a buildup, forces for counteroffensives would have to be stripped from other forward defense missions, opening Germany to potentially decisive penetrations by Warsaw Pact forces.

barriers play a role in the current defense concept and with improved technology (mines, liquid explosives, etc.) might play a greater role in anti-tank defenses.<sup>15</sup> Some analysis indicates that large, fixed fortification barriers would probably be more useful in blunting a Soviet attack. However, the West German government and others have traditionally opposed such barriers on the grounds that they would be militarily ineffective, foster a "Maginot-line mentality," and cement the political division of Europe.

Political constraints and considerations will create the greatest problems to changing NATO's strategy of forward defense. Although not a perfect strategy, it was designed to account for concerns about offensive strategies, division in Europe, and German territorial integrity. Thus, any alterations in NATO's operational strategy will have to aim at more modest proposals that do not disrupt these fundamental principles.

### III. NATO'S CHOICES IN CONVENTIONAL FORCE MODERNIZATION AND DEFENSE PLANNING

Although the realities of politics, economics, demographics, and technological uncertainties foreclose large strategic choices, NATO must still face the declining deterrent value of its nuclear arsenal to conventional attack. For the time being, the only remedy is to improve NATO's conventional defenses to the extent feasible. Essentially, this will mean working at the margin--seeking modest improvements and modest solutions to problems, in particular, examining the way NATO does business.

The words "priority" and "efficiency" ought to be the watchwords for undertaking conventional force improvements. Because of strict resource constraints in NATO, the need to set priorities and establish efficient procedures applies across the whole force planning process, from defining NATO long-range goals through the procurement process to the structuring of NATO's overall forces. Despite the obvious need for priorities and efficiency, it is precisely in these areas that NATO has failed badly.

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<sup>15</sup>Col. Juergen Erbe, "A Barrier Concept for Engineer Troops," *Wehrtechnik*, February 1985, pp. 94-96.

While keeping within the "marginal changes" boundary, NATO might--given some tough political choices--be able to do a better job in these two areas. In particular, NATO should begin to address three areas that currently impede conventional force improvements:

- The NATO force planning system, an issue covering both priorities and efficiency.
- The force modernization process, mainly an issue of efficiency.
- The choice of priorities for force improvements.

### NATO Force Planning<sup>16</sup>

The central feature of the NATO force planning process is the development of NATO's force goals, because these are the standard by which the various countries' contribution to the common defense should be judged. Although the process has many virtues, frustration with it--especially by Americans--has led to numerous charges that the NATO bureaucratic paper-mill blocks change and fails to generate new ideas, and that the process runs on its own timetable regardless of the importance of the issues it faces. The most serious complaint lodged against the process is that the force goals are--a priori--affected by national plans, and indeed reflect them.

The result is that the force planning process fails in four important areas:

- **Setting priorities.** Although the force goals are theoretically given priorities by force category, the categories are too broad. In any case, the individual nations carry out only about 50 percent of the force goals, and nations, not NATO, choose which ones they will implement.
- **Long-range planning.** NATO's failure in the long-range planning sphere can be traced mainly to the time horizon of the force planning process--five to six years. Given the long lead-

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<sup>16</sup>I am indebted to Jim Wendt and Nanette Brown for developing much of this material.

time of weapons procurement, it is no surprise that the force goals often reflect national procurement plans and cannot impose order on national plans that would point toward a more efficiently planned overall NATO force posture.

- **Weapons cooperation.** The lack of a good long-range plan is closely related to NATO's failure to overcome cross-national duplications in weapons R&D and procurement. Of course, there are many other reasons for this failure, stemming mainly from national political and economic interests.
- **Military operational planning.** Finally, NATO's military leaders have not been given sufficient authority in the realm of military operational planning. SACEUR and the other Major NATO Commanders (MNCs) control almost no forces in peacetime. They must await the declaration of alert by political authorities before the command of national forces is transferred to them. Therefore, they are limited in their ability to plan for a coordinated coalition war. Although joint doctrine for the conduct of operations is at least thought about, support of operations remains a national responsibility. These weaknesses in operational planning also weaken the military's ability to play a strong role in remedying the earlier three deficiencies in the force planning process.

At bottom, the deficiencies reflect the fact that NATO has no ability to independently develop a coherent force modernization plan and enforce it on nations. That is no accident: No NATO nation, least of all the United States (where some of the most vocal critics reside), has been willing to cede such authority over national defense planning to NATO.

Because of frustration with the defense planning process, several conventional improvement initiatives have been launched. Such past initiatives as Allied Defense for the 1970s and the Long-Term Defense Program (LTDP) sought to remedy problems of priority and efficiency in NATO planning, with varying degrees of success. In May 1985, the NATO defense ministers introduced several measures to alleviate these recurring problems:<sup>17</sup>

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<sup>17</sup>See J. Moray Stewart, "Conventional Defense Improvements: Where Is the Alliance Going?" *NATO Review*, April 1985.

- SACEUR had begun to develop a conceptual military framework (CMF) within which Alliance requirements could be addressed.
- Ministers approved a conventional defense improvement (CDI) initiative that identifies priority areas for defense improvement.

Unlike earlier initiatives that sought to short-circuit the NATO planning process, these initiatives have been firmly imbedded within the NATO system. Whether this will help or hinder their ultimate success remains to be seen. On the one hand, they should help avoid European resistance to big American initiatives that has grown as a consequence of the LTDP experience. On the other hand, to the extent that they do not remedy the deficiencies of the process identified above, they will suffer from the malaise of the NATO process and die.

Both the CMF and CDI do seek to address some of the deficiencies identified above, but they do not go far enough. Both try to remedy the priorities problem. The CMF identifies long-term roles and missions for NATO and the forces required. It spells out priorities within broad mission categories but unfortunately has not sought to identify priorities among the mission categories. This is hardly surprising because it would mean, for example, that one military service's mission (such as establishing a favorable air situation) be placed above another's (such as maintaining sea control), something even few *national* military establishments are able to accomplish.

The CDI identifies critical nearer-term priority deficiencies. Compared with the LTDP's nine priority conventional improvement categories, the CDI's are much narrower and more specific; but there has been no attempt to identify priorities among the categories, and the categories are still broad enough to encompass a host of force improvement programs.

The CMF explicitly seeks to remedy NATO's lack of a long planning horizon by looking 15 years ahead. Whether this worthy long-range planning effort will change matters depends on other factors, particularly the political strength of the NATO military authorities and the willingness of nations to factor the CMF into their own national defense planning processes, which is doubtful.



The CMF could also prove helpful in guiding planning for long-term weapons procurement. But it must inevitably be coordinated with efforts to identify promising long-term technologies. Again, whether such a coordinated effort could ultimately help overcome national, political, and economic interests to reduce duplication in R&D and procurement depends on many factors, of which the most important is willingness to permit NATO cooperative planning efforts to drive national defense programs.

However, none of the initiatives described here addresses the problem of the military's weak role in operational planning and therefore in defense planning overall.

Although nations will not cede authority over their force planning to NATO, it may be possible to move beyond the efforts of the CDI and CMF to strengthen the NATO planning process and thereby increase the chances that NATO's marginal resources will be put to the best possible use. I suggest the following:

- Define one or two priority programs, perhaps one for ground forces and one for tactical air forces. The implementation of these programs would be more important than all the other NATO force goals. Limiting the priorities to only one or two will raise the political visibility of the programs and make it more difficult for nations to evade implementation.
- Strengthen NATO's independent long-range planning ability. Mainly, this means strengthening NATO's ability to conduct program analysis, which is currently quite weak.
- Strengthen the hand of the military authorities in NATO. Although they are not free of political influence, the multinational military staffs are more likely to provide independent judgment of NATO's defense needs than the political side of NATO. The military role might be strengthened by:

-- Assigning forces to SACEUR in peacetime, or at least a declaration of a State of Military Vigilance.

- Giving SACEUR wartime responsibility for the support, as well as the conduct, of operations.
- Permitting SACEUR to increase the number of NATO exercises (in contrast to national exercises).
- Providing SACEUR with a common fund for the procurement of support of combat needs, as he sees fit, in coordination with national plans. A commonly funded logistics stockpile is one possibility.

Because it would give NATO, especially its military arm, more independent authority and thus encroach on authority currently in the hands of nations, the last set of proposals is likely to be resisted. In addition, both military and political authorities have found it hard to look at a small set of priorities, as suggested by the first proposal. The above may not be the best suggestions, but without some dramatic changes in the way NATO does business, NATO will never be able to do a better job of getting defense value out of its resources.

### **Force Modernization**

The remainder of this paper considers NATO's needs to set priorities and improve efficiency in force modernization and force improvement. This somewhat arbitrary distinction is meant to capture two processes that occur in parallel: (1) modernization of existing capabilities and (2) the creation of new or additional capabilities. The need to assign priorities cuts across both of these categories; and at some point, tradeoffs have to be made between modernization programs and new capabilities.

In addition to the replacement of obsolete weapons, the chief reason for modernizing NATO's existing capabilities is to continue to convert Western technological advantages into military advantages over the Warsaw Pact to help compensate for Eastern numerical force advantages. The force modernization process should:

- Avoid the unexpected weapons cost growth that has plagued Western defense establishments in recent years and made it difficult to maintain a steady pace of modernization and improve Western defenses.
- Avoid the delays in weapons program completion that have made it difficult to stay ahead of the Soviets in fielded weapons technology.
- Look for opportunities to reduce the manpower burden of Western defense through the application of technology where possible.

The first two goals can be achieved through improvement in the weapons acquisition process; this is primarily a problem to be handled by the individual countries. The last goal can be addressed through a careful examination of the opportunities for technology-manpower tradeoffs in the Western force structure as a whole, not simply in the combat portion of the force structure, as has usually been the case.<sup>18</sup>

**Weapons Acquisition.** During the 1960s, U.S. weapons programs, on the average, experienced a nearly 50 percent unexpected cost growth and 15 percent schedule slippage, while essentially meeting the original performance goals. Recognition of these problems led to some improvements in the 1970s, with cost growth reduced to the 20-35 percent range and minor improvements in schedule slippage. Although we do not have similar data for European programs, cursory analysis indicates that European weapons cost more than their U.S. counterparts, experience greater unexpected cost growth, and take longer to develop with greater development delays. The cost growth problem is sharply limiting NATO's ability to modernize and improve its forces.

Research into the causes for the U.S. problems indicate several improvements to the acquisition process that are potentially applicable to the United States and other nations. These include:

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<sup>18</sup>The following sections draw heavily on the work of Project AIR FORCE's Resource Management Program at The Rand Corporation.

- austere early development
- early performance testing and effective feedback loops, including
  - maturational development of subsystems
  - competitive hardware demonstrations
  - prompt system production at low rates, coupled with operational validation before high rate production is approved.

Austere early development avoids technical specifications and restricts the guidance initially given to contractors to a statement of mission needs. This permits the contractor to come up with innovative technical solutions to mission problems rather than having suboptimum solutions imposed from above, keeps initial program manpower requirements small, and minimizes time spent on paperwork rather than development.

Maturational development refers to a process that occurs over several phases--the system is developed, its performance in an operational environment tested, and then it is redeveloped. In the past, subsystem maturational development (e.g., on guidance systems) has led to considerable improvements in reliability and performance. If this could be incorporated into a weapons acquisition strategy, it would be possible to avoid delays in production due to problems with subsystem reliability and performance. However, that requires a major change in the way the West does business. In particular, critical subsystems would be developed separately from full weapon systems and would be building blocks that would fit and work in many weapon systems. Funding for subsystem development would occur earlier than full weapon development and take longer, because the subsystem would serve not only the weapon system it was originally targeted for (if it was targeted for one at all), but others as well. Unfortunately, Western political systems have become used to procuring major weapon systems, not subsystems, and the U.S. Congress, at least, has not been willing to fund subsystems separately.

Competitive hardware demonstrations have many advantages: Past experience has shown that development of prototypes improves both cost and schedule estimates, identifies problems early, and leads to better cost control in general. Competitive prototyping makes alternative solutions available and therefore leads to better decisions on procurement. There is additional cost in prototyping, but it has generally been a small fraction of total program cost.

Even with the above recommendations, it would still be possible for the acquisition process to fail in the transition from development to production. In the past, high rate production decisions for major weapons systems have typically been made before the completion of the test phase. By the time problems have been identified in the test phase, many weapons have been produced, forcing a choice between living with degraded performance or reliability (the latter has been the greater problem), or making major alterations in an already fielded and in-production weapons system. Such a dilemma could be avoided if prompt production were held at a low rate and the high rate production decision delayed until the completion of the test phase. Of course, this might introduce a one to two year delay in high rate production, but it would avoid later delays in the achievement of fully operational systems.

In the longer run, improved production technology should make it possible to deal with one of the major contributors to unforeseen cost growth--unstable production rates. These are probably a political fact of life in Western countries, where support for defense spending waxes and wanes. Improved production technologies, based upon the integration of CAD and CAM technologies,<sup>19</sup> are already in use at the component level. Eventual extension of these technologies to major end item production would make feasible flexible production lines, capable of producing several end items. That would make small quantities more economic to produce and provide great resiliency to changes in production rates.

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<sup>19</sup>Computer-aided design and manufacturing.

These suggestions have been based upon analysis of the American experience, but they ought to apply somewhat to the European situation and to cooperative arms ventures within the Alliance. As discussed earlier, the European experience with weapons acquisition appears to be worse than in the United States, with some notable exceptions. These exceptions, involving, for example, a French aerospace firm, have generally occurred when the prescriptions described above have been followed--system design evolution, prototyping, reliance on proven subsystems, and extensive testing before production.

**Manpower and Technology.** With the impending manpower crunch in many NATO nations, it is understandable that technology would be looked toward as a potential solution. If soldiers can be given more capable weapons to use, then fewer soldiers should be needed to achieve the same capability. There are at least two problems with this line of argument. First, if numbers of weapons are reduced as quality is improved (as implied by the argument), the long-run effect will be a net loss in the competition with the USSR, which is not likely to reduce its forces while modernizing them. Second, the combat "slice" of NATO's overall force structure is a small part. The support "slice" constitutes the bulk of the manpower.

This is not to say that reductions in combat manpower are not possible. Many technological advances, such as in robotics and artificial intelligence, may make it possible to reduce combat manpower without reducing weapons. Some of these advances are already occurring--remotely piloted vehicles, modern cruise missiles, and the like. In the future, we might see unmanned tanks and other fighting vehicles.

But the support structure will have to be the source of major manpower savings. Some of these savings might come through reorganization, such as with Senator Nunn's combat/support amendment of the mid-1970s, but these always are difficult to realize. And the military services have felt a growing need for support as more technologically complex systems have gone into the field.

The way to reduce this need is to field more reliable systems. For example, recent analysis indicates that a two-fold reliability improvement in the F-16 avionics and power plant would reduce certain

air wing maintenance staff requirements by about 35 percent. Such reductions would have a ripple effect through the force structure, reducing manpower requirements elsewhere, although not by such a dramatic amount. Such reliability improvements are needed through the ground and tactical air forces.

Such reductions require improved reliability. Until very recently, weapons acquisition programs were judged chiefly on the basis of whether the system achieved its performance goals. As indicated above, these have often been achieved with cost and schedule penalties. But reliability has also suffered. Thus, in reconsidering our thinking about the weapons acquisition process, we need to place reliability on a par with performance in measuring the success of a program.

#### **Force Improvements**

The final area in which NATO should provide a better sense of priorities is in force improvements. The INF debate spawned a host of initiatives to improve NATO's conventional defense. These include the American Counter-Air 90 (CA-90) proposal, the U.S. Army's AirLand Battle doctrine (ALB) and ALB-2000 plan, various other official and nonofficial "deep attack" proposals, the Emerging Technologies (ET) initiative, and General Rogers' Follow-on Force Attack (FOFA) proposal. The number of proposals has overloaded the NATO agenda and made a bad situation worse by confusing rather than clarifying the need to set priorities. NATO needs to examine one or two priority programs, beyond normal force modernization. Two areas that are not inconsistent with the above initiatives deserve first priority attention:<sup>20</sup>

- Improving the survivability of air operations.

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<sup>20</sup>This is not an arbitrary selection of priorities, but is based on a previous paper, James A. Thomson and Nanette C. Brown, "Theater Forces: U.S. Defense Policy in NATO," in *American Defense Annual 1985-1986*, George E. Hudson and Joseph Kruzal (eds.), Lexington Books, Lexington, Mass., 1985, in which we argued for two additional areas, improved reaction to and reduced dependence on, warning and increased sustainability. For the sake of setting my own priorities, I have limited myself to two areas.

- Increasing NATO's operational reserves.

**Air Operations Survivability.** The air force priority--air operations survivability--stems from the air force's contribution to the ground battle. Rand analysis shows that with continued modernization NATO's air forces could prove decisive in the initial forward defense. To do this, they must both defeat Warsaw Pact air forces and fly numerous close air support and interdiction sorties in support of the ground forces. It is not enough for NATO's air forces simply to cancel out the Pact's air forces. If that is all they accomplish, the chances that NATO will lose the ground war will sharply increase.

The Soviet Union must have made the same analysis. Since the mid-1960s, they have doctrinally emphasized an air operation designed, among other things, to destroy NATO's air forces on the ground at the outset of conflict, and they have bought a force better equipped for this mission. The worry now is that during the 1990s, they will deploy a generation of tactical ballistic missiles capable of precise conventional air base attack. The missiles could be used to attack runways, pinning NATO's fighters on the ground so that they cannot meet the follow-on air attack. This would allow Warsaw Pact air forces to destroy NATO's air forces on the ground, along with other elements that support air operations.

These concerns have led to several proposed remedies. One is the U.S. Counter-Air 90 initiative, the chief feature of which is a ballistic missile designed to attack Warsaw Pact air bases. Although that is probably not a bad idea, its considerable expense may not be the best use of marginal resources, because it would only help NATO cancel out Pact air power while NATO's was being canceled out. A more recent proposal has emphasized modern anti-ballistic missiles, including some currently under study in the SDI program.

In addition, fairly inexpensive passive measures can substantially mitigate the combined ballistic missile and air threat. These include:



- Additional takeoff and landing strips for wartime use at NATO air bases to increase the number of air strips  
Soviet ballistic missiles must cut to put an air base out of operation.
- Completion of the shelter and colocated operating base (COB) programs so that all NATO's aircraft can be sheltered from air attack.
- Crisis dispersal of NATO's fighters to military and civilian air fields to increase the number of bases the Soviets must attack.
- Placing fighters on alert in a crisis and providing a warning system of missile attack so that they can get into the air.
- Improvements in rapid runway repair capabilities so that air strips struck by ballistic missiles can be put back into operation quickly.

A program of such passive measures should not be terribly expensive. It might be combined later with a program of active measures, potentially including anti-tactical ballistic missile defenses if they prove feasible. More important, it will help to ensure that NATO's tactical air forces can continue to provide the assistance to the ground forces that is expected of them in the first few days of conflict.

**Operational Reserves.** The lack of sufficient operational reserves may be NATO's most critical shortfall. In many potential war situations, NATO's front line forces may be capable of holding the initial echelon of Warsaw Pact attack, but the weight of follow-on echelons could threaten a breakthrough, which, because of West Germany's lack of strategic depth, would prove decisive if unchecked. To forestall such breakthroughs by shoring up the forward defense, to check breakthroughs if they occur, and to deal with deep penetrations by Pact Operational Maneuver Groups (OMG), SACEUR needs forces in operational reserve. Currently, the bulk of NATO's ground forces are needed for the initial forward defense, especially in the early days of mobilization

before U.S. reinforcements begin to arrive. Thus SACEUR's operational reserves are dangerously low. These could be bolstered should France commit its forces to SACEUR early in a crisis, but since they are not committed to SACEUR, these forces cannot be counted on.

The only remedy, therefore, is to provide more forces. The United States has already committed substantial reinforcements to NATO. Further commitments are unlikely, because of other U.S. force requirements, such as Southwest Asia, and because strategic mobility assets limit the availability of any additional commitments until well after mobilization begins. What is needed is additional forces that would be available early; these will have to be provided by Europeans, more specifically the Germans, Belgians, Dutch, and Danes.

My own rough guess is that about five or six additional heavy combat divisions would make a substantial difference to deterrence. Given their intended role as operational reserves, these divisions need not be on active duty in peacetime but can be held at cadre strength and filled out with reserve manpower on mobilization.

West Germany has shown that it is not impossible to consider the fielding of such additional units. Over the past decade and a half, the German Territorial Army has expanded greatly both in size and strength. It now consists of six home defense brigades that are partially active, six similar brigades as equipment holding units, 15 home defense regiments and 150 home defense companies. As the modernization of the Bundeswehr has proceeded, the Territorial Army has been the beneficiary, receiving "hand-me-down" equipment that has transformed these units into heavy combat formations. In recognition of their potential value as operational reserves, two home defense brigades were committed to SACEUR in 1982.<sup>21</sup>

As worthy as this effort is, much more needs to be done. In the past, the main arguments against the creation of such units have been the lack of available reserve manpower and the cost of equipping heavy combat formations.

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<sup>21</sup>*Oesterreichische Militaerische Zeitschrift*, Jan.-Feb. 1985, pp. 68-70.

A recent detailed analysis by Andrew Hamilton raises questions about the reserve manpower constraint.<sup>22</sup> It indicates that there are more than an ample amount of available trained reservists to man the five or six divisions mentioned above, plus their support tail; these divisions might be split among the four countries on a 3-1-1-1 basis, with West Germany providing the three divisions. Taking account of support, each division would require about 24,000 men; Hamilton has identified approximately 500,000-600,000 reservists potentially available for such units in the four countries. This manpower is currently assigned to poorly or otherwise unequipped units with no NATO missions. Given the impending manpower pressure on active forces, it is important for NATO to consider how to make better use of such a large pool of resources.

The equipping of such forces will not be cheap. The cost of a division's equipment might be as high as \$5B over 10 years.<sup>23</sup> But the total cost of \$30B over 10 years for the four countries is not unmanageable and the burden might be reduced. As already mentioned, the modernization process underway in West Germany is making additional equipment available that could be used by reserves. A similar phase of modernization is underway in the U.S. Army, which could also provide a source of equipment. For example, by the early 1990s, the United States will have roughly 2000 excess M60A1 tanks and other major equipment items are also being displaced from active and reserve U.S. Army units. As the U.S. contribution, this equipment could be made available free of charge to any ally who wants it. This might especially apply to Belgium and Denmark, where defense budget cuts have seriously curtailed their own modernization programs.

Thus, a program for increasing operational reserves appears feasible on the surface. If given high enough priority in NATO, such a program could be implemented.

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<sup>22</sup>Hamilton, "Redressing the Conventional Balance."

<sup>23</sup>*Ibid.*

#### IV. CONCLUSIONS

Large strategic choices for NATO are foreclosed by the realities of politics, economics, demographics, and technological uncertainties. Yet NATO still must face the dilemma of the declining credibility of its nuclear deterrent to conventional attack. For the time being, its only alternative is to seek modest improvements in conventional capabilities to offset the unknown effect of this decline.

The same realities that foreclose big choices also create difficulties in making more modest ones for the improvement of conventional defenses. At this level, the need for political compromise in the Alliance, growing economic constraints, a looming military manpower shortage, and uncertainties about the military value of the West's technological edge raise questions about NATO's ability to improve the conventional balance at all. To work within these realities and still make progress in the conventional field, NATO will have to work at the margin, modestly improving its conventional capability. But to make even marginal improvements, NATO needs to take a hard look at the way it does business. Most important, it needs to recognize that it has failed badly in setting priorities for force modernization and improvements and in overcoming inefficiencies in national and multi-national force planning and weapons procurement.

This paper has argued for three modest changes that should provide increased chances of success in conventional force improvement.

- Strengthening the role of NATO's military authorities in NATO, especially in operational planning. A strengthened role in this sphere will also increase the military's ability to provide independent judgments on force planning issues in NATO. This is not a panacea, but it ought to help with the problems described above.
- changing national and multi-national procedures for weapons acquisition to hold down program cost growth and maximize the reliability improvements needed to reduce manpower requirements in the support structure.

- Setting two priority force improvement programs to direct political attention to the most important, and thus help ensure their implementation. These programs should improve the survivability of NATO's air operations and increase NATO's operational reserves. These are essentially "low-tech" solutions to basic problems of maintaining NATO's ability to conduct a successful forward defense. Consequently, they are also low risk, especially when compared to some of the "high tech" proposals to strike the Warsaw Pact's follow-on forces deep in enemy territory.



