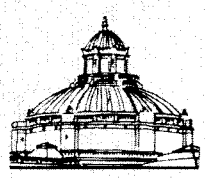
Issue Brief

Order Code IB88028

STRATEGIC DEFENSE INITIATIVE (SDI):
MISSION OBJECTIVES FOR DIRECTING THE PROGRAM

Updated March 2, 1988



by

Cosmo DiMaggio

Science Policy Research Division

Congressional Research Service

CONTENTS

STRATEGIC DEFENSE INITIATIVE (SDI): DIRECTING THE PROGRAM TOWARD MISSION OBJECTIVES

SUMMARY

In the FY88 Continuing Resolution (P.L. 100-202, Section 8116) the Congress approved a set of general goals for the SDI program. First, the SDI should be a long-term and robust research program to provide the United States with a technological hedge against any Soviet strategic efforts to undermine U.S. national security. Second, the SDI should pursue strategic options that can enhance U.S. leverage in arms negotiations with the Soviet Union. Third, the primary emphasis of SDI should be to explore promising new technologies that might have long-term potential to defend against a responsive Soviet offensive nuclear threat. And fourth, future program objectives should not be so ambitious as to undercut other important DOD programs.

Attainment of the second and third goals, particularly in a fiscally constrained environment, suggests some narrowing of the defensive missions SDI is to pursue, and clarification of the timeframes in which SDI is to pursue them. The technological emphasis suitable for exploring the feasibility of defense against an accidental launch of nuclear weapons would be considerably different than for a comprehensive defense of the nation against a determined attack. Similarly, the technological emphasis suitable for exploring the feasibility of defense against a Soviet threat in the mid- to late-1990s would be different than the emphasis suitable to address a post-2000 Soviet nuclear threat. Of course, multiple mission objectives can be incorporated into a single program. However, because competition for funds is expected to increase with time, priorities among them appear inevitable.

The Reagan Administration has adopted specific military mission objectives for an initial defensive system as part of a phased deployment strategy for strategic defense. If proven feasible, the initial system would be designed to destroy a classified portion of Soviet nuclear warheads in the event of a Soviet nuclear attack on the United States. The Administration believes that possessing such a defense would be sufficient in the near term to deter the Soviets from launching an attack. Later phases of defense would be designed to respond to Soviet countermeasures and increase overall defensive capability. Currently, SDI is focused toward a 1993-1994 decision on whether to deploy an initial defensive system.

The Congress is concerned about this approach on four levels. Serious questions remain about both the desirability and feasibility of: (1) strategic defenses, in general; (2) the phased deployment approach, (3) the Defense Department's military mission requirements for the initial phase of strategic defense; and (4) the specific defensive system being considered for this initial phase.

ISSUE DEFINITION

Currently, SDI embodies several objectives including: (1) to provide technical information that will make possible a knowledgeable decision on whether to deploy advanced ballistic missile defenses for various missions ranging from site defense to comprehensive nationwide defense; (2) to give the United States a hedge against Soviet advances in ballistic missile defense; and (3) to provide leverage for arms control negotiations with the Soviet Union.

The manner and degree to which the above objectives will be pursued is likely to be determined largely by a political consensus that has begun to take shape in the Congress. Assuming no major shift in policy to dissolve the SDI research program, the major unresolved issues in pursuit of the above objectives are what strategic defense options should be explored and what their priorities should be.

BACKGROUND AND ANALYSIS

Program Description

According to the Reagan Administration, the Strategic Defense Initiative (SDI) is a research and development program designed to explore technologies that could be exploited to defend the United States and its allies from nuclear ballistic missile attack. The SDI Organization (SDIO) at the Department of Defense (DOD) has primary responsibility for conducting the program. A portion of the work also is managed by the Department of Energy (DOE).

The research is geared toward providing enough technical information to allow the President and the Congress to decide in the early- to mid-1990s whether to proceed to full-scale engineering development, and subsequent deployment, of an initial defensive system. According to the Reagan Administration, the program is to be conducted in a manner consistent with all U.S. treaty obligations.

The program is investigating technologies to perform the following functions: detect an enemy launch; find and track enemy missiles and nuclear warheads; discriminate between real warheads and decoys; aim defensive weapons at their targets; attack and assess damage to these targets; and command, control, and communicate with the various components of the defense. The means for effectively producing, deploying, defending, and maintaining elements performing the above functions are also being explored. Emphasis is placed on non-nuclear technologies, although some nuclear research is being conducted.

The SDIO is also tasked with integrating the above separate technologies into defensive systems, or architectures. The architectures may vary in both timeframes and purpose. The integration effort involves an iterative process in which technologies are constantly evaluated for their potential contribution to overall system effectiveness. The

architectures will continue to change over the course of the research program as system requirements are refined and technologies are advanced until a decision is made to freeze some of them to pursue engineering development and deployment. Research would continue on other promising technologies and system concepts.

The ultimate goal is to develop defensive systems that incorporate multiple layers of weapons to successfully attack enemy missiles and warheads at different points along their trajectories -- boost, post-boost, midcourse, and terminal. During the boost phase, nuclear warheads are carried aboard missiles as they ascend through the atmosphere. In the post-boost phase, the warheads (up to 10 or more per missile) and decoys (ranging from a few to perhaps hundreds per missile) separate from the boosters and proceed to their destination through the midcourse (coasting) phase. In the terminal phase, the warheads descend back through the atmosphere to their targets. The boost phase is considered the most attractive phase to defense planners because destroying a single missile would negate all of its warheads and decoys.

The Reagan Administration's Concept of Strategic Defense

President Reagan first articulated his vision of a strategic ballistic missile defense system in a speech on Mar. 23, 1983, when he called for a world in which nuclear ballistic missiles could be rendered "impotent and obsolete." Since that time, many differing interpretations of the President's concept have been offered. Some critics of the SDI program reason that his vision would require an impermeable defensive "shield." Anything less would still result in unthinkable devastation from a nuclear attack. Hence, they argue that SDI is wasteful and dangerous because perfection is technically impossible and pursuit of false expectations to the contrary would lead to an escalation of the arms race and an erosion of the disincentives to first use of nuclear weapons.

On the other side of the spectrum, some SDI proponents believe that any amount of ballistic missile defense is better than no defense. If but a single nuclear-armed missile were launched towards the United States, even by accident, our military forces would be powerless against it. Currently, our only "defense" is to deter such a launch with the threat of similar or greater retaliation on a potential attacker. Therefore, these advocates argue that the United States must begin now to do whatever is possible to protect its citizens from the threat of nuclear ballistic missiles.

There is a broad range of positions for and against SDI between these views. Much of the current debate centers on whether, in the near term, SDI-derived defenses could enhance deterrence. According to SDIO, the guiding principle behind SDI is a desire to devalue Soviet offensive nuclear ballistic missiles by denying Soviet military planners the certainty of being able to achieve their military objectives with these missiles. In other words, the operational goal of the SDI is to devise defenses to deny the Soviets confidence of a "successful" first strike. This clearly implies a goal of significant, yet imperfect, defenses, whose specific objectives are dependent upon U.S. calculations of what

constitutes a successful Soviet first strike, and the measure of confidence of success required by Soviet planners to engage in one. Critics of this approach charge that there are other less costly and destabilizing ways of achieving such deterrence. However, DOD believes that strategic defenses would provide incentive to the Soviets to eventually decrease their numbers of offensive ballistic missiles through arms control and force restructuring, thereby inducing progress toward the realization of President Reagan's vision.

Phased Deployment

Planners recognized from the beginning of the SDI program that no comprehensive, multi-layered, strategic defense of the Nation and its allies could be deployed instantaneously. Deployment concepts for proven technologies have always been evolutionary, with the most mature technologies being deployed first. Potentially more effective yet higher risk technologies, like beam weapons, could be added later if they prove feasible.

Until mid-1987, however, no schemes had been proposed officially by DOD to address evolutionary deployments. At that time, the concept of "phased deployment" was introduced. Phased deployment is a refinement of evolutionary deployment in two key respects: (1) the phases would be designed as fully operable defensive systems, and (2) the design of each phase would be driven by particular effectiveness requirements. According to DOD, "each phase of deployment would be sized and given sufficient capability to achieve specific military and policy objectives and lay the groundwork for the deployment of subsequent phases." Of course, even a single phase could still not be deployed and become operational instantaneously.

To date, the Joint Chiefs of Staff have developed mission requirements for only the first of perhaps three or more phases of strategic defense. The requirements, details of which are classified, were driven in large part by the technology available and the anticipated Soviet offensive threat for the timeframe considered. Many factors, including U.S.-Soviet arms control agreements reached prior to initial deployment, could necessitate a change in these requirements.

SDIO has designed a candidate "Phase One" Strategic Defense System (SDS) to meet the first mission requirements. It consists of two layers of kinetic energy weapons (weapons that are designed to destroy their targets by the force of impact) and their associated sensors and battle management systems. The first layer of weapons would be based in space and would target missiles and post-boost vehicles prior to their releasing nuclear warheads. The second layer would be ground-based and would target warheads in space before they begin their descent through the atmosphere.

On Sept. 18, 1987, the Secretary of Defense approved the Defense Acquisition Board's (DAB's) recommendation that the technologies comprising the elements of Phase One enter the technology demonstration and validation (dem/val) phase of the defense acquisition process. Sometimes referred to as Milestone I, this phase is prescribed by DOD

policy for acquisition of all major systems. According to DOD, the purpose of the dem/val phase is to evaluate the feasibility of elements of a potential strategic defense system through analysis, experimentation, and simulation. The six elements proceeding into dem/val are:

(1) the space-based interceptor (SBI), formerly called the space-based kinetic kill vehicle (SBKKV),
(2) the exo-atmospheric re-entry vehicle interceptor subsystem (ERIS),
(3) the boost surveillance and tracking system (BSTS),
(4) the space-based surveillance and tracking system (SSTS),
(5) the ground-based surveillance and tracking system (GSTS),
(6) and the battle management and command, control, and communications system (BM/C^3).

Phase One is designed to meet the specified mission requirements for a particular timeframe beginning in the late-1990s. Given the variety and complexity of assumptions that must be made to plan for such a system, the SDIO is quick to point out that its elements are subject to change. Factors that could affect changes include developments in arms control, surprises in the pace of technological advances, funding constraints, and a reassessment of the Soviet threat. Additionally, even if a Phase One SDS succeeds in meeting the requirements, its effectiveness could decline over time below mission requirements due to Soviet countermeasures.

The plan to pursue a phased deployment approach to SDI at this time raises at least three important issues. First, are the mission requirements worthwhile? Second, would the candidate Phase One SDS be degraded below mission requirements before or soon after it is fully deployed? And, third, would a follow-on SDS (i.e., Phase Two) to maintain or exceed the initial mission objectives in a competitive environment with the Soviet Union be available when and if needed?

In a briefing to CRS following the 1987 DAB review of Phase One technologies, SDIO officials stated that DOD has chosen to deal with these issues in the following manner:

(1) the DAB will review Phase One annually to consider its progress and any changes to the Soviet threat assessment. The first of these reviews is scheduled to begin in April 1988. Should the DAB determine during any review that the candidate Phase One would not be adequate to meet its mission requirements, changes in the technologies or system design could be made;

(2) SDIO will allocate appropriated SDI funds to maintain an R&D balance between Phase One and less mature, follow-on technologies (e.g., lasers and particle beams); and

(3) before the elements of Phase One can proceed to full scale development (Milestone II), elements of a follow-on Phase Two must gain dem/val (Milestone I) approval from the Secretary of Defense.

It should be noted that the statements above reflect DOD policy rather than legislation and can be changed internally at any time.

Review of Past Legislation Shaping the Program

This section highlights selected legislative action having a direct bearing on the focus and direction of the SDI research program. It covers: (1) funding, (2) criteria for assessing whether to deploy strategic defenses, (3) conflicts between the SDI and the Antiballistic Missile Treaty of 1972, (4) concern over early deployment, and (5) the formulation of program objectives.

Funding

President Reagan has made SDI one of his top defense budget priorities since FY85, when he first requested money for the program. Budget requests have increased steadily from $1.8 billion in FY85 to $5.2 billion in FY88. The President's support is further indicated by his protection of the SDI program from a Gramm-Rudman-Hollings sequestration in FY87, causing some other defense programs to incur a larger share of the sequestration burden.

While supporting the program, the Congress has cut the President's request every year. Nonetheless, funding has increased from $1.4 billion in FY85 to $3.6 billion in FY88. (For more information on SDI funding, see CRS Issue Brief 85170.)

The bulk of SDI funding is contained in the DOD research, development, test, and evaluation (RDT&E) budget function. The SDI RDT&E budget is presented to Congress in five program elements: (1) surveillance, acquisition, tracking, and kill assessment (SATKA); (2) kinetic energy weapons (KEW); (3) directed energy weapons (DEW); (4) systems concepts and battle management (SC/BM); (5) and survivability, lethality, and key technologies (SLKT). Thus far, the Congress generally has chosen to make reductions from total program funding requests, leaving the specific allocation to DOD. Some exceptions have been made at the project level. For example, in FY88 the Congress set aside $27 million for a classified laser program and $15 million for research into medical applications of the free electron laser.

Congressional Deployment Criteria

In the FY86 defense authorization bill, the Congress adopted legislation establishing criteria for making future decisions on whether to deploy advanced ballistic missile defenses (P.L. 99-145, Section 222). The criteria are similar to those proposed by Ambassador Paul H. Nitze, Special Adviser to the President on arms control matters, in an address in Philadelphia on Feb. 20, 1985. The legislation states that:

> A strategic defense system developed as a consequence of RDT&E conducted on the SDI program may not be deployed in whole or in part unless:

(1) the President determines and certifies to Congress in writing that:
   (a) the system is survivable (i.e., the system is able to maintain a sufficient degree of effectiveness to fulfill its mission, even in the face of determined attacks against it); and
   (b) the system is cost effective at the margin to the extent that the system is able to maintain its effectiveness against the offense at less cost than it would take to develop offensive countermeasures and proliferate the ballistic missiles necessary to overcome it; and

(2) funding for the deployment of such system has been specifically authorized by legislation enacted after the date on which the President makes the certification to Congress.

In its report on the FY88 DOD authorization bill (S.Rept. 100-57), the Senate Armed Services Committee stated that it saw no evidence thus far to suggest that any of these criteria have been met.

The ABM Treaty

The Antiballistic Missile (ABM) Treaty of 1972 prohibits testing of ABM systems or components that are sea-, air-, space-, or mobile land-based. The Reagan Administration contends that the Treaty does allow such testing for components based on physical principles not incorporated in ABM systems in 1972 (e.g., lasers). Most others, including Senate Armed Services Committee Chairman Nunn, contend that this is not the case and runs counter to the interpretation that has been maintained for the last 16 years.

The dispute over Treaty interpretation generated a substantial debate in the 100th Congress. In a compromise worked out between the White House and the Congress, the program will be conducted at least through FY88 in a manner compliant with the traditional interpretation above. The National Defense Authorization Act (P.L. 100-180) approves funding only for those tests planned for and submitted to the Congress in the spring of 1987. Furthermore, no funds may be used to purchase hardware in FY88 for later tests planned by SDIO that would not that comply with the traditional interpretation of the Treaty.

Given the nature of the compromise, the potential exists for the issue to resurface during deliberations over the national defense authorizations for FY89. In an attempt to ease this confrontation, Secretary of State George Shultz stated publicly in mid-December that the Administration plans to deal with the testing issue on a case-by-case basis, rather than continue to pursue an alternate interpretation of the Treaty. Without elaborating on the actual process, Shultz said that the Administration will seek separate congressional approval of controversial SDI tests as necessary. (For more information on ABM Treaty interpretation, see CRS Report 87-164 S.)

Critics of the Reagan Administration's attempts to broaden the Treaty's restrictions on SDI R&D fall into two camps: (1) those who agree with the principle of the Treaty (deterrence based on the concept of the threat of offensive retaliation) and reject the notion that comprehensive strategic defenses can ever be stabilizing; and (2) those who are willing to examine the feasibility of stabilizing strategic defenses, but are not willing to go so far as to erode the ABM Treaty at this time in case the SDI fails. The latter group would have to be convinced of the existence of a new and better solution to preventing the use of nuclear weapons by the superpowers before they would agree to discard the old one.

The ultimate SDI objective of defensive deterrence runs counter to the approach and philosophy of the ABM Treaty. Policymakers face the dilemma that preserving the Treaty throughout the SDI research program means facing greater uncertainty over the feasibility of stabilizing and survivable strategic defenses, while abrogating the Treaty now to reduce that uncertainty could result in a situation with no treaty and no defenses to replace it. At present, the risks inherent in either modifying the operational interpretation of or abrogating the ABM Treaty are not well understood, resulting in a call from a majority of the Congress for a cautious approach to this issue.

Early Deployment

The proposal for early deployment has evoked formidable criticism in the Congress. Strictly speaking, "early deployment" refers to a deployment of strategic defenses resulting from a decision to proceed prior to the early 1990s (the timeframe proposed for such a decision when SDI was established). The idea, supported by former Secretary of Defense Caspar Weinberger, received a great deal of attention after a December 1986 George C. Marshall Institute report concluded that a three-layered strategic defense based on mature kinetic energy weapons could negate over 90% of Soviet nuclear warheads. The study estimated that this capability could be attained 7 years from a decision to deploy the system at a cost of about $120 billion. Today, most experts agree that the Institute's findings are based on overly optimistic assumptions about U.S. technical capability and the Soviet nuclear threat. Nonetheless, there remain a number of proponents of various early deployment concepts.

Critics of early deployment include not only those against the pursuit of strategic defenses generally, but some SDI proponents as well. Many proponents view consideration of early deployment of comprehensive strategic defenses as premature because not enough knowledge exists about the potential of some critical technologies like battle management software, sensors for discrimination, and beam weapons. Additionally, most analysts believe that analysis of the strategic policy implications of introducing strategic defenses into the Nation's force structure is currently inadequate. Too many questions remain over what Soviet reaction to U.S. strategic defenses might be, and what that would mean for arms control and crisis stability.

With the advent of the phased deployment concept and the resignation of Secretary Weinberger, the Administration has backed away from advocating a decision to begin deployment earlier than originally

envisioned. The SDIO is currently pursuing a course to allow for a decision around 1993-1994 on whether to begin initial deployments of the Phase One system.

Nonetheless, the Congress has acted to preclude any further consideration of early deployment of non-ABM Treaty compliant defenses. Specifically, the Congress prohibited:

(1) the deployment of any anti-ballistic missile system unless it is specifically authorized by law.

(2) the use of FY88 funds to support full-scale engineering development or deployment of the Space-based Interceptor, the most mature of the space-based weapons and a candidate for Phase One deployment;

(3) development or testing of any ABM system or component except those planned for and described to the Congress in the April 1987 SDIO report;

(4) the use of the National Test Bed as a battle manager for an early defensive system; and

(5) pursuit of an interim Advanced Launch System (ALS) to support deployment of space-based elements of a strategic defense system in the early- to mid-1990s timeframe.

Development of Congressional Guidance

Until recently, the SDI debate in the Congress has been largely philosophical and polarized. Key reasons for this include disagreement over the prospects and wisdom of pursuing strategic missile defenses and the absence of clear strategic policy and military mission objectives for the program.

With the recent articulation of phased deployment, and particularly of Phase One, the Congress was for the first time provided with tangible indications of where the program currently is headed. Timeframes for development and deployment decision milestones were also clarified. Consequently, the debate over SDI policy directives and funding is becoming more focused. While major differences of opinion remain, efforts to establish congressional guidance on SDI programs objectives have begun.

In addition to the strictures cited above, the Congress adopted a Senate bipartisan measure (Stevens/Proxmire) as part of the defense appropriations contained in the continuing resolution for FY88 (P.L. 100-202, Section 8116). It states that it is the sense of Congress that:

(1) in order to maintain the basis for strong deterrence, the SDI should be a long-term and robust research program to provide the United States with expanded options for responding to a Soviet breakout from the 1972 ABM Treaty and to respond to other future Soviet arms initiatives that might pose a grave threat to U.S. national security;

(2) by expanding potential U.S. strategic options, the SDI research program can enhance U.S. leverage in the U.S.-Soviet arms reduction negotiations and serve as a safeguard for ensuring that negotiated agreements are kept;

(3) future research plans and budgets for SDI must be established, using realistic projections of available resources in the overall defense budget and must not undercut other important DOD programs; and

(4) in matching research priorities against available resources, the primary emphasis of SDI should be to explore promising new technologies, such as directed energy technologies, which might have long-term potential to defend against a responsive Soviet offensive nuclear threat.

Earlier, but consistent with the above objectives, the Senate Armed Services Committee (S.Rept. 100-57) commended SDIO for its pursuit of the ERIS non-nuclear, ground-launched interceptor. The committee stated that it regarded the ERIS program as an adequate hedge against a potential near-term Soviet break-out of the ABM Treaty.

The Congress did not specify guidance on what is required of the SDI program to meet the other objectives contained in the legislation. For example, it is not specified what potential strategic options should be pursued to respond to Soviet initiatives or to enhance leverage for arms control. The language also does not resolve the debate over the degree to which the SDI should integrate certain technology efforts to explore potential future systems with particular defensive capabilities.

Some Members believe that dramatic improvements to U.S. national security can be attained only through carefully considered evolutionary deployments of strategic defense. Other Members, however, contend that SDI should not pursue development of defensive systems in the near term. They believe that the emphasis of the program should be on exploring truly revolutionary technologies, like beam weapons and interactive discrimination devices. In their view, should any of these efforts eventually lead to serious prospects for making dramatic improvements to U.S. national security, then, and only then, should concepts for incorporating the technologies into defensive systems be considered. Short of that, the program should provide a strong technological base to support potential reactions to Soviet actions and an incentive for arms control.

Key Issues

Following is a brief discussion of selected issues relevant to formulating congressionally approved mission objectives and directing the SDI toward those objectives. In this context, it should be noted that there are at least four levels of the SDI debate. Serious questions remain about both the desirability and feasibility of: (1) strategic

defenses, in general; (2) the phased deployment approach to introducing and increasing the capabilities of strategic defenses; (3) the military mission requirements approved by the Joint Chiefs of Staff for Phase One; and (4) the specific candidate architecture for meeting Phase One requirements.

What Should SDI's Military Mission Objectives Be?

Ardent opponents of strategic defenses reject the need for military mission objectives to guide the program. However, if one believes that either: (1) development and eventual deployment of strategic defenses are worthy of serious consideration, or (2) the greatest arms control leverage to be gained from the SDI is from a program with a particular technological focus, then it is reasonable to conclude that the SDI should be directed by specific military mission objectives rather than be an open-ended research program. The former belief requires an SDI program effective in providing the technical knowledge required to support a decision on whether to deploy ballistic missile defenses at some future time. The latter presupposes that to maximize the incentives for reaching a particular arms control agreement, the United States must first show resolve to pursue a unilateral means of addressing the object of negotiations.

These latter two philosophies can, in the near term, lead to indistinguishable programs. In fact, they need not be mutually exclusive and could both be incorporated into a single program with multiple mission objectives.

The military mission objectives required by both philosophies could be characterized by, among other things, the assets to be defended, the threat that needs to be addressed, the level of effectiveness required of the defense, and the timeframes involved. The assets to be defended could include, for example, U.S. and allied retaliatory missile sites, national command authorities, populations, and industrial centers. The threat could be defined in terms of ballistic missile types, numbers, and locations, as well as their probable targeting strategies. The level of effectiveness required would depend on the balance sought between the deterrent and protection values of the defense. And, the timeframes involved would depend on a number of factors, including U.S. and Soviet technical capabilities, availability of resources, and willingness to pursue arms control.

Currently, the SDI is pursuing a phased approach to a multi-layered, nationwide defense. Assuming an early 1990s national decision to do so, SDIO believes that deployment of the first phase could begin sometime before the end of the century. Conceptually, subsequent phases would be added to render the SDS more effective over time against a responsive Soviet threat. The initial phases of such a system would be designed to have a higher deterrent than protection value against a global nuclear war. In other words, the initial phases of defense would be designed to destroy enough nuclear warheads to deny the confidence of Soviet military planners in meeting their nuclear attack objectives. However, should the Soviets still launch a determined attack, these initial defenses could not prevent catastrophe for the United States. However, the system supposedly

would be flexible enough to protect the United States from a relatively small accidental or third-party strike. Most further details about SDI's operational military mission objectives are classified.

While congressional consensus is lacking over what the military mission objectives for the SDI should be, there appears to be a great deal of opposition to at least the timing envisioned by the Administration for deployment of a Phase One SDS. Many Members contend that the technology has not progressed far enough, and, given the dramatic shift in strategic policy represented by the SDI, its precise military mission objectives require more careful consideration prior to any commitment to a schedule to proceed beyond research. It appears that in deliberating the proper objectives for SDI, the Congress will want to consider, among other things, fiscal constraints, the fate of the ABM Treaty, the Nitze criteria, and whether basing weapons in space should be precluded.

Is Pursuit of Phased Deployment Appropriate at this Time?

Success of the phased development and deployment concept for strategic defense depends on a number of factors, including technological feasibility, the availability of resources, political resolve, and Soviet responses. One goal of the Administration's phased deployment approach is to attain an arms agreement between the United States and the Soviet Union to dramatically reduce offensive ballistic missile forces and gradually replace them with comprehensive strategic defenses. Absent such an agreement, however, the SDI might result in an unconstrained arms race with the United States rushing to outpace Soviet attempts to counter a unilaterally deployed SDS. This could place enormous technological and economic burdens on both nations over an indefinite period of time.

The prospects for these burdens are particularly troubling to many Members in light of increasing pressures on the Congress to limit defense spending. In the absence of a growing defense budget, the competition both between research and development dollars within the SDI program (for which a balance is required to prepare for subsequent phases), and between SDI and other areas in DOD, will become progressively more intense.

Proponents of the phased deployment approach believe that the United States can maintain the required edge in technology over the Soviet Union or any other aggressor that attempts to threaten the United States with nuclear ballistic missiles in the future. Furthermore, they believe that economic resources can be managed to meet what is, in their view, a national obligation for the United States to defend its citizens against attack by nuclear ballistic missiles.

Critics of phased deployment, however, contend that Soviet countermeasures to phases of an SDS will become available sooner and at less cost than the United States can compensate for them. Consequently, they view the initiation of phased deployment as irreversibly generating an offensive-defensive arms competition with the Soviet Union that would lead to a more dangerous, less stable military balance than would exist in the absence of strategic defenses.

While phased deployment might be a reasonable approach to strategic defense, it can be argued that orientation of the SDI program toward a specific Phase One is premature. Some would argue that SDI's charter is to explore the feasibility of a variety of technologies and approaches to strategic defense until at least the early- to mid-1990s. In this view, only after that time would it be appropriate to articulate the feasible strategic defense options, if any, to address particular Soviet threats it. Should phases of strategic defense be designed at that time, they very likely would be significantly different than what is planned today. This approach might afford more time to assess more fully the strategic implications of pursuing defenses, as well as to resolve relevant arms control issues with the Soviet Union. However, critics of this approach argue that it could result in a loss of domestic political momentum that would prove fatal to the program.

FOR ADDITIONAL READING

U.S. Library of Congress. Congressional Research Service. Arms control: negotiations to limit defense and space weapons, by Steven Hildreth. [Washington] 1988. (Updated regularly)
CRS Issue Brief 86073

----- Directed energy weapons research: status and outlook, by Cosmo DiMaggio. [Washington] Aug. 30, 1985. 47 p.
CRS Report 85-183 SPR

----- Potential offensive capabilities of SDI space weapons, by Cosmo DiMaggio. [Washington] Oct. 7, 1987. 14 p.
CRS Report 87-807 SPR

----- The Strategic Defense Initiative: a model for estimating launch costs, by Cosmo DiMaggio and Robert L. Civiak. [Washington] June 4, 1987. 7 p.
CRS Report 87-475 SPR

----- The Strategic Defense Initiative: issues for Congress, by Steven A. Hildreth (Coor.) [Washington] 1985. (Updated regularly)
CRS Issue Brief 85170

----- The Strategic Defense Initiative: program description and major issues, by Cosmo DiMaggio, Arthur Manfredi, and Steven Hildreth. [Washington] Jan. 7, 1986. 47 p.
CRS Report 86-8 SPR