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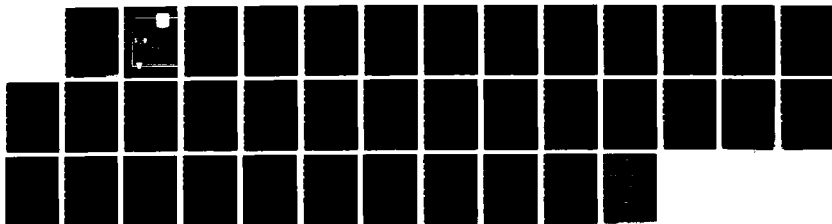
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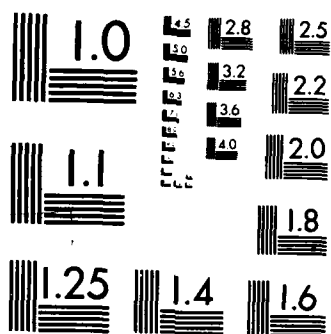
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FUTURE SDI DECISION MAKING

BY

MR. BARRY HOLMAN

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When a new administration prepares to take office in less than a year, it certainly will be faced with significant decisions concerning SDI and its future course. This paper examines the evolution of SDI from a policy standpoint and addresses a series of questions that taken together may suggest parameters for future decision making.

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FUTURE SDI DECISION MAKING

An Individual Study Project
Intended for Publication

by

Mr. Barry W. Holman

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U.S. Army War College
Carlisle Barracks, Pennsylvania 17013
29 March 1988

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ABSTRACT

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Nearly five years have lapsed since President Reagan made his now famous speech launching his Strategic Defense Initiative. Yet, polarized debate continues over the program's feasibility, desirability, affordability, goals, and direction. Some claim the program's goals have changed over time, and that today the primary goal is for an enhanced deterrence rather than providing a population defense as originally envisioned. Although the Congress has provided continuing and expanded funding for SDI, a consensus does not exist between the Congress and the Administration over the program's direction and goals. Some concerns exist within the Congress that the Administration is rushing too quickly to reach a decision on initial system development. Others would like to see initial development of a more limited defensive capability than that envisioned by the SDI program.

When a new administration prepares to take office in less than a year, it certainly will be faced with significant decisions concerning SDI and its future course. This paper examines the evolution of SDI from a policy standpoint and addresses a series of questions that taken together may suggest parameters for future decision making.

INTRODUCTION

Nearly five years have lapsed since President Reagan's now famous speech that would launch his Strategic Defense Initiative (SDI) program. That speech outlined a vision for the future where technology would permit the United States to develop a strategic defense system capable of detecting and destroying nuclear weapons quickly after their launch but certainly before they could strike the United States. It was to be a world where technology would make nuclear weapons "impotent and obsolete."¹ These past five years have been marked by sharply polarized and seemingly endless debate within the scientific and political communities over the feasibility, desirability, and affordability of such an undertaking. Critics have scoffed at the notion of a defensive system that could protect the entire U.S. population from nuclear weapons; and some have seen in the proposed program an effort on the part of the United States to regain strategic superiority over the Soviet Union--a situation viewed as very destabilizing. Others have viewed the effort as a necessary one to move beyond reliance on the concept of Mutual Assured Destruction (MAD) as a means of deterring nuclear war, or to counter Soviet research efforts.

Today, the SDI research effort goes on, as does the debate over the program. The design of a strategic defense capability is not yet known, though it is likely that the SDI program, if successful, will not produce a single system but will involve the

evolutionary development of a strategic defense capability. The SDI program's 1987 Report to the Congress stated that the program's goals "... can be reached through the phased deployment of defenses, and that incremental deployment of defenses is the only likely means of deployment."²

Some claim that the goals for a strategic defense capability have changed over time, and that today the program's short term, if not primary, goal is for an enhanced deterrent capability. In 1987, some began to suggest that the Administration might be rushing too quickly toward an initial deployment decision at the expense of important further research necessary for sound decision making, and at risk of violating the existing ABM treaty. Others have suggested the program objectives should be redirected or scaled down.

In this year of a presidential election, the candidates' public pronouncements on SDI have varied from endorsement of immediate deployment of a strategic defense system to statements that broadly denounce SDI. One source suggests that most Republican candidates have expressed support for deploying SDI

"'when' 'it' 'works,' (leaving all three of these terms undefined)."³ Little in-depth discussion is heard from most candidates concerning their "vision" of the program, what changes, if any, they would make in program direction and emphasis, or how they would approach future program decision making. However, as the next administration prepares to take office, regardless of party, it, as its predecessors have done,

likely will have its transition teams in place, including one focusing on defense needs, priorities, and strategies. How will they view SDI and its future course?

Collectively, the events noted above raise questions as to whether program changes have occurred in the SDI mission, and on what basis future program decisions might be made. This paper examines the above issues and addresses a series of questions that taken together may suggest parameters for future SDI decision making. Those questions are:

- (1) Is SDI solely a research effort of the current administration, an effort that would potentially be abandoned by a future administration or congress?
- (2) Have the program goals for SDI changed over time; and does the concept of phased deployment call for a clearer or expanded statement of mission and need?
- (3) What criteria exist for deployment decision making; and are they adequate?
- (4) What consensus exists concerning possible Soviet reaction to a U.S. strategic defense capability; and how would it potentially affect arms control negotiations?

Discussion of these questions is designed to show that SDI is not simply a one issue, go, no-go decision, but involves interrelated issues that should be considered collectively in determining the future of SDI. This paper is not intended to be either pro or con SDI but rather to provide an expanded basis for public understanding of the program's complexities from a policy making standpoint, and provide a framework for decision making.

AN OVERVIEW OF THE SDI CONCEPT

The Strategic Defense Initiative program was formally launched in 1984, bringing together under one roof related research already ongoing but with a new and challenging mandate. Development of a strategic defense capability is envisioned by some as dwarfing both the Manhattan project which produced the atomic bomb, and the Apollo project which placed man on the moon.

SDI is conceived as a layered defense effort, a defense in depth. It envisions being able to detect the launching of nuclear-armed missiles and being able to destroy them in flight before they reach their targets in the United States. This layered capability is usually presented as intercepting and destroying incoming nuclear-armed missiles by targeting and striking them at some point during their four phases of travel after launch. Those four phases are described by various sources as including:

- A missile's boost phase, lasting 3 to 5 minutes.
- A post-boost phase, lasting 5 to 8 minutes during which multiple warheads are released from what is often referred to as a post-boost vehicle commonly called a "bus".
- A mid-course phase lasting up to 25 minutes during which time the warheads travel above the atmosphere in space toward their target(s).
- A terminal or reentry phase lasting 30-90 seconds during which time the warheads reenter the atmosphere toward their target(s).

Hence, SDI research is aimed at exploring those technologies that could offer a defense against attacking missiles during each of

the above phases of flight. The Administration has stated that "...SDI is not based on any single or preconceived notion of what an effective defense system would look like. A number of different concepts, involving a wide range of technologies are being examined. No single concept or technology has been identified as the best or most appropriate."4

SDI research is currently divided into five areas including:

- Surveillance, Acquisition, Tracking and Kill Assessment (SATKA);
- Directed Energy Weapons (DEW) Technologies;
- Kinetic Energy Weapons (KEW) Technologies;
- Systems Analysis and Battle Management (SA/BM);
and,
- Survivability, Lethality, and Key Technologies (SLKT).5

A directed energy weapon is defined by the SDI program as "a weapon that employs a tightly focused and precisely guided beam of very intense energy, either in the form of a light (a laser) or in the form of atomic particles traveling at velocities at or close to the speed of light (a particle beam weapon)."6 A kinetic energy weapon is identified as one "that uses a nonexplosive projectile moving at very high speed to destroy a target on impact."7

The SDI program's 1987 Report to the Congress stated that "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

equal importance, the technologies employed in, and objectives served by, the initial phases of deployment would be fully compatible with the technologies and objectives of the ultimate strategic defense system. In fact, such early emphasis would facilitate the achievement of the ultimate system."⁸ That report goes on to state that "a first deployment phase could use kinetic energy weapon and sensor system technologies to concentrate on the boost-, post-boost, and late midcourse intercept layers. The boost and post-boost layers could consist of space-based kinetic-kill interceptors combined with surveillance and targeting satellite sensors in geosynchronous orbit. The late mid-course phase intercept layer could consist of ground-launched interceptors combined with ground-launched surveillance probes and could be used to destroy nuclear weapons that are not destroyed in the boost or post-boost layer defense."⁹ The report then outlines how subsequent phases could improve on the initial phase of deployment, including the use of kinetic energy weapons in a third phase.

It goes without saying that a survivable and workable SDI system would involve a tremendous technological undertaking. While a specific system has not yet been determined, the environment in which such a system might have to function has been described by a former Arms Control and Disarmament Agency official who envisions it as "...an Armageddon environment: as thousands of Soviet warheads, with hundreds of thousands of accompanying decoys, hurtle through space on the way to targets

in the United States, the space-based radars and other sensors of 'Star Wars' must be able to scan, track and discriminate; space-based mirrors must reflect laser beams projected from earth or space generators; space- and ground-based missile launchers must be able to launch their missiles, and orbiting battle management satellites and airborne command posts must be able to monitor, assess and control the myriad engagements taking place."¹⁰

IS SDI AN EXCLUSIVELY REAGAN ADMINISTRATION INITIATIVE?

SDI, as the program is officially known, will undoubtedly be recorded in history as a hallmark of the Reagan Administration. Often lost in the polarized debate over the program, however, is recognition that while the formal SDI program was launched in the Reagan administration, it was founded upon research that was already underway, funded by prior administrations. It has been noted that prior to the launching of the SDI program, about \$1 billion a year was being spent each year "to investigate lasers, particle beams and other technologies for anti-missile defense."¹¹ Prior funding does not suggest an automatic endorsement of the current SDI program, but it does indicate that the research into the relevant technologies has had a life apart from the current controversy over program direction. On one hand, this may seem to be a small point, yet, viewed in the context of the polarized debate over SDI, it is instructive for reminding us that the issue is not simply one of having an SDI or killing the program. Authors of a March 1986 staff report to three Democratic Senators titled SDI:

PROGRESS AND CHALLENGES, noted that "public debate on SDI has often centered on the desirability of performing a robust research program. The authors of this report consider that question moot. Public support for research is broad and bipartisan. The more relevant question involves the pace and direction of this program."¹²

Public support exists for strategic defense though it is not necessarily clear as to what extent that support reflects more the hope for such a capability as opposed to position taking based on understanding the scientific and political debate that has surrounded the program. A December 1985 Gallup Poll found that among the more than 60 percent of persons it surveyed, who had "followed the 'star wars' discussion very or fairly closely,"¹³ 61 percent responded affirmatively to the question, "would you like to see the United States go ahead with the development of such a system, or not?"¹⁴ Other surveys have produced similar results. However, more recently, in Fall 1987, a more limited and non scientific study found that the public has "...only a general concept of the program."¹⁵ While there may be strong public desire for a strategic defense capability, there is not necessarily an appreciation for the complexities of the task.

Despite congressional concerns over goals and program direction for SDI, funding for DOD's portion of the program has increased yearly since 1984, reaching \$3.6 billion in FY 88.¹⁶ While, these increases have been less than the amounts

requested by the Administration, and some funding votes have been close (with one tie vote broken by the Vice President), these increases do reflect support for varying degrees of research efforts. Some in the Congress have been concerned about the level of defense spending on SDI relative to funding for enhancing conventional defense capabilities. They have supported specific programs and funding for concerted research efforts in the conventional area designed to compete with SDI in terms of visibility. Those supporting the conventional defense initiatives cite the importance of a "broad-based and balanced technology initiative..."¹⁷ to exploit emerging technologies. These views were stated in a Senate Armed Services Committee report accompanying the National Defense Authorization Act For Fiscal Year 1987. That report also stated that "the committee continues to support a robust SDI research program because it believes the program serves a number of valid U.S. security purposes."¹⁸ These statements suggest that future SDI funding may have to compete in the Congress against funding for conventional defense initiatives, particularly in light of the recent INF treaty, as well as receive closer scrutiny in light of overall budget constraints. Yet, there is recognition of the need at least for research in both areas.

HAVE THE SDI PROGRAM GOALS CHANGED OVER TIME?

A case can be made that the goals emphasized for SDI have changed or been modified over time in response to early criticism of the President's long-term objective of making nuclear weapons

"impotent and obsolete."¹⁹ Likewise, it appears that some uncertainty still remains, at least in the eyes of Congress, over the program's future goals and objectives, if not desire on the part of some members themselves to see changes in program direction and emphasis.

The President's March 23, 1983 speech outlining the concept of a strategic defense capability marks the starting point for the debate over the program and its purpose. Although close reading of the President's speech indicates a clear recognition that research was needed to explore the feasibility of a strategic defense capability, critics, including numerous scientists, and former government officials, were quick to seize on and criticize the concept of a system capable of providing a population defense and making nuclear weapons impotent and obsolete--many considered it infeasible. Fairly, or not, this has become the benchmark against which the program has often been judged.

Former Secretary of Defense, Harold Brown, himself a physicist, has stated his judgment "...that a comprehensive, near-perfect defense of population will be infeasible for decades, and probably forever against an attack by many thousands of warheads."²⁰ Various other former government officials, Republicans and Democrats, have also expressed doubt about the feasibility of a population defense capability and have suggested a near term research emphasis on protecting U.S. missiles, and command and control facilities.

One source notes that doubt about the concept of population protection was beginning to be officially recognized when "within a week of each other in May 1984, for example, Defense Secretary Weinberger and (SDI Program Director) General Abrahamson acknowledged that the 'short-term' goal of SDI was to protect U.S. offensive nuclear forces, though this retreat to partial defense to 'enhance deterrence', rather than replace it was in all likelihood the only realizable objective of the program."²¹ This emphasis on a short-term goal different from the President's original vision for SDI has led some to characterize the program as having shifted from an SDI-I to an SDI-II emphasis.

A January 1985 Presidential statement on SDI does place much of its emphasis on SDI's contribution to deterrence but also addresses population defense criticism. It states that "the combined effectiveness of the defenses provided by the multiple layers need not provide 100% protection in order to enhance deterrence significantly. It need only create sufficient uncertainty in the minds of a potential aggressor concerning his ability to succeed in the purpose of his attack."²² The statement says that the purpose of SDI is to strengthen deterrence. It states that "effective defenses against ballistic missiles have potential for enhancing deterrence in the future in a number of ways. First, they could significantly increase an aggressor's uncertainty regarding whether his weapons would penetrate the defenses and destroy our missiles and other military targets."²³ It further states that "an aggressor will

be much less likely to contemplate initiating a nuclear conflict, even in crisis circumstances, while lacking confidence in his ability to succeed."²⁴ These statements about the role of uncertainty seem to fit what former Arms Control and Disarmament Agency Director Ken Adelman has described as the "quintessence of deterrence."²⁵

While the above statements seem to describe a defensive effort designed to enhance the longstanding basis of deterrence rather than the version enunciated by the President in March 1983, other Administration statements have also addressed both goals. Then Secretary of Defense Weinberger, in 1987 congressional testimony, stated that "neither the President or the DOD have ever accepted the notion of a defense that would protect only our national command facilities or retaliatory forces. The President's consideration of the concept of phased deployment does not imply this policy has changed. The type of defense we are seeking is capable of providing protection for our entire national territory including the general population."²⁶ Additionally, the Defense Secretary's Fiscal Year 1988 Annual Report to the Congress states that "the goal of the President's Strategic Defense Initiative (SDI) program is to provide a new and better way to deter war by reducing the utility of offensive ballistic missiles, ultimately rendering them impotent and obsolete."²⁷ That report also states the belief that "strategic defenses, if feasible, would provide a better basis for deterring aggression by strengthening strategic stability,

thereby increasing our security and that of our allies."²⁸

Lest one think the issue settled, one need only turn to the Congress to see that the question of SDI's goals still exists. A Senate Armed Services Committee report, accompanying the Fiscal Year 1987 Defense authorization legislation, referred to "continuing indications of basic disagreements within the administration as to the program's goals."²⁹ Senate floor debate over fiscal year 1988 funding authorization for defense also focused on continuing perceptions of change over time in the goals for SDI. Senator J. Bennett Johnston stated that "this program has zigged and zagged every which way in its goals and priorities."³⁰

On one hand, the controversy over SDI's goals is related to a number of factors including the argument over SDI providing a population protection versus enhanced deterrence, the concept of phased deployment of SDI, and some concerns that the administration is seeking prematurely to deploy a first phase system. The September 1987 Senate floor debate brought out strong concerns from some members that SDI funding priorities indicate a shift from emphasizing a long-term research program focusing on advanced technologies to emphasizing a premature push for early deployment of a system using existing technologies, and one that could easily be overwhelmed by the Soviet Union.³¹

On the other hand, controversy over SDI's goals may be viewed as more than just a change in funding priorities of the SDI program. It can also be linked to a lack of consensus

between the Congress, the administration, and others over what the goals should be. For example, there have been suggestions by some for a near-term emphasis on protecting U.S. missiles, and command and control facilities. That suggestion was also echoed in the earlier referenced Senate Armed Services Committee report. That report stated the committee's belief that "...the major emphasis within the SDI should be dedicated to developing survivable and cost effective defensive options for enhancing the survivability of U.S. retaliatory forces and command, control and communications systems."³² This raises the question of what role SDI should play in preserving U.S. retaliatory capabilities relative to other programs such as the MX and Midgetman missile programs. Some questions exist in the Congress about the future of those programs, particularly the Midgetman program, which was deleted in the Administration's FY 1989 congressional budget submission. One press account in February 1987 quotes a deputy assistant secretary of defense as saying "a limited strategic defense system would be favored over the single-warhead Midgetman missile in a future budgetary showdown."³³ It remains to be seen what debate may ensue in the Congress over the Midgetman program either separately from or in conjunction with debate over SDI.

Former National Security Advisor, Robert McFarlane, in a January 1988 article, expressed the view that "without a new strategic consensus, budget cuts will only bring chaos."³⁴ He went on to say, "we need, above all, a consensus on SDI and the

respective roles of offensive and defensive forces in preventing nuclear conflict."³⁵ Perhaps more significantly, he pointed out that "our new strategic consensus should recognize that one cannot expect to put the nuclear genie completely back in the bottle..."³⁶; this being tantamount to suggesting that it is not feasible to make nuclear weapons impotent and obsolete.

It should be noted that the initial phased deployment suggested by the SDI program would involve at least a partially space based system. The March 1986 Senate staff report on SDI noted that "the shuttle tragedy pointed out current logistical difficulties with the deployment of space-based payloads. Unless fairly dramatic advances are made in U.S. space transportation, logistics and support capabilities, it may be impossible to begin deploying any SDI system until after the year 2000."³⁷ Later that report also states "it may well be that the production, transportation, support, logistics, and administrative requirements of a strategic defense system are as tremendous as the military technical requirements."³⁸ This suggests that an early 1990's deployment decision of a layered defense system as envisioned by the SDI program may be difficult from a space transportation standpoint, irrespective of other technology considerations. It also suggests that both progress in space transportation capabilities and SDI technology will require close scrutiny in assessing the timing of any space based deployment of a strategic defensive capability.

One U.S. Senator has argued for immediate deployment of a strategic defensive capability based on existing technology to protect U.S. retaliatory capability and "use our permitted ABM deployment both as a true defense site and as a working laboratory."³⁹ Under that approach, existing technology would be used now within constraints of the ABM treaty with later decisions made on upgrades using emerging technology and decisions made concerning continued compliance with the ABM treaty.

More recently, Democratic Senator Sam Nunn has proposed developing a limited defensive capability by both the U.S. and the Soviet Union to protect against the accidental launch of nuclear missiles.⁴⁰ This would be directed toward building on earlier risk reduction efforts promoted heavily by Nunn and Republican Senator John Warner.

The latter two alternatives noted above appear directed toward what is often referred to as a ground-based "point defense" rather than the broad coverage, space-based layered defense normally associated with the SDI concept--even in a phased deployment mode.

The foregoing should indicate that much debate is yet likely over the goals and mission of a strategic defensive effort; if not part of the current presidential campaign, then certainly in the Congress, and in early policy decisions of the next administration.

DO SUFFICIENT CRITERIA EXIST FOR DEPLOYMENT DECISION MAKING?

Former Secretary of Defense Weinberger in his Fiscal Year 1988 Annual Report to the Congress stated that an important consideration in current research "is the degree to which certain types of defenses, by their nature, discourage an adversary from attempting to overwhelm them with additional offensive weapons. Any defensive system we might employ must not allow an adversary to degrade its effectiveness less expensively than we can restore it."⁴¹ In 1987 congressional testimony, Secretary of State Shultz said the President's criteria for deploying a strategic defensive system is that it has "...to be particularly feasible; it has to be survivable; and cost-effective at the margin."⁴² This was a variation on SDI deployment criteria cited by various administration officials, and originally attributed to Paul Nitze, President Reagan's Senior Arms Control Advisor. It should also be noted that "an amendment to the FY 1986 Defense Authorization Act prohibits strategic defense deployments in whole or in part until "(1) the President determines and certifies to Congress in writing that--(A) the system is survivable (that is, 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 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."⁴³ The legislation does not define "the system." When questioned about deployment criteria in the 1987 congressional hearing, Secretary of State Shultz stated that one would not want to start phased deployment of a strategic defense system "...until you have a clear, confident idea of where you are going."⁴⁴ However, the significant and not easily answered question confronting phased deployment is how one would know at the point of an initial system deployment whether subsequent systems would be particularly feasible, survivable, or cost effective at the margin. On the surface this could be a difficult if not impossible question to answer if the intent is to assure the viability of an ultimate system, and emphasis is given to early deployment of a system with limited capabilities. It could be very applicable, however, to individual deployment decisions to the extent they might stand on their own and where uncertainty exists about future phases. On the other hand, one might question whether these criteria provide a sufficient basis for decision making for individual phases that are intended to be interdependent and to lay the groundwork for subsequent phases. In that case, other questions might first need to be asked regarding individual phases including:

- What specific strategic needs is this initial system designed to fulfill: enhanced deterrence in general, building on the role of uncertainty; protection of strategic retaliatory capability; or some degree of population protection? Are there other system alternatives to fulfilling the strategic need--if so, how do they compare in terms of cost/benefit?

--How feasible and survivable is the designated phase and how definitively can projections be made about subsequent phases?

--What capabilities does the Soviet Union have for countering the system, if deployed; and how would this potentially affect the feasibility, survivability and cost of future systems?

If the initial deployment phase is deemed necessary to meet some short term strategic need, then the question of feasibility, survivability, and cost effectiveness of a later system could be less critical. Finally, one benefit which should not be overlooked, in terms of phased deployment decision making, is the opportunity such an approach affords for periodically examining and controlling long term program costs; particularly where individual phases are less interdependent.

ARE CONCERNS ABOUT SOVIET REACTIONS TO SDI VALID?

Many critical voices have been heard concerning the Soviet reaction or potential counter action to a U.S. strategic defensive capability either as originally envisioned or of a more limited SDI capability. How seriously should those views be taken? Many criticisms of the U.S. program in strategic defense seem to focus more on what the Soviet Union might do in response to deployment of a defensive system without fully discussing current Soviet research efforts or system deployments. Some balance in perspective may be gained by briefly considering those criticisms collectively and by further considering what the Soviet Union may or may not be doing in the SDI area.

Initial concern about the U.S. SDI program centered on the perception that it could be viewed as an effort on the part of the United States to regain strategic superiority over the Soviet Union, and thus in effect have a first strike capability. Concern has also been raised that any SDI system would cause the Soviets to expand their nuclear arsenals in order to be able to overpower and penetrate the system--thus further fostering an offensive arms race, if not launching a defensive one.

Some members of the U.S. scientific community have been part of the opposition to the SDI program from its inception voicing their concerns from a scientific and also a political perspective, including SDI's effects on U.S./Soviet relations. That opposition has extended even to phased deployment of SDI. A recent pledge against SDI taken by a number of U.S. scientists said SDI is ill-conceived and dangerous and that anti-ballistic missile defense of sufficient reliability for population defense is not technically feasible. It further said that "a system of more limited capability will only serve to escalate the arms race by encouraging the development of both offensive overkill and all-out competition in anti-ballistic missile weapons."⁴⁵ It goes on to say that the "missile jeopardizes existing arms control arrangements and makes negotiations even more difficult than at present."⁴⁶

The Soviet government has mounted an unusually strong and vociferous assault against the U.S. strategic defense effort. Does this mean that the Soviets do not share the publicly

expressed skepticism of many scientists and other officials in the U.S. concerning the program? Or does it mean the Soviets fear the many technological advancements, if not quantum leap in technology advancement, that may accrue to the U.S. through the research effort--even if a strong strategic defensive capability is not in the offing, at least in the near term? The former seems less likely given the interactions that take place periodically between U.S. and Soviet scientists; these likely have exposed the Soviet scientists to the views of scientists in the United States on the subject. The latter would seem more likely.

What about Soviet views concerning a phased deployment? One source has recently suggested that "Soviet strategists find little consolation in the notion that the United States cannot devise a 'leak-proof' system. A less effective system, they maintain, could serve a critical offensive function by encouraging the United States to launch a nuclear strike on the assumption that the strike would destroy many Soviet ballistic missiles and that the defenses would neutralize the rest."⁴⁷ Other sources suggest that strategic defenses may lead to war before they are operational, as the USSR could be tempted to attack elements of the system during deployment.

While concerns about potential Soviet reaction to SDI should not be dismissed, they need to be balanced by consideration of the Soviets' own activities in the area. The Soviet leader, Mr. Gorbachev, while in the U.S. in December 1987,

for signing of the INF treaty, stated that his country too is researching strategic defense capabilities. The Secretary of Defense's Fiscal Year 1988 Annual Report to the Congress states that "Moscow has increased both its active and passive defenses in an effort to negate the effectiveness of U.S. and allied retaliatory forces. The Soviets maintain around Moscow the world's only operational antiballistic missile (ABM) system, now being upgraded to a two-layered defense. In addition, they are now constructing a network of new phased-array radars that can track more ballistic missiles with greater accuracy."⁴⁸ The Soviets are also recognized as having the world's only operational antisatellite system. Should these systems be viewed as destabilizing? Should one also question whether Soviet civil defense efforts are not also destabilizing? There are those who dispute the effectiveness of these defensive efforts. One might question why and to what extent an initial phase SDI system of limited capabilities would necessarily be considered more destabilizing than existing or potential Soviet defensive measures.

A difficult question to answer is how seriously administration statements on the Soviet capabilities and research efforts are viewed by the public at large and particularly by the Congress. Are these statements viewed as credible, or have they been exaggerated in an effort to build support for the U.S. SDI program? Perhaps a formal bipartisan assessment of Soviet research efforts and capabilities would be helpful as a necessary

underpinning to developing a future consensus on the level of research, development, and deployment efforts to be undertaken by the U.S.

Robert Jastrow and James Frelk, referencing CIA estimates, advance the view that "in the early 1990's, the Soviet Union is likely to have a lethal combination of a first-strike force and a defense against retaliation."⁴⁹ This is based on an already ongoing Soviet build-up of its ICBM's and the potential for a quick, large scale replication of its current Moscow ABM system. One could argue this as a basis for a quick deployment decision by the U.S. for a strategic defense system. Yet, on the other hand, one might see need for a more gradual approach, staying within the confines of the 1972 ABM treaty to avoid precipitous Soviet action and to better assure an optimum U.S. defensive system if deployed at a later date. Perhaps a question that should be explored at the point of any proposed SDI deployment decision is the extent of U.S. capabilities for offsetting then existing and near term deployable Soviet offensive and defensive measures with or without a U.S. defensive capability. Consideration should also be given to whether Soviet defensive measures would be that negative a factor to the extent they contributed toward nuclear stability and risk reduction. In that light, a more balanced assessment might be made concerning how destabilizing a U.S. defensive effort might be.

How Might SDI Affect Future Arms Reductions?

SDI was initially seen as an impediment to arms reduction negotiations in Geneva. Now SDI is widely credited with bringing the Soviets back to the negotiating table in Geneva. Yet, now that the INF treaty has been signed, concern has shifted to the perspective that U.S. insistence on continuing the SDI program could inhibit an agreement on reducing long-range missiles.

While some see SDI as an impediment to deep reductions in nuclear missiles, others see deep reductions as fostering the need for SDI and potentially making any such system more effective.

Jonathan Schell suggests that deep reductions in nuclear weapons are a necessary prerequisite to being able to deploy a strategic defense capability.⁵⁰ Keith Payne and Colin Gray advance the view that "deep reductions in offensive missiles which probably cannot be verified, could be tolerated in the presence of the SDI, which would compensate for all but large scale

cheating."⁵¹ Robert Kupperman states that "traditional arms control policies contain an inherent yet profound paradox--we do not yet know how to reduce the world's nuclear arsenals without increasing rather than decreasing the threat that these weapons might be used. For example, under certain circumstances, there can be greater risks in maintaining small arsenals than large ones."⁵² This seemingly reinforces the argument by Keith Payne and Colin Gray concerning verification difficulties. Kupperman also suggests that, if mixed offensive-defensive strategy is deployed, "an agreed upon protocol with the USSR would be

desirable. For example, the conditions under which initial defensive actions could be taken might be explored."⁵³

The above do not suggest the absence of any room for negotiating any restrictions on SDI as part of an agreement providing deep reductions in long range missiles. They may, however, provide reason for preserving some options for future testing and deployment of a strategic defense capability.

AN INTEGRATION OF ISSUES

The foregoing should have shown that much uncertainty still surrounds the issues of what is SDI, what is its mission, how strongly should it be pursued, and when should it be deployed. These are important, interrelated issues that will be faced by the next administration and the next congress. On what basis will they make their decisions?

Should SDI research be viewed solely as a Reagan Administration initiative? Not entirely! The foregoing has shown that research in strategic defense technologies had a beginning apart from the current administration and the concept of strategic defense is supported by the public. This should have some important bearing on future decisions at least in supporting some continuing level of research. If we take as a given that some level of research should be continued, then on what basis will program decisions be made?

Is there a consensus concerning program goals and objectives for a strategic defense capability? Not yet! A consensus is needed between the administration and congress

concerning the long and short-term goals of strategic defense research, and development. Then a consensus is needed on program focus and priorities in terms of seeking to pursue new technologies, deciding whether to pursue a near term deployment using existing technologies, or limiting both technology and deployment efforts in the face of budget constraints, greater emphasis on conventional weapons, or both. The issue is much broader than just SDI--it involves a consensus on integrating offensive and defensive strategies and capabilities. This requires moving beyond polarized rhetoric over the feasibility and desirability of making nuclear weapons impotent and obsolete.

How should deployment decisions be made? Feasibility, survivability, and cost effectiveness are important but provide only a partial basis for deployment decisions. If considering a potential decision to seek short-term deployment of a system, what mission need will the program be seeking to fulfill? What is the cost/benefit of the strategic defensive system relative to other systems for meeting that need? By one view a ground based system could be deployed using existing technology, within the constraints of the existing ABM treaty, to provide some protection of our nuclear retaliatory capability and serve as an operational test bed. If the initial defensive capability is intended primarily as a test bed, then such a system could be viewed as a relatively less destabilizing first step toward shifting to a mixed offensive/defensive strategy. If the primary purpose of a defensive system is to protect nuclear response

capabilities, then that decision would probably need to be considered in the broader context of development of the MX or Midgetman Missile systems with a decision concerning to what extent each of these systems is needed and at what level of cost.

If the decision is made to continue pursuit of a layered defensive capability, then both technical feasibility and space transportation capabilities must be factored into an integrated decision.

How should our decision-making be affected by Soviet actions or response? A necessary underpinning to future SDI research and development efforts should be a bipartisan consensus (to the extent that is possible) on Soviet research efforts and advances in antisatellite capabilities, and how U.S. SDI research could and should provide any needed response. Questions will need to be addressed concerning whether and to what extent there is room for using SDI as a bargaining chip in arms reduction negotiations. The availability of technology for systems development and the availability of supporting space transportation systems can help determine what trade-offs might be desirable in arms reduction negotiations.

Each of the above questions is interrelated and should be considered by decision makers in program and funding decisions affecting the future of SDI.

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