Chapter 2

# Introduction

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## THE STRATEGIC DEFENSE INITIATIVE

President Reagan's speech of March 23, 1983, proposed a major shift in U.S. nuclear strategy. For at least 25 years, since the earliest Soviet deployments of Intercontinental Ballistic Missiles, the United States has relied on the threat of retaliation to deter Soviet nuclear attack on the United States. During the 1960s both sides worked on developing weapons that were intended to defend against ICBMs. In the United States, a debate also arose over whether such defenses were feasible and desirable. Would the United States be more secure attempting to defend its national territory against ballistic missiles while the Soviet Union did the same? Or would it be more secure attempting to keep such defenses largely banned by agreement with the Soviet Union? In 1972 President Nixon chose the latter by signing the SALT I ABM (Anti-Ballistic Missile) Treaty, and the Senate consented by ratifying it.

In his speech President Reagan said that even if current arms reduction negotiations with the Soviets were to succeed,

> . . . it will still be necessary to rely on the specter of retaliation—on mutual threat . . , Wouldn't it be better to save lives than to avenge them? , . . What if free people could live secure in the knowledge that their security did not rest upon the threat of instant U.S. retaliation to deter a Soviet attack; that we could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies?[1]

He held out the prospect, then, for a substantial change in U.S. nuclear strategic policy. With this change, the United States would move away from its current deterrent posture against the Soviet Union, which stresses offensive counter-threats to deter potential Soviet aggression. Instead, deterrence would emphasize preventing Soviet ballistic missiles from reaching their targets at all.

The President called upon

> . . . the scientific community in our country, those who gave us nuclear weapons, to turn their great talents now to the cause of mankind and world peace: to give us the means of rendering these nuclear weapons impotent and obsolete.[2]

He did add a caution to his proposal:

> . . . defense systems have limitations and raise certain problems and ambiguities. If paired with offense systems, they can be viewed as fostering an aggressive policy, and no one wants that.

He nevertheless announced that he was

> . . . directing a comprehensive and intensive effort to develop a long-term research and development program to begin to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles. This could pave the way for arms control measures to eliminate the weapons themselves.[3]

### Studies Following the President's Speech

Presidential National Security Study Directive 6-83 (NSSD 6-83) called for the Defense Department to study and report on how such a research and development program might best be shaped. The Defense Department established two groups of consultants to study ballistic missile defense (BMD). The most prominent of these, a "Defensive Technologies Study Team" prepared a study on "Eliminating the Threat Posed by Nuclear Ballistic Missiles. " That committee of 50 defense scientists and engineers was chaired by Dr. James C. Fletcher, former NASA administrator, and be-

[1] Ronald Reagan, televised speech of Mar. 23, 1983.

[2] Ibid.

[3] Ibid,

came known as the "Fletcher Panel. " The Fletcher Panel produced a technology research and development plan (with "fiscally constrained" and "technology-limited" alternatives), the aim of which was to

> . . . allow knowledgeable decisions on whether, several years from now, to begin an an engineering validation phase that, in turn, could lead to an effective defensive capability in the 21st century.[4]

The Department of Defense also created a second panel to carry out NSSD 6-83: the Future Security Strategy Study Team, headed by Fred S. Hoffman, which produced a report entitled "Ballistic Missile Defense and U.S. National Security. " Saying that "A combination of technical and strategic uncertainties makes it impossible to say when or whether we can reach the ultimate goal" of fully defending our people against nuclear ballistic missiles, the Hoffman Panel paid particular attention to how "defenses might also reinforce deterrence" by increasing the uncertainties faced by nuclear attack planners.[5]

### The Strategic Defense Initiative Organization

Following these studies and the acceptance of their major findings by the Secretary of Defense and the President, early in 1984 the Defense Department began to establish the BMD research program under the rubric 'Strategic Defense Initiative Program. " In March, Secretary of Defense Caspar Weinberger appointed Air Force Lieutenant General James A. Abrahamson to head this program. In April, the Secretary chartered the Strategic Defense Initiative Organization and appointed Lt. General Abrahamson as its Director. This Organization was charged with undertaking

> . . . a comprehensive program to develop key technologies associated with concepts for defense against ballistic missiles. The technology plan identified by the Defensive Technologies Study and the policy approach outlined in the Future Security Strategy Study will serve as general guides for initiating this program . . . The SDIP will place principal emphasis on technologies involving non-nuclear intercept and destruction concepts. The basic approach will be to consider layered systems that can be deployed in such a way as to increase the contribution of defenses to deterrence and move the United States toward its ultimate goal of a thoroughly reliable defense . . . The program shall protect U.S. options for near-term deployment of limited ballistic missile defenses.[6]

*As paraphrased in "The Strategic Defense Initiative: Defensive Technologies Study, " Department of Defense, March 1984, p. 4.

5, third group, an Interagency Working Group headed by Franklin C. Miller of the Defense Department, also produced a BMD-related report on "Future Security Strategies. " (The executive branch has denied Congress access to this report. )

Caspar Weinberger, Memorandum on "Strategic Defense Initiative Organization (SDIO) Charter, " Apr. 24, 1984.

## ORGANIZATION OF THE OTA STUDY

The national debate about ballistic missile defense technologies will take place in the context of larger issues of national security strategy. On the one hand, BMD development and deployment would be carried out to fulfill the requirements of a U.S. national strategy. The answer to the question of whether we can build a BMD system depends on how good a BMD system we need. How good a system we need depends on what our national strategy would require the the system to do. On the other hand, the emergence of new BMD-related technologies has suggested to many that new strategies, once infeasible, may become available. President Reagan's call for a Strategic Defense Initiative stemmed both from a dis-

satisfaction with our existing national strategy and from the belief that changes in strategy might be made technically feasible. Thus the issue of what is technologically possible is embedded in a debate about what is strategically desirable and practical.

The absence of a national consensus about what our strategy ought to be makes difficult the question of what kind of BMD capabilities, if any, we should pursue. Differing strategic perspectives lead to disagreements over whether particular levels of BMD capability, integrated into an appropriate, U.S. nuclear strategy, would:

- make nuclear war less likely or more likely;
- ameliorate the effects of a nuclear war should it occur or not;
- lead to more effective international agreements to limit offensive arms or to a greatly accelerated arms race.

Estimates of which of these results BMD deployments might produce depend in part on difficult judgments about what kind of strategic relationship the United States should try to sustain with the Soviet Union.

But those strategic judgments depend at least in part on technical estimates of the potential effectiveness of strategic defenses. Such technical estimates will be based partly on projections of levels of technological achievement (what kinds of system could we build?) and partly on projections of potential Soviet strategic and technological responses.

Thus the questions, "What kind of ballistic missile defense, if any, would we want if we could have it?' and "What kind of ballistic missile defense can we have?" feed back upon one another. Since we cannot afford to carry out research on every kind of weapon that may be technically possible, our research on BMD should be guided by our strategic objectives. But decisions about our strategic objectives should be informed by what is technically possible, so research may lead to new strategic objectives.

This study tries to bring light to the debate by clarifying both the strategic and the technological issues. It begins by reviewing current U.S. nuclear strategy and the reasons for the absence of a role for ballistic missile defense in that strategy. It outlines some strategic ideas that various advocates have offered for altering the current strategy, but does not attempt to choose among those ideas. That choice is left to the reader.

Second, the report assumes, for the sake of discussion, that various levels of BMD capability might be available to the United States and the Soviet Union, and examines how one would go about analyzing the ways such capabilities might serve various strategic goals. Third, it explores some of the possible consequences for crisis stability, arms race stability, and arms control that BMD might have. Fourth, it reviews the technologies being researched for their applicability to BMD tasks. Fifth, it reviews some of the alternative overall BMD research program objectives that Congress may wish to consider. The approach of this study, then, is to try to assist Congress in understanding the potential implications, both long- and short-term, of the new BMD technologies.

Chapter 3 of this volume briefly reviews some historical background to the current BMD debate, recalling the nature of the earlier technologies and the strategic assumptions behind the national decision in 1972 to agree by treaty with the Soviet Union to forgo their deployment. It also reviews the debates since the ratification of that treaty over whether the decision was, in retrospect, a wise one or not. Finally, it attempts to delineate the differences in politics and technology between the current era and the one in which the earlier decisions about BMD were taken. The information in this chapter should be useful for understanding how it is that U.S. nuclear strategy today does not contain a role for BMD and why some proponents now argue that it should.

This study first analyzes not the question, "Could we build a BMD system?, " but there-

lated questions "Why would we want one?" and "How capable would it have to be?" To set the stage for these questions, we start in chapter 4 with a review of the principles of current U.S. nuclear strategy and of some proposals for altering that strategy that have appeared in public debate. The chapter also explores some of the implications of such changes in strategy, particularly for our commitments to allies. The United States might want BMD to enhance its current nuclear strategic posture, which consists of trying to deter Soviet aggression through a mix of threatening retaliatory punishment and being able to deny the Soviets the goals of such aggression. For reasons explained in chapter 3, current U.S. strategy relies on nuclear offensive forces, protected only by passive means, and not on active defenses against ballistic missiles.

Successfully building and sustaining relatively low levels of BMD capability might, in various ways, strengthen the current nuclear strategic policy. Reliance on considerably higher levels of strategic defense, however, would amount to a substantial alteration in existing policy. We would come to rely much more on simply denying the Soviets the damage they might intend with their nuclear ballistic missiles and rely much less on our threat of retaliation to deter them. With extremely high levels of defense against all forms of Soviet nuclear delivery vehicle, we could even consider largely abandoning the threat of nuclear retaliation against the Soviets. (If we could, on the other hand, build a highly effective defense while retaining a highly effective offense against Soviet territory, we might regain the strategic superiority over the Soviets which we possessed for the first 15 years or so of the nuclear age.)

Chapter 5 tries to indicate what must go into a persuasive analysis of how various postulated levels of BMD performance might either enhance the current nuclear deterrent posture of the United States or promote movement to a different strategy. Because any move to a new strategy will necessarily start with modifications of our current strategy, the chapter devotes the majority of its discussion to the question of how the additions of BMD to that strategy might be expected to work. Deterrence, whether relying on the threat to deny military successes or on the threat of punishment, rests on the perceptions and calculations of the one deterred on the outcome of a conflict that he might consider starting. Calculations about the outcome of a nuclear war would be affected by the presence of ballistic missile defense on both sides. The chapter examines the strategic implications of several levels of defense capability, ranging from none at all to extremely high.

Whether BMD can make a satisfactory contribution to U.S. strategic goals depends on a great deal more than whether certain levels of technical performance can be achieved against postulated offensive threats. If certain kinds of BMD looked technically feasible, there would still be several important questions we would want answers to before we decided on deployment. In particular, we would want the addition of BMD to enhance international stability in a crisis, not increase the incentives presented to either side to initiate nuclear conflict. Chapter 6 describes some conditions for crisis stability and looks at some ways in which BMD might either enhance it or weaken it.

For BMD to be effective in serving our national strategy, it must not stimulate offensive responses on the part of the Soviets that leave the United States exposed to a more severe nuclear threat than it was before. Nor should BMD deployment lead to an arms race of offense against defense on both sides that was so costly that we could not or would not want to sustain it. Instead, we would want to see BMD contribute to arms race stability. In some hypothesized cases, BMD leads not just to arms race stability, but to new possibilities for arms control. Some argue, on the other hand, that moving toward BMD could erode the current strategic arms control regime while lessening the prospects for future agreements. Chapter 6, then, also discusses arms race stability and arms control in relation to BMD.

Chapter 7 introduces the technologies which might form the basis for new ballistic missile defense systems in the coming two or three decades. Potential countermeasures to weapons using these technologies are also identified. The interplay of defenses, countermeasures, and counter-countermeasures cannot be discussed in detail, because many concepts are classified. But the chapter does attempt to give an idea of the nature of the problem. Because most of these technologies are in a relatively undeveloped state, Congress will not likely be faced in the near future with full-scale BMD deployment decisions. Rather, it will have to judge how public money should be spent on BMD research in the next few years.

Chapter 8 describes an imaginary design for a multi-layered BMD system. The purpose of this hypothetical construct is not to predict what kind of BMD system the United States might actually choose to deploy after the current research program is completed. Rather, it is used as a means of illustrating the kinds of technological problems that must be solved, the kinds of feasibility issues that will arise, and the kinds of cost factors that will have to be considered if the decision to build a large-scale ballistic missile defense is to be taken.

Once we had defined the future strategic condition we would like to be in, and once we had chosen the technologies we believe should be applied to BMD, we would have to see a plausible path from our present condition to the future one. And we would like to have some assurance that there were feasible ways of maintaining that condition once it was reached. We would want to have some confidence that the transition to the new situation, as well as the new situation, would make nuclear war less likely, not more likely.

Chapter 9 presents alternate descriptions of how the transition from our present strategic nuclear posture to one incorporating significant strategic defenses might take place—or might be avoided. Beginning with the strategic evolution envisaged by Administration proponents of the President's Strategic Defense Initiative, it examines a variety of cases, looking at different imaginable outcomes both of BMD development and deployment and of nondeployment. It attempts to present the premises, values, and conclusions of those advancing such viewpoints. This exercise should serve as useful background to the current debate over BMD research and development.

Chapter 10 examines the general goals and shape of the current BMD research program, its implications, and possible alternatives to it. The chapter does not attempt to define the details of such alternate programs, but the differences in purpose and shape that might underlie them. It attempts to relate such alternatives to the strategic context established in the earlier chapters. Even though no deployment decisions are now before Congress, eventual goals must at least be considered at the time research and development programs are undertaken. The decision to find out what *is* feasible implies some ultimate goals. How the research is carried out and at what levels will be affected by those goals. Moreover, even a research program can have important national and international consequences.

Since many of the BMD-relevant technologies could lead to space-based weapons systems and components, issues concerning antisatellite (ASAT) weapons are closely related to ballistic missile defense issues. Because of special Congressional interest in some of the nearer term issues around ASAT, and in consultation with the staffs of the requesting committees, OTA undertook a subsidiary study of ASAT issues. In the resulting companion report, *Anti-satellite Weapons, Countermeasures, and Arms Control,* OTA has attempted to make clear the implications of ASAT and BMD for one another. Decisions about one cannot be rationally made without considering implications for the other.