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**Section 9**

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A host of less grandiose goals than perfect or near-perfect defense assume importance in certain theories about the workings of nuclear deterrence and the requirements of U.S. security. Thoughtful observers debate not just the feasibility of achieving these goals but the validity and importance of the goals as well. The urgency one attaches to these goals determines the costs, risks, and harmful side effects one is willing to incur to fulfill them. Assessing the wisdom of less-than-perfect defense thus involves a complex and subjective balancing of goals and risks, in which purely technical issues sometimes take a back seat. In discussion of perfect defense, by contrast, technical assessment is paramount. This section therefore calls up many issues of nuclear policy not subsumed under the title of this Background Paper, and no pretense is made hereto complete treatment.<sup>1</sup>

Though various strategic goals for BMD can be distinguished in principle, in practice it might not be clear or agreed among all parties in the United States what the purpose of a proposed deployment actually was. Interpretations by the Soviet Union and other foreign nations of U.S. goals might be quite different yet.

<sup>1</sup> For a more complete treatment of the entire subject of BMD, see Ashton B. Carter and David N. Schwartz, ed., *Ballistic Missile Defense* (The Brookings Institution, 1984).

Those familiar with BMD design and assessment will recognize that stating a general strategic goal is not enough: the *technical* specifications are essential. For instance, it makes an enormous difference in silo defense whether the defense seeks to charge the offense a price of five RVs (or half a booster) or 10 RVs (one booster) per silo.

For goals requiring very modest performance, terminal and midcourse defenses might suffice. Since no one knows whether boost phase defenses, when better defined, will surpass or even equal traditional defenses in terms of leakage and cost exchange, there is no point in turning to exotic technologies to satisfy modest goals. Virtually all observers agree, on the other hand, that terminal and midcourse systems are unequal to the more demanding goals; for these goals one is forced to direct one's hopes to the promise of future technologies.

This section sketches various goals for less-than-perfect defenses and the strategic thinking that attaches importance to them. It then points out a number of side effects against which fulfillment of these goals needs to be balanced. This short section is no substitute for a comprehensive assessment of the pros and cons of BMD.

## 9.1 GOALS FOR LESS-THAN-PERFECT DEFENSE

**1. Strengthen deterrence by preventing preemptive destruction of retaliatory forces.** It is widely recognized that the Soviet Union will soon have, if it does not already, the combination of yields, numbers, and accuracy in its ICBM **forces to** destroy most U.S. Minuteman ICBMs **in their** silos. It is also widely agreed that vulnerable nuclear forces create unwanted temptations for both sides to strike first if war seems likely. The long and anguished search for survivable basing modes for the U.S. MX (Peacekeeper) ICBM has to date turned up no clear favorites when sur-

vivability is balanced against cost, technical risk, strategic effects, and environmental impacts. **BMD would substitute** for or complement these other basing modes. By shooting down a fraction of the opponent's missiles, **BMD would** in effect "de-MIRV" ICBM **forces**.

Of course, turning to BMD to ease ICBM vulnerability is not without problems. One problem is the prospect of a compensating Soviet BMD.

<sup>2</sup> *MX Missile Basing*, Office of Technology Assessment, U.S. Congress, September 1981.

MX is presumably being bought and made **survivable** in the first place so that the U.S. can absorb a Soviet strike and retaliate with its ICBMs (in addition to its bombers and submarines) against Soviet targets. But modification or termination of the ABM Treaty to permit a U.S. defense would permit a Soviet defense as well. The surviving U.S. ICBMs guaranteed by the U.S. BMD might still not result in retaliatory damage to Soviet targets if these targets are defended by Soviet BMD. The U.S. BMD deployment, all bought and paid for, might therefore have been cancel led out by a Soviet counter-deployment,

Other elements of the U.S. retaliatory force comprise command and control links, bomber alert bases, and in-port submarines. Bomber bases, sub ports, and fixed command and control facilities are the worst type of target base for BMD to try to defend—a small number of high-value, soft, and interdependent targets. The important remaining category of mobile command and control facilities, on the other hand, does not easily lend itself to active defense with BMD.

**2. Strengthen deterrence by preventing the use of nuclear weapons as decisive military tools for high-confidence “limited” strikes on conventional forces. This goal is associated with so-called “warfighting” strategies for nuclear weapons. According to analysts who hold this view, today’s “offense dominated” world creates dangerous temptations to resort to nuclear weapons to accomplish militarily well-defined objectives. One can imagine warheads simply being lobbed unopposed into another country in any number or combination. Though surely the effects of these “limited” attacks on nearby communities would not be so well-defined, the effect on the opposing military machine might be truly dramatic, even decisive. This use of nuclear weapons in wartime is possible with today’s unopposed offenses with considerable confidence and might therefore be tempting to the combatants. Such temptations threaten nuclear deterrence and should be eliminated. The goal of a comprehensive defense would be to make such limited attacks infeasible, or at least to complicate the offense’s estimations of success to such a degree**

**that it would not attempt an “experiment.”<sup>3</sup> Analysts who favor this approach usually maintain that Soviet military doctrine inclines the Soviets towards a view of nuclear weapons as military tools to a far greater degree than is common in U.S. thinking. d**

To take an explicit example (in this case of Soviet failure to deter the U. S.) of a “war fighting” scenario (chosen randomly from a great many possibilities), suppose NATO were at war with the Warsaw Pact, and the Soviets were resupplying their ground offensive through just 10 or so rail trunks from the Soviet Union through eastern Europe. Just 10 well-placed nuclear weapons (according to a hypothetical analyst considering this type of scenario) would cut off a large fraction of supplies coming to the front, slowing the Pact offensive and giving NATO vitally needed time to marshal its defenses. Wouldn’t the United States be sorely tempted to use just a few ICBMs for this decisive intervention in the course of the war?

Analysts who recommend attention to warfighting scenarios and doctrines are surely aware of the profound difference between conventional and nuclear weapons, but they maintain that the threat of punishment through retaliation upon cities is not an effective deterrent in such scenarios. Wouldn’t it be preferable if these scenarios were simply closed off by defensive technology?

Critics of this BMD goal object both to the warfighters’ emphasis upon the risk of this type of scenario and to the assumption that defense would materially diminish that risk. In their view, myriad detailed chinks in the armor of deterrence can always be found, with or without defense, and worrying about them represents a loss of

<sup>3</sup>Presidential Science Adviser George A. Keyworth, II has stated (interview with *US. News and World Report*, April 11, 1983, p. 24):

“The objective is to have a system that would convince an adversary that an offensive attack will not be successful. It has to be a very effective system, but it would not have to be perfect to convince a potential adversary that his attack would fail.”

Dr. Robert Cooper, director of the Defense Advanced Research Projects Agency has also stated this view (*The New York Times*, Nov. 5, 1983, p. 32): “Even if only 50 percent of all incoming missiles were stopped, the Soviets could then have no confidence in the success of a first strike, and war would be more remote.”

<sup>4</sup>*Ballistic Missile Defense*, op. cit., Chapter 5.

perspective on the basic difference between nuclear and conventional instruments of war. Besides, they say, suppose the effect of the Soviet BMD is to force the United States to attack each rail line with ten weapons instead of one to assure penetration: is there truly a psychological divide between using 10 and 100 nuclear weapons, once the divide between 0 and 10 has been crossed? Third, would NATO not be adequately deterred by the prospect of Soviet retaliation with 10 of its nuclear weapons against 10 vital NATO targets? Last, suppose NATO used 10 cruise missiles, against which the BMD was powerless, instead of 10 ICBM RVs?

The persuasiveness of this second goal for less-than-perfect BMDs therefore depends on one's views of the roles and risks of nuclear weapons—views that are fundamental and deeply held. This goal is therefore one of the most controversial of all.

3. **Save lives.**<sup>5</sup> Another goal for BMD is purely humanitarian and seeks no military or strategic advantage. If the defense did not interfere too much with Soviet military targeting objectives (enough for the Soviets to try to overcome it), and assuming the Soviets have no explicit aim to inflict human casualties, the United States could expect some reduction in fatalities in a nuclear war even from a modest defense. This reduction would necessarily be limited, since Soviet military objectives include destruction of many targets collocated with population. BMD and civil defense measures would be mutually reinforcing.

Analogous discussion of civil defense has always revealed an inherent tension between the humanitarian objective of defense and a related strategic objective. The strategic objective seeks to reduce fatalities and damage in order to enhance U.S. "flexibility" in a crisis, to allow the United States to "coerce" the U.S.S.R. (or avoid coercion) from a position of reduced vulnerability, or to enhance U.S. ability to persist in its war effort despite receiving a Soviet nuclear strike. The supposed result of the BMD deployment is to allow the U.S. President, in dealing with the Soviet leadership in time of crisis, to be more willing

**or appear to be more willing to resort to nuclear war because the consequences to the United States are presumed smaller.**

The coexistence of the humanitarian and strategic objectives for the analogous case of civil defense is apparent in the literature on civil defense. The Defense Department<sup>6</sup> has argued that the United States should have the same crisis relocation options as the U.S.S.R. for two reasons, one strategic and one humanitarian: 1) "to be able to respond in kind if the Soviet Union attempts to intimidate us in time of crisis by evacuating the population from its cities"; and 2) "to reduce fatalities if an attack on our cities appears imminent." Prominent scientists arguing for civil defense have also maintained that, "A nation's civil defense preparedness may determine the balance of power in some future nuclear crisis. . . . In our opinion, we must strive for an approximately equal casualty rate".<sup>7</sup> More recently, the High Frontier Study urging strengthened U.S. strategic defenses stated: "The protection of our citizens must be prime, but civil defense . . . would reduce the possibility that the United States could be coerced in a time of crisis".<sup>8</sup>

In practice, therefore, the humanitarian and strategic objectives are likely to be difficult to disentangle. Unlike the humanitarian objective, the strategic objective might stimulate a Soviet effort to put the same number of American lives at risk regardless of the defense. In this way, the Soviet Union could retain the strategic advantage that, by hypothesis, the BMD deprives them of. The issue then becomes the usual one of the cost-exchange ratio measuring the price to the Soviet Union of retaining its "advantage" relative to the price of the U.S. defense.

The Defense Department has stated that saving lives in time of war is not the purpose of President Reagan's BMD initiative.<sup>9</sup>

<sup>6</sup>Annual Defense Department Report, FY 1976, p. 11-24.

<sup>7</sup>Arthur A. Broyles and Eugene P. Wigner, "Civil Defense in Limited War," *Physics Today*, vol. 29 (April 1976), pp. 45-46.

<sup>8</sup>Daniel O. Graham, *The Non-Nuclear Defense of Cities: The High Frontier Space-Based Defense Against ICBM Attack* (Abt Books, 1983), p. 122.

<sup>9</sup>See footnote 8 2,

<sup>5</sup>This discussion borrows from the author's previous work in *Ballistic Missile Defense*, op. cit., Chapter 4.

4. Shape the course of the arms competition and arms control.<sup>10</sup> One version of this goal sees the Soviet tendency to upgrade and proliferate existing ICBM forces as the principal impediment to arms control. By introducing BMD (or even discussing it), according to this view, the United States makes the Soviets unsure about the next step in the arms competition and thus undercuts the momentum of Soviet strategic programs, especially ICBM modernization. Though fast-burning Midgetman boosters might defeat boost-phase defenses, this argument goes, the slow-burning SS-18s and SS-19s will not. BMD might not be able to make all nuclear weapons impotent and obsolete, but it can make large Soviet ICBMs impotent and obsolete—something the U.S. has been trying to do for a decade. Perhaps efficient defenses will “force” the Soviets to emphasize submarines, bombers, and cruise missiles in their strategic arsenal to the same degree the United States does. (One problem with this line of argument is that by the time the defense is in place, present-generation Soviet ICBMs might already be replaced.)

Another line of argument holds that a major BMD initiative strengthens the U.S. negotiating position at START. An aggressive BMD program demonstrates U.S. technological prowess and hints at what the Soviets could face if this prowess were unleashed. It would seem that new BMD initiatives might not coexist easily with the reductions in offensive arsenals proposed by the United States in START, however. Since U.S. BMD is equivalent to attrition of the Soviet ICBM arsenal, any anxieties the Soviets feel at reduc-

ing the size of their missile inventories would, logically at least, be enhanced by a simultaneous U.S. BMD buildup. Politically, it would seem unlikely, though certainly not impossible, that a climate favorable to far-reaching offensive arms control would also foster an amicable dismantling of the ABM Treaty.

5. Respond to Soviet BMD efforts. Many analysts view with alarm Soviet strategic defense activities, including upgrading of the Moscow ABM, development of a transportable terminal BMD system, construction of a radar in apparent violation of the ABM Treaty, development of defenses against tactical ballistic missiles, incorporation of limited BMD capability in air defenses, and continued attention to other damage-limiting methods (civil defense, air defense, antisubmarine warfare, and countersilo ICBMs). A strong U.S. BMD research and development program might deter the Soviets from breaking out of the ABM Treaty and from continued encroachments on the Treaty’s provisions. It is frequently noted that aggressive U.S. research into penetration aids and other methods for countering defenses might be an even more effective way to demonstrate to the Soviets that they would be ill-advised to overturn the ABM Treaty’s “freeze” on missile defenses.

6. Protect against accidental missile launches and attack from other nuclear powers. These goals have been put forward several times in the past, most notably in the late 1960’s when the Johnson Administration proposed the Sentinel ABM system to counter Chinese ICBMs, believed at that time to be fast-emerging. Neither goal figures prominently in today’s discussion of BMD in the United States, though defense against Chinese, British, and French missiles could well loom larger in Soviet thinking. Emerging nuclear powers or terrorists would be unlikely to use ICBMs to deliver their small nuclear arsenals to the United States. BMD is therefore of little importance in staving off the threat to U.S. security posed by nuclear proliferation.

<sup>10</sup>Presidential science adviser George A. Keyworth, speech before the Washington chapter of the Armed Forces Communications and Electronics Association, as reported in *Defense Week* (Oct. 17, 1983):

“Although the strategic defense program’s goal would still be eventual deployment of a working system, we shouldn’t overlook its potential beneficial impact on arms reduction as it progresses.” Richard DeLauer, Undersecretary of Defense for Research and Engineering, has said that an arms control agreement is needed to prevent the Soviets from overcoming a defensive system: “With unconstrained proliferation [of Soviet missiles], no defensive system will work.” (Interview with *The New York Times*, May 18, 1983).

## 9.2 SIDE EFFECTS OF BMD DEPLOYMENT

The inevitable side effects of a major strategic initiative such as BMD might turn out to match, both in magnitude and in duration, the beneficial effects of satisfying the goal emphasized by the system's purveyors. The public and policy makers would therefore need to assess the net, long-term effect of adding BMD to the strategic equation, and not just the achievement of a certain discrete goal as if by surgical intervention. This section reviews the well-known list of BMD side effects. Many of these effects are detrimental to U.S. security and would need to be balanced against the benefits of fulfilling the modest goals of less-than-perfect defense. In making this assessment, it is impossible to ignore the many unknowns and uncertainties that make it impossible to compare today's world without BMD to a future world with BMD.

1. **First strike versus ragged retaliation.** It is frequently noted **that BMD ends up being a better investment** for the side that strikes first than for the side that retaliates. Weapon systems that create relative advantages to striking first in a crisis (rather than risking being struck while seeking a peaceful resolution) are defined to be "destabilizing." The side striking first uses its full arsenal in an organized penetration of the other side's defense; **the retaliating side can only use its surviving arsenal in a possibly disorganized "ragged retaliation" against a forewarned and fully prepared defense.**

Mitigating factors could in certain circumstances soften this classical statement of the destabilizing effect of BMD. First, truly effective defenses might prevent the first striker from destroying a substantial fraction of the other side's retaliatory forces. Second, with proper planning (involving post-attack retargeting and coordinated timing), the retaliating forces might still be able to mount a tailored, efficient strike. Third, there will seemingly **always be a relative advantage to being** the side that strikes first in a nuclear war, with BMD or without BMD; but this calculus of relative advantage is far from being the only factor in deterrence. Other stabilizing factors might be strengthened by BMD, offsetting this desta-

bilizing factor. Thus BMD might also *discourage* temptations to strike first, by threatening to disrupt the attack.

2. **Soviet BMD. A U.S. BMD deployment would seem very likely to stimulate a Soviet deployment.**

**Even** if the Soviets saw no compelling military rationale for following suit, political appearances could prove decisive. A Soviet BMD counter-deployment would obviously blunt U.S. offensive striking power, which the U.S. has been spending a great deal to build up. If the U.S. deployment sought to protect its ICBMs from preemptive destruction in their silos (Goal 1 above), the Soviet BMD might nonetheless nullify the U.S. ICBMs—this time in flight to their targets. Soviet BMD would also introduce a threat to U.S. SLBMs, which are today thought to be virtually immune to Soviet disruption and to be significantly advanced relative to their Soviet counterparts. If the U.S. deployment sought to prevent "limited" strikes by the Soviets Union (Goal 2), the Soviet BMD might in turn preclude a U.S. option to use nuclear weapons selectively and flexibly in support of its NATO allies—an option sometimes seen as central to NATO strategy. Clearly the actual effect of the Soviet BMD counterdeployment would depend upon its technical characteristics and the targets it defended.

3. **Demise of the ABM Treaty.** An arms control treaty obviously cannot serve as its own justification, and presumably virtually everyone would agree to the abandonment of the ABM Treaty the moment it ceased genuinely to serve the national security. **In addition to its concrete provisions limiting BMD deployment, however, the ABM Treaty has unavoidably assumed a symbolic political meaning in the United States and, in different forms perhaps, in Europe and the U.S.S.R.** The Treaty stands for a decade of arms control and attempts at superpower understanding about nuclear weapons. As a practical matter, it is impossible to overturn the Treaty's technical provisions without calling into question U.S. commitment to the whole fabric of the SALT/START process. This side effect would have to be weighed against the purely military and strategic

**benefit (if there were, in fact, a net long-term benefit) of a U.S. BMD deployment.**

**4. Allied and Chinese missile forces.** The nuclear missile forces of Britain, France and China are obviously a greater threat to the Soviet Union than to the U.S. Most analysts agree that the existence of these forces enhances U.S. security. But a major BMD initiative sparking widespread Soviet defense would in effect disarm our allies (to a degree depending on the nature of the Soviet deployment).

**5. Accompanying strategic programs.** A number of new weapon systems and strategic programs would be natural, though perhaps not necessary, accompaniments to BMD. On the offensive side, the U.S. would need to develop and deploy penetration aids against the Soviet BMD and improve its bomber and cruise missile forces to reflect added reliance on non-missile delivery vehicles. On the defensive side, the overall category of "strategic defense" comprises, in addition to BMD: nationwide air defenses against Soviet bombers and cruise missiles, defensive coverage against SLBMs, civil defense shelters and evacuation plans, and passive "hardening" of military installations and industrial facilities.

**6. Opportunity Costs.** The initial investment in BMD deployment, the inevitable follow-ons, and any accompanying strategic programs would make a substantial, permanent demand on the defense budget, competing with other nuclear forces and with conventional forces, not to mention with nonmilitary expenditures.

In a more fundamental sense, the transition from a world with a near-total ban on BMD to a world with BMD deployments is probably an irreversible change. Reimposing a defensive "freeze" after a period of unrestrained deployment, much less dismantling defenses and returning to zero, would involve all of the problems that

attend upon arms control reductions at START today. Extra caution seems warranted where strategic actions cannot easily be reversed or recalled: the opportunity for a comprehensive ban on missile defense might not arise again.

**7. Bean counting.** Strategists, politicians, and diplomats place considerable emphasis on quantitative measures of the nuclear balance and on "proofs" that "parity" exists. Arms control negotiations also reduce themselves quickly to counting rules. It is unclear whether or how BMD should affect such "bean counting." For each U.S. battle station added to a defensive constellation, are the Soviets to be credited with fewer ICBMs, since the U.S. defense represents potential attrition of the Soviet force? How many Soviet interceptor missiles equals one U.S. laser? Whose estimate of the BMD's likely wartime performance—the defense's or the offense's—governs these counting rules? Experience indicates that these types of questions, however far-fetched and even preposterous they appear in prospect, in the end assume considerable perceived importance.

**8. Asymmetries.** The Soviet BMD deployment that could well follow U.S. deployment might not share the same defensive goal or the same technology, stimulating the usual anxieties about unequal intentions and capabilities. Defensive systems are also complex, leading different analysts to widely different conclusions about the likely wartime performance of the BMD systems on both sides. Moreover the owner of the BMD, aware of all the system's hidden flaws, might credit it with little capability, whereas the offense planner will tend to give it the benefit of the doubt. Though some hypothetical future world with mutual BMD deployments might therefore appeal to one analyst or nation, another could easily have a completely different view of the technical and strategic "facts."