

ASAT, BMD, and the 1972 ABM Treaty

ASAT systems and anti-ballistic missile systems are closely related, as are ASAT and ABM arms control. The development of ASATs can affect the continued viability of the existing ABM arms control regime; conversely, development of strategic defensive systems can affect possibilities for ASAT arms control. This section reviews the 1972 ABM treaty ("I have a rule. . . never to be

flabbergasted at the same thing more than three times," explained a panelist, "but I am always somewhat surprised at how people forget what it is that the treaty says and what it does not say"). This section also discusses some of the relationships between ASAT and ABM, regarding both weapons systems and arms control measures.

REVIEW OF 1972 ABM TREATY

PURPOSE

The Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, which entered into force on October 3, 1972, states its overall purpose in Article I:

1) Each party undertakes to limit anti-ballistic missile (ABM) systems and to adopt other measures in accordance with the provisions of this Treaty.

2) Each party undertakes not to deploy ABM systems for a defense of the territory of its country and not to provide a base for such a defense, and not to deploy ABM systems for defense of an individual region except as provided for in Article 111 of this Treaty.

This explicit declaration of purpose is an important aspect of the treaty. As time, technology, and circumstances change, it is possible to refer again to the declared purpose in order to develop specific new understandings which are required to modernize the treaty.

DEFINITIONS

An anti-ballistic missile system is defined, for the purposes of the treaty, as "a system to counter strategic ballistic missiles or their elements in flight trajectory." This phrase is followed by the words "currently consisting of" and then a list of three items: ABM interceptor missiles, ABM launchers, and ABM radars. The treaty is not restricted to those

systems. It says what the current systems are, but it is intended to cover all ABM systems.

Note that the definition refers to strategic weapons. Systems to counter tactical missiles are not covered at all—a loophole that we designed carefully, and which they are pushing through," according to a panelist (see app. B). Note also that the treaty defines an ABM as a system to counter strategic weapons. It does not say "system designed to counter, as the Soviets would have liked, nor does it read "system capable of countering," which was the United States' preferred wording. The United States was concerned that, by upgrading surface-to-air missiles (SAM S), the U.S.S.R. would be able to deploy a considerable ABM capability. The Soviet Union, on the other hand, was concerned that it would be forced to classify some 10,000 SAMs as ABM interceptors. The analogy of upgrading ASAT weapons to give them ABM capability is similarly relevant and similarly covered by the treaty.

This definition is essentially a capability test. All systems which are ABM-capable, whether or not they were designed for that purpose, are either considered ABM systems under the treaty or else are in violation of Article VI(a), which prohibits giving ABM capability to non-ABM systems. This article was "really aimed at SAM systems," explained a panelist, "but the same thing applies to ASAT systems." If an ASAT weapon is given the ability to counter strategic ballistic missiles,

then "it's a violation or else it's got to count as an ABM system, one way or the other."

MAJOR PROVISIONS

The ABM treaty prohibits all ABM deployments which are not explicitly permitted. Article III bans all deployments other than two sites (amended by a 1974 protocol to one) on each side, each having restricted numbers of interceptors, launchers, and radars. These prohibitions, interpreted a panelist, are clear: "Can you deploy lasers? No. Can you deploy particle beams? No. Can you deploy squizzle dumps or freebie dobbles? No."

Article IV permits testing, at designated test sites, of certain systems not deployable under Article III. However, systems permitted at test sites or deployments are severely constrained by Article V, in which "each party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based." Only fixed, land-based systems can be tested, and only specified fixed, land-based systems can be deployed. "Development," as referred to in this provision, was defined in a statement to Congress by the chief U.S. negotiator of the ABM treaty: "It is understood by both sides that the prohibition on development applies to activities involved after a component moves from the laboratory development testing stage to the field testing stage, wherever performed." Interpreted by a workshop panelist, "if I see one outside the laboratory—a prototype, a bread-board model—if I see one, it's a violation. I don't have to see it tested." The second part of Article V prohibits a launcher from being able to fire more than one interceptor or be reloaded rapidly.

Upgrades are prohibited in Article VI(a), as discussed above. No non-ABM systems shall

be given ABM capability or be tested in an ABM mode. The second part (b) of Article VI restricts ABM battle management radars by requiring early warning radars to be on the periphery of the country and oriented outwards. Agreed Statement F, approved by U.S. and U.S.S.R. delegation heads at the same time that the treaty was signed, excludes radars used "for the purposes of tracking objects in outer space or for use as national technical means of verification" from the location and orientation restrictions in Article VI(b).

Article XII prohibits interference with verification of the treaty, both by banning interference with the national technical means used for verification and by prohibiting "deliberate concealment measures" which would impede verification by national technical means. Article XIII establishes the Standing Consultative Commission to handle questions relating to treaty compliance, to consider possible amendments, and to consider proposals for further limiting strategic arms.

Agreed Statement D of the ABM treaty discusses components based on "other physical principles" and capable of substituting for interceptors, launchers, or radars. Capability, again, is crucial. If a new device can substitute for a launcher, interceptor, or radar, its deployment is prohibited. If it is instead only an adjunct or supplement, it would be permitted. This article specifies that "specific limitations" on such new systems and their components would be "subject to discussion" in the Standing Consultative Commission, and that such discussion might lead to amendment of the treaty. Only if the treaty were amended to permit these new components would their deployment be allowed; otherwise, they are prohibited.

CONNECTIONS BETWEEN ASAT, BMD, AND THE ABM TREATY

As mentioned above, developing an ASAT system which had BMD capability, or upgrading one to give it BMD capability, would be a violation of the ABM treaty. The test of violation is capability—can the ASAT destroy missiles? There is an absolute prohibition on anything not fixed on land at an ABM site or a designated test site which is able to destroy “strategic ballistic missiles or their elements in flight trajectory.”

National technical means of verification are protected from interference in Article XII. Reconnaissance satellites are not explicitly mentioned in the treaty text, but they are listed as an example of national technical means in the transmittal letter from the Secretary of State to the President which accompanied the treaty and were also mentioned in the transmittal letter to Congress. ASAT attacks against reconnaissance satellites used to monitor compliance with the ABM treaty are, therefore, banned by that treaty.

Another relevant connection between ASAT systems and the ABM treaty involves the radars required for ASAT battle management (in the absence of an ASAT treaty) or ASAT treaty verification (if such a treaty is concluded). These space-track radars will physically be very hard to distinguish from early-warning radars and ABM battle management radars which are covered by the ABM treaty, and any ASAT treaty may need specifically to address space-track radars to ensure that the prohibitions against ABM battle management radars are not circumvented. However, according to a panelist, the signal emitted by a radar “would be quite different if it were fundamentally a space track system than if it were an ABM,” making somewhat easier the task of distinguishing between the two (see app. B).

TECHNOLOGIES

There is great overlap between BMD and ASAT technologies. In general, even a poor or prototype anti-ballistic missile could be an excellent ASAT. Looking at BMD systems designed to attack a ballistic missile at different stages in its flight trajectory, we have three categories of BMD systems:

1. **Boost-phase BMD.**—BMD systems designed to attack missiles as they are climbing out of the atmosphere under powered flight have great ASAT potential. Therefore, any treaty effectively limiting systems having ASAT capability would almost certainly have to restrict boost-phase BMD. Of course, the ABM treaty already in effect prohibits boost-phase BMD: in order to respond quickly enough to attack missiles in their boost phase, a boost-phase BMD system will either require space-basing of weapons components or else it will need to launch “pop-up” components immediately upon detection of missile launch by space-based sensors. It may well also require directed-energy weapons which produce beams propagating at or near the speed of light. “Both of those are prohibited by the ABM treaty,” reminded a panelist. “It’s not as if there’s some little, subtle question as to whether a space-based BMD system would be permitted or not. It’s not. You can’t develop it, you can’t test it, you can’t deploy it, and it’s caught in about eight different places in the treaty. It is not close.”
2. **Midcourse BMD.**—The trajectory of a missile reentry vehicle while outside the atmosphere is similar to a satellite orbit: the peak altitude is on the order of 1,000 km and the velocity is slightly suborbi-

tal. There is therefore great overlap between midcourse BMD systems and ASAT systems. The Soviet Galosh ABM system was not designed as an ASAT but does have ASAT capability for satellites in orbits similar to ICBM trajectories; the U.S. miniature homing vehicle ASAT weapon evolved from a design originally intended for midcourse BMD. Since the ABM Treaty strictly limits locations of permitted ABM systems, there are significant constraints, in terms of number and location, on ABM systems which could be used as ASATs. Including the interceptors at test ranges, each side would have only about 115 interceptors and they would be located between 45 and 60 degrees latitude. ABM systems permitted under the treaty are therefore "important for some kinds of satellites in certain kinds of orbits, in certain places," but they are "probably not a very significant threat" to satellites in general. In addition to the constraints in the ABM treaty, midcourse BMD (like boost-phase BMD) would probably be inhibited by an effective ASAT treaty.

3. Terminal BMD.—BMD systems which attack missile warheads after the warheads have re-entered the Earth's atmosphere have the least overlap with ASAT technology. They are also not very useful systems for defending large areas, as opposed to selected hardened targets. While research into terminal BMD systems is proposed as part of the Reagan administration's Strategic Defense Initiative, they are not the systems primarily responsible for the renewed interest in ballistic missile defense pursuant to the President's March 23, 1983 "Star Wars" speech.

ROLES

Since ASAT and BMD technologies are so closely related, the outcome of any ASAT limitation or testing ban will almost certainly impede midcourse and boost-phase BMD development. Conversely, technology develop-

ment ostensibly for an advanced ASAT system might provide a loophole for undertaking BMD research which would be in violation of the ABM treaty.

At the same time, the development of high-quality ASATs which will probably occur in the absence of an ASAT agreement would put the space-based elements of any BMD system (sensors if not weapons) at risk. Unconstrained ASATs would threaten sensors even for ABM systems which are within the scope of the present ABM treaty.

PERCEPTIONS

As noted above, aggressive ASAT development will aid development of advanced BMD systems since technologies investigated for ASAT maybe useful in either role. ASAT development may therefore be perceived as supporting a BMD program. To the extent that development of BMD is seen as being threatening, ASAT development may likewise be perceived to be a threatening act.

In a political context, a participant suggested that some of the hostile implications of pursuing BMD research might be ameliorated by simultaneously pursuing some sort of space behavior or "rules of the road" agreement.

DRAFT ASAT TREATIES

The 1983 Soviet draft ASAT treaty includes a subtlety of language which may or may not have been intended. The phrase "space object" is a negotiator's "term-of-art" originating with the Outer Space Treaty negotiations. It stands for anything in space except for ballistic missile reentry vehicles, which were purposely and carefully exempted from the jurisdiction of that treaty. Although the Soviet draft mentions space objects in the introduction, an operative article prohibits testing and deploying "space-based weapons for the destruction of objects on the Earth, in the atmosphere, or in outer space" (emphasis added). It does not say "space objects," implying that attacks on reentry vehicles would not be excluded from

the ban. One participant, noting that the "Soviets are not dummies when it comes to treaty language," thought that quite possibly they intended to use language that was "opaque as to their views" which would "invite us to reveal our views of some of these substantive matters through the route of fiddling around with these language details."

The draft ASAT treaty proposed by the Union of Concerned Scientists, on the other hand, prohibits attacks on "space objects" and therefore does not address the problem of attacks on reentry vehicles. That exemption was made because the ABM problem had been explicitly addressed in the 1972 ABM treaty. "There is a tendency in drafting treaties to make the treaty stand by itself," commented a panelist. "That should be resisted. Every treaty exists in the milieu of other agreements."

At least one participant disputed the value of preparing drafts outside of an ongoing process of negotiation: "I do not like the idea of people putting out draft treaties on ASAT matters." They are invariably "incomplete" since the text alone does not include any of the history that accompanies a true negotiation process and since the authors are not necessarily official representatives of their governments. The "prejudicial effects" of extant drafts "could probably be dismissed in a couple of weeks," but that time could be put to better use should negotiations be resumed.

TREATY WORDING

The language of the ABM treaty was left "fuzzy" in places, and definitions were not made overly precise, in order to leave a "no-man's-land" surrounding prohibited areas. The hope was that debate would ensue as to whether the "no-man's-land" had been entered before there were any questions of treaty violation. This "noble experiment," however, did not provide the desired results. "It turns out the Soviets are creatively legalistic," interpreted one panelist. "They don't worry about the fuzzy areas. In their view, action in a fuzzy area is permitted because it not prohibited."

However, the suggestion that the Soviets do not uphold the spirit of a treaty was debated by another panelist. "I don't like to talk about the 'spirit of agreement' because there ain't no such thing." However, this panelist noted that there is significant value in having an operative article in a treaty which states the treaty's general purposes. When circumstances change, forcing development of new understandings in order to maintain the treaty, one can look back on that declaration of intent to make an easy transition. "Here is the agreed purpose that's built into the treaty. Here are the new circumstances that bear on that purpose, and here are the new specific understandings that are needed to modernize" the treaty.