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SDI The US Strategic Defense Initiative and The Implications of Israel's Participation

JCSS, Memorandum No. 16, December 1985



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Preface

In late March 1985, the US Department of Defense issued invitations to the major allies of the United States--including the NATO countries, France, Japan and Australia--asking them to consider participation in President Reagan's \$26 billion missile defense research program, the Strategic Defense Initiative (SDI). Surprisingly, Israel, which unlike the countries mentioned above has no formal treaty of alliance with the United States, was also asked to consider making its own contribution to SDI. Scientifically, the US sought to bring together the technological capabilities and talents of the entire Western alliance behind an endeavor regarded by many as far more challenging than the Manhattan Project of the 1940s. Economically, the US was willing to share SDI research funds with its allies; no financial contributions were requested. Politically, the US sought an endorsement of SDI, and wished to provide a reminder to its allies that the program was intended to enhance their security as well. All the allies were asked to respond to the invitation within sixty days. (For text of the invitation see Appendix.)

To date, only Britain and West Germany have agreed in principle to participate in SDI research. Both governments are negotiating agreements with the US covering the specific terms of their involvement. Australia, Canada, Denmark, France, the Netherlands and Norway have notified the US of their intention to stay out of the program. Italy, Japan, and Spain have indicated

that they look upon participation favorably, but need more time to study the matter. In the meantime an intense debate has broken out in the countries of the Western alliance over the merits of SDI, and whether pursuit of the program will strengthen or weaken allied ties in the future.

SDI has also become a highly controversial issue in the United States itself. In March 1983, when President Reagan first unveiled his proposal to begin a defensive research program against the Soviet missile threat, he put forward several basic propositions. These have since come under attack from former secretaries of defense, arms control experts, and nuclear strategists. Essentially, Reagan argued that:

- it is necessary to look for ways of assuring nuclear stability other than through the threat of offensive retaliation (known also as mutually assured destruction--MAD), even though this threat has preserved peace since the middle of the 1950s;

current technology has reached a level of sophistication that makes a defensive alternative to the nuclear retaliatory threat of the past worthy of intense investigation;

- despite the fact that missile defenses combined with offensive systems could be perceived as an aggressive military (or even first-strike) posture, defenses actually could lead to a more stable nuclear order; and

- a missile defense research program can be conducted within

the parameters of the 1972 Anti-Ballistic Missile (ABM) Treaty; indeed, defenses may actually improve the chances for future arms control agreements.

The most frequent target of the SDI critics was the feasibility of President Reagan's ultimate goal of rendering "nuclear weapons impotent and obsolete." Another object of criticism was the decisionmaking process that led to the speech; SDI was not the product of the Defense Department's expert policymaking bureaucracy, but rather resulted from the president's own consultations in the White House with leading nuclear scientists and, only in the end, with the Joint Chiefs of Staff. For these reasons the SDI program was labeled by critics with the movie title "Star Wars," implying that it was a fanciful science-fiction project dreamed up by a man who had received his political-military training in Hollywood.

These issues are entirely new for the State of Israel. The SDI question in particular, and the entire nuclear disarmament debate in general, are new security matters that have been thrust onto the agenda of the current Israeli government by virtue of the American invitation to join the program. Understandably, the usual geographic radius of Israel's security interests rarely extends beyond the Syrian-Turkish border to the north and Bab al-Mandeb to the south. But even though the Israeli policymaker is busy enough with the affairs of Lebanon, terrorism, and Middle East peacemaking, he cannot detach himself from the global

problems of nuclear war, especially if a well-thought-out decision is to be taken on SDI. As of December 1985, Israel does not seem to have made a firm and overt decision on the SDI issue. Positive references to SDI have been made by Israeli leaders, including Prime Minister Shimon Peres. Working groups from both countries have met to discuss fields in which Israeli industry could make a contribution. But no formal <u>political</u> announcement has been made, as was the case with Britain.

The purpose of this memorandum is to facilitate the emergence of an informed debate on SDI and Israel's participation therein. Rather than focus on the Israeli aspect alone, the entire program is examined. It is insufficient to ask whether SDI is good or bad for Israel alone; it is equally necessary for Israel to consider whether the introduction of American missile defenses will create a more stable world or, alternatively, lead to a world in which the outbreak of global nuclear war will be a far greater possibility. Should war break out in Central Europe, it is doubtful that the Middle East could remain isolated and unaffected.

With these considerations in mind, the following inquiry is divided into four chapters; the first two are essentially descriptive, while the final two are more analytical in approach. Each of the first three chapters in some way addresses the main issues associated with SDI that have come under particular criticism in the United States. The first chapter introduces the reader to the basic issues and terminology in nuclear strategy

that have become a part of the nuclear debate today; its purpose is to demonstrate that the shift away from a concept of nuclear stability based on the threat of mutually assured destruction had been going on for some time even prior to President Reagan's 1983 SDI speech. The SDI program is shown to be a logical development in the evolution of nuclear strategy, and not a wild presidential fantasy. The second chapter distinguishes several alternative missile defense systems that have been associated with SDI, and clarifies different defensive missions that have been suggested. The feasibility of these different systems and missions is also considered. The third chapter consists of an analysis of the implications of missile defenses for nuclear stability. Finally, the fourth chapter considers the costs and benefits of Israeli participation in SDI.

Chapter 1. The Shift to Strategic Defense: The Evolution of

American Nuclear Policy from MAD to SDI

Until President Reagan's March 1983 SDI speech, American nuclear doctrine was predominantly guided by the perception that the two superpowers were locked in a strategic relationship of mutual deterrence, whereby each side possessed the ability to inflict massive retaliatory punishment on the other even after being the target of a nuclear first strike. This relationship of mutually assured destruction (MAD) gradually came to be the American definition of nuclear stability after the Soviet Union acquired the ability to deliver nuclear weapons over the United States in the 1950s. In 1964 MAD was actually incorporated into the official US military doctrine and subsequently became a criterion for determining the direction of American weapons development (as well as procurement), force levels, and targeting strategy:

- The US sought to assure the <u>survivability</u> of its retaliatory deterrent threat by continuing the development of its nuclear forces in a "Triad" of three separate systems: landbased intercontinental ballistic missiles (ICBMs), submarine launched ballistic missiles (SLBMs) and intercontinental bombers.
 - The US placed <u>quantitative</u> limitations on the size of nuclear forces in recognition of the fact that, beyond a certain level of devastation (20-30 percent of the Soviet

population and 50-66 percent of Soviet industry), each incremental growth of force yielded only diminishing marginal destruction. A ceiling of 1054 ICBMs and 656 SLBMs was henceforth set that enabled each strategic arm of the Triad independently to assure the destruction of the Soviet Union. Though these levels were well above what was needed for <u>minimal deterrence</u>, they were nonetheless significantly below the force levels sought by the American military during the 1960s that would have given the US a first-strike <u>war-fighting</u> posture (against thousands of Soviet military targets in the USSR).

US targeting strategy assigned US nuclear forces mostly <u>countervalue</u> missions of retaliation against Soviet population centers and industry, while only a small portion of US forces were reserved for <u>counterforce</u> missions against Soviet military targets for purposes of <u>extended</u> <u>deterrence</u>--the defense of America's European allies. In order to assure the USSR that it was not seeking a firststrike counterforce capability against Soviet missile fields, the US deliberately refrained for a time from improving the accuracy of its own missile forces (in accordance with their predominantly countervalue retaliatory role).

Throughout most of the 1960s, when the US enjoyed both quantitative and qualitative nuclear superiority over the USSR,

Pentagon planners assumed that Soviet nuclear weapons developments in the 1970s would parallel those of the US and that MAD would become the principle around which both superpowers' doctrines would converge. This assumption seemed to be confirmed when the Soviet Union agreed to enter into negotiations with the United States in the first Strategic Arms Limitations Talks (SALT I) which, among other purposes, sought to place constraints on the deployment of anti-ballistic missile (ABM) systems. Βv signing the ABM Treaty in May 1972, and restricting themselves to only two ABM deployment areas (modified to one area in 1974), the superpowers seemed to be acknowledging that strategic stability depended not only on their own retaliatory capabilities, but also on conceding to the other a similar capability. Mutually assured destruction was thus linked to the concept of mutual vulnerability, once both superpowers had decided to forego any nationwide defense against ballistic missiles.

One of the most basic criticisms of President Reagan's SDI proposals has been directed against his search for a replacement for MAD--which, as critics point out, has preserved peace between the superpowers for most of the post-war period. However, this line of argument ignores the fact that the demise of MAD did not begin with SDI. The continuing viability of MAD as the basis for future American strategy and nuclear stability had already been called into question as early as 1973--a full decade before <u>Reagan's SDI proposals</u>. A vociferous debate on this issue raged among American strategists throughout the remainder of the 1970s.

A liberal school of thought continued to view nuclear weapons as so destructive that their use by either of the superpowers was still precluded. Numerical advantages held by one side or the other in the nuclear balance were essentially meaningless. A conservative school of thought, however, noted technological, doctrinal, and diplomatic developments that undermined any American strategy based primarily on MAD alone:

- Multiple Independently Targetable Re-entry Vehicle (MIRV).

The introduction of MIRV warheads into the ICBM forces of the superpowers (US-1970, USSR-1975) changed the calculus of nuclear strategy. MAD implied that a superpower gained no advantage by striking first. But once each missile carried several warheads, then the side attacking first could destroy several enemy ICBMs with the warheads released from only one of its own missiles in a counterforce strike. This calculation was even more true in the mid-1970s for Soviet ICBMs (the SS-18 and SS-19 carried 10 and 6 warheads respectively) than for American ICBMs (the Minuteman III carried only 3 warheads). The MIRV warheads of the 1970s were far more accurate than their predecessors; but while the US reduced significantly the explosive potential (megatonnage) of its MIRV warheads, the USSR retained high megatonnage which, with increased accuracy, gave the Soviet ICBM force an effective hard-target-kill capacity against US ICBMs in hardened silos.

- Soviet force developments. As the Soviets modernized their

nuclear forces during the 1970s, their procurement policies and force levels tended to indicate that they had not adopted the American conception of MAD. The Soviet nuclear forces did not imitate the diversified approach of the American Triad with its emphasis on survivable nuclear delivery systems (submarines at sea and bombers launched on warning). By the early 1980s the two nuclear arsenals had been constructed very differently, particularly with regard to distribution of land, air, and sea-based nuclear warheads:

Table 1.1.

DISTRI	BUTION	OF	NUCLEAR	WARHEAD	BASING	MODES	OF	THE S	UPERPOWER	lS
USA ¦	ICBM	22%	6	SLBM	51%	 		BOMBE	RS 27%	
USSR			ICBM	65%		SI	BM	32%	Bombe 3%	IRS \$
Source:	SIPRI	Yea	arbook 1	983.						

The strategic significance of these different distributions lies in the fact that until the early 1990s the ICBMs of both superpowers will remain the most <u>accurate</u>, <u>rapid</u>, and <u>responsive</u> element in their respective nuclear forces, and hence serve as the most appropriate weapon for preemptive counterforce attacks against enemy missile silos, submarine pens, and airfields. By the early 1980s, the

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Soviet investment in its ICBM force resulted in a nuclear posture with a counterforce capability vastly superior -- both qualitatively and quantitatively -- to that of the United States (see Table 1.2). At the same time, this ICBM emphasis means that a large portion of the Soviet nuclear force is vulnerable to surprise attack, thereby requiring highly unstable launch-on-warning or preemptive nuclear policies during times of crisis. Meanwhile, official Soviet nuclear military doctrine, as presented in professional Soviet military journals, did not appear to have adopted the American conception of MAD, despite Moscow's adherence to the ABM Treaty. This was evident, moreover, in the Soviet Union's continued efforts at maintaining defensive procedures -- civil defense, massive aerial defense, and an ABM deployment--all of which the United States had abandoned years ago.

The disappointing results of arms control. While SALT I succeeded in limiting defensive arms, SALT II did not sufficiently limit the growth of offensive arms. The SALT II agreement essentially limited the number of <u>launchers</u> deployed by both superpowers without placing adequate controls on the number of warheads. The Soviet use of

Table 1.2

THE CHANGING NUCLEAR BALANCE BETWEEN THE US AND USSR

	1968			L L	1972		1979*		
	ICEM	SLEM	BOMBERS	ICEM (warheads)	SLEM (warheads)	BOMBERS	ICEM (warheads)	SLEM (warheads)	BOMBERS
USA	1054	656	646	1054 (1474)	656 (2304)	463	1054 (2154)	656 (5120)	376
USSR	900	45	150	1527 (1527)	497 (497)	140	1 398 (4306)	989 (1309)	202
Overall military balance	US superiority		rough parity			Soviet ICBM** counterforce superiority	US SLEM countervalue superiority		

Source: SIPRI Yearbook 1968-1979.

- * Only small numerical changes followed in the balance from 1980-1985. In 1984 the US ICBM force stood at 1037 (2197 warheads), while its SLBM force stood at 592 (5344 warheads). Soviet ICBMs remained constant (though ICBM warheads rose to 5820); SLBMs also remained nearly constant at 781 (though warheads more than doubled to 2656). The US made significant advances in the deployment of cruise missiles in its B-52 bomber fleet.
- **Rough estimates of ICBM counterforce exchanges based on the 1984 balance show 5820 Soviet ICBM warheads against 1037 US ICBM launchers (force ratio of 5.6:1) and 2197 US ICBM warheads against 1398 Soviet ICBM launchers (force ratio of 1.57:1). Given a minimal 2:1 ratio for an effective counterforce attack, the Soviets have more than enough forces for a counterforce strike, while the US remains below the 2:1 minimal threshold.

heavier missiles with greater throw-weight than those of the US permitted the USSR to increase the number of its ICBM warheads within the framework of the agreement. The SALT II treaty, unlike its predecessor SALT I, was not ratified by the US Senate, though most of its provisions have been observed by the superpowers. The SALT II negotiations demonstrated that new technologies, such as cruise missiles, were becoming increasingly difficult to control and that verification of new agreements over such weapons was becoming more complex. The introduction of mobile ICBMs-like the Soviet SS-25 or the American Midgetman--will make satellite surveillance almost impossible.

The American defense community was divided over the implications of these developments. Conservative strategists concluded that, given technological improvements in missile accuracy and the asymmetries between the nuclear postures of the two superpowers, mutual deterrence was becoming less stable. Specifically, they conceived of scenarios according to which the Soviet Union might at times of crisis risk a <u>limited nuclear attack</u> on the United States in pursuit of a "warwinning strategy." In their view, the Soviets could utilize their <u>counterforce superiority</u> and destroy most if not all American ICBMs in their hardened silos, thereby leaving the US president with the alternative of either escalating with his remaining (less accurate) nuclear forces to a countervalue

attack--thereby exposing US cities to Soviet countervalue retaliation--or conceding victory to the USSR.

Liberal strategists rejected this notion of an American window of vulnerability, as this scenario came to be called. by doubting that nuclear war could, by definition, be limited. They also looked differently at each of the developments noted above. They rightly pointed out that it was the US and not the USSR that first introduced MIRV warheads into the arms race. The asymmetry between US and Soviet force distributions was a concern to the liberal school, but was explained away with reference to the limitations of Soviet technology and geography: technological inferiority and poor access to the open sea inhibited the growth of a large SLBM force and supported nuclear expansion utilizing the quantitative superiority of ICBMs. Hence, no aggressive designs were inferred by the liberal school from the USSR's overwhelming ICBM warhead superiority. In addition, liberal strategists interpreted Soviet military doctrine differently from their conservative colleagues. They acknowledged the rejection of MAD in Soviet military literature, but they attributed this position to communist ideology: admitting a superpower stalemate would contradict the inevitable victory of the communist system. The liberals rejected the utility of this literature for deriving Soviet doctrine and instead relied on statements made by the Soviet political leadership on arms control. Finally, the liberal school of strategists assessed the results of the SALT process differently. They acknowledged that SALT II had not

brought about a reduction of offensive strategic systems, but maintained that the Soviet nuclear buildup in the 1970s would have been far greater without the SALT process.

US nuclear policy was not unaffected by the nuclear debate. The arguments of the conservative school of strategists were particularly persuasive. Under their influence, American nuclear doctrine moved progressively towards a broader definition of deterrence that took into account an American nuclear warfighting capability should <u>minimal deterrence</u> fail.

- <u>1974 Schlesinger Doctrine</u>. In order to improve the credibility of the American deterrent at lower levels of warfare, Secretary of Defense James Schlesinger introduced changes in US targeting strategy that gave the president new counterforce options, thereby providing some middle ground between massive retaliation and doing nothing. Schlesinger approved research and development of greater accuracy hard target-kill weapons, as well.
- <u>1979-Countervailing Strategy</u>. Secretary of Defense Harold Brown introduced additional doctrinal modifications in the direction of counterforce. US doctrine, it was claimed, would have to prepare for contingencies that took into account Soviet models of warfare, including less-than-allout attacks as well as prolonged warfare. By doing so, advocates of the countervailing approach claimed, the US would succeed in deterring Soviet aggression at every level of escalation. Moreover, the credibility of the American

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response to a Soviet attack would also be improved by the hardening of American command, control, communications and intelligence (C³I) capabilities. President Carter formally adopted the new doctrine on July 25, 1980, upon signing Presidential Directive 59.

1982 Defense Guidance. In 1982 a Pentagon planning document, "Defense Guidance," that was approved by Secretary of Defense Weinberger (and was leaked to the American media) reflected further American concern over a breakdown of deterrence and called for a strategy according to which "the United States must prevail [emphasis added] and be able to force the Soviet Union to seek earliest termination of hostilities on terms favorable to the United States." In addition to expanded development of US counterforce capabilities (through the development of the Trident D-5 SLBM, the M-X ICBM, and further refinements in cruise missile technology), the Weinberger paper included the adoption of a decapitation strategy against the "Soviet military power structure through attacks on political/ military leadership and associated control facilities." Minor modifications of the recently deployed Pershing II long-range theater ballistic missile in Germany (which carries the most accurate nuclear warhead in the ballistic missile arsenals of the two superpowers) could give the US this capability. Even prior to President Reagan's SDI speech, the "Defense Guidance" paper suggested that the US

might reevaluate the ABM Treaty and consider development of a new generation of ballistic missile defense systems. Many of these strategic concepts were already incorporated into National Security Decision Document (NSDD) 13 and approved by President Reagan in 1981.

In summary, the American notion that both superpowers are deterred from nuclear war by the threat of massive retaliation against one another's cities--known as MAD--came to be modified during the 1970s by the nuclear policies of <u>both</u> superpowers. For its part, the Soviet Union carried out a major nuclear strategic buildup that did not seem to reflect the American acceptance of MAD in the 1960s. The new Soviet forces were on the one hand vulnerable because of their basing, while on the other hand they threatened the most accurate and dependable retaliatory force of the United States--the ICBMs--with a disarming counterforce strike. Official Soviet military doctrine, moreover, seemed consistent with this nuclear posture, regardless of its historical or ideological origins.

The United States, for its part, first froze substantial improvements of its nuclear arsenal, then began in the mid-1970s to imitate Soviet nuclear trends in order to deter Soviet nuclear options. This process, called by one observer "the Sovietization of American strategy," radically shifted US nuclear doctrine far away from the close adherence to MAD of the mid-1960s. Conceptually, according to the earlier American strategy, nuclear

war had become <u>unthinkable</u> because it amounted to suicide for any nuclear aggressor. The new American strategy took more seriously into account the possibility that, under certain conditions, nuclear war could occur and that the US required the capability of convincing the USSR that, under any circumstances, it would be denied victory should it mount a nuclear attack.

Thus the notion that MAD--conceived in the 1960s--was no longer sufficient by itself to prevent the outbreak of nuclear war was by 1983 a respectable position, certainly among conservative strategists and among policymakers serving both Democratic and Republican presidents. In this sense, President Reagan's SDI proposals did not appear out of the blue. Whether SDI would eventually enhance deterrence, as some administration spokesmen have recently claimed, or replace deterrence with defense, as the president originally proposed, will depend on the structure and missions chosen for SDI once the five-year research program comes to an end.

Chapter 2. The Strategic Defense Initiative: System Structure and Overall Mission

While the multitude of articles that have been published on the prospects for and implications of the Strategic Defense Initiative frequently include drawings of American battlestations that orbit in space and can fire laser weapons at Soviet missiles in flight, it must be stated at the outset of any analysis of SDI that, in fact, President Reagan has not committed the United States to a particular defensive system. SDI is only a five-year (1984-1988) preliminary research program to investigate several alternative technological approaches to ballistic missile defense. Moreover, some of the technologies under consideration may take twenty or thirty years of development before they are ready for application. To make matters more complicated, many of the new SDI technologies, particularly those that at present seem to have some reasonable chance of being ready for use in the near term, are highly classified. These background conditions have created ambiguities that flaw discussions about SDI. The American debate over the technical feasibility of an SDI system frequently boils down to a rhetorical exchange between those who point out the difficulties technology must overcome and those who list modern technological achievements considered "impossible" several decades ago.

Despite the inherent difficulty involved in discussing a weapons system that does not yet exist, several general

observations can be made about the likely system structure or architecture of a future SDI on the basis of material in the public domain. Furthermore, today we do know the essential characteristics of the target of SDI: the intercontinental ballistic missile and its flight path. These attributes of the ICBM will demand specific types of deployment for any SDI system. Even if the technologies for SDI are not ready in the near future, it is likely that these "structural" elements will have been taken into consideration by the superpowers in their weapons development programs as well as in their estimations of their future geostrategic requirements for deploying misile defense systems and/or countering them (see ch. 3).

System Structure

Almost all of the missile defense systems under discussion today in connection with SDI include two structural features that distinguish them from the earlier generation of ABM systems abandoned by the US in the early 1970s: layered defenses and boost-phase defense.

Layered defenses. The concept of defense in layers involves constructing a defensive network linked to the different phases of the flight-pattern of a ballistic missile, using a variety of technologies that take into account the different requirements of missile interception during each phase (see Table 2.1). Layered

defenses, SDI advocates point out, permit the use of less-thanperfect subsystems, whose combined total effect, according to the laws of probability, approaches near perfection. A three-tiered defense, for example, each of whose elements achieves only 80 percent effectiveness, would achieve an overall effectiveness of 99.2 percent. A study released by the Strategic Defense Initiative Organization in late October 1985 indicates that Pentagon planners are strongly considering a seven-layer defense system. The political-strategic significance of the kind of high degrees of success that may be obtained from either a three or seven tier system depends on the mission conceived for missile defenses. Critics of SDI point out that if even one warhead in a hundred gets through, especially if a Soviet attack includes 10,000 warheads, then the system will have proven to be of insufficient value. Advocates of SDI stress the system's utility in scenarios of limited nuclear war and point out that less-thanperfect defenses at least put doubts in the mind of the counterforce attacker about his prospects for success.

Table 2.1

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THE PHASES OF A BALLISTIC MISSILE IN FLIGHT

FLIGHT PHASE	TIME	PHASE CHARACTERISTICS & MILITARY SIGNIFICANCE
Boost-phase	3-5 minutes	a. Missile easily targetable with large infra-red signature.
,		b. All warheads and decoys are destroyed together with missile.
Busing-phase	8 minutes	a. Post-boost vehicle, "bus," begins dispensing warheads; remains valuable target for warheads it still retains.
		b. Released warheads, decoys and busing vehicle move in close formation for "area burst" destruction.
• · ·		c. Geographic location of Soviet ICBM busing phase is usually over unpopulated polar tundra, where interception by nuclear explosions will cause little damage below.
Mid-course pha s e	15 minutes	a. Longest phase of missile flight.
		b. Independent warheads are relatively more hardened targets than busing vehicle or booster.
Terminal phase	1-2 minutes	a. Warheads and decoys separate out during fall to Earth.

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Boost-phase defense. All proponents of SDI agree that of all the phases of the flight of a ballistic missile, the boostphase is the most critical from the standpoint of the defense. By destroying a MIRVed ballistic missile during boost-phase, the defender eliminates in one blow all of the missile's warheads and decoys before they are released and scattered in later phases of flight. But boost-phase defense is the most technically demanding element of a missile defense system, for it requires some form of space-basing over Soviet missile fields and/or Soviet submarine deployment areas. In addition, a boost-phase defense must operate at very high speeds: target acquisition, tracking, interception, and damage assessment must be completed at sufficient speeds so that the system can handle hundreds of missiles in the five minutes that a current liquid-fueled Soviet SS-18 requires to complete the booster phase. Newer Soviet solid-fueled missiles could reduce their booster phase to three minutes, as in the new American M-X Peacekeeper. The boost phase can conceivably be reduced to one minute in future fast-burn versions, though there exists a tradeoff between speed and weight that would require a reduction of warheads and decoys in such missiles. It is this ultra-high speed environment of boost-phase interception that has partly made laser technology--and the promise of intercepting missiles at the speed of light--one of the central fields of SDI research.

In order to accomplish boost-phase interception of a Soviet ballistic missile, or interception of Soviet nuclear warheads during later phases of their flight, at least three weaponsbasing schemes are under consideration for the SDI programs:

Space basing. Boost-phase interception could most easily be accomplished by positioning battlestations or satellites in space over Soviet launch areas. A complete space-based system, moreover, might utilize a variety of weapons systems ranging from the most futuristic technologies -- new chemical lasers with sufficient destructive potential and particle beams -- to near term technologies, which employ high-speed projectiles and anti-missile missiles. Yet several distinct disadvantages of complete space basing are frequently noted by SDI critics: (a) space-based battlestations would have to be placed in low-orbits over the Soviet Union where they would be vulnerable to anti-satellite (ASAT) weaponry; (b) in order to cover all Soviet launch points, an enormous fleet of battlestations would have to be placed in orbit, which could make the cost of the entire system prohibitive. Critics of SDI have estimated the required size of the entire fleet at anywhere between 320 stations (Stanford Center for International Security and Arms Control) to over 2400 (Union of Concerned Scientists). Each station is expected to cost at least one billion dollars. However, SDI advocates (Zbigniew Brzezinski, Robert Jastrow, Max Kampelman), place the fleet size at between 45 and 100

battlestations.

- <u>Ground basing with space-based mirrors</u>. This is a variant of space basing for laser weapons alone, which places the laser power source on Earth and utilizes a high-orbit relay mirror that directs a ground-based laser beam toward a smaller "battle mirror" in low orbit over Soviet missile launch areas.
- Ground based "pop-up" x-ray laser. The x-ray laser is a relatively new technique for creating laser energy from an exploding nuclear device. It was first successfully demonstrated in an underground nuclear test in November 1980. Advocates of the x-ray laser envision keeping the nuclear device on Earth, in submarines off the coasts of the Soviet Union. Warned of a Soviet launch, the "pop-up device" would have to be launched from the American submarine on a high-speed booster that would permit the device to explode and aim its x-rays before the Soviet missile completed its booster phase. The pop-up system could be used for later phases of the Soviet attack, should booster-phase interception prove too difficult to accomplish in sufficient time. While the x-ray laser would be precluded as an option for SDI on the basis of President Reagan's 1983 SDI speech -- which called for non-nuclear defenses -- administration policy has since changed in this regard. On May 20, 1985, a National Security Council decision was issued that officially sanctioned defenses

utilizing nuclear energy.

In addition to these various weapons-basing options for intercepting Soviet missiles during boost-phase, the SDI program includes the development of missile interception technologies for later phases of a missile's flight. The possible utility of xray lasers in busing-phase interception has been alluded to above. Space and ground-based systems could be used for midcourse interception. Intensive sensor research will be necessary to enable mid-course systems to distinguish between warheads and decoys. Finally, many technologies applicable to terminal phase defenses were developed in the course of the extensive work done on missile defenses in the early 1970s before the US signed the New terminal phase research will have to be ABM Treaty. undertaken to cope with the threat of Soviet cruise missiles. Yet the overall SDI program particularly stresses interception during early phases of ballistic missile attack.

Regardless of the interception phase, there is some indication that the Reagan administration is especially interested in accelerating research of near-term (i.e., available within 5-10 years) technologies. A breakdown of its Fiscal Year 1986 SDI budget request (see Table 2.2) indicates that it seeks the largest increase in funding in the area of kinetic energy weapons (space and ground-based missiles and high speed projectiles). Progress made in the kinetic weapons field was demonstrated in June 1984, when an experimental US Army missile

successfully intercepted and destroyed over the South Pacific a warhead carried by an ICBM launched twenty minutes earlier from California.

Table 2.2

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	FY 1985	FY 1986	Budget
	(Approved)	(Requested)	Increase
******		*=###=###	
Kinetic energy weapons	256	860	300%
Surveillance, acquisition,			
tracking, & kill assessment	546	1,386	154%
Directed energy weapons	~		
(lasers, particle beams)	376	965	157%
Gratera enclusia & battle			
management	99	243	145%
Survivability & support	112	258	130%

STRATEGIC DEFENSE INITIATIVE FUNDING (in millions of dollars)

Source: New York Times, February 4, 1985. Aerospace Daily, February 8, 1985.

The perfect defense. The problem of evaluating SDI is made complicated not only by the variety of defensive weapons systems and basing schemes under consideration, but also by the range of goals Reagan administration officials have projected for the project. President Reagan himself is associated with the "maximalist" conception of SDI--the total defense of the United States population and US missile bases -- from "the threat posed by strategic nuclear missiles." His original SDI speech made no distinction between ICBMs, SLBMs, or cruise missiles. It is this maximalist conception of SDI that has come under attack most frequently. Two presidentially-commissioned studies of the feasibility of SDI concluded in 1983 that the goal of a totally leak-proof (impenetrable) defense in all likelihood would not be achieved in the short or medium run. A congressional study prepared for the Office of Technology Assessment in 1984 reached Since that time, administration officials the same conclusion. have articulated other goals that may be achieved by SDI research, while not refuting the president's long-term vision.

Less-than-perfect defense of US ICBM silos. A less-thanperfect defense may be useless for defending the American population, but advocates of a "minimalist" SDI envision the development of a more modest system to defend American land-based missiles from a preemptive Soviet attack. In this version, frequently put forward by the Pentagon, SDI does not replace

deterrence, but rather enhances it, by assuring the survival of American land-based retaliatory forces. The distinction between the maximalist and minimalist conceptions of SDI, it must be noted, is only a question of different expectations of total system performance, and does not involve system structure. Both versions utilize boost-phase defenses that do not discriminate between missiles carrying warheads aimed at cities and those aimed at missile silos. A purely minimalist SDI could only be based on terminal defenses around US missile bases. Purely terminal defenses have also been supported as an appropriate field of research by some critics of the president's maximalist conception, including former secretary of defense Harold Brown.

The minimalist conception of SDI must be understood against the backdrop of the growing vulnerability of all American landbased missiles to a Soviet counterforce attack in the late 1970s and early 1980s. While the presidentially appointed Scowcroft Commission concluded that the "window of vulnerability" scenario was not as probable as conservatives had claimed, Congress has been reluctant to approve funds for the new silo-based M-X missile because of its vulnerability to surprise attack (in contrast to the Scowcroft Commission's recommended single-warhead <u>mobile</u> ICBM, Midgetman). The minimalist SDI concept reinstates the viability of the current US silo-based ICBM force as well as that of the new M-X missile.

<u>A force for arms control</u>. SDI has been tied to a number of arms control arguments by members of the administration:

- It was the president's SDI speech that brought the Soviets back to the negotiating table at Geneva after they had broken off the last round of Strategic Arms Reduction Talks.
 If both superpowers develop defensive systems, then both would be more willing in the future to make deep cuts in offensive nuclear arms as they come to rest their security on the principle of defense instead of deterrence.
- Development of SDI will force the Soviets away from the most unstable weapon in their arsenal--the MIRVed ICBM--to slower and more survivable systems. If SDI initially focuses on Soviet ICBMs, it will force the Soviets to deploy a greater portion of their nuclear arsenal at sea or in bombers. SDI countermeasures, such as fast-burn boost phases, will require the Soviets to forego their heavy throw-weight multiple MIRV missiles for smaller and lighter missiles.
- Administration spokesmen, moreover, have stated that the transition from a nuclear relationship between the superpowers based on offensive retaliation to one based on defenses as well, will have to be negotiated. President Reagan's own personal belief in the merits of strategic defenses for arms control was underlined by his offer to share SDI technology with the Soviets in the future, thereby enabling them also to make the transition to a defensive nuclear strategy.

A hedge against a Soviet breakout from the 1972 ABM Treaty. Another frequently mentioned purpose of SDI is to help close the gap between the Soviet Union and the US in ABM research. While the US has never deployed a single ABM system as permitted under the ABM Treaty, the USSR did erect its ABM system around Moscow. That the Soviets modernized their system in 1980 reflects their steady dedication to ABM research during the 1970s. Moreover, even after foregoing a nationwide ABM system, the Soviets continued to maintain and upgrade their large air defense command against American bombers. As air defense weaponry becomes more advanced, particularly in response to the American cruise missile threat, dual purpose air and ballistic missile defense systems could emerge. American analysts already see such a capability in the mobile SA-12 missile. Finally, considerable attention has been given by administration officials to a new Soviet phasedarray radar facility near Krasnoyarsk, whose location well within the Soviet Union--and not at its periphery--suggests that its purpose is not for early warning of US attack, but rather battle management of an ABM defense. Such ABM radars are specifically forbidden by the ABM Treaty.

A problem related to these justifications given SDI by administration spokesmen is the question of the permanence of the program. Is SDI another bargaining chip for future Geneva armscontrol talks? Does its deployment depend on what the Soviets ultimately do? How wedded are the makers of US nuclear strategy to SDI in their planning? Paul Nitze, special advisor to the

president for arms-control negotiations, has stated that if SDI systems do not meet minimum standards of survivability (against Soviet attack) and cost-effectiveness (against increases in Soviet offensive capability), then the US will not deploy them. Fred Ikle, under secretary of defense for policy, has stated that SDI "is not an optional program" but rather is "central, at the very core" of US long-term policy.

The administration is not concerned with these contradictions. President Reagan's vision of a perfect defense can be defined as a long-term goal for SDI, while less-thanperfect defenses serve as a medium-term goal. Administration spokesmen do not see SDI replacing arms control -- no matter how critically they evaluate the results of SALT II. The development and deployment of SDI are to be conducted within the framework of the ongoing strategic dialogue between the superpowers. True, there are different schools of thought in the administration about the relative value of the unproven SDI technology when measured against other means of assuring nuclear stability -- a further offensive arms buildup or significant arms control reductions. Ikle and his allies in the Defense Department might be more willing to scrap the ABM Treaty by loosely interpreting the limitations it places on testing SDI technology. The State Department has been more concerned with protecting the arms control process and the ABM treaty. The eventual outcome of these intra-administration differences -- and the final form of SDI--may depend on the extent to which the Soviets are

forthcoming with deep, verifiable reductions of their destabilizing heavy (and highly-MIRVed) ICBMs in the aftermath of the November summit meeting between President Reagan and the Soviet party leader, Mikhail Gorbachev. It is one of the major goals of SDI to render these weapons, in particular, obsolete. A Soviet offer to cut deeply this category of heavy ICBMs would fulfill one of SDI's goals, and would thereby allow President Reagan to make some concessions on his anti-missile program.

SDI--The Unwritten Economic Agenda

There is yet another purpose to SDI that is being quietly discussed in Washington. This objective has nothing to do with nuclear strategy or weapons; it is primarily economic. <u>SDI</u> research encompasses practically every field of advanced technology: from lasers to communications systems, to future generation high-speed computers. The SDI program will permit the US government to pump large sums into the research and development divisions of leading American high technology industries, with the aim of assuring American superiority in these fields against European and especially Japanese competitors. Though the American secretary of defense invited the NATO allies and Japan to participate in SDI research, many Europeans believe that the principle SDI contracts will remain in the US, with less important secondary contracts awarded to
America's allies. Thus the motivation behind France's sponsorship of the <u>Eureka</u> European technological cooperation project as an alternative to SDI, derives less from a French desire to build European space defenses than from an interest in preserving rough technological parity between European and American advanced industries.

Chapter 3. Strategic Implications of SDI Development and Deployment

Strategic Stability

President Reagan and his supporters are convinced that development and eventual deployment of missile defense systems over the next ten to fifteen years will result in a far more stable strategic environment than if such systems were not introduced at all. Again, while no specific missile defense system yet exists, nonetheless certain general observations can be made about how defensive systems as a whole are likely to interact with the strategic nuclear balance. In assessing the implications of SDI, it must be added, there is little point in discussing the impact of a perfect defense, since such degrees of protection against nuclear attack are regarded by even the most ardent supporters of SDI as only a long-term prospect. Even if technological breakthroughs lead to some realistic possibility of a perfect defense, such a system will have to be effectively judged as imperfect until it has undergone the only true test of its capabilities -- an all-out nuclear attack.

Thus, turning to the implications of <u>imperfect defenses</u>, it is essential first to evaluate how such systems affect the very critical question of <u>crisis stability</u>. Do missile defenses introduce a technology that reduces the advantage to the

superpower that launches a first-strike during times of extreme international tension? In this sense its proponents have claimed that SDI is a stabilizing factor in the future strategic nuclear balance, while its detractors have considered it a destabilizing factor.

As a stabilizing factor

- Imperfect US ballistic missile defenses place doubts in the minds of Soviet military planners about their ability to design and execute with any degree of certainty a counterforce attack against American ICBM silos or a decapitation strike against the US political leadership or command, control, and communications centers that are today relatively vulnerable.
- Even if <u>space-based</u> elements of the defensive system are vulnerable to Soviet anti-satellite weaponry, any attack against US battlestations will provide advance warning to the American military that a Soviet attack is under way, thus complicating the task of the Soviet military planner. For this reason both superpowers will be extremely cautious with the way they handle their rival's space-based military systems. As a result, limited war in space will become extremely unlikely for fear of a "spillover" to nuclear war on Earth.
- American development of defensive weapons will force the Soviet Union to develop its own missile defenses.

(Alternatively, as has been suggested, the US could share its SDI technology with the USSR.) A situation in which both superpowers have missile defenses is stable because both have reduced fears of surgical counterforce attacks.

- A potential attacker will overestimate the efficiency of the defender's system and be deterred, while the defender will underestimate its capabilities and, with few illusions about his own vulnerability, will not take dangerous risks.
- US defensive weapons will restore credibility to the American nuclear umbrella over Western Europe. Since the 1960s Europeans have asked themselves whether the US would endanger New York for the sake of Paris and initiate the use of nuclear weapons in case of a Soviet conventional attack (according to current NATO policy). A protected United States can certainly afford more easily to introduce its full strategic power in a European conflict than can a vulnerable United States.

As a destabilizing factor

- Imperfect defense systems will be perceived by the Soviet Union as part of an American <u>first-strike nuclear posture</u>. The only reasonable purpose of imperfect defenses is to intercept the weak retaliatory forces that would remain to the USSR after an initial American counterforce attack. A Soviet leader will thus tend to initiate a nuclear strike,

as war seems inevitable during times of crisis, rather than face certain defeat by the American offense-defense threat.

- As outer space increasingly becomes a vital theater of military competition between the superpowers, world war becomes increasingly likely, since the battle for spacesuperiority can be fought without causing the collateral damage generated by nuclear war on Earth.
- Defense systems such as pop-up x-ray lasers must be launched with such speed--to achieve boost-phase interception--that they will have to operate almost automatically, since little time is available for communications to Washington. Errors in detection could lead to unnecessary activation of defensive systems that could be interpreted as the beginning of an attack (such as the launch of the pop-up system missile from a US submarine).
- The Soviet Union, recognizing that it cannot compete against US technological superiority, may decide to forego spacebased defenses similar to those of the United States. Instead, the Soviets will concentrate on offensive countermeasures (as the US did when it developed MIRV against a Soviet ABM). Alternatively, SDI will push the Soviets to develop an anti-satellite warfare (ASAT) capability that will render American communications, navigation, and intelligence satellites vulnerable. A situation in which one side alone has missile defenses would be highly unstable in times of crisis, for only one side would have its retaliatory

capability protected while the other side, because of its greater relative vulnerability, would have to maintain its forces at a high level of alert.

- Should the USSR see that US defenses are improving to a point of near-perfection that will render its own missile forces obsolete, Soviet leaders might launch a limited nuclear war <u>immediately</u> rather than wait until they have become a secondclass power.
- Missile defenses will give defenders an illusory sense of reduced vulnerability that will push the leaders of the superpowers to take greater risks during times of crisis.
- Proposed American missile defenses may be less useful in the European theater, where intermediate and short-range missile flight times are of shorter duration than missiles of intercontinental range. SDI will thus create a vulnerability gap between the US and Europe and lead to the emergence of a "Fortress America" mentality and renewed isolationism in the US. Soviet missile defenses built in response to SDI could be of sufficient magnitude and quality to neutralize the threat from the relatively small French and British nuclear arsenals and thus lead to a breakdown of nuclear deterrence in Europe and increased likelihood of conventional wars.

While a strong case can be made theoretically to show that space-based missile defense systems can either increase or undermine the stability of the nuclear balance in times of crisis, a net assessment of most of the implications listed above

indicates that an SDI system will in all likelihood be a positive development for nuclear stability, particularly in the strategic environment of the end of this century.

First, any defensive system that can be used to weaken a Soviet first strike against the US can be equally useful against a Soviet second-strike retaliatory attack. It thereby undermines, from Moscow's standpoint, the Soviet Union's deterrence of an American nuclear attack. The question then becomes what is more important for <u>future</u> stability: to stop a Soviet surprise or preemptive attack, or to maintain the second-strike capabilities of both superpowers.

If both superpowers maintained nuclear postures on the basis of mutually assured destruction doctrines, then defenses would be destabilizing, for they would preclude a surprise attack that neither side had either the <u>intention</u> or <u>capability</u> to conduct and yet they would, at the same time, undermine both sides' retaliatory capability. Today, however, neither superpower builds its nuclear forces on the basis of MAD--it is doubtful that the Soviets ever adopted MAD, and the Americans have moved away from it. More importantly, both superpowers are acquiring capabilities to make nuclear war scenarios more feasible through further improvements in weapons accuracy, reduction of collateral nuclear damage, and even the replacement of nuclear warheads by conventional ones. Furthermore, with future improvements in Soviet air defenses against US bombers and in Soviet antisubmarine warfare techniques, a successful strike against US ICBM

silos would be tantamount to victory in a nuclear war. With these <u>doctrinal</u> and <u>technological</u> developments, it becomes difficult to assure prevention of nuclear war on the basis of MAD alone (which was conceived when both sides were principally armed with slower, less accurate delivery systems and "messy" city-busting bombs). In any event, <u>imperfect</u> defenses would still not entirely deny the Soviet Union's retaliatory capability.

Second, if for a period of time the US has space-based missile defenses while the Soviet Union does not, it is extremely unlikely that even in times of crisis Moscow would initiate nuclear war on the basis of fear of an American first-strike capability. Soviet decisionmakers must still take into account the American retaliatory capability after such a reckless move. It is true that, on paper, the USSR can inflict greater punishment on the US in a surprise attack than it can in a weak retaliatory attack that is further blunted by missile defenses. But the vulnerability of the USSR makes such calculations meaningless. A problem could arise with a future Soviet leader who, from the safety of his bunker, would still make such calculations, despite the potential losses that would be suffered by Soviet society. But it is doubtful whether traditional deterrence could operate at all against such an individual; he could equally be capable of planning a Soviet first strike even if the American nuclear posture appeared to be minimally threatening. In fact, it is precisely against such an undeterrable leader that SDI is ideally suited, for defenses can

deny the attacker victory without threatening the latter's society with massive destruction.

Third, while outer space is a new theater where nuclear war can be conducted without causing damage to the civilian population below, on the whole it is unlikely that the superpowers would permit war to break out in space unless one side intended to bring the war to Earth in any case. War in space would imperil not only defensive battlestations, but also communications and navigation satellites that are already incorporated in the Earth-based offensive strategic forces of the superpowers. The US Navy's new counterforce-capable Trident D-5 SLBM, to be deployed in the early 1990s, will depend on satellite information for mid-course guidance. It would be impossible to conduct a war limited to the theater of space that would not also imperil these Earth-bound strategic nuclear systems. In all likelihood. the fear of escalation of limited space wars to full nuclear exchanges would result in an extension of deterrence from Earth to the space-based systems of the superpowers. Whether or not SDI is carried through from research to development and deployment, the militarization of space is an inevitable prospect as long as both superpowers are dependent on space for acquiring information for the successful prosecution of nuclear conflict.

Fourth, while for a limited period of time the US will maintain a lead in space-based missile defenses, it can be expected on the basis of the history of the arms race, that the USSR will eventually introduce missile defenses as well (or even

receive Western alliance technology to that end). In all likelihood, Soviet missile defenses will reflect the unique technological and organizational strengths of the Soviet military as well as specific consideration of the American nuclear threat. Accordingly, Moscow can be expected to develop elaborate terminal defenses with late mid-course interception capabilities on the basis of its current massive air defense system. Defense against US SLBMs and cruise missiles would make more sense for a Soviet SDI than heavy investment in space-based battlestations over America's relatively small ICBM force. It may not be necessary then, for the Soviets to imitate the ultra-high technology systems of the US in order to have a respectable imperfect The USSR has shown its ability to close defense system. technological gaps with the West in the past; the Soviet atomic bomb was developed amidst the devastation of the Second World War. Thus, on the basis of the historical record, the prospects of both superpowers having missile defenses are greater than that of only one superpower deploying defenses.

Fifth, regarding the case of Europe, it must be recalled that the American nuclear guarantee to the NATO countries was originally given in the 1950s, when the US maintained nuclear superiority against the USSR and was consequently less vulnerable to the Soviet military threat than its Western allies. Since that time Amerian vulnerability has undermined that original pledge. Lessening American vulnerability can only strengthen Western European security. Furthermore, American political

decisions of greater involvement in world affairs or greater isolationism have historically not been a function of American vulnerability to nuclear attack. Well before the USSR acquired the capability of destroying the United States, American foreign policy broke out of its isolationist mold and established firm commitments for the US overseas.

It is true that a limited Soviet missile defense system, built in response to SDI, could neutralize the small nuclear forces of France and Great Britain. As a consequence European security dependence on the US could well increase by the end of the century. However, as long as the US remains steady in its commitment to NATO, such a development, while reducing the stature of two Western European countries, would not leave Europe entirely open to a Soviet conventional attack. As much as SDI damages the future credibility of the French and British deterrents, it is to be remembered that it will enhance the credibility of the major guarantor of European security, the United States.

Arms Control

SDI critics accurately point out the conflict between SDI development and deployment on the one hand and the 1972 ABM treaty on the other. It must be noted at the outset that <u>the ABM</u> <u>Treaty does not prohibit future ABM research</u>, for the very simple reason that there was (and is) no way either the US or the USSR

could verify the other side's adherence to a ban on research without agreement on opening up secret national weapons laboratories to local inspection. According to Article Five of the treaty, both parties undertook "not to develop, test or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based." The clash between SDI and American ABM Treaty obligations will thus come later, as the program leaves the research stage and enters the stage of development and testing. There is be no way of accurately judging whether strategic defenses -- the explicit purpose of the SDI program--are a feasible technology, without threatening to undermine the ABM Treaty through the testing of components. Some SDI critics go so far as to claim that the President's SDI proposals already undermine the "spirit" of the ABM Treaty by calling into doubt the wisdom of the superpowers' acknowledgment of their relationship of mutual vulnerability upon which the agreement is based.

The Reagan administration has attempted to allay such concerns by maintaining, correctly, that the current research stage in SDI is consistent with the ABM Treaty. Administration spokesmen even condone certain SDI tests, claiming that they relate to <u>sub-components</u> alone. In addition, without clearly explaining whether they will proceed with field tests of an antimissile system as a whole (and with the entire stage of development), they do state that the US will not proceed from development to deployment without consulting the USSR and without

modifying the ABM Treaty.

The administration is correct in viewing the ABM treaty as a flexible document which can be modified through negotiations between the signatories. Article XIII calls for the establishment of a Standing Consultative Commission, consisting of representatives of both countries, to review "possible changes in the strategic situation which have a bearing on the provisions of this treaty." Aricle XIV notes that each party may propose amendments to the treaty; in 1974 the treaty was, in fact, amended by the signatories. Should the Soviet Union agree, in the early 1990s, to permit modification of the ABM Treaty to allow for limited space-based missile defenses, then no problem would arise. However, should the Soviet Union maintain its absolute opposition to the SDI program and refuse to consider treaty modifications, then the president of the United States would have to choose between deploying SDI or preserving the ABM Moreover, since the ABM Treaty is the essential Treaty. foundation of all subsequent arms control discussions between the superpowers, a sharp clash over missile defenses could jeopardize the entire future of the arms control process.

At this point, however, it is too early to say whether SDI will put an end to arms control. Arms control talks, in the past, arose out of mutual interests between the two sides. If the Soviets see that they cannot stop SDI, they might very easily decide that they should at least have some influence on shaping its final form or basing mode. In the early 1990s there will be

a strong Soviet interest in extending current ABM deployments from Moscow alone to Soviet missile fields, especially as the US builds up its counterforce capability with the M-X ICBM and the D-5 SLBM. Thus the current negative attitudes towards SDI could change; the Soviets have shown in the past that though they may boycott arms talks one year, they may return to them the following year.

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For now, the problem is whether the continuation of SDI research will hold up the arms control process as a whole. There is no way that the Soviets can expect a ban on SDI research, given the requirements of such a ban for treaty verification. SDI could provide Moscow a convenient propaganda tool for separating the US from its NATO allies; the Soviets will claim that progress on European-based intermediate range weapons will be frozen as long as the US pursues SDI. Once the Europeans make up their minds on SDI, however, its value as a potential consensus-breaker will decline. The real problem for SDI will come in the early 1990s, when the US has to decide on deployment. For deployment is not made inevitable by the five-year investment in SDI research, especially since booster-phase defenses in space may in fact take more than a decade to develop. If the Soviets still remain firmly opposed to modifying the ABM Treaty, deployment could be stopped. Unlike past American nuclear programs which maintained a bureaucratic momentum of their own towards deployment, the enormous expense of deploying SDI will generate hesitations--certainly in Congress--about the

advisability of going ahead with the program. That decision, however, will depend, from the American side, on whether the Soviets themselves have adhered to those clauses restricting the deployment of defensive systems as well as whether progress is made on limiting the growth of offensive weapons (to which both sides are committed according to Article XI).

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In sum, SDI in the short-run may delay progress on armscontrol negotiations. Should that delay extend into the mediumrun, the program could be stopped before deployment.

Possible Implications of SDI for the Future Structure of Geopolitics

While it may seem too early at this point in time even to attempt to describe how a weapons system that does not yet exist will affect the future of geopolitics, several significant points can already be made on the negative scale, i.e., regarding the ways in which SDI will probably <u>not</u> alter future patterns of political interaction. It may be tempting to assume that the superpowers, by carrying their rivalry into space will relate differently to the earth below, and that SDI will therefore revolutionize the basic global alliance patterns that emerged after the Second World War. It is safe in this regard to project forward and say that such assessments will, in all likelihood, prove inaccurate.

Looking at the proposed basing plans for missile defenses in

space (see chapter 2), at least two proposals call for partial basing on <u>land</u>: Earth-based lasers that are reflected by spacebased mirrors, and pop-up systems that are launched from submarines or ships in the vicinity of the Soviet Union. Even fully space-based systems will need communications facilities on Earth. Just as past strategic systems of the US have had certain infrastructure requirements that led to specific political arrangements (B-47 bomber bases in North Africa, port facilities for the US Navy, intermediate range missiles in Turkey), so SDI will generate special political agreements that will continue to make diplomacy an integral part of the maintenance of the US nuclear strategic posture.

In fact, it can be argued that in the time-urgent environment of missile defense, geopolitics may become an even more significant factor in the nuclear balance than previously-for two reasons:

- Should the US use pop-up defenses either exclusively or along with space-based defenses, then SDI could lead to a return to <u>forward basing</u>. In order for an anti-missile weapon to arrive at a position over Soviet missile fields in the three to five minutes of the ICBM booster-phase, pop-up defenses will have to be deployed close to the Soviet borders--either on land (in Germany, Turkey, or China) or at sea. According to SDI advocate Edward Teller, such a defensive system should be conceived less as a "dome" over the United States, than as a "cap" over the Soviet Union.

- In order to counter space-based defenses, both superpowers are likely to seek ways of shortening the flight time of their missiles and hence the period of their exposure to interception. This could lead to a return to the forward basing of <u>offensive</u> systems (especially the slower cruise missile). US nuclear submarine deployments which have over the last ten years been moving further away from Soviet borders--with the increased range of the newest generation SLBMs--could return to waters that are much closer to their targets. Forward submarine deployment can reduce missile flight time from twenty to seven minutes.

These special geopolitical implications for SDI have particular relevance for the Mediterranean and the countries of the Middle East. The principal deployment areas of the two heaviest ICBMs in the Soviet arsenal--the SS-18 and SS-19--are located in a belt stretching from just north of the Black Sea to Soviet Central Asia, in the region north of the USSR border with Iran and Afghanistan. An American drive to obtain a missile defense capability could well entail renewed interest in the "Northern Tier" countries of the Middle East--originally identified as the front line of the US containment policy of the 1950s--for ground-based early warning radars or for the deployment of missile defenses themselves (should a local government assent to admit such provocative anti-Soviet facilities). In brief, SDI, rather than lead to renewed American

isolationism behind a space-based missile shield, may very likely require greater US involvement in the security affairs of the states on the Soviet periphery.

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Chapter 4. SDI--Implications of Israeli Participation

The considerations involved in an Israeli decision to accept the US government's invitation to the SDI research program are fundamentally different from those of other American allies in North America, Europe and the Far East. First, the other states that were called on to participate in SDI have been facing an ongoing and direct Soviet military threat -- both conventional and nuclear -- that serves as their primary national security problem (with the possible exception of Australia). All of these states accordingly have acquired some protection over the last thirty years under the American nuclear umbrella--though the extent to which the US would automatically commit its strategic forces in their defense varies with each treaty arrangement. The decision of these American allies to join SDI or not must then first take into consideration how such a missile defense system would disturb or strengthen American security guarantees against the Soviet threat. Second, the other states invited to join the SDI program, as long term strategic partners of the United States, have a heightened awareness of the threat of nuclear war which has led, in recent years, to the formation of strong domestic constituencies that seek to restrain the collaboration of their respective governments with the US in all matters related to nuclear weapons and planning.

Israel has an entirely different set of considerations. Israel is not a "nuclear ally" of the US. It has only faced a

direct Soviet military threat during short periods of high tension at the close of its wars with Soviet Arab client states (with Egypt in 1956, 1970 and 1973; with Syria in 1967). The Soviet threat to Israel instead has primarily been indirect, through the arming and training of the most intransigent of its Arab neighbors. Partly for these reasons, Israeli-American security cooperation has not been explicit; no formal alliance exists, as in the cases of the other states invited to work on It is true that American presidents have consistently SDI. proclaimed their commitment to the security of the State of Israel, and that one purpose of this commitment has been to deter direct Soviet intervention in the Arab-Israel conflict. Nonetheless, no links have been clearly established between the American strategic forces based in the US and the security of Israel in the same way that these links have been made with the security of the NATO countries or Japan.

Since Israel's security focus has been primarily in the Middle East and concern with the nuclear threat has arisen largely in connection with the nuclearization of the states of the region, Israeli society has been largely immune to the great nuclear debate that has raged in Europe and the Far East in recent years. The Israeli government does not have to take into account strong domestic constraints against strategic collaboration with the US based on public fear of nuclear war.

As of December 1985, the question facing Israel on SDI may no longer be whether to accept or decline the American SDI

invitation. From reports in the Israeli press, discussions have been underway for some time between the two governments regarding the parameters of Israeli participation. During Prime Minister Shimon Peres' visit to Washington in October 1985, references made to Israel's position on SDI seemed to indicate that a positive decision had already been taken. Yet no public announcement of Israel's acceptance of the US invitation to participate in SDI has been made. Whether a decision has already been taken (and only the public announcement remains to be made), or a final decision will be taken in the near future, the question of Israel's position on SDI is bound to be raised again. The special considerations for Israel are thus assessed below. There are at least four basic ways that a <u>positive</u> response could benefit Israel.

It could deepen Israel's strategic partnership with the US. Even the invitation to join the SDI program, along with other states that are explicit global allies of the United States, placed Israel in an entirely new league with respect to both its relations with the US and to its status in the international system. Moreover, the invitation dramatized how Washington continues to regard Israel as a strong long-term American strategic interest; the US-Israel relationship, rather than being "Taiwanized" by the growth of US interests in the Persian Gulf, has become firmer than ever. This strengthened strategic partnership has important regional implications for Israel's Arab adversaries. First, it demonstrates the futility of any long-

term Arab strategy based on a decoupling of the US-Israel connection. Collective Arab diplomatic strategies in the future will continue to have to factor in a steady US strategic interest in Israel. Thus despite Israel's excessive economic dependence on the US, the Arab world cannot easily expect an American "sellout" of Israel.

Second, the inclusion of Israel along with the NATO countries, Japan, and Australia certainly defined more sharply than ever before the alliance nature of the relationship between Jerusalem and Washington. The deterrent value of this greater clarity should not be underestimated. It serves as yet another important reminder to future Arab war coalitions that any attempt to decisively defeat Israel on the battlefield could very well result in US intervention. It also serves as a serious constraint upon any future deployment of Soviet forces against Israel in defense of an Arab client.

Third, by being invited to a global strategic endeavor (as opposed to a regional military grouping), Israel was acknowledged as being more than just a regional client of the US in the Middle East. Should this new American attitude become formalized, then the quality and intensity of US-Israel strategic relations will be less dependent on the state of Washington's relations with its Arab military partners in the Middle East. By choosing to go ahead and participate in the SDI program, Israel will strengthen and make more permanent its growing strategic partnership with the US and will reinforce its newly recognized status as an

American global ally.

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This new status becomes particularly evident when the SDI invitation is considered against the backdrop of past strategic cooperation arrangements between the US and Israel. Both countries have stepped up their strategic partnership since the renewal of their Memorandum of Understanding in November 1983 (the memorandum had been frozen by the United States since December 1981 in response to the Israeli Golan law). But even this geographically limited partnership--the memorandum focused on the Soviet threat to the Eastern Mediterranean--did not receive unanimous support in the administration. The Defense Department opposed American-Israeli strategic cooperation on account of Arab sensitivities; the State Department sought to strengthen strategic ties with Israel in 1983 in order to support its anti-Syrian policy in Lebanon at the time. Certainly, changing regional circumstances could easily bring about a reexamination of US-Israeli strategic ties. SDI cooperation thus creates yet another framework for ongoing strategic cooperation which, by virtue of its wider global focus, will be less subject to shifting political alignments between the Arab states and the superpowers.

<u>A positive reply could elevate Israel's status in the</u> <u>international community as a whole</u>. One possible indirect consequence of this new international status could be a change in Israel's diplomatic standing. It is one thing to observe a diplomatic boycott of an influential American regional client; it

is quite another to boycott a country Washington defines as one of the principal partners in the defense of the West. Such calculations may affect the choices of decisionmakers in smaller states in Asia and Africa; they might also affect the leadership in Beijing, which is interested in forging closer relations with members of the Western alliance. Ironically, even the Soviet Union may take a greater interest in Israel. Certainly Moscow will have more to gain by "wooing" an Israel that is of global as well as regional importance to the US.

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Participation in SDI research will further the development of Israel's own missile interception technologies. At least one element of the proposed SDI missile defense schemes--terminal defense against warheads in their final descent to target--has important local applications for Israel in the Middle East. The invitation sent to US allies to join SDI specifically states that the program will "examine technologies with potential against shorter-range ballistic missiles." Such weapons could very well become more prominent in coming Arab-Israel wars. Future trends in conventional warfare are likely to lead to an expansion of the present-day battlefield as opposing armies attempt to strike more deeply at forces in the rear with long-range precision-guided weapons, including missiles. In the narrow geographic setting of the State of Israel these deep-strike strategies will threaten rear troop concentrations and civilian population centers more readily. Defenses against tactical missiles will thus become increasingly important. Similarly, intermediate range missiles

may become a more prominent feature of future wars. Such weapons may become particularly useful to Arab states wishing to find a counter-deterrent to Israel's air superiority. Intermediate range missiles may become an especially important weapon for countries that wish to involve themselves in the Arab-Israel conflict and yet have no common border with Israel (e.g., Iran, Iraq, Libya). The Americans themselves have partly justified SDI for defenses against "crazy states" like Libya that might some day obtain long-range missiles with nuclear warheads. In fact, Israel must prepare itself even more than the United States for such an eventuality. Participation in SDI will certainly put Israel in a far better position to handle the variety of missile threats that it will likely face during the 1990s. And as that participation becomes known, Israel's deterrent posture against these threats should improve.

<u>SDI research will involve key sectors of the Israeli economy</u> <u>in the frontiers of Western technology</u>. Reference has already been made to the existence of an unwritten American agenda for SDI that calls for intensive research and development in the most advanced areas of American industry in order to preserve or extend US superiority against competition anticipated from Japan. Space-based missile defenses will require significant technological developments in computer, laser, microelectronic and optical industries. These, in turn, will have civilian applications. Israeli industries participating in SDI will gain close exposure to the new technologies and secure for the Israeli economy a share in their future global market. Even if, in the research phase of SDI (1984-1988), Israel's actual share of the \$26 billion program is small, should the US move on to SDI development and production then overall SDI funding will skyrocket, and with it Israel's allocation.

Despite the strong diplomatic, military, and economic benefits that are likely to accrue through participation in the SDI program, there are some possible damages for Israel that ought to be considered as well. The implications of joining SDI could be negative in two different ways.

It could establish Israel as a global strategic adversary of the USSR. In the same way that participation in SDI represents an unprecedented new level of strategic cooperation between Israel and the US, it equally represents a new level of Israeli activity against the most vital national security interests of the Soviet Union. Several important fields of future Soviet-Israeli cooperation could be affected. First, Israeli involvement in SDI could preclude the restoration of diplomatic relations between Jerusalem and Moscow as Israel becomes identified as a "hopelessly" permanent ally of Washington. Second, any move that might further endanger Soviet-Israeli relations must take into account Soviet retaliation against Soviet Jewry. Accordingly, Israeli approval of SDI could wreck the prospects of the Kremlin opening the gates of the USSR to emigration. Third, the Soviet Union might choose to retaliate against Israel in the Middle East itself. This could take the

form of giving its own clients--e.g., Syria--greater support for policies that obstruct expansion of the peace process. Alternatively, as Israel is incorporated into the American global alliance system, the USSR might elect to deepen its own strategic ties with its clients in the region through the introduction of an even more sophisticated generation of weapons systems than it would otherwise have made available. While the stated purpose of these weapons would be to meet the American military threat to the Middle East, they would undoubtedly find more ready application against Israel in future Arab-Israel confrontations.

However, the most serious strategic implication for Israel of participation in SDI is its possible effect on Soviet global military planning in the future. At present, were a global war between the superpowers to break out--either conventional or limited nuclear -- it is reasonably safe to predict that military operations would be focused primarily in Europe and the Far East, where both sides currently deploy their largest and best-equipped land and naval forces. Israel and the states of the Levant might well ride-out such a conflagration safely. But what happens once the Soviets appraise Israel as a full strategic partner of the US--even outside of the Middle East? Would not Israeli military industries come to be viewed by Soviet planners as part of the military strength of the Western alliance? Should participation in SDI lead at a later stage to the deployment in Israel of any of the missile defense subsystems--ranging from satellite communications equipment to actual forward-based elements of the

missile defense system itself--then Israel could become a significant Soviet nuclear target. Even if the basing of SDI components is preceded by a formal defense treaty between Israel and the US, Israel's new risks would have to be weighed carefully against the added security obtained in such an arrangement under the over-burdened American nuclear umbrella.

Another negative consequence of participating in SDI research could be the involvement of Israel in the American domestic debate on SDI and the alienation of anti-SDI friends of Israel. The American invitation to Israel to join the SDI program can be viewed in light of recent attempts by the administration to connect Israel with controversial non-Middle East issues and . thereby gain the support of the strong pro-Israel consensus in the US Congress. A recent example of this sort of political maneuvering was the administration's reference to Nicaragua as a center of state-supported terror--as exemplified by Managua's connections with the PLO. If, in fact, the SDI invitation is a case of the Defense Department adding Israeli gloss to a problematic defense policy issue in order to achieve easier passage in Congress (or even if it is merely perceived as such by the president's Democratic opposition), then by supporting SDI, Israel will have taken sides in a major domestic American debate on nuclear war, placing itself clearly on the side of Republican-Conservative opinion and alienating its traditional Democratic-Liberal supporters. By doing so, moreover, Israel would essentially be basing its future relationship with the United

States on a primarily <u>military-strategic</u> partnership, and might thereby cut itself off from that sector of the American public that supports Israel for fundamentally <u>moral</u> reasons. This kind of shift in the character of the American-Israeli relationship could prove to be destabilizing, for while strategic interests can shift in the short term, moral ties serve as the basis for enduring international alignments.

Taking the positive and negative implications together, an overall assessment tends to favor Israeli participation in SDI. First, while it is likely that the Kremlin will not be particularly pleased by Israeli approval of SDI, nonetheless the Soviet reaction must be placed into perspective. It is extremely doubtful that by becoming involved in an American-sponsored military research project, Israel will turn itself into a Soviet nuclear target. It is one thing to engage in research on SDI; it is entirely another degree of enmity to base US offensive cruise missiles, for example, in the Negev and aim them at the Soviet homeland. The former act might have some political-diplomatic repercussions; only the latter is likely to have real military In fact, by confining its activities to research consequences. alone, Israel is likely to acquire all the benefits of deeper strategic cooperation with the US without taking a step that could be interpreted by Moscow as hostile and directly threatening. Moreover, by supporting SDI research today, Israel is in no way committed to supporting SDI deployment five or ten years hence. There is no reason why a decision taken by an

Israeli government in 1985 to enter into joint research would tie the hands of a future Israeli government that is asked by the US in the 1990s to accept deployment of SDI components that might become a future Soviet strategic target.

As for other aspects of the Soviet question, there is no reason why increased strategic cooperation with the US should preclude a warming-up of Soviet-Israel relations. Moscow has active diplomatic intercourse with a number of US strategic allies--particularly among the NATO countries. It is, in fact, significant that the recent hints emanating from the Kremlin about a change of policy concerning Israel come at a time when US-Israeli strategic cooperation is at its height.

It is also doubtful that any Israeli decision on SDI--for or against--will have an impact on the fate of Soviet Jewry. The Soviets themselves resist any link between their foreign policy and what they regard as an internal Soviet matter. If such a link can on occasion be established, only the United States has demonstrated in the past the ability to wield real influence with the Kremlin in this matter. It could be argued that by blocking progress in arms control SDI serves as an obstacle to a return to the days of detente, when many Soviet Jews obtained exit permits. But, as argued earlier, any delay in arms control can only be temporary. For both sides have a strong interest in controlling the growth of each other's nuclear arsenals.

Turning to the second set of objections--concerning the alienation of pro-Israel members of Congress who are also anti-

SDI--it is necessary to analyze the basis of their opposition to the program. Even the harshest critics of SDI recognize some necessity for research into missile defenses, particularly if the Soviet Union unilaterally terminates the ABM Treaty. Their principal objection to SDI comes from concern over the US unilaterally violating the ABM Treaty--through SDI field tests-and thereby undermining the prospects for arms control. During the Senate debate in June 1985 over the US FY 1986 defense authorization bill -- which includes the SDI program -- several Democratic senators unsuccessfully attempted to introduce A11 amendments to sharply reduce the SDI budget authorization. the amendments focused on cutting the budget allocation for SDI demonstration tests. The most drastic of the amendments offered by Senator John Kerry (Democrat, Mass.) -- a proposed cut from \$3.7 billion to \$1.4 billion -- nevertheless called for a 23 percent increase in that portion of the research budget not directly connected to field testing.

In brief, the opposition to SDI is not centered on the pure research areas of the program--to which American allies will make their principal contribution. While the allies will be consulted as the US moves with SDI from the research phase to development and deployment, these later decisions are essentially in American hands. Israel's contribution to the SDI program can be seen to be consistent even with Democratic perspectives on missile defense. Moreover, their views could be taken into account through a separate Israeli statement calling on both

superpowers to return to the arms-control process. Israel might also specify that it is directing its SDI research towards fields that will assist Israeli security--such as terminal defenses--and that are less controversial in the US.

Even if the subtleties of anti-SDI arguments are considered, Israel can hardly be expected by President Reagan's opponents to take into account both his foreign policy and theirs. When Israel is invited to participate in SDI, it is invited by the US as represented by the current administration; it is not invited by the Republican Party alone. It has to relate to this president as the unitary commander-in-chief of all Americans. If he tells Israel that by joining the SDI program, Israel can contribute to American security, then Israel should honor his assessment. Indeed, to defer to an alternative assessment by the president's political opposition could conceivably be portrayed as Israeli meddling in American internal affairs.

Finally, considering the arguments for accepting the American invitation to participate in SDI, <u>Israel's positive</u> <u>response should be in the form of a clear public announcement</u>. Several of the governments invited to join the program, while refraining from any public endorsement of SDI, have nonetheless permitted interested companies to participate on a private basis. Their interest in doing so derives from their desire to gain access to SDI funding without paying a political price domestically to the anti-nuclear movement. But Israel's primary motivation in joining SDI should be political. If Israel seeks

to place its strategic relations with the US on a new footing and thereby derive advantages--enhanced deterrent stature and improved diplomatic standing--then it must make its cooperation in this area an open public matter. Israel gains little by maintaining a low profile regarding its contribution to SDI or by restricting its connections to the usual private channels of inter-governmental communications. The US government invited Israel publicly; there is no reason why Israel should not respond in the same manner. Certainly in the aftermath of the Pollard affair, a public acknowledgment of Israeli participation in SDI would serve the interests of both governments: it would make known to all that any distrust that had emerged from the incident was behind them, and that their bilateral strategic partnership was stronger than ever.

As for the economic aspect of SDI, it should become a major Israeli consideration under one condition only. If the American interest in Israeli research and development turns out to be merely financially symbolic, then a serious question will emerge as to how genuine the original American invitation actually was. It could then be inferred that the US invited Israel for internal political reasons alone and not out of any regard for Israeli science and technology. Further, should a miniscule contribution to Israeli research and development be accompanied by an American request to keep Israel's cooperation a private matter, then doubts would be raised about whether the US really wished to place Israel in the category of a special ally as implied by the

original invitation. Under these conditions, Israel would gain little from SDI and should reconsider its involvement in the program.

Conclusions

- 1. In two important ways, SDI is <u>not</u> a "Star Wars" science fiction fantasy. First, it is a serious attempt to cope with defects that have been emerging in the nuclear relationship between the superpowers--defects that will, in all likelihood, only become more pronounced in years to come with further developments in offensive nuclear weaponry. Second, certain SDI technologies--kinetic energy weapons--are not at all long term schemes that will only be available in decades to come. These are near term technologies, and given a modest defensive mission could make less-than-perfect missile defenses a reality within ten years.
- 2. While President Reagan's original vision for SDI--making nuclear missiles "obsolete"--can only be considered at present a long term goal, a less ambitious imperfect defense could make a considerable contribution to strategic stability in the near term. Imperfect defenses are particularly stabilizing, for while they deny the attacker an assured first-strike capability, they do not jeopardize the retaliatory capability of either side. Imperfect defenses do not replace mutually assured destruction; they assure its continued viability.
- 3. Israel should <u>openly</u> accept the US invitation to participate in the SDI program, thereby cementing the new status offered to it as a member of the Western alliance. With this

elevation in its political and strategic importance to the West, constructive Soviet interest in Israel will in all likelihood increase rather than the reverse. The important question of Soviet Jewry will not be settled in the context of Soviet-Israeli relations alone, but rather, as in the past, will be primarily affected by relations between Moscow and Washington.

- 4. At this stage Israel should confine its participation to SDI research alone. Even with an American nuclear guarantee in the future, Israel should be extremely cautious about the stationing of any elements of an American missile defense system on Israeli territory. Unlike the Europeans, who already are a target for a Soviet conventional or nuclear attack, Israel is presently only an <u>indirect</u> rival of the USSR and has nothing to gain from the deployment of strategic systems on its soil.
- 5. Israeli agreement to join SDI could be accompanied by a statement expressing the hope that <u>both</u> superpowers will make greater progress in their arms control talks in Geneva. Equally, Israel can state its hope that both superpowers will continue to adhere to the 1972 ABM treaty. Israel, as a member of the international community, has an obligation to voice its opinion on the question of nuclear war. Politically, an Israeli reference to the importance of the arms control process will soften the impact of Israeli
acceptance of SDI with both the administration's domestic opponents and, to a lesser extent, the Soviets, as well.

6. Israeli hesitation about SDI might be advisable only in the event that US interest in Israeli science and technology turns out to be financially symbolic. This would raise a question as to the sincerity of the original SDI invitation. Moreover, should the US request that Israeli participation remain unofficial and/or unacknowledged, then Israel would be justified in questioning the motives of a US initiative that ostensibly integrates it into the Western alliance. Only under these specific circumstances should the Israeli government reconsider its involvement in the program.

Appendix

SECRETARY WEINBERGER'S LETTER TO ALLIES ON SDI RESEARCH

In the period since President Reagan introduced his vision for the Strategic Defense Initiative (SDI), many of our Allies have informally expressed an interest in participating in this research program. At the same time, some of our friends have sought clarification of our policy and attitude toward such cooperation. I am writing to you today both to make clear my government's views on this important subject and to begin a direct dialogue with you thereon.

As you know, the purpose of the SDI is to determine whether there are cost-effective defensive technologies that could enhance deterrence and increase stability. Because our security is inextricably linked to that of our friends and Allies, we will work closely over the next several years with our Allies to ensure that, in the event of any future decision to deploy defensive systems (a decision in which consultation with our Allies would play an important part), Allied, as well as United States, security against aggression would be enhanced. Moreover, the SDI program will not confine itself solely to an exploitation of technologies with potential against ICBM and SLBM, but will also carefully examine technologies with potential against shorter-range ballistic missiles.

The United States will, consistent with our existing

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international obligations, including the ABM Treaty, proceed with cooperative research with the Allies in areas of technology that could contribute to the SDI research program. Pursuant to this policy, the United States is permitted--and is prepared--to. undertake such cooperative programs on data and technology short of ABM component level as may be mutually agreed with Allied countries.

If your nation is interested in exploring possible cooperative efforts or contributions, I would ask, as a first step, that you send me within 60 days, an indication of your interest in participating in the SDI research program and of the areas of your country's research excellence that you deem most promising for this program. In order to provide a more comprehensive basis for your assessment of pertinent capabilities and to help expedite the process, the United States is prepared to arrange meetings in Washington so that your government's scientific/technical representatives may receive detailed briefings on the Strategic Defense Initiative program during this period.

We would expect to give your response prompt consideration with a view to initiating, as appropriate, bilateral discussions on specific areas and arrangements for cooperation.

26 March 1985

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המרכז למחקרים אסטרטגיים ע״ש יפה

דורי גולד

SDI יוזמת ההגנה האסטרטגית של ארה״ב וההשלכות של השתתפות ישראל

מזכר מס' 16 דצמבר 1985



אוניברסיטת תל-אביב

תמצית עברית

(SDI: THE STRATEGIC DEFENSE יוזמת ההגנה האסטרטגית (SDI: THE STRATEGIC DEFENSE) – זהו השם הרשמי אשר ניתן לתוכנית המחקר האמריקאית (תוכנית המחקר האמריקאית בנושא אמצעי-לחימה נגד טילים גרעיניים.

הנשיא רייגן העלה לראשונה הצעה בנושא במרץ 1983. בהתאם לחזונו המקורי יש צורך לפתח מערכת של רצועות-הגנה, המבוססת בעיקר בחלל וביבשה, והמיועדת ליירט טילים בליסטיים. תוכנית זו אמורה לחולל מהפיכה בתחום האסטרטגיה הגרעינית האמריקאית. לא עוד איום ההרתעה המתבטא באפשרות להנחית מכה שניה כתגובה למכה ראשונה סובייטית; דוקטרינה הגנתית תבוא ותעלה תחתיה.

המכשולים הטכניים העומדים בפני הגשמת היוזמה הם כה עצומים, עד כי מתנגדי ה-SDI כינו את התוכנית בשם "מלחמת הכוכבים" על שום היותה לגבי דידם מדע-בדיוני בלבד.

בסוף מרץ 1985, הזמין משרד ההגנה האמריקאי את בנות-בריתה העיקריות של ארה"ב – המדינות השייכות לפיקוד נאט"ו, וכן את צרפת, יפן ואוסטרליה – והציע שתשקולנה אפשרות להשתתף בתוכנית. גם ישראל, אשר אינה נמנית עם בנות-הברית הרשמיות של ארה"ב (אין בינה לבין אשר הינה נמנית עם בנות-הברית החשמיות של ארה"ב (אין בינה לבין קיוה לזמן יחדיו את מיטב המוחות המדעיים מקרב מדינות הגוש המערבי, קיוה לזמן יחדיו את מיטב המוחות המדעיים מקרב מדינות הגוש המערבי, כמו גם להפגין אחדות המערב כלפי המזרח. ארה"ב לא ביקשה כל תרומה כספית למימון SDI מהמדינות המוזמנות. אדרבא, היא הציעה לספק צורכיהן הכספיים למחקר מתוך סכום של 26 מיליארד דולר שברצונה להקציב לכלל הפרוייקט לשנים 1984-88.

I

עד עתה (דצמבר 1985) רק בריטניה וגרמניה המערבית נענו בחיוב. אוסטרליה, קנדה, דנמרק, צרפת, הולנד ונורבגיה הודיעו על כוונתן שלא להצטרף, אם כי חלקן ביקשו להעניק לחברות פרטיות את הזכות להגיש מכרזים על בסיס מסחרי. איטליה, יפן וספרד הביעו ענין ותמיכה מסוימת, אולם ביקשו שהות נוספת כדי לעיין בנושא.

ישראל טרם נענתה רשמית להצעה. ברם, מנהיגים ישראליים התבטאו כלפי התוכנית באופן חיובי, בייחוד בעת ביקורו של ראש הממשלה, שמעון פרס, בוושינגטון, באוקטובר 1985. כן נמסר בעתונות הישראלית כי למעשה הוחל בשיתוף פעולה בנושא, אך בפרופיל נמוך. כנראה שגם המימדים הכספיים של שיתוף פעולה זה הינם מוגבלים לעת עתה.

מטרת המזכר הנוכחי לספק מידע רב יותר על נושא SDI בכללותו, להעריך את כדאיות התכנית מבחינת המערב, וכן לחוות דעה לגבי היתרונות והנזקים האפשריים הצפויים לישראל כתוצאה מהשתתפותה.

על מנת לשקול בכובד ראש את מידת התבונה שבהצטרפות ישראל לתוכנית, יש לקחת בחשבון בעיקר את מידת השפעתה הישירה של התוכנית על בטחונה של ישראל. אולם אין זה בהכרח השיקול הבלעדי. לא די לשאול 'האם זה טוב ליהודים?' ישראל חייבת להעלות שאלותיה גם כחברה בקהיליה העולמית – האם תתרום תוכנית ה-SDI ליציבות גלובאלית או לחילופין, תוביל לכיוון של מלחמה גרעינית. <u>במישור הגלובאלי מסיק</u> המזכר כי ה-SDI יוביל לסדר גרעיני יציב יותר, לכל המוקדם במחצית שנות ה-90, כאשר ניתן יהיה לפרוס את האב-טיפוס הראשוני של מערכ<u>ת</u> ה-SDI

מתנגדי התוכנית בארה"ב מתמקדים בשאלת הצורך לחפש תחליף לאסטרטגיה הגרעינית המבוססת על עקרון ההשמדה ההדדית המובטחת

II

(MAD) ---מאזן אימה"--תחליף שהוצע ע"י הנשיא עצמו בנאומו ממרץ 1983. בטחון ארה"ב, על פי עקרון ה-MAD, כרוך ביכולתה לאיים באורח אמין על רוב מרכזי האוכליסיה והתעשיה של בריה"מ, אף לאחר התקפה-גרעינית סובייטית כלפי ארה"ב. באורח מקביל, בטחונה של ברה"מ מושתת על יכולת זהה כלפי ארה"ב. כלומר, בטחונן של שתי המעצמות תלוי ביכולתן להנחית מכה שניה (SECOND STRIKE CAPABILITY). ברם, הבטחת יכולת כזאת הולכת ופוחתת בעשור האחרון, בעקבות התפתחויות טכנולוגיות ושינויים הולכת ופוחתת בעשור האחרון, בעקבות התפתחויות טכנולוגיות ושינויים על עקרון ה-MAD עוד תחריף בשנות ה-90, שכן, שיפורים הצפויים בדור הבא בכושר הדיוק והפחתת כוח ההרס (MEGATONAGE) של ראשי-החץ הגרעיניים של שתי מעצמות העל יגבירו את האפשרות לחילופי מכות גרעיניות המכוונות נגד מטרות צבאיות בלבד. באופן זה תיתכן מלחמה גרעינית מוגבלת שאינה בהכרח מלחמת גוג ומגוג; כך, נחלשת והולכת ההרתעה ההדדית המקופלת בעקרון ה-MAD.

גם על-פי תומכי ה-SDI, הגנה <u>אטומה</u> על ארה"ב ובנות בריתה מפני הטילים הסובייטיים הינה אופציה לטווח רחוק בלבד. אולם, מערכות המספקות הגנה חלקית (בסדר-גודל של 80% עד 89%) בהחלט מסוגלות לתרום ליציבות הגלובאלית. הגנה חלקית לא באה להחליף את עקרון ה-MAD, אך היא מתקנת חלק מן הליקויים אשר נתגלו בו בסוף שנות ה-70. מזכיר ההגנה האמריקאי (בימי הנשיא קרטר) הרולד בראון, לדוגמא, אישר שבידי הסובייטים היכולת להשמיד את כל הטילים היבשתיים (ICBM) של ארה"ב, על-אף היותם מוצבים במתקנים תת-קרקעיים מוגנים. מכאן שהתפקת-פתע על מתקני-שיגור אמריקאים תותיר טילים המוצבים על-גבי צוללות

III

ומפציצים בלבד. מצב זה טומן בחובו סיכונים, ומעמיד בספק את כושר ההרתעה האמריקאי, שכן מצפים כי מערכת ההגנה האוירית הסובייטית תשופר, דבר שיעניק לבריה"מ יכולת מענה למפציצים ולטילי-השיוט של ארה"ב. כמו-כן, עלולות פריצות-דרך בלוחמה הסובייטית נגד צוללות לסכן את אמינותו של כוח הטילים האמריקאי הפרוס מתחת לפני הימים.

ה-SDI הראשוני המתוכנן להגנה חלקית בלבד, יצמצם באורח משמעותי את פגיעותם של הטילים המוצבים ביבשה, ובכך יחזק את היכולת האמריקאית למכה שניה. מאידך, מערכת שביצועיה חלקיים בלבד לא תעניק לארה"ב יכולת למכה הראשונה, שכן אינה שוללת במאת האחוזים את היכולת הסובייטית למכה שניה.

במישור האזורי, מסיק המזכר כי בטחונה הישיר של ישראל יצא נשכר מהשתתפותה בתוכנית ה-SDI, וזאת בשל הסיבות הבאות:

א. העמקת שיתוף הפעולה האסטרטגי עם ארה"ב

שלא כשיתוף-הפעולה הקודם והנוכחי עם ארה"ב, כדוגמת מזכר ההבנה מנובמבר 1981 (אשר חודש בנובמבר 1983), היקפה של תוכנית ה-SDI הינו גלובאלי ואינו מצטמצם לתחום האזורי בלבד, ובכך מתרחב שטח שיתוף-הפעולה האסטרטגי בין ארה"ב וישראל.

שלא כשיתוף-פעולה אסטרטגי אזורי, הרי שההיקף הגלובאלי של תוכנית ה-SDI מקטין את הסכנה של שינוי פתאומי בעמדה האמריקאית כלפי אויבי ישראל (לדוגמא, סוריה). שכן, בשיתוף הפעולה סביב SDI סיפקה וושינגטון הוכחה ברורה להערכתה את ישראל כבת-ברית, זאת על אף העובדה שישראל אינה חתומה על חוזה רשמי עם ארה"ב. בכך נחלשת כל אסטרטגיה דיפלומטית ערבית המכוונת ליצור חייץ בין ישראל לארה"ב, ומתחזקת

IV

הסובייטים. גוברת והולכת, תהפך באופן פרדוקסלי למדינת מפתח גם מנקודת מבטם של על בן-ברית ערבי. ישראל, שחשיבותה האסטרטגית לגבי ארה"ב והמערב אמריקאית. יתר על-כן, העמקת הקשרים הצבאיים בין ישראל על מנת להגן אמריקאית. יתר על-כן, העמקת הקשרים הצבאיים בין ישראל וארה"ב,

ב. שיפור ביכולת הישראלית להתמודד עם טילי קרקע-קרקע ערביים

שיתקיימו מן הסתם משך שנות ה-90. כמצב מעין זה. השתתפות ב-זםצ תשפר את עמדתה לנוכח איומי טילים ארוך בעלי ראשי-חץ גרעיניים. למעשה, על ישראל להתכונן יותר מארה"ב "מדינות מטורפות" כלוב, העלולות להשיג ביום מן הימים טילים לטווח הטענות בזכות ה-IDS שהשמיעו האמריקאים היתה הצורך בהגנה כנגד קמרות שאינן גובלות בישראל (איראן, עיראק, לוב). יתר על כן, אחת שהיבות על-ידי אותן מדינות המעונינות לקחת חלק בסכסוך הישראלי-ערבי מענה כנגד העליונות הישראלית באויר. לטילים בינוניים תיוחס יתר חשיבותם תיגבר גם היא במלחמות עתידיות. כלי-נשק אלו יכולים להוות מילים טקטיים מסוג זה. כך הדבר גם לגבי טילים לטווח בינוני -שאת. על כן חייבת ישראל לייחס חשיבות גוברת והולכת להגנה כנגד. ינתרוע עייאוגרפי הצר של ישראל, אורבת הסכוה לגבי האזרחים בעורף ביתר שאויב באמצעות חימוש מונחה מדוייק ובכלל זה טילים קצרי טווח. TAL נענעדע הבע-עלנדי כהעגבבים עיריבים ינסו לתכות עמול יותר בעורף הסופי בדרכם אל המטרה. כיום ניכרת מגמה בלחימה קונבנציונלית להוביל ישימות לזירת המזרח-התיכון: הגנה יבשתית כנגד ראשי-חץ המצויים בשלב מרכיב אחד לפחות בתוכנית ה-TOS טומן בחובו עבור ישראל השלכות

Δ

ג. חשיפת מגזרים חשובים במשק הישראלי בפני טכנולוגיות מתקדמות

על סדר היום הבלתי כתוב הקשור ב-SDI מצוי סעיף הקורא למחקר ופיתוח אינטנסיביים בשטחי התעשיה המתקדמים ביותר, בכדי לשמור או להגדיל את עליונות האמריקאים כנגד התחרות הצפויה מיפן (וזאת חרף ההזמנה, מטעמים פוליטיים, ליפן להצטרף לתוכנית). פיתוחם של טילי-הגנה שבסיסם בחלל אמור להתפתח לכדי יישום אזרחי בתעשיות מחשבים, לייזר, מיקרואלקטרוניקה ואופטיקה. תעשיות ישראליות המשתתפות ב-SDI לייזר, מיקרואלקטרוניקה ואופטיקה. תעשיות ישראליות המשתתפות ב-SDI לייזר, מיקרואלקטרוניקה ואופטיקה. תעשיות ישראליות המשתתפות ב-SDI

שלוש טענות אפשריות כנגד הצטרפות ל-SDI מוכחות כבלתי-משכנעות:

א. <u>הצטרפות ל-SDI</u> מעמידה את ישראל בשלב חדש של עימות כלפי בריה"מ, משישראל נעשית גורם בתוכניותיהן של מעצמות-העל למלחמה גרעינית

ספק רב אם ישראל תשמש מטרה להתקפה גרעינית סובייטית רק מפאת השתתפותה בתוכנית <u>מחקר</u> צבאית אמריקאית. הפער בין תרומה מדעית ל-SDI לבין, לדוגמא, הצבת טילי שיוט התקפיים בנגב והכוונתם כלפי בריה"מ, הינו גדול; למעשה מדובר ברמות שונות לגמרי של גילויי-איבה. לתרומה מדעית ישנן אמנם השלכות פוליטיות-דיפלומטיות; אך רק פריסתו של נשק התקפי עלולה להביא לתוצאות צבאיות. למעשה, בהגבילה עצמה למחקר בלבד, עשויה ישראל להרויח מהעמקת שיתוף הפעולה האסטרטגי עם ארה"ב בלא שהסובייטים יפרשו צעדיה כעוינים באופן ישיר. יש לציין כי המיכת ישראל בתוכנית ה-SDI כיום, אין היא מתחייבת לתמוך בפריסה הסופית של מערכת ה-SDI בעוד עשר שנים. החלטת ממשלת ישראל ב-1985 אותה ממשלה ישראלים במחקר משותף עם ארה"ב אינה קושרת את ידיה של

VI

לפרוס בתחומה חלקים מסויימים של מערכות SDI אשר יהיו עלולים להפוך למטרה אסטרטגית סובייטית בעתיד.

בכל הנוגע לצדדים אחרים של הבעיה הסובייטית, הרי שאין כל סיבה לכך ששיתוף-פעולה אסטרטגי גובר והולך עם ארה"ב הנובע מה-SDI יציב מכשול בפני התחממות יחסי בריה"מ-ישראל. מוסקבה מנהלת מגעים דיפלומטיים פעילים עם חלק גדול מבנות-בריתה האסטרטגיות של ארה"ב, ביתוד מקרב מדינות נאט"ו. אדרבא, יש משמעות לענינינו לכך שהרמזים הנשמעים מהקרמלין בדבר שינוי מדיניות כלפי ישראל מתרחשים בעת ששיתוף-הפעולה האסטרטגי הישראלי-אמריקאי הינו הדוק.

ב. הצטרפות ישראל ל-SDI מהווה מיכשול בפני יציאת היהודים מבריה"מ

טענה זאת מוטלת גם היא בספק. הסובייטים עצמם מתנגדים לקשירת מדיניות החוץ שלהם למה שהם מחשיבים כעניין סובייטי פנימי. גם אם לפעמים נוצרת לכאורה זיקה כזו ממילא רק ארה"ב הפגינה בעבר את היכולת להשפיע באורח כלשהו בענין יציאת היהודים. ניתן לטעון שעל-ידי חסימת התקדמות בנושא פירוק החימוש, משמש SDI כמכשול לחזרה לימי הדטאנט, בהם השיגו יהודים סובייטיים אישורי יציאה. ברם, כפי שנטען קודם לכן, כל דיחוי בפירוק-הנשק הוא זמני בלבד, שכן לכל אחד משני הצדדים ענין רב בהגבלת החימוש הגרעיני של הצד שכנגד.

ג. הצטרפות ישראל ל-SDI תרחיק מעליה את ידידיה הדמוקרטיים

<u>הליברליים בקונגרס האמריקאי מפאת התנגדותם העזה ל-SDI</u>

חשוב לנתח את הבסיס להתנגדותם של הדמוקרטים הליברליים לתוכנית. גם מתנגדיה המחמירים ביותר של SDI מכירים בצורך במחקר בלוחמה נגד טילים בליסטיים, ביחוד לנוכח האפשרות שבריה"מ תבטל באופן חד-צדדי את חוזה ה-ABM (טילים נגד טילים באליסטיים). התנגדותם העיקרית של

VII

הליברלים ל-DOS נובעת מהדאגה מפני הפרה חד-צדדית של ארה"ב את חוזה ה-ABM -- באמצעות ניסויי-שדה של SDI -- דבר העלול לערער את הסיכויים להצלחת השיחות על פיקוח הנשק. במהלך הדיונים בסנאט ביוני 1985 ביחס לתקציב ההגנה לשנת 1986 -- תקציב המכיל הקצבה לתוכנית ה-SDI -- ניסו לשוא מספר סנאטורים דמוקרטיים להשיג תיקונים לחוק התקציב ולהפחית לשוא מספר סנאטורים דמוקרטיים להשיג תיקונים לחוק התקציב ולהפחית באופן משמעותי את התקציב שאושר ל-SDI. כלל התיקונים התמקד בהקטנת המימון המיועד לניסויים במערכת ה-SDI. כלל התיקונים התמקד בהקטנת על-ידי הסנאטור ג'ון קרי (דמוקרט ממסצ'וסטס) - אשר למרות שהציע לקצץ על-ידי הסנאטור ג'ון קרי (דמוקרט ממסצ'וסטס) - אשר למרות שהציע לקצץ להוסיף סכום השווה ל-3.7 מהתקציב עבור מחקר טהור שאינו קשור ישירות לניסויי-שדה. בקצרה, ההתנגדות ל-SDI אינה מכוונת לאותם תחומי מחקר של התוכנית אליהם בעיקר יתרמו בנות-בריתה של ארה"ב, אלא לאותם שטחים העלולים לסכן את השיחות על פיקוח הנשק.

ישראל, אשר כאמור, כבר החלה במגעים בנושא מבלי להצהיר על כך, יכולה לקחת בחשבון את נקודת-הראיה של המתנגדים לתוכנית על-ידי פרסום הצהרה נפרדת הקוראת לשתי המעצמות לחזור לשיחות על פיקוח הנשק. אך מעל לכל, עיקר היתרונות לישראל מהשתתפות בתוכנית המחקר של SDI בתחום הבינלאומי –- כלפי הערבים, כלפי ברה"מ ובתחום שיתוף הפעולה האסטרטגי עם ארה"ב –- יושגו אך ורק אם תצהיר על הצטרפותה בפומבי, ואילו עיקר היתרונות בתחום הטכנולוגי יושגו אך ורק אם תעניק ארה"ב לישראל היתרונות בתחום הטכנולוגי משקל. בלעדי שני תנאים אלה חייבת ישראל לשקול שנית את השתתפותה.

VIII

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