

Missile Defense, International Stability and Preventive Arms Control

Moving Beyond Missile Defense

Jürgen Scheffran, IANUS/INESAP, Darmstadt, Germany
(Preliminary considerations of February 13, 2001)

After the election of George W. Bush as US President it is widely assumed that he will begin with the deployment of the National Missile Defense (NMD) as soon as possible. While officially NMD is designed as a limited defense against small missile attacks from so-called “rogue states” or “states of concern”, the nuclear weapon states Russia and China are preparing for the NMD world as well. For them it is essential to maintain their deterrence capabilities against the sole superpower USA and its quest for dominance. A nuclear and missile arms race is a concrete possibility but not a necessity. The options for the international control and disarmament of nuclear weapons and ballistic missiles, of missile defense systems and space weapons have not been sufficiently explored. Even the cooperative attempt to stabilize the introduction of missile defense would require considerable arms control efforts, without completely excluding all uncertainties, complexities and risks associated with NMD.

1 Missed opportunities and relics of the Cold War

“Bush wants to abandon the nuclear balance of terror ” quotes the German daily newspaper “Frankfurter Allgemeine Zeitung” the new US President on its title page of February 10, 2001. In its commentary, the FAZ reduces Bush’s “vision for the 21st century” to the simple formula: less nuclear weapons, more missile defense. As a consequence of the expected “disarmament spiral” the emotions on the missile shield would fade away, hopes the FAZ commentator. In the same issue, the liberal Russian politician Grigori Yavlinski is quoted as saying that the Russian categorical opposition against NMD would not be the last word because Russian leadership could show flexibility in reaching a compromise with Bush. And a few days later, on February 13, the German Foreign Minister Joschka Fischer visited Moscow to convince the Russian President Vladimir Putin to talk with the US government on missile defense in a cooperative rather than confrontative mode. Is there a “Grand Compromise” on missile defense around the corner?

The relationship between missile defense, nuclear disarmament and stability is not new. It played a role during the 1960s as well as during the 1980s after Ronald Reagan had launched the Strategic Defense Initiative (SDI) in March 1983 to make nuclear weapons “impotent and obsolete”. He justified SDI with ethical arguments similar to those used by the Freeze movement against the nuclear threat. The reverse argument that nuclear disarmament could in return make missile defense obsolete was raised by Reagan’s counterpart, the new Soviet leader Mikhail Gorbachev when in early 1986 he presented his concept of a nuclear weapon free world by the year 2000. The Geneva negotiations on the prevention of an arms race on earth and in space had to deal with these seemingly contradictory concepts. The conflict reached its climax at the October 1986 summit between Reagan and Gorbachev in Reykjavik when both leaders discussed the seemingly impossible: within five years all nuclear weapons were to be reduced by 50 %, in ten years all ballistic missiles were to be abolished. While Reagan wanted to keep SDI as an insurance policy, Gorbachev asked why the US would build a huge missile shield when 10 years later all nuclear missiles could be gone. He was concerned that SDI could destabilize the nuclear disarmament process. Agreement officially failed over the question to which degree SDI research and development would be compatible with or contradictory to the Anti-Ballistic Missile (ABM) Treaty of 1972. Gorbachev insisted on strict ABM limitations and the prohibition of space weapons.

In the months after Reykjavik the Soviet concern over US military-technical dominance gave way to a more reasonable evaluation of the technical problems of SDI. Only one year later, Gorbachev's willingness to cooperate despite SDI led to the INF Treaty of 1987 which abandoned the complete category of medium-range ballistic missiles in Europe. During the Strategic Arms Reduction Talks (START) there was some debate on a "Grand Compromise" with regard to ABM limits and stable combinations of offensive and defensive weapons.¹ With the decay of the Warsaw Pact such ideas found a rapid end. At first glance, it seemed as if SDI had become "obsolete" by the end of the Cold War and the supposed era of disarmament. In accordance with the Reykjavik proposal, the Federation of American Scientists (FAS) came out with the concept of Zero Ballistic Missiles (ZBM) in 1992 which found support among former government officials such as Paul Nitze. Within a few years a world-wide movement for the abolition of nuclear weapons developed.

The initial euphoria about the end of the East-West Conflict and the expected peace dividend were soon gone. While the Soviet Union became resolved, the US could now operate more unhindered. Missile defense became a new role and function, despite the fact that both the technology, the supporting persons and the underlying functions were born in the Cold War. In April 1990, a few months after the Berlin Wall came down, Edward Teller, the "father of the hydrogen bomb" and initiator of SDI, and Gregory Canavan from Los Alamos came out with their concept of missile defense for the new world order.² They drew the picture of a threat from the South against which only missile defense could help.

A breakthrough for the re-instrumentalization of missile defense was achieved in the 1991 Gulf War. Despite Patriot's technical failure against the Iraqi Scud missile US President George Bush (senior) revived the SDI program to build a Global Protection Against Limited Strikes.³ In 1983 Bush's successor Bill Clinton renamed the SDI-Programm and tried to avoid exotic space weapons, but left the BMD budget largely intact and integrated BMD into the US counterproliferation strategy. Only because of technical flaws in the missile defense tests Clinton transferred the deployment decision into the hands of his successor Bush who seems determined to deploy. Beyond all historical changes, missile defense has demonstrated its remarkable inertia.

Because the ABM Treaty has been rather successful in limiting for the first time in history the interaction between offense and defense, the proponents of missile defense attack this treaty and the whole concept of arms control as a relic of the Cold War. They are inconsistent if they are not willing to completely give up their own nuclear and missile arsenals, which also stem from the Cold War. Certainly, the current US-Russia relationship cannot be compared to the East-West conflict, not only because Russia is unable to maintain its current nuclear arsenals and cannot really compete with the USA. However, the announced Russian countermeasures against NMD have to be taken seriously, as well as diplomatic attempts to diminish the adverse consequences by disarmament and arms control measures. Ironically, cooperation to stabilize the introduction of missile defense would require rather more than less arms control.

¹J. Scheffran, Strategic Defense, Disarmament and Stability, PhD thesis, Marburg: IAFA, 1989; see the summary: J. Scheffran, Missile Defense, Nuclear Disarmament and International Stability - Lessons from the Cold War, INESAP Bulletin, No. 17, August 1999, pp. 37-40.

²G.H. Canavan, E. Teller, Strategic defence for the 1990s, "Nature", Vol. 344, 19 April 1990, pp. 699-704.

³See J. Scheffran, J. Altmann, W. Liebert, Keine Mauer zwischen Nord und Süd - SDI kann das Proliferationsproblem nicht lösen, Dokumentation der Frankfurter Rundschau, 9.4.1992; a longer version with G. Neuneck und B.W. Kubbig can be found in: Von SDI zu GPALS, Dossier Nr. 10, Wissenschaft und Frieden, 2/1992.

2 Stability and arms control: a Grand Compromise?

In both Russia and the United States there is an interest in cooperation and arms control, even if NMD is to be deployed. Russia's recent reactions have been ambivalent since on the one hand Putin understandably attacked NMD and threatened to take countermeasures, on the other hand he called for deep cuts and for a joint missile defense, together with Europe. On 13. November 2000 Putin offered a reduction of nuclear warheads down to 1500, knowing that a reduced number could be more vulnerable to NMD. On the same occasion the commander of the Russian nuclear forces, General Vladimir Jakovlev, proposed a "constant general index for strategic weapons into which missile defenses are to be integrated, besides offensive weapons".⁴ A country willing to increase defense at the same time would have to reduce the threat against other states.

Such a debate, how speculative it may be at the moment, reminds of the discussion about a "Grand Compromise" during the 1980s. Attempts to find a right balance between offense and defense and to prevent instabilities by cooperation directly refer to the Reykjavik proposals. Again today's leadership in Moscow is confronted with the question: should Russia stick to its fundamental opposition against NMD and risk that the US would act alone, or should Russia accept a deal with the US on the ABM Treaty in order to stay as an actor in the missile defense game? If the management of a stable transition into a new defense-dominate world order should fail, then the world would face new uncertainties and risks.

Stability implies that a particular situation which is perceived as desirable can be maintained within given limits against disturbances. Different from the term "strategic stability" used during the East-West conflict and referring to nuclear deterrence doctrines between the superpowers, today the notion of "international stability" is more appropriate because it also reflects non-military dimensions and more actors in the international arena. The buildup of missile defense would have a severe impact on both strategic and international stability, even if the system would not be feasible in the near future. The official task of NMD reminds of a mission impossible: to protect the US territory against limited missile attacks without undermining deterrence capability of the nuclear weapons states. If the US would incrementally increase its defense capability, during this process other countries could perceive a loss of their capability to hit the United States with their missiles. This would have an impact first on the smaller missile powers, but the larger ones might see their deterrence capacity be undermined in the early stages as well. This concerns in particular China which has only a few dozen ballistic missiles. As long as these countries see a need to maintain their deterrence doctrine (like the USA), they would aim at countering defensive measures by countermeasures. Since cheap and efficient countermeasures are a realistic option, NMD could then provoke an arms race.

In theory one could conceive of ways to resolve this conflict. In particular, the US government might declare or sign an agreement to confirm their obligation to stay below a given defense threshold which can be overcome by the nuclear weapon states (NWS) but not by the smaller "states of concern". They could also agree on confidence-building measures with other NWS allowing them to check whether US assertions are true. All NWS could even cooperate in managing a stable offense-defense relationship. While the Russian government expresses opposition against NMD, there is a potential fallback position in which Russia might be willing to cooperate with the USA on setting the strategic agenda, including improved controls on offense and defense.

To build a limited national missile defense against a few ballistic missiles within given limits, the USA would aim for 100-200 interceptors. Since China has only a few dozen ballistic missiles, the Chinese government would already see such a small number of interceptors in the US as a serious threat for their deterrence. There is no threshold which is capable enough to satisfy the US minimum goal and at the same time to be acceptable for China. If China increases its ballistic missile number to a level

⁴Widersprüchliche Signale zum ABM-Vertrag, FAZ, 14.11.00.

seen as sufficient to deal with a US limited defense, it might increase its ballistic missiles by a factor of 5-10, which would not be desirable for other countries, in particular not for China's closest neighbors India (and therefore Pakistan), Taiwan and possibly Japan. Thus, China's attempt to overwhelm a defense threshold by more missiles and other countermeasures could provoke regional competitors to take stronger countermeasures, leading to the often quoted domino effect that might destabilize Asia.

Russia might initially be more relaxed because of its ability to overwhelm a limited defense. But if defenses go up and offenses go down, at some point of this process the state of parity would be achieved in which the defense might be numerically capable to make offenses ineffective. When such a situation occurs, is not only a matter of facts but also of perception and dependent on political circumstances. Together with deep cuts in its nuclear arsenals and an uncertain US course on further defense layers (as have been suggested by conservatives), relevant forces in the Russian government might become nervous with regard to worst-case scenarios that reflect US strategic dominance. The Russian government could never be certain about US capabilities and intentions (and vice versa). They can argue that, if the USA has the whole infrastructure for 100 - 200 interceptors, they could simply add more interceptors to increase the overall defense capability. If a first layer for a limited missile defense had been built, who could prevent the USA from building more layers? In breakout scenarios it may be a comparable task for the US to build more interceptors and for Russia to counter this by more nuclear missiles.

To understand potential options for stabilization, it is useful to refer to proposals made during the SDI debate. In 1984, J.A. Thompson, then Vice-President of the RAND corporation had presented a comprehensive arms control regime to stabilize a defensive transition which would include the following rules:⁵

- "Reduce the size of offensive forces;
- Reduce the vulnerability of offensive forces;
- Regulate the mutual acquisition of defenses;
- Avoid deployment of vulnerable defenses; and
- Include stringent verification measures that would guard against breakout of the agreement, which could be potentially decisive in a mixed offense/defense environment."

Others suggested a "Grand Compromise" that "would seek sharp reductions in strategic nuclear offensive systems in concert with mutually acceptable ground rules for the development of ballistic missile defense." Such a regime "could create enormous strategic uncertainties unless the transition is handled in a rational way".⁶

Proposals of a "Grand Compromise" need to stand the test of reality. Even if the US and Russian leaders would agree on a cooperative transition management, instabilities are difficult to exclude. Definitions of thresholds and trajectories of offense and defense capabilities need to take into account problems of uncertainty and complexity of interaction. Because of uncertainties about the functioning and reliability of weapons, the assumption of clearly defined offense capabilities and defense thresholds is not realistic. If one penetrating missile is sufficient to destroy New York, it is not sufficient for the USA to have a statistical defense capability against 50 missiles. Even though the US would need to give any potential attacker the impression to have a workable defense, internally they would not rely on it because of technical flaws and therefore continue trying to improve it by making it more and more capable. Building a defense would become a never-ending story, but might never exclude

⁵J.A. Thompson, Strategic Defense and Deterrence, Statement Before the Defense Appropriations Sub-Committee of the House Appropriations Committee, May 9, 1984, p. 10-11.

⁶R. H. Kupperman, A. C. Goldberg, The Impact of a Grand Compromise in Arms Control on U.S. Strategic Forces, Center for Strategic & International Studies, Georgetown University, September 30, 1986, p. 1.

the possibility that opponents exploit the inherent weaknesses of the defense system and either build passive countermeasures or anti-defense capabilities. There creates an inherent tendency for an arms race.

Neither can an attacker be certain to achieve his strategic objectives nor the attacked side about its retaliation capability. Uncertainties could make decisionmakers more careful about their actions, but in the case of mutual mistrust could lead to the opposite. To find agreement on capabilities could lead to a never-ending debate. Missile defense multiplies the complexities of strategic and international security, in particular if space components come into play. Because of strongly coupled variables and actions minor causes in a crisis could lead to large effects and contribute to a chaos-like interaction.

How difficult a stable cooperative transition could be has been clarified in general by the Office of Technology Assessment (OTA) for SDI in 1985:⁷

“The role of arms control under the SDI approach would be to facilitate a safe transition to a state of highly constrained offenses coupled with highly effective defenses. Such a transition agreement would have to be negotiated before actual deployment began. And it might need to take effect during the research and development stages, in order to regulate offensive and defensive developments. The negotiability of such an agreement is very much in question. Nobody has yet suggested how the problems of measuring, comparing, and monitoring disparate strategic forces - problems which have plagued past arms control negotiations - could be satisfactorily resolved in the far more difficult situation where both offensive and defensive forces must be included.”

3 Uncertainties and complexities associated with BMD

The sceptical attitude of the OTA on the possibilities of cooperatively stabilizing a defensive transition seems justified if two aspects of ballistic missile defense (BMD) are taken into consideration: uncertainty and complexity. As long as the outcome of nuclear war does not depend on the sequence of decisions and the dynamics of weapons interaction, nuclear war is essentially described by simple two-strike scenarios of an all-out exchange between the nuclear triad and the targets. With the current nuclear arsenals, the outcome would be total destruction, independent of who is striking first. Time does not matter as long as the capability to retaliate is guaranteed.

While the current strategic situation already includes a number of risks (e.g. intentional or unintentional missile launches), with the introduction of nation-wide missile defense systems, both the relative simplicity and stability of the strategic situation would fundamentally change: the problem becomes more multi-dimensional. Instead of the interactions between offensive weapons and their targets, a complex network of interactions would occur if the following categories become strategically relevant: nuclear weapons, ABM (BMD) systems, ASAT weapons, satellites and C³I systems, other military forces (including conventional armament) and civilian targets. All of these categories could interact with one another: Nuclear weapons could destroy ground targets, including nuclear and conventional weapons, but also ABM systems, ASAT weapons and satellites in space. ABM systems could attack nuclear, conventional, and space missiles, satellites and ASAT, and, depending on the technology, targets on the ground. ASAT weapons could attack ABM systems and satellites. Satellites are important for transmitting information to all other categories. Conventional weapons, based on new technologies, might interfere with the other weapons systems in a complicated way, especially if they are able to destroy nuclear forces.

⁷Office of Technology Assessment, Ballistic Missile Defense Technologies, Washington, D.C.: Government Printing Office, OTA-ISC-254, September 1985, p. 13.

Time would become a much more important factor in decision-making and the fear of preemptive strikes. Countries waiting too long could risk their capability to retaliate and thus are forced to react immediately on sign of attack (even if accidental). Strategies could then switch to all-or-nothing to overwhelm the defense, reviving the possibility of all-out-nuclear war would come back. With missile defenses the inherent (il-)logic of nuclear deterrence would reach its climax.

While some of these problems might be reduced by changing the structure of offensive and defensive forces (for instance the use of space components could be minimized), but the tendency towards more complexity and thus instability is not avoided. The more technical systems are involved, the more uncertainties about their performance exist and the more difficult it becomes to control and verify the arsenals. Thus, with a more complex strategic situation, perceptions and worst-case analyses become more important. Threat perceptions are not only determined by the real facts, but also by attitudes.

All these questions are still relevant for the on-going negotiations on nuclear reductions, BMD deployment and modification of the ABM Treaty. While it is too early to give definite answers yet, it is clear that both TMD and NMD complicate the relationship not only between the USA and Russia, but with all other countries whose security rests on either nuclear weapons or ballistic missiles. The more different systems are there, the more difficult it is to control them and to ensure certain stability requirements (like the Nitze criteria). If political attitudes become worse (like between NATO, Russia and China in the Kosovo war), a once friendly relationship could easily switch into an adversary-like, provoking mutual fears that the other side's force could become dominant. If countries are forced to modernize their arsenals with countermeasures, then the result would more insecurity for everyone, including the US and NATO. No-one really knows what will happen when the nuclear forces are declining and the (perceived) capabilities of strategic defense systems are increasing.

While the East-West conflict has ended, the fear against nuclear weapons or the vulnerability of decisionmakers against worst-case scenarios not necessarily has. How would the US react if they would fear in a crisis that their complex missile defense system could be disabled by sabotage, cyber war or direct attack? Who can guarantee that concerns about first-strike diminishing second-strike capability below the defense threshold will not play any role in the future? Is it really excluded that in Moscow political forces gain power, arguing that the threatened Russian deterrence capability is to be protected against the US? How would the US leadership react which already today bothers the world with its threat perception about supposed smaller missile powers? Why should leaders of other states behave more reasonable even though it is known that the US emphasizes their right to military intervention and counterproliferation wherever this seems in the US interest?

Whether the buildup of defenses can be managed in a stable and cooperative manner depends on the abilities of the nuclear powers to minimize the uncertainties by mutual confidence-building, information exchange and verification, by their willingness to preclude worst-case thinking and by mutual trust among them. A cooperative arms management process would require an unprecedented degree of arms control and agreement on a goal. If the goal is to reduce the missile threat or to end the deterrence doctrine (as some NMD proponents seem to suggest) it is justified to ask for the best path to achieve such goals. Is missile defense the appropriate answer or will it rather lead to a detour or a dead-end, if high costs and risks cannot be avoided? Obviously there is an alternative, to reduce the threat in a cooperative and verifiable manner, without building any defenses. Such a disarmament process would also have to be accompanied by arms control (especially during the final phase of low nuclear arsenals), but would be less complex compared to a situation in which new weapon systems were built, whether they are defensive or not.

Different from traditional arms control, which generally aims at the stabilization, risk reduction and cost saving in the armament dynamics, the concept of preventive arms control aims at the timely warning against destabilizing military developments and the design of appropriate instruments to

control military research and development in the early stages.⁸

4 Alternatives for arms control and disarmament

The following areas of arms control are directly linked to the NMD debate: the disarmament and control of nuclear weapons, ballistic missiles, missile defenses and military space systems. For each of these areas some options are explained, without going into detail.

4.1 Nuclear disarmament

After World War II, the control of nuclear weapons played an important role in international relations, even though substantial progress had a long way to go (Non-Proliferation Treaty, SALT, INF, START, Comprehensive Test Ban Treaty). During the decades of the East-West conflict there have been numerous attempts to minimize the dangers of an arms race and the risks of nuclear war, but only after the Cold War during the mid-1990s the abolition of nuclear weapons moved to the international agenda of governments (NPT Review Conferences, Canberra-Kommission, Advisory Opinion of the International Court of Justice, New Agenda Coalition, UN resolutions) and non-governmental organizations (Abolition 2000, studies on a nuclear weapon free world, Nuclear Weapons Convention). A bone of contention has been the relationship between near-term feasible steps and the long-term concept of a NWFW. By drafting a Model Nuclear Weapons Convention NGOs tried to link the concretization of the goal perspective with single steps.⁹ For several reasons (such as nuclear testing in South Asia and the disarmament blockade by US Congress) the disarmament process remained in a deadlock.

On the declaratory level, some success was achieved in November 2000 when a large majority of the UN General Assembly agreed on the resolution of the New Agenda Coalition for a NWFW which for the first time reached support from all NATO States, including the USA, but with abstention by France and Russia. The conditions for nuclear disarmament have also been improved by the Russian ratification of START II and the CTBT which however are linked to the preservation of the ABM Treaty. One important next step is the cut-off for nuclear weapons materials, to be negotiated at the Geneva Conference on Disarmament. Beyond that it is necessary to start negotiations on the elimination of all nuclear weapons. Together with missile defenses this goal would be more difficult to achieve if nuclear weapon states are cautious to reduce their nuclear arsenals below a threshold given by the defense capabilities of their competitors since then they risk being unilaterally vulnerable without the ability to strike back. Even without defense there is the problem of stability at low warhead levels which means that a few hidden nuclear weapons could make a difference in threat perceptions. Generally, it is assumed that without defense it is easier to keep the problems of the nuclear disarmament process under control.

4.2 International control of ballistic missiles

Currently intercontinental-range ballistic missiles (ICBMs) are available only to the five nuclear weapon states while other states only have obtained ballistic missiles of short and intermediate range.

⁸See J. Altmann, W. Liebert, G. Neunck, J. Scheffran, Preventive Arms Control as a Prerequisite for Conversion of Military R&D, in: J. Reppy, V. Avduyevsky, J. Rotblat (eds.), Conversion of Military R&D, Macmillan Press, 1999, S. 255-271.

⁹IALANA/INESAP/IPPNW, Security and Survival. The Case for a Nuclear Weapons Convention, Cambridge, MA, 1999 (in German: Berlin 2000). M.B. Kalinowski, W. Liebert, J. Scheffran, Ist die Zeit reif für die Nuklearwaffenkonvention?, Sicherheit und Frieden (S+F) 2/98, S. 108-114.

Previous threat perceptions of the US secret services, on which NMD is based, have not materialized. Diplomatic initiatives such as in the case of North Korea offer good opportunities to prevent supposedly “irrational” states of concern from becoming major missile powers.

There has been no multilateral agreement for the limitation and disarmament of ballistic missiles. For missiles of medium and long range there have been treaties signed between the United States and the Soviet Union (INF and START). The Missile Technology Control Regime (MTCR) was able to reduce the speed of missile proliferation by export control of the supplier countries but could not prevent all missile development. As long as there is no international norm against ballistic missiles no state can forbid any other state the possibility of indigenous missile development.¹⁰ A starting point for debate is the ZBM proposal of the FAS which in 1992 presented a complete Draft Treaty for the Elimination of Ballistic Missiles and a proposal for their step-by-step elimination.¹¹ The ZBM concept proposes different tasks and responsibilities among the states, depending on their state of missile development, and recommends the creation of missile-free zones. Of particular interest are limitations or even the stop of ballistic missile flight testing on a regional and global level.¹² In order to freeze ballistic missile development on its current level, no further missiles should be deployed.

A missile test moratorium would be verifiable since a missile launch is a widely visible event. To verify comprehensive missile disarmament it would be necessary to design and create an international monitoring system which would include air- and satellite-based surveillance as well as radars and other sensors on the ground which are directed into space.¹³ On-site inspections, combined with non-destructive measurement devices, at crucial space-launch facilities would be important to prevent the use of space launchers as ballistic weapons. The exchange of information on rocket launches and suspected launch facilities is a further source to create mutual trust. Proposals on improved missile early warning and monitoring have been suggested by the Russian government in the context of a Global Control System (GCS) on the non-proliferation of missiles and missile technology and were discussed during a roundtable of experts in Ottawa in March 2000.¹⁴

4.3 Limiting missile defense

In the ABM Treaty of 1972 the United States and the Soviet Union agreed “not to deploy ABM systems for a defense of the territory of its country” (Art. I), and “not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based” (Art.V), with the exception of 100 ABM interceptors at one site (Art.III). In Art. VI both states undertake “not to give missiles, launchers, or radars ... capabilities to counter strategic ballistic missiles or their elements in flight trajectory, and not to test them in an ABM mode”. The transfer of ABM systems and their components is prohibited (Art. IX). According to Agreed Statement D the Parties agree that ABM systems based on “other physical principles” would be subject to discussion.

¹⁰Some proposals in this direction can be found in: J. Scheffran, G. Neuneck, Schritte zur Abschaffung ballistischer Raketen, Wissenschaft und Frieden 13, 1/95, S. 30, 49-51; J. Scheffran, International Control of Ballistic Missiles, in: ECAAR NewsNetwork, July/August 2000, pp. 1, 6-7; A. Lichterman, Z. Mian, M.V. Ramana, J. Scheffran, Beyond Missile Defense, Preliminary Draft, October 2000.

¹¹Revisiting Zero Ballistic Missiles - Reagan's Forgotten Dream, in: F.A.S. Public Interest Report, May/June 1992; A. Frye, Zero Ballistic Missiles, Foreign Policy, No. 88, Fall 1992, S. 12-17.

¹²See U. Schelb, Raketenzielgenauigkeit und Raketenteststopp, Marburg, 1988; L. Lumpe, A Flight Test Ban as a Tool for Curbing Ballistic Missile Proliferation, INESAP Information Bulletin, No.4, January 1995, pp. 15-18.

¹³For more detail see J. Scheffran, Verification of Missile Bans and Monitoring of Space Launches, in: W. Liebert, J. Scheffran (eds.), Against Proliferation - Towards General Disarmament, Münster: Agenda-Verlag 1995, S. 156-164; J. Scheffran, Ein internationales Überprüfungssystem für die Nicht-Verbreitung und Abrüstung ballistischer Raketen, in: J. Altmann, G. Neuneck (Hrsg.), Naturwissenschaftliche Beiträge zu Abrüstung und Verifikation, DPG/FONAS, 1996, pp. 260-288.

¹⁴Ballistic Missiles Foreign Experts Roundtable Report, March 30-31, 2000, Canadian Centre for Foreign Policy Development, April 7, 2000.

The Treaty is under double pressure. On the one hand, the US administration since years has attempted to withdraw from its narrow interpretation of its obligations. On the other hand, the military-technological development has undermined the efficiency of the ABM Treaty, in particular with regard to mobile and phased-array radars, Theater Missile Defense (TMD) systems, anti-satellite weapons (ASAT), and “exotic” technologies such as laser weapons. To keep the treaty alive and up-to-date one can conceive of measures to adapt its provisions to changing conditions, not in the sense of a wide interpretation which overstretches the meaning of its substance but in the sense of concretization and strengthening of the Treaty provisions, or even its internationalization to regions of concern.

To minimize definitional problems already in 1986 John Pike (FAS) had made specific proposals for quantitative and verifiable limits for various ABM components. These concern the altitude, relative distance and velocity in interceptor tests; limits on laser brightness or the aperture of sensors and mirrors.¹⁵ Physical analysis of potential limitations for laser weapons and TMD systems is collected in two studies by Jürgen Altmann.¹⁶ With the 1997 Demarcation Agreement Russia partly accepted the US request for legitimization of its TMD program, by agreeing to velocity limits for the interceptor and its target.¹⁷ Since US Congress and the Bush administration are pushing for further removing any limits for NMD and the ABM Treaty itself, it will be a difficult question for the Russian government whether it will further oppose ABM Treaty revisions or will give in to the US pressure, still maintaining an active role in shaping the debate.

4.4 Arms control in outer space

An essential contribution, not only to strengthening the ABM Treaty but also to the prevention of an arms race in space would be a ban on space weapons. Long-range ballistic missiles fly through space, and to attack them missile defense systems have to use space. Even though in concepts of limited missile defense space is planned basically for use of single components (in particular sensors), this raises problems for international law. On the one hand, the testing and deployment of such components in space is in conflict with Art. V of the ABM Treaty. In addition space-based BMD components could become targets of ASAT weapons. With later stages of NMD the deployment of weapons in orbit is no longer precluded. Basically every weapons that is able to hit a ballistic missile above the atmosphere could also destroy satellites. This relationship becomes specially relevant with the plans of the US Space Command, to extend the concept of dominance into outer space, and the proposals outlined in the new Rumsfeld Commission Report to defend the US against a “Pearl Harbor in Space”¹⁸ which might improve the US capability to shoot down space vehicles of other countries.

This contradicts the interests of the international community. Cornerstone of international space law is the Outer Space Treaty (OST) of 1967, plus various of other space agreements. The OST-Parties agreed to keep space for peaceful purposes, in the interest of all states. Military facilities on planets are prohibited as well as weapons of mass destruction in Earth orbit, but not the presence of weapons in outer space. In many resolutions the international community has expressed its desire for peaceful uses of space. In each of the recent years the UN General Assembly has adopted resolutions on the “Prevention of an Arms Race in Space” with overwhelming majority, while the US abstained. The

¹⁵J. Pike, Quantitative Limits on Anti-Missile Systems - A Preliminary Assessment, Washington D.C.: FAS, 4th, May 22, 1987; a shorter version can be found in: Scientific Aspects of the Verification of Arms Control Treaties, part II, pp. 137- 198, Hamburger Beiträge zur Friedensforschung und Sicherheitspolitik, June 1987.

¹⁶J. Altmann, Laserwaffen, Marburg: IAFA-Schriftenreihe Nr.2, 1986; J. Altmann, SDI for Europe?, Frankfurt: HSFK Research Report 3/1998.

¹⁷G. Lewis, The U.S. “3+3” NMD Program and the ABM Treaty, INESAP Bulletin, No. 16, November 1998, pp. 26-29; S. Young, Pushing the Limits, Washington DC: Coalition to Reduce Nuclear Dangers, April 2000.

¹⁸Report to the Commission to Assess United States National Security Space Management and Organization, Washington DC, Jan. 11, 2001

1999 resolution emphasizes that for the prevention of an arms race in space further control measures with effective verification provisions are necessary.

Despite the strong declaratory support for this goal, its implementation has been hampered by power plays among the major space nations. Neither the Conference on Disarmament in Geneva nor the UN Committee on the Peaceful Uses of Outer Space (UN COPUOS) could agree on an agenda against US attempts not to negotiate this issue. Older initiatives against the weaponization of space are the proposals of France and the Soviet Union for the prohibition of ASAT and the limitation of space weapons. In 1983 the Union of Concerned Scientists has worked out a draft treaty for an ASAT ban. This approach was extended by German scientists to the "Draft Treaty on the Limitation of the Military Use of Space" presented in July 1984 on the occasion of the Göttingen conference of scientists against space weapons.¹⁹ The Draft Treaty was debated in autumn 1984 in the German Parliament and found support from the SPD and Green Party but was opposed by CDU/CSU and FDP.

The provisions of the Göttingen Draft Treaty aim at the ban of weapons against space objects (ASAT) and of space-based weapons against any targets, including their development, testing and deployment. With a test ban the production of advanced space weapons is to be prevented. Stabilizing functions of satellites should not be limited by international law but rather be protected. As the only exception the draft treaty only suggests to ban the use of space-based systems for direct guidance of nuclear weapons and the deployment of manned military command centers on space stations. Even though the Göttingen Draft Treaty is a product of its time, its motivation remains relevant: to prevent the risks of an arms race in space in a controlled and verifiable manner.²⁰

5 Conclusions

Missile defenses could have severe implications for international stability, and it is not guaranteed that instabilities can be excluded, even during a cooperative management process among the nuclear weapon states. A new debate on a "Grand Compromise" which reminds of similar attempts under Gorbachev is not excluded but may fail to produce the desired results for Russia because of the large asymmetries. The US, under pressure to prove the technical feasibility of its missile defense program, may launch a never ending race for security which could create more insecurity for the rest of the world. What seems to be manageable in theory may fail because of practical problems of uncertainties and complexities of the strategic situation which may create more risks than those resolved, in particular if space weapons come into play. Any attempt to stabilize the process cooperatively requires some form of arms control, which is probably more demanding than without missile defense. Independent of the state and feasibility of NMD, it is wise to think and move beyond missile defense by designing arms control and disarmament alternatives in the fields of nuclear weapons, ballistic missile, missile defense and space systems that circumvent NMD and would be in place when the failure of missile defense becomes obvious.

¹⁹Siehe H. Fischer, R. Labusch, E. Maus, J. Scheffran, Entwurf eines Vertrages zur Begrenzung der militärischen Nutzung des Weltraums, in: R. Labusch, E. Maus, W. Send (Hrsg.), Weltraum ohne Waffen, München: Bertelsmann, 1984, S. 175-187. For the English version see: H. Fischer, R. Labusch, E. Maus, J. Scheffran, Treaty on the Limitation of the Military Use of Outer Space, in: J. Holdren, J. Rotblat (eds.), Strategic Defences and the Future of the Arms Race, New York: St. Martin's Press, 1987. A new commentary has been prepared by me for the Göttingen Workshop on missile defense on November 4, 2000.

²⁰Options can be found in: J. Scheffran, Verification and Risk for an Anti-Satellite-Weapons Ban, Bulletin of Peace Proposals, Vol.17, No.2, 1986, S. 165-174; J. Scheffran, Die Überprüfbarkeit eines Abkommens zur Begrenzung von Anti-Satelliten-Waffen, in: B. Kubbig (Hrsg.), Die militärische Eroberung des Weltraums, Bd. 1, Frankfurt: Suhrkamp, 1990, S. 418-447.