

# **BALLISTIC MISSILE DEFENSE, NUCLEAR NON-PROLIFERATION, AND A NUCLEAR FREE WORLD**

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\*\*\*SPECIAL REPORT\*\*\*  
DECEMBER 21, 2000

On June 24-5, the Nautilus Institute and The United Nations University jointly convened the collaborative workshop, "East Asian Regional Security Futures: Theater Missile Defense Implications." The purpose of the meeting was to increase communication and knowledge of current theater missile defense (TMD) proposals among specialists from China, Japan and the United States. The meeting culminated the first phase of the Nautilus Institute's Missile Defense Initiative.

Participants are providing papers based on their presentations at the workshop, and incorporating their reflections on the workshop discussions.

The following paper is from Ryukichi IMAI, currently Counselor for the Atomic Energy Commission and Senior Advisor for the Japan Atomic Industrial Forum. He is a distinguished scholar and a Board Member of the Institute for International Policy Studies.

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BALLISTIC MISSILE DEFENSE, NUCLEAR NON-PROLIFERATION,  
AND A NUCLEAR FREE WORLD

by Ryukichi IMAI

INTRODUCTION

More than forty years have passed since Albert Wohlstetter wrote his famous "Delicate Balance of Terror" in Foreign Affairs in 1959, kicking off the worldwide debate about strategic nuclear forces, their balances, and possible imbalances. Theories of nuclear deterrence dominated the nuclear disarmament and arms control debate for decades until the START treaties in the 1990s, and probably even after them. During these past forty years, the problem changed phases, appearances, and most of all, in the number and capabilities of long-range nuclear missiles, which have expanded beyond imagination. The problem reached its peak during the period of Mutual and Assured Destruction (MAD), which, after the 1990's, gradually sledged into the arena of rogue state missile attacks with nuclear, biological, and chemical warheads (all together called weapons of mass destruction WMD). The concern was no longer between legitimate (?) nuclear weapon states under the Non Proliferation Treaty (NPT) but an out of the blue attack from unexpected and illegitimate (?) rogue countries. Instead of an Anti Ballistic Missile (ABM) systems of earlier days or the more sophisticated and nuclear pumped SDI (Strategic Defense Initiative), smaller, more manageable non-nuclear Ballistic Missile Defenses (BMD) or Theater Missile Defenses (TMD) became the topic of conversation. The ballistic missile defense is another side of the nuclear coin.

This article is a new version of my paper at a TMD workshop sponsored by the Nautilus Institute and the UN University last summer and attempts to discuss that the fundamental balance of terror remains as delicate as ever between smaller number of WMD missiles and similarly smaller number of ground based, direct hit-to-kill vehicles of TMD or NMD. The level of terror may be less because people are talking about smaller scale nuclear and other attacks, but for those directly targeted, it matters less whether they die as a part of the nuclear Third World War or a less noticeable regional nuclear conflict. The definition of rogue states is becoming less clear with European and American major oil companies getting more interested in cutting deals with Iran, and with the sudden opening of dialogue between the North and South Korea in June, 2000. This paper is an expansion of the author's closing remarks at the workshop.

#### TMD WORKSHOP IN UN UNIVERSITY, TOKYO.

About twenty experts from China, Japan, and the US met in UN University in Tokyo, and some very excited exchanges took place regarding the roles of TMD for East Asia and the US NMD system of 100 interceptors to be based initially in Alaska and later to be expanded into North Dakota. Discussions were very lively and sometimes heated. In the end, it was realized that although the two days did not resolve any new positions, problems were, nevertheless, better sorted out, clarified, and understood. In discussions, strategic and theatre nuclear weapons were very much brought up, creating sharp contrast to the three parties' approaches to nuclear weapons and nuclear proliferation. The US participants did not necessarily support the Clinton Administration's position, while the Chinese denounced NMD as a poorly veiled threat

against their country. The Japanese (including the author) were probably the most ambivalent to the technical feasibility, economic viability, or military value of the proposed TMD cooperation.

#### TECHNICAL FEASIBILITY OF MISSILE DEFENSE.

One of the major problems with the original ABM scheme was that it used nuclear explosions to intercept incoming missiles. This probably was the last occasion that use of nuclear devices was proposed in a matter-of-fact way. After this period and later into the 1970s, people became more cautious in using nuclear devices as a part of offensive or defensive weapons systems. People believed less in scenarios of using nuclear weapons in conventional battlefields. The argument in the case of ABM was that only the large explosive power of nuclear weapons could destroy an incoming warhead, considering the poor precision of missile guidance in hitting supersonic reentry vehicles. Thus, the problem if interception is to take place in mid-course, in the outer space, is that real missile warheads and decoys such as balloons and chaffs cannot be distinguished and the intercepting party could not know which was the real target. On the other hand, if they waited until reentry and air resistance to distinguish a heavy warhead from light decoys, nuclear interception may be too close to home and may bring about destruction of that which they are trying to defend. By the SALT-I negotiation of 1972, the US and the then-USSR had a choice of giving up ABM or keeping MIRV (Multiple Independently Targeted Reentry Vehicles). The treaty for limiting ABM to less than two sites was agreed, while MIRV was left free, bringing about a tremendous increase in the numbers of nuclear warheads out of proportion with the number of missiles. In 1983, the SDI (Strategic Defense Initiative) or Star Wars site brought about the intense X-ray raiser which would destroy the enemy missile while still at the ascending stage (therefore moving with slower speed). This was a much more sophisticated and ambitious technical undertaking and involved nuclear weapons detonation mechanisms as well as the focusing of the intense laser. Only President Reagan and his advisor Edward Teller (and Michael Gorbachev for a while) were convinced. The author remembers many negative comments he received when he made a two-week tour of Washington to collect personal impressions of the people inside and outside of the US government who were involved in its development. These negative impressions were fed back to the Prime Minister in Tokyo.

#### SHOOTING A BULLET WITH BULLET.

The latest proposal for missile defense consists of several portions. First, there has to be a new satellite/radar combination to track down ascending and incoming missiles. Intercepting incoming SCUD class warheads and missiles with improved PATRIOT-3 (PAC-3) is expected to work, since the earlier version of the same Surface-to-Air missile worked in both hitting enemy warheads, and pushing them outside the flight trajectory through the proximity fuse during the Gulf War. Similar Navy interceptors in the Aegis Cruisers are an extension of existing technology. What would be the most difficult is to intercept

enemy warheads at a high altitude with non-nuclear kinetic-kill device while in mid air flight. This is somewhat like trying to intercept a bullet fired from a rifle at high supersonic speed with another supersonic bullet. The device, as a category, is called THAAD (Theatre High Altitude Air Defense). So far, three live tests to shoot down incoming ICBM warheads with ground launched kill vehicles fired from the Kwajalein Atoll did not score good marks and the final decision for BMD deployment will be delayed until the next presidency. Even if THAAD can hit its target, another difficulty is the problem of decoys in midair. Somewhat similar to the case of nuclear detonated ABM, it is suggested that a balloon wrapped warhead, accompanied by many empty balloons, will make the problems very complicated. In the case of defending against non-nuclear WMD, namely chemical and/or biological weapons, if the warheads divide themselves into many sub-munitions at an earlier stage, there will be no effective defense against them. Since the Taepodong-I testing by North Korea (Democratic People's Republic of Korea, or DPRK) on August 31, 1998, the United States Congress passed legislation requiring the Secretary of Defense to conduct a study on the establishment and operation of a TMD system in the Asia-Pacific region to protect the US' "key regional allies" ( including Japan and Taiwan). Not all Japanese are particularly impressed that the system would be technically feasible. The huge cost of joint development and deployment of a TMD system will also cause difficulties in keeping the defense budget to less than (the national goal of) one percent of GNP. In 1994, the US proposed four TMD options to Japan, ranging from 4.5 billion to 16.3 billion dollars, to be deployed by 2004 or 2005. It will also create organizational problems as to who should be in charge of the command between air, land, and sea self-defense forces. Since the first sighting of a missile launch or movement of enemy missiles has to be detected by US satellite and radar with information transmitted for interception outside of the territorial air space of Japan, some argue that it raises complications in interpretation of the Constitution. The problem of including Taiwan into TMD certainly touches the raw nerve of China, even if the explanation is that TMD is to counter a DPRK attack and not a Chinese one. In view of the small and less sophisticated status of DPRK Taepodong, whatever missile defense is proposed is not cost-effective in the foreseeable future. Whatever the case may be, any missile defense directed toward the general direction of China seems to raise the issue of a nuclear-armed Japan.

National Missile Defense in Alaska (and in North Dakota) will provide protection to the entire United States and this in itself is a violation of the ABM treaty of 1972. But we shall not get into details of ABM except to note that the Russian Duma would not bring START-II into operation without the 1997 protocol, which the US Administration is still unable to present to the Senate for ratification. As a concept, the ABM dies hard in the US defense system. The SDI Office was turned into the BMD Office and still occupies the same space in the Pentagon building. With many criticisms of NMD within the United States and continued failure of THAAD tests, it is not quite clear where the project stands. The US argument is that the system is built with the

increased DPRK missile capabilities in mind, and not to counter Chinese, which is supposed to possess more than twenty missiles of intercontinental range and some one hundred with 2,000 to 5,000 km range. It is correct to say that US NMD is to deal with the North Korean capability of five to ten years in the future, and there is also a valid argument that the 100 interceptors to be deployed in Alaska are looking at both the DPRK (which the Chinese say is an excuse) and a Chinese invasion of Taiwan rather than an intercontinental attack on the US mainland.

A member of the Chinese team bitterly complained that after the DPRK shot a Taepodong in August 1998, the US started its NMD program and Japan began placing so many satellites into space. However, people were trying to assure them that the satellites are for peaceful purposes. If history teaches us anything, no matter what Japan says about its peaceful purposes, Japan with its economy and with its technology base certainly looks capable of arming itself with nuclear weapons, although more detailed examination proves that to be extremely incompatible. With the sort of transparency in Japanese society and its budgetary system, it is impossible to hide a project of that size. On the part of the Japanese, there was an atmosphere that once arguments moved into that direction, somehow we were incapable of convincing anybody that we have nothing but peaceful interests in the development of nuclear energy. It is possible to postulate that Japan will change its constitution, its atomic energy basic law, and mobilize its uranium enrichment and plutonium production program behind some peaceful screen so that someday it can announce its nuclear weapons capabilities. But until the Japanese people seriously realize that there are 120 million people in their island country, with its technical and industrial capabilities, speaking the same language and sharing the same tradition, and it is all a unique phenomenon in the world, we may not find a convincing and persuasive explanation that we are not interested in nuclear weapons.

#### CANBERRA COMMISSION, TOKYO FORUM AND NPT REVIEW CONFERENCE IN NEW YORK

Throughout the discussion, as BMD was very much the central topic, it became clear that the May NPT review conference in New York avoided the most important non-proliferation issues, namely START treaties and ABMs. The New York review stayed away from clarifying the BM controversies, clarifying the START missile reduction schedule, or mapping the road toward a completely nuclear free world. Compromise wordings such as "an unequivocal undertaking by the nuclear weapon states to accomplish the total elimination of their nuclear arsenal" without indicating the process or time frame toward the target was discouraging since the discussion had already started outside of the official disarmament world. Vague compromise wordings are the general products of the multilateral disarmament negotiations, in which sides "win" and "lose" by obtaining or giving away new expressions to cover up the worldwide lack of interest in complete disarmament procedures. The problem was clear when it did not appear in the International Herald Tribune during

the four weeks of the Review Conference in April and May, demonstrating that the paper did not consider the conference newsworthy. It was another contrast to the report by the Japanese delegation that satisfactory scores had been recorded in the accomplishments of nuclear disarmament diplomacy by Japan in successfully inserting a number of new expressions from the Japanese proposal into the final declaration of the conference. It may be added that the review conference that took place at the turn of the century was also the first immediately after the 1995 review which the NPT stipulated as the time to decide on whether to extend the treaty itself. A great deal of expectation to break the ice of no visible progress in nuclear disarmament surrounded the aura of the Millennium Review.

There certainly were justifications for Japanese negotiators to be proud of such accomplishments because many of the new expressions reflected the outcome of the Tokyo Forum. The Tokyo Forum was sponsored by Japan with the backing of its Foreign Ministry. It gathered some twenty experts from around the world for four meetings during 1998/1999 to write a road map for a nuclear free world. The author had the privileges of being a member of both the Canberra Commission sponsored by the Australian Government (which also held four meetings in 1995/1996) and the Tokyo Forum, which preceded it. He was thus familiar with the dedicated and hard work by young diplomats of both the Australian and the Japanese foreign ministries. The original eight point proposal found its way into the review conference final document prepared in Tokyo and jointly sponsored by the two governments. As a former disarmament ambassador of Japan, the author had special reasons to be proud of their accomplishments as well as to be disappointed by the *deja vu* of the real world's lack of interest in such a subject as the total elimination of nuclear weapons. On a number of occasions, the author proposed the creation of a Framework Convention for Elimination of Nuclear Weapons, which defines the principle to be followed by various protocols that provide detailed process and numbers for such work as products from continued negotiations. It would be a pattern similar to adopting The Framework Convention on Climatic Change in Rio de Janeiro, to be followed by Kyoto and other conventions with more concrete, numerical limitations. The Vienna Convention on ozone effects followed by the Montreal Protocol may be the other. The "unequivocal undertaking" in the Final Document of the 2000 NPT review conference described the main spirit of such a convention. Unfortunately, it did not have any practical vehicle for protocols to turn it into reality. Canberra, Tokyo, and two or three more cities, the author hoped, could lead to such a convention.

The fact that the ABM/NMD issue was not taken up at the NPT review conference in New York was probably necessary in order to end the conference in the scheduled four-week time limit without visible cracks in the wall. It is possible to argue that the New York NPT was not an appropriate place or time to raise the issue. However, if people want to take credit for successfully dealing with these bilateral (multilateral in case of 1997 protocol) deals, having had Russia ratify

both START-II and CTBT, one can certainly ask for more in-depth exploration of the issue. The 1997 protocol involved a dividing line between ABM and non-ABM. Clinton's announcement about NMD violates the 1997 demarcation between ABM and BMD and requires amendment to the ABM treaty. What is more, the Senate Foreign Relations Committee will never ratify the 1997 Protocol as long as Jessie Helms is the chair. So, the decision at the NPT Review not to take up the ABM issue automatically closed all possibilities of advancing the non-proliferation subject beyond START-I. As for the East Asian TMD, it is possible to argue that a similarity exists between the SS-20 versus Pershing-II in Europe between 1979-1983 and the Taepodong and Chinese missile versus NMD now. Both are cases of theatre nuclear confrontation. The major difference is that while the Soviet Union was certainly the major counterpart in the past, in the year 2000, are China (?), along with DPRK, or Iran or Iraq (what about Israel?) rogue states that can be dealt with by non-nuclear precision guided missiles? If one realizes that the nearly 70,000 nuclear warheads around the world in 1986 were reduced to about 30,000 by the year 2000, one can understand what serious steps START treaties could accomplish by reducing them to less than 5,000 by 2010. In order to deal with the issue of dismantling and disposing tens of thousands of nuclear warheads, the US and Russia are working together in the Cooperative Threat Reduction Program with more than 4 billion dollars budgeted for the work. At the same time, if one realizes that under START-III, 1,500-2,000 missiles are the numbers neither side intend to reduce any further, and thinks about the four and half billion dollar DOE projects needed to keep the maintenance capabilities or even extend the design lives for these warheads (Trident and Minuteman), the importance is clear for the START reduction agreements and the CTR project. They are the most serious of non-proliferation agreements. To avoid mentioning these subjects at the Review Conference is very serious, especially since proposals were made in the eight points presented by Australia and Japan.

China in this sense introduces new problems. China's four hundred or so less sophisticated nuclear weapons arsenal was not a serious consideration in the earlier phases of nuclear disarmament. It was only in the context of India, Pakistan, and regional disputes in South Asia, that they were given credit. While the US and the USSR were confronting each other, the three other nuclear weapon states did not matter very much. China and France were not even members of the Nonproliferation Treaty until very recently. Now that the East/West confrontation is an order of magnitude down in its intensity and the many regional disputes are occupying newspaper headlines, Chinese nuclear weapons are becoming a very serious matter. When the START process proceeds further and comes to 2000/2000 or 1500/1500 warheads each in START-III, it is only a couple of more steps before China's 500 nuclear weapons becomes an issue of serious consideration. It is said that the UK may give up being a nuclear power, while all France needs is recognition of her prestige in the European theatre. China is one country with a great economic development potential, a population of 1.5 billion; it seems not interested in promoting the CTBT (Comprehensive Test Ban Treaty) and

wishing very much to advance its nuclear weapons and submarine launched missile technology. As China gains more confidence in dealing with international diplomacy, including issues of nuclear disarmament, the subject will greatly increase in importance. Somewhere, a device must be found to include France, UK, and China in the START process. It will become important that something similar to the Cooperative Threat Reduction Program should be worked out with China as a party. Unless such an arrangement is worked out, both the United States and Russia will refuse to further reduce their warheads from the START-III level. When the Conference on Disarmament in Geneva cannot even agree on the agenda of work, that is a very strong signal. On the other hand, one possible consolation is that with more than sixty memberships, the CD has lost its capabilities to effectively function. The three party workshop in Tokyo at least gave a kind of consolation that reasonable people, if sufficiently patient, can work out an understanding.

## CONCLUSION

Major technical systems have been proposed in the past and followed different paths of usage. The Manhattan Project was a success, and so was the Apollo moon flight. The MX missile with race tracking deployment probably did not stand a chance. One may have good discussions over B-2 bombers, or the Super Conductive Super Collider (SCC) project. We are still waiting to see what happens to the joint international space station, or the nuclear fusion prototype ITER reactor, and the National Ignition Facility at Lawrence Livermore seems to be running into unending cost overruns. Whether the NMD as a large-scale project will prove itself technically, financially, and politically feasible is yet to be seen. At least it does not look easy. NMD and Chinese missiles may be another terror in a delicate balance.

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