The Proliferation of Umbrellas in Northeast Asia

The Challenge of Hiroshima

- Proliferation and Security in Northeast Asia
- Challenges for Nuclear Disarmament
- Energy and Security
- Terrorism and Weapons of Mass Destruction
- News and Publications
From Hiroshima to Kyoto
Nuclear umbrellas, global warming and common threats

Two Japanese cities, Hiroshima and Kyoto, mark an era of more than half a century in which the world has changed. Hiroshima was devastated by the first atomic bomb on August 6, 1945, and the 60th anniversary in 2005 is a challenge for getting rid of this most destructive weapon. With the Review Conference of the Non-Proliferation Treaty (NPT) in May 2005, the coming year may draw more attention to nuclear disarmament. The Mayors for Peace have launched an Emergency Campaign to ban nuclear weapons by 2020 by means of a Nuclear Weapons Convention (NWC), which can be a focal point of activities.

Kyoto, on the other hand, was long on the nuclear target list but was spared because of its cultural heritage. In December 1997, states agreed on the Kyoto Protocol as a first step towards preventing dangerous climate change, as required by the 1992 UN Framework Convention on Climate Change (FCCC). Since Russia ratified the Kyoto treaty in October, it will enter into force in February 2005. And the 10th FCCC Conference in Buenos Aires this week can move ahead with further steps, strengthening international cooperation.

Nuclear annihilation and dangerous climate change are common threats to mankind. Both the NPT and the FCCC seek to enhance international security by restraining the instruments that cause the threats. A major difference is that the NPT favors those states that built the bomb first, while the FCCC puts obligations first on the big polluters. To be equally fair, the NPT would need to be replaced by a treaty that bans all nuclear weapons, such as the NWC.

The potential disasters from climate change have been popularized by the Hollywood movie "The Day After Tomorrow", which through its name refers back to a 1983 anti-nuclear movie. Scenarios of abrupt climate change have been discussed in scientific circles and were adopted by two Pentagon consultants as an issue of security. This Bulletin focuses on Northeast Asia, Japan and Hiroshima in particular, which in October 2004 hosted the conference The Challenge of Hiroshima as part of the project Moving Beyond Missile Defense. By coincidence the conference started against the background of the most severe typhoon that has hit Japan in decades. Several participants highlighted the devastating impact of nuclear weapons and the failure of nuclear umbrellas (Shoji Sawada, Masao Tomonaga). The Mayor of Hiroshima, Tadatoshi Akiba, who accepted the Nuclear Age Peace Foundation’s World Citizenship Award to the Mayors for Peace, outlined the Emergency Campaign 2020 Vision. David Krieger presented the award and raised the importance of civil society initiatives for nuclear disarmament, an issue also covered by Kazuhiro Tamaki. Several authors expressed their views on regional and global security (Mitsuo Okamoto, Cheong Woosik, Ye Ru'an, Hui Zhang, Wade Huntley, Eugene Miasnikov, and Terence O’Brien). A concrete Model Treaty on the Northeast Asia Nuclear-Weapon-Free Zone was presented by Hiro Umebayashi. Integrated approaches towards nuclear disarmament are discussed in this issue by Wolfgang Liebert, Alvy Ware, Angela Woodward, Regina Hagen, and David Atwood.

The links between energy and security are also covered, in general by Jürgen Scheffran and Clift Singer, by M. V. Kamana, Zia Mian, and Abdel Matar for nuclear power in South Asia, by Tadahiro Katsuta for Japan’s nuclear annihilation and danger.
# Proliferation and Security in NE Asia

4 Japan’s Interests and Policies in NE Asia  
Mitsuo Okamoto

6 Japan and the US Nuclear Umbrella  
Masao Tomonaga

7 Missile Defense and the Two Koreas  
Cheong Wooksik

11 The Implications of U.S. Interests and Policies in East Asia  
Wade L. Huntley

17 Russian Perceptions and Prospects for Nuclear Weapons Reductions in NE Asia  
Eugene Miasnikov

21 China’s Nuclear Policy  
Ye Ru’an

25 Chinese Perspectives on the Prevention of Space Weaponization  
Hui Zhang

29 The Role of New Zealand and Australia  
Terence O’Brien

32 Model Treaty on the Northeast Asia Nuclear-Weapon-Free Zone  
Hiromichi Umebayashi

37 Civil Initiatives for Regional Security  
Kazuhiko Tamaki

40 The Challenge of Hiroshima: Conference Statement and Program

## Challenges for Nuclear Disarmament

42 World Citizenship Award to Mayors for Peace Nuclear Age Peace Foundation

43 Emergency Campaign to Ban Nuclear Weapons  
Tadatoshi Akiba

46 Civil Society Initiatives for Nuclear Disarmament  
David Krieger

49 Scientists, the Bomb, and the Responsibility for Nuclear Disarmament  
Shoji Sawada

53 The Need to Think Ahead About Nuclear Disarmament  
Wolfgang Liebert

56 Missile Control Under a Nuclear Weapons Convention  
Alyn Ware

58 Unraveling the NPT  
Regina Hagen

59 Why the CD Still Matters  
David Atwood

## Energy and Security

65 Energy and Security: From Conflict to Cooperation  
Jürgen Scheffran and Clifford Singer

71 India’s Uranium Enrichment Program  
M.V. Ramana

74 Another Nuclear White Elephant  
Zia Mian and A.H. Nayyar

76 Possibilities of Applying Nuclear Fusion Technologies to the Development of Nuclear Weapons in Japan  
Tadahiro Katsuta

79 Power Grid Interconnection for a Nuclear Free Korean Peninsula  
Jungmin Kang

81 Time to Establish an International Sustainable Energy Fund  
Alice Slater

## Terrorism and Weapons of Mass Destruction

85 Art or Bioterrorism?  
Margaret E. Kosal

89 Non-State Actors and WMD  
Angela Woodward

## News and Publications

78 Appeal to Support an International Einstein Year 2005  
INES and BITS

92 Crude Nukes on the Loose?

93 INESAP Annual Report 2003

97 Condemnation of the Iraq War  
INES

98 Impressum

## Supplements

- Briefing Paper #12: Jiri Matoušek, Chemical Weapons Convention and the Role of Engineers and Scientists
Japan’s Interests and Policies in Northeast Asia
A Critical View

Mitsuo Okamoto

Northeast Asia is a geopolitical region toward which there are three fundamental considerations for Japan’s diplomacy. First, the Asia-Pacific region make up over 50% of the world’s population, and the total gross domestic product (GDP) of the region reaches close to 30% of the global total. Yet, the region is characterized by financial instability, political vulnerability, and starkly polarized distribution of incomes. Second, China’s influence in the region is rapidly growing and its hegemonic influence is already widely perceived. Third, the end of the Cold War has not brought much change in the region, in particular, in such areas as the Korean Peninsula and the Taiwan Straits. The residue of the Cold War rivalry and zero-sum mentality lingers in the Ryukyu Islands where the U.S.-Japan Security Treaty claims political justification of reinforcing Japan’s defense capability in the region.

For securing Japan’s security and prosperity, it is essential for Japan to establish and maintain the regional peace, stability, and prosperity, for which the Japanese Government has three basic principles. First, Japan will continue to ensure deterrence against destabilizing elements in the region in close cooperation with the United States. Second, Japan will actively promote regional cooperation and take the initiative in the modernization of the entire region no matter what it may mean. Third, Japan will continue and strengthen dialogue and cooperation with the major countries outside the region.

What is described above represents more or less the official Japanese viewpoints. The half-hidden agenda of the declared viewpoints resides in the primacy of the U.S. military presence in the region. People in Okinawa, for example, feel very much the continuation of the Cold War configuration of the world politics because of the overwhelming U.S. military presence there. The Japanese government, contrary to the progressive Japanese Constitution with its unique pacifist philosophy of non-violence, seeks to consolidate a strong military alliance with the United States which intends to exert its political, economic, and military control in the region. There is no doubt that the U.S.-Japan Security Treaty claims political justification of reinforcing Japan’s defense capability in the region.

The Japanese government, contrary to the progressive Japanese Constitution with its unique pacifist philosophy of non-violence, seeks to consolidate a strong military alliance with the United States which intends to exert its political, economic, and military control in the region. There is no doubt that the American military-industrial complex feeds on a Northeast Asian situation of this kind.

While in Europe NATO plays a central role for the security in the region, there is no such arrangement in Northeast Asia. Instead, the U.S. has a separate dyad military alliance with Japan and with Korea. Nations comparable to Great Britain and France who can talk with the U.S. as historically equal partners do not exist. Neither is there an international city like Geneva where diplomats from different countries exchange opinions of political and economic implication. And yet the region is surrounded by three major nuclear powers, namely, Russia, China, and the U.S.

As to the U.S. military presence in the region, there are two main reasons why the U.S. government hangs on the maintenance and even the reinforcement of its military bases in Okinawa. The one is the geopolitical vantage point of holding the Ryukyu Islands for U.S. military operations not only in the Northeast Asia but Asia-Pacific region in general and even for the Indian and Persian Gulf regions. As stated already, the formidable increase of the political as well as economic power of China is seen by Japanese as a new challenge in the region, although the Russian presence has not entirely disappeared from the scene.

The other reason is U.S. dependence on the extremely favorable financial arrangement for its military bases within the Japanese territory. The generous arrangement, called “a special consideration” or “compassionate budget” (omoiyari yosan), subsidizes the U.S. forces stationed in Japan. Some ¥ 244.1 billion (US$ 2.2 billion) is spent by Japan in fiscal 2004 to support U.S. military personnel, their families, Japanese employees at the bases, the costs of building and maintaining the facilities, and utility charges. This is included in Japan’s defense budget of some ¥ 4,903 billion (US$ 44.6 billion) in a category called “base countermasures” (kichigaisakusaihei). Japan’s defense budget is the second or the third largest in the world.

There is a deep-seated suspicion between China and Japan primarily due to some impertinent yet provocative remarks made by leading Japanese politicians on Japan’s military aggression in the first half of the 20th century. The overt animosity expressed by Chinese citizens in the recent Asian Cup Football Game in Beijing shows not only the sensitivity of the Chinese people on their historical memory, but also the side-effects of the irresponsible remarks just mentioned. The Japanese people, in particular politicians, should cultivate greater sensitivity about how the history of Japan’s military invasion in China has remained a traumatic experience for the Chinese even some sixty years after the end of WW II.

Although the recent incident of booing against the Japanese team at the Asian Cup Football Game in China may have several reasons, yet it immediately reminds us of the media report about the frequent visits to the war-related Yasukun Shrine by Prime Minister Junichiro Koizumi since his taking office in 2001, which stirred up considerable indignation in neighboring countries in general but in China and Korea in particular. He does not seem to worry much about hurting international relations because of his ill-informed knowledge and personal sense of modern history. It must be said, however, that his behavior is sup-
ported by like-minded Japanese who are similarly ill-informed and consider the Asia-Pacific War during the period from 1931 to 1945 as a just war to defend Japan’s political and economic lifeline and survival vis-à-vis the Western colonialism and aggression.

On the other hand, the relation between Japan and the Republic of Korea (ROK) has considerably improved in the last two decades. In particular, the so-called “Sunshine Policy” of President Kim Dae-Jung, which is usually evaluated only in the context of his discrete and peace-minded overtures to North Korea, was also directed in reality to Japan and contributed to a significant improvement of the political, economic, and cultural relationships between Japan and the ROK.

The recent disclosure of the illegal uranium enrichment and plutonium extraction activities at the Korean Atomic Energy Research Institute (KAERI) in the ROK undoubtedly poses a serious matter of concern. Its negative influence on the Six-Party Talks on the nuclear issues of the Democratic People’s Republic of Korea (DPRK) can not be avoided. The International Atomic Energy Agency’s fair and unyielding attitude toward the ROK is essential to avoid criticism of a so-called “double standard” practice if one expects a successful result from the negotiation with the DPRK. However, a frank “confession” of transgression of the Non-Proliferation Treaty (NPT) by the South Korean government itself decreases the suspicion about the credibility of the ROK and should not constitute the justification for another nuclear aspirant country to develop an secret nuclear activity.

As to the proliferation of nuclear weapons in the region, the officially announced joint project of Japan and the U.S. to develop Theater Missile Defense (TMD) is far more worrisome than anything else as it might destabilize the East Asian political and military situation and give rise to a new nuclear arms race in the region. North Korea’s withdrawal from the NPT has generated not only widespread serious concerns about its further nuclear development but also a possible confrontation between the DPRK and the U.S.

Incentives to defend against short- and medium-range missiles have become strong due to the increased missile potentials in the region. The joint project between Japan and the U.S. to introduce TMD in the region is regarded by experts to become an alarming element for destabilizing the political situation in Northeast Asia. Taiwan has a strategic interest in joining TMD systems with limited capabilities. China and North Korea have expressed their concern that TMD deployment will trigger a regional arms race and give the U.S. a free hand to dominate the area.

Thus, faithful adherence to the NPT has gained a different meaning because of the new development in TMD systems. Although the NPT has grave weaknesses and is far from an ideal treaty, it is nonetheless the only international treaty to limit the role of nuclear weapons. It is, therefore, imperative that the DPRK return to the NPT regime in the near future. At the same time, unless the nuclear weapon states fulfill their obligation stipulated in Article VI of the NPT, its legitimacy will be further undermined and it will completely lose credibility that it can prevent the proliferation of nuclear weapons.

With regard to a North-East Asian Nuclear Weapon Free Zone, there have been presented several proposals such as the ones by John Endicott, Kumao Kaneko, and conference resolutions declared at Seoul, Korea, and Ulan Baatar, Mongolia. Also, the Peace Depot, a Japanese citizens’ non-governmental think-tank, represented by Dr. Hiromichi Umebayashi, has worked out a proposal called a “3+3 Agenda.” It suggests an agreement on a Nuclear Weapon Free Zone among South Korea, North Korea, and Japan, endorsed by China, Russia, and the U.S. The project was first presented at a non-governmental workshop at the Preparatory Committee meeting for the 2005 NPT Review Conference, which was held in May 2004 in New York and which I chaired with a colleague from the ROK.

Such an additional Nuclear Weapon Free Zone is vitally important in a region of the world where a superpotential nuclear power (Japan), a nation which claims nuclear autonomy (ROK), and a nuclear suspect (DPRK) coexist. It is incumbent upon us to promote the idea of the Nuclear Weapon Free Zone to repel the new trend of militarization in the region as well as militarization of space.

Although the gap between Pyongyang and Washington is still wide, the Six-Party Talks on the Korean nuclear issue, scheduled to resume shortly in Beijing, will cautiously offer hope for peace and security in Northeast Asia.

It is a unique identity of the city of Hiroshima to host this conference in order to demilitarize the mind of politicians, for it is politicians and not people who start war. However, unless demilitarization goes hand in hand with denuclearization, its significance will diminish. For, as the Russell-Einstein Manifesto rightly points out, unless war were prohibited, leaders of any nation would seek to resort to nuclear weapons in time of war.
Japan and the US Nuclear Umbrella

Masao Tomonaga

What is the situation of people who survived the first and second atomic bombings today, 60 years later? The incidences of cancer for almost all body organs that were exposed to irradiation from the atomic bombs are still increasing. An ever growing number of survivors suffer from the second or sometimes even the third type of cancer. Leukemia, a cancer of blood cells, began to increase as early as 1947, persisted for more than ten years, and then declined to almost background level. However, our recent epidemiological investigation has begun to notice a new trend that a special type of leukemia called myelodysplastic syndromes, which usually occur among the elderly people in general population, is increasing among atomic bomb survivors who were exposed to irradiation in short distance from the hypocenter, or Ground Zero. Thus, once the cells of every organ are exposed to irradiation, the memory of genetic damage, namely DNA damage, continues for the rest of the person’s life.

In 1980, we international physicians gathered in Washington DC and established a federation named “International Physicians for the Prevention of Nuclear War” (IPPNW). Soon after the foundation meeting, we collaborated with physicists to establish the theory of “Nuclear Winter” after a relatively small nuclear war in the northern hemisphere. We launched a campaign to persuade political world leaders to recognize the reality of nuclear war. We showed how the Earth environment and medical facilities would be broken up by nuclear war and that no one could survive in a eternal winter that means no food and no medicine. Even more so as radiation injuries would further shorten the survival time of human beings.

It is true that we, correctly speaking the people of nuclear weapon possessing countries, are living on the extremely fragile ground of planet Earth without recognizing the real threat of nuclear weapons. Some people, especially political and military leaders, believe that they are safe because of the protective power of the nuclear weapons, i.e. because of “nuclear deterrence.”

Japan was one of the Axis Nations during World War II and defeated by US and allied forces that actually used two nuclear weapons to accelerate Japan’s surrender. The nuclear age and then the Cold War started. We, the Japanese people, have since then already enjoyed life for 59 years without fighting any war. The Japanese Constitution established in 1947 abandoned the right of fighting a war to solve international conflicts. However, we have a military power called the “Self Defense Forces,” the annual budget of which is ranked as the second largest in the world in proportion to the national gross domestic product.

The central doctrine for the national defense policy of Japan, or rather of the consecutive Japanese Governments, denotes that Japan depends on the extended deterrence by US nuclear weapons – that is on the US “Nuclear Umbrella.” South Korea and Taiwan also have a similar umbrella. It has been repeatedly noted by large-scale public opinions polls that more than 75% of the Japanese citizen support this umbrella as a principle of the US-Japan Security Treaty. At the same time the same percentage of people considers that nuclear weapons must ultimately be abolished in the future. But when is the right time to do so?

As seen here, Japan has been in the apparent dilemma that, as a nation with the terrible experience of atomic bombings, we seek the abolition of nuclear weapons but at the same time we think that Japan needs the nuclear umbrella. The only possible solution for this dilemma might be a relaxation of tension in international affairs, especially with North Korea, but also to a certain extend with China.

Northeast Asia is a unique region where the Cold War structure has been held up to this day. The lack of normalization in formal diplomatic relationship between Japan and the People’s Republic of Korea (DPRK) is obviously affecting this Cold War structure. Many people had been kidnapped by a secret group of the DPRK, as Kim Jong Il himself admitted. This serious violation of the humanitarian law has profoundly affects the general opinion of the Japanese people about the DPRK, causing yet another dilemma, namely whether to “help this country or not to help?” South Korea, as a developed country in this area is strongly continuing to support the DPRK financially. The Japanese economical support to the DPRK, however, is a limited one because of the kidnapping cases.

Why does the DPRK seek nuclear armament? Because of US nuclear policy that does not foreswear First Use? Is it really a threat to the DPRK? Because of the Japanese Defense Policy, which is based on the US nuclear umbrella? Or simply because of the survival desire of Kim Jong Il and his power circle?

The DPRK’s relationship with Japan is highly strained by the history between the two countries after the Russo-Japanese War in 1905-06, that is by the colonization of the Korean Peninsula by the former Empire Japan. Compensation for the burden that Japan forced on the Korean People is the largest political issue between the two countries. In particular Mr. Kim Jong Il and Mr. Koizumi, the Japanese Prime Minister, both seem to desire a normalization of their diplomatic relationship. However, the nuclear arsenal planned by the DPRK is severely affecting the Japan-DPRK negotiations. Several rounds of Six Party Talks have brought no meaningful progress.

Has the DPRK really one, two, or three Hiroshima-sized nuclear bombs as some government officials say? No one knows the truth. Reliable intelligence is generally lacking in...
Missile Defense and the Two Koreas

Cheong Wooksik

The initiative of the U.S. (the country with the most powerful and greatest number of offensive weapons) to deploy missile defense is nothing more than a desire to secure hegemonic monopoly by enhancing preemptive strike capabilities and dominating space. As a response, China and Russia have declared that they will build up their nuclear and missile capabilities, and if this situation continues, the world will face a new arms race and an unstable world order.

In particular, the U.S. is justifying this project by fabricating or overstating a North Korean threat. This is also creating new security tensions in the Korean peninsula. Moreover, the U.S. is forcibly demanding that South Korea should support missile defense and participate in it. The U.S. is pressurizing South Korea to buy American-made weapons for astronomical sums of money. This Cold War attitude of the U.S. is causing a new arms race and new tensions in the region, at a time when the two Koreas are trying to create a new era of peaceful settlement and cooperation.

The U.S. missile defense plans cannot exist together with peace in and the re-unification of Korea. The U.S. is attempting to create a Cold War in Northeast Asia by compelling South Korea to participate in the project and also by considering North Korea and potentially China as an enemy. It is making military confrontation on the peninsula more likely.

The North Korean Missile Problem

The so-called “North Korean missile threat” has prevailed in the U.S. and Japan since the Taepo Dong-1 missile was test-fired in August 1998. Since then, the North Korean missile threat has been the biggest rationale for missile defense.

In 1999 North Korea agreed to suspend tests of long-range missiles,
and Pyongyang has extended that moratorium through 2004. In late 2000, the Clinton administration proposed an agreement under which North Korea would halt the production and testing of medium- and long-range missiles as well as the export of missile technology. The U.S. also accepted a North Korean proposal to provide two or three launches for North Korean satellites annually. But when the new Bush administration came into office in 2001, it stepped out of this general framework because of fears that the biggest justification for missile defense would be lost. It is claimed that North Korea has about 500 Scud missiles and 100 Nodong missiles and is developing a long-range missile that can hit the U.S. homeland. Moreover, North Korea has allegedly shipped hundreds of Scud and Nodong missiles to the Middle East since the 1980s. North Korean missiles are perceived even more threatening when coupled with the country’s nuclear, biological, and chemical weapon programs.

Whether this is true or not, the U.S. government regards the missile problem as one of the most important issues to be settled. In this regard, it should be noted that North Korea has repeatedly announced that they are willing to stop missile technology exports if an appropriate economic compensation is provided. From their viewpoint, missile technology is a highly competitive export. There is no legal mechanism with which to stop North Korea’s missile exports because it does not belong to the Missile Technology Control Regime (MTCR). This is a matter of North Korean sovereignty and it is not unreasonable therefore to expect compensation from the U.S. for the limitation of sovereignty and the economic loss of missile exports if it wishes for them to stop for the sake of U.S. and world security.

The issue of compensation is of crucial importance to the North Korea-U.S. missile talks. It could revitalize the peace process on the peninsular, and help to allay the suspicions of the U.S. government that the exported missiles would be used in terrorist attacks. North Korea have changed their position on compensation - during the Clinton administration they asked for money, however, now, during the Bush administration, they have announced that they are willing to accept compensation in the form of food or energy.

North Korea has also declared that experimental missile launches would be suspended, and they have kept their promise to do so up to now. This promise has been repeatedly confirmed in talks between the two parties - during the Berlin agreement in 1999, the meeting between General Cho Myong-rok and Secretary Albright in Washington, the visit of European delegates to Pyongyang in 2001, and the first summit meeting between North Korea and Japan. North Korea has also stated that it would give up mid- and long-distance missile development if the Bush administration steps back from its hostile policy. However, they will continue to take every measure, including missile development for self-defense, if the U.S. government continues to pursue its missile defense program and refuses to negotiate.

**Missile Defense and North Korea**

George W. Bush said in his first State of the Union Address on January 29, 2002, that United States of America will not permit the world’s most dangerous regimes to threaten us with the world’s most destructive weapons.” In particular, he named North Korea, Iraq, and Iran “an Axis of Evil,” pointing out that these countries have been developing weapons of mass destruction.

North Korea is regarded as the worst proliferators of weapons of mass destruction and is said to have hundreds of short-and medium-range ballistic missiles, to export missile technology, and to be striving hard to develop an Intercontinental Ballistic Missile (ICBM) that could reach the U.S. homeland. Estimates of the number of nuclear weapons that North Korea has ranges from zero to eight. What is known for certain, however, is that North Korea has not carried out any nuclear test explosions. Moreover, it is not certain that North Korea reprocessed its 8,000 spent fuel rods or manufactured nuclear devices. Regardless of the “real capabilities” for weapons of mass destruction of North Korea, the Bush administration has refused to negotiate with them and has exaggerated and misunderstood the North Korean threat.

A fundamental question concerning Bush’s North Korea policy is: Does Mr. Bush really want to remove threats of weapons of mass destruction from North Korea or is it just possible that he needs the so-called threat from North Korea in order to continue his new military strategy, including the ambitious missile defense plan? This may sound like a conspiracy theory, but we must seek the right answer to this question in order to understand the real intention of President Bush’s policy on North Korea.

There has been a fundamental tension between the peaceful settlement of the question of weapons of mass destruction in North Korea and the new military strategies of the Bush administration. It is well known that the Bush administration is connected with the military-industrial complex and has a variety of military projects ranging from missile defense to new nuclear weapons development. These projects guarantee the profits of the defense industries which are the biggest sponsors of the Bush administration, and pave the road to military dominance of the planet and space. Needless to say, these military projects need an exorbitant budget. To persuade the American taxpayers to tolerate the burden of a huge military budget, it is necessary to demonstrate a constant external threat, something like the North Korean threat.

In fact, the Bush administration stopped the missile talks with North Korea almost as soon as they were started and announced the deployment of missile defense, even though Colin Powell, the U.S. Secretary of State said that “there are some promising factors” in dealing with North Korea. The Bush administration feared that it would lose the biggest rationale for missile defense if the North Korean missile issue were resolved peacefully.

Since the confrontation in October 2002 between North Korea and the U.S. concerning an allegation that North Korea had developed a covert nuclear weapon program by enriching...
uramium, the Bush administration has been reluctant to negotiate with North Korea. Why? Let us investigate the reasons by comparison with Bush’s policy toward Japan.

The aim of the Bush administration’s policy toward Japan is to make it “the U.K. of Asia.” This means that the U.S. intends to use Japan like it does the U.K. in order to strengthen its hegemony in Northeast Asia. By making Japan into a tool of U.S. military hegemony, the Bush administration will, “if necessary,” attack North Korea with Japanese help (just as the U.K. played a role in the invasion of Iraq), prevent China from becoming a rival of the U.S., and encourage a Japanese military role in U.S. led wars (as demonstrated by the Iraq invasion).

In order to realize this goal, the Bush administration needs a “threat.” If the Japanese do not feel threatened by North Korea, it is difficult to pass contingency laws, increase military power, reform the peace constitution, and decide to deploy missile defense as soon as possible. This is a major reason why the Bush administration has preserved and exaggerated the “North Korean threat” while refusing to negotiate with them.

**Missile Defense and South Korea**

On May 5, 1999, the former South Korean President Kim Dae Jung made an announcement to CNN that “We do not have a plan to join the Theater Missile Defense system.” At that moment, the U.S. Department of Defense asked South Korea, Japan, and Taiwan to participate in the Asia-Pacific missile defense construction plan. President Kim’s statement was striking enough to be highlighted inside and outside of South Korea. According to the political trend of the South Korean government to emphasize its relationship with the U.S., it embodied the message that Korea’s government was no longer to be involved in missile defense. Then, why did Mr. Kim speak of disagreement on missile defense in spite of an expected uncomfortable relationship with the U.S.?

First of all, missile defense does not help South Korea’s security at all. The threat from North Korea comes mainly from long-range artillery with a range of approximately 40-70 km - not from missiles. Also, it is very hard to detect, pursue, and intercept a missile with a flight time of 3-5 minutes from North Korea through a small battlefield and across mountainous regions. There is no reason for South Korea to risk an arms race with North Korea, China, and Russia.

Secondly, an astronomical amount of money is needed to join in with missile defense. In the case of South Korea, buying three Aegis weapons systems and 48 PAC-3 missiles costs about US$ 5 billion, and if the costs of operation and management of the systems are to be counted, then the direct and indirect costs will be billions of dollars more.

Thirdly, South Korea has to consider its relationships with China and Russia as well as North Korea. The framework of the Republic of Korea’s Sunshine Policy toward North Korea aims to end the Cold War stand-off on the Korean peninsula through positive reconciliation and cooperation. Since the idea of missile defense is to basically neutralize North Korean missiles, which they consider as their deterrence against a U.S. led military attack, South Korea’s relationship with North Korea will be harmed if it should join in with missile defense.

The stance of South Korea has oscillated during the period of the Bush administration. During the summit meeting between South Korea and Russia, before President Kim visited the U.S., both countries adopted a joint communiqué about preserving and strengthening the Anti-Ballistic Missile (ABM) Treaty early in March 2001. The position of Mr. Kim concerning the ABM Treaty was strongly opposed to that of President Bush, who saw the ABM Treaty as a barrier to missile defense. Since then the situation has become more serious than South Korea expected, and President Kim’s government made apologies several times during the visit to the U.S. by saying “South Korea is not against missile defense.”

Before Mr. Kim arrived in Washington D.C., the Bush administration pushed for President Kim’s government’s approval of and participation in missile defense. On March 8, 2001, a senior Security Advisor to the U.S. stated plainly that the mood of the Korea-U.S. summit meeting would take a turn for the better if South Korea supported missile defense. The arrogance of the Bush administration was further demonstrated in a letter calling for a public statement about the South Korean government’s position on missile defense. The Bush administration pressed Mr. Kim through the letter to announce in a speech that South Korea needed to deploy an effective missile defense for its national defense but Mr. Kim rejected the U.S. demand. President Bush in turn ignored President Kim’s request to support the Sunshine Policy, including the improvement of relationships between the U.S. and North Korea, and showed a consistently negative attitude towards North Korea. This could be because the South Korean government rejected missile defense, but also because the U.S. may have problems justifying missile defense if relations between the U.S. and North Korea improve.

The Roh Moo Hyeon’s government, a successor to the Sunshine Policy that came to power in December 2002, also says that it is not considering participation in missile defense. But regardless of what South Korea wants, the Bush administration has pushed for making South Korea the forward operational base for missile defense. In spite of their unwillingness to cooperate, the Bush administration has taken steps to involve South Korea in missile defense by deploying related weapons and radar systems. The U.S. has already deployed Patriot missiles including PAC-3 and a Joint Tactical Ground Station, which is a mobile early warning radar, in South Korea last August, and is also deploying two more batteries in the Western part of South Korea and some Aegis destroyers on the East Sea (Sea of Japan) this fall.

**Why Is Missile Defense Dangerous to Korea?**

The deployment of missile defense on the Korean peninsula should be viewed in the context of the transformation of U.S. Forces Korea (USFK).
While reducing one third of its 37,000 troops in South Korea, the United States has decided to beef up its military capabilities in and around the Korean peninsula. Improving the military capability of USFK is accomplished by bringing to bear such systems as Patriot PAC-3 missiles, the army’s new Stryker brigade, Aegis destroyers, the navy’s High-Speed Vessel, advanced C4I (command, control, computer, and intelligence) systems, JDAM (Joint Direct-Attack Munition), the “stealth bomber” F-117A aircraft, and new conventional bunker-buster weapons such as BLU-118B and ATACM-P. These capabilities would be backed up by the forward-deployment of additional air and naval assets to Hawaii, Guam, and Japan.

At the same time, the U.S. is relocating the 2nd division of the USFK from the Demilitarized Zone (DMZ) as well as moving the forces in Yongsan, Seoul to Osan Air Base, Pyeongtaek, and the central part of Korea. The U.S. officials refer to these changes as a “transformation of USFK.”

There are four objectives that the U.S. wants to achieve through the transformation of USFK. The first is the permanent presence of U.S. forces in Korea through the consolidation and re-arrangement of USFK bases. The second is building a capability for pre-emptive actions by relocating the USFK beyond the range of North Korea’s artillery and establishing a missile defense system. The third is the containment and siege of China, a nation viewed as a significant threat by U.S. hawks. The final objective is to increase military mobility so that its troops in Korea can be more quickly deployed to other areas around the globe while passing the burden of defense against North Korea to the South Korean army.

Here is the problem. The U.S. military build-up in and around Korea to avoid a “security vacuum” caused by reducing the numbers of USFK can create and heighten uncertainty. In other words, the U.S. has adopted an “if necessary” pre-emptive strike doctrine against “rogue states” such as North Korea, and if there is no progress in U.S.-North Korea relations then the proposed changes in military power could generate a backlash from North Korea.

North Korea has condemned the transformation of the USFK as a preliminary step to a U.S. invasion of North Korea. In North Korean eyes, the U.S. military base relocation and the expansion of offensive, defensive, and intelligence capabilities are seen as a threat to its security. North Korea believes that relocating U.S. military bases out of their long-range artillery reach, while strengthening its offensive and defensive capabilities, will undermine North Korea’s deterrence.

The biggest obstacle to a U.S. preemptive strike against North Korea is the unimaginable damage to U.S. forces. For example, according to a 1994 USFK war simulation, a second Korean War could result in the deaths of 50,000-100,000 U.S. soldiers in the first three months. Since then, the military situation and balance has changed. The forward deployment of U.S. troops who are within the range of North Korean artillery is to be cut, with some moving to Osan-Pyeongtaek. Also, the U.S. will have missile defense systems stationed in South Korea, Japan, and the U.S. homeland to intercept North Korean missiles.

If the U.S. had appropriate shields, it could use its powerful spears without fear of counter-damage. The U.S. has adapted its preemptive strike strategy against “rogue states” like North Korea who seek weapons of mass destruction. At the same time, the U.S. is building up its offensive weapons and C4I in around Korea. That is why North Korea fears missile defense and why many South Koreans oppose it.

However, the fundamental danger of missile defense to Korea does not end there. The direction of America’s core foreign policy in the 21st century seems to include the siege of China, which is seen as a major emerging power. As part of this strategy, the U.S. is strengthening its military alliances with South Korea and Japan. More specifically, the U.S. is taking steps to make Japan the hub of its power projection and re-organize South Korea as its forward deployed base.

The U.S. is relocating its bases in Korea, gathering its air power and missile defense systems in the southwest of South Korea, and making new military support facilities in the southeast. So, what does it all mean? Some Koreans believe that the transformation of USFK targets is aimed at China, though the South Korean government denies it.

The U.S. is also trying to expand the role and mission of the USFK beyond the Korean peninsula, against the wishes of South Korea. This is a dilemma to the South Korean government who want to keep a military alliance with the U.S. They therefore accept some U.S. demands, such as the sending of South Korean troop to Iraq, even though the majority of Koreans oppose it. Now, however, the demands of the U.S. have become unacceptable. The U.S. considers Korea to be of some geopolitical importance and presses it to accept missile defense and a regional alliance that could be targeted at China. Responding to these unjust and dangerous pressures, many Korean people and non-governmental organizations protest against the U.S. and press the South Korean government not to give in to bullying from the U.S.

This paper was written for the conference “The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

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The Implications of U.S. Interests and Policies in East Asia

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The following is an extract from the longer paper “Blind Ambitions: U.S. Interests and Policies in East Asia,” which was written for the conference “The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

The re-orientation of U.S. global strategy toward anti-terrorism after the terrorist attacks at September 11, 2001, has had a transformational effect on world politics, due to the two historically unusual circumstances: the rapidity with which the U.S. has re-oriented its global security priorities in the wake of the attacks and the likely impact of this re-orientation due to U.S. global stature. Other countries throughout the world, to varying degrees, came to face a metamorphosed set of constraints and opportunities.

In East Asia, Russia, China, the two Koreas, and Japan all have had to re-define their own policy orientations in response to the new U.S. posture. In the particularly interdependent security environment of the region, the responses of each of these countries have become further impetus of change in the region.

The multifaceted dynamics set in motion by U.S. policy transformations are complex. For the purposes and scope of this paper, the following discussion focuses on implications in two specific issue-areas: missile defense and nuclear proliferation.

Missile Defense: Accommodation with Russia and China

Prior to September 11, President Bush had made an ambitious program of missile defense into a cornerstone of his administration’s defense policy. Shortly after taking office, President Bush outlined a sweeping vision of a dramatic new U.S. strategic posture: “Cold War deterrence is no longer enough to maintain peace, to protect our citizens and our own allies and friends. We must seek security based on more than the grim premise that we can destroy those who seek to destroy us.”1 This speech expressed the Bush administration’s intent to break from the Cold War predication of the inescapability of “mutually assured destruction” through deep U.S. cuts in offensive nuclear weapons in tandem with expansive missile defense deployment, underscoring the central role of strategic defense in the administration’s security outlook. This ambition to reformulate U.S. nuclear deterrence policy was driven by the administration’s fervent desire to escape the shackles of bilateral and multilateral arms control, particularly the Anti-Ballistic Missile (ABM) Treaty’s constraints on expansive missile defense research, development and deployment.

Through the course of the summer of 2001, the U.S. commitment to abandon the ABM Treaty overshadowed its evolving relations with both Russia and China. Despite considerable activity in U.S.-Russia relations, the unwillingness of the Bush administration to show any signs of compromise on the missile defense issue and the increasing sense of inevitability of U.S. withdrawal from the ABM treaty by year’s end threatened to undermine President Putin’s strategy of building a solid U.S.-Russia relationship.

Meanwhile, the Bush administration had brought to high level positions many policy-makers pre-occupied with a ‘rising China,’ fervently advocating missile defense in part due to concerns that Chinese intercontinental ballistic missiles are a latent and growing threat.2 In the months following the administration’s ascension to power, U.S.-China relations were in sharp decline, highlighted by the initial tensions created by the collision of a Chinese fighter and a U.S. surveillance plane near Hainan Island.3 Russia and China responded by tightening their relationship, strengthening bilateral ties under a new “Good Neighborly Treaty of Friendship and Cooperation” and reaffirming their commitment to the “Shanghai Cooperation Organization.” Some observers perceived these developments as expressions of other underlying factors pushing Russia and China closer, including leadership initiative, opportunities for defense cooperation, and shared desires to resist U.S. power and retain a ‘multipolar’ world, and hence as a possible harbinger of an eventual anti-U.S. alliance.4 September 11 changed these dynamics. In re-directing the core U.S. security focus onto anti-terrorism, the Bush administration made its missile defense ambitions more contingent on that larger imperative. In the immediate aftermath of September 11, the administration actually said very little about missile defense. Eventually, in his first press conference following the attacks, President Bush reiterated the administration’s commitment to missile defense, suggesting that the September 11 attacks demonstrated the need to increase U.S. security against attacks by missiles armed with weapons of mass destruction. Nevertheless, the tone of this support is evidently more muted and the administration appears much more to see missile defense as an element within a larger set of concerns, rather than as a singular goal.

This change of emphasis dramatically shifted the tenor of U.S.-Russia relations. President Putin’s early decision to allow U.S. planes to use Russ-
ian airspace for military and humanitarian missions in Afghanistan, his endorsement of the deployment of U.S. forces at military bases in the former Soviet republics of Uzbekistan and Tajikistan, and his sharing of Russian intelligence information garnered during its years of war in Afghanistan, all suggested Russia's fulsome commitment to the U.S. cause. Many U.S. officials have come to view Russia's post-September 11 role as a watershed in U.S.-Russia relations.

Improvement of U.S.-China relations in the post-September 11 world is in some ways even more dramatic. In exchange for diplomatic support and intelligence sharing, China has moved from "strategic competitor" to anti-terrorism "partner" in the Bush administration's eyes. However, starting at a lower point, improvement in U.S.-China relations has not reached the level of U.S.-Russia relations. The reason China's star has risen less than Russia's in America's post-September 11 eyes is simple: China has less to offer in support of the new U.S. prioritization of its anti-terrorism campaign.

Thus, while the Bush administration has muted its human rights criticisms of China (in particular Chinese suppression of Muslim Uighurs in Xinjiang Province) and has dropped its other provocative rhetoric, many in the administration remain deeply distrustful of Beijing's intentions. The Bush administration has remained resistant to any significant concessions to China on defense issues and did not modify its commitment to defend Taiwan with the use of force. 6

As we know, this improvement of relations with Russia and China did not stop the United States from withdrawing from the ABM Treaty. However, the important point is that September 11 made the U.S. withdrawal less important to both countries, especially Russia. The U.S. decision to postpone an October 2001 missile defense test that could have been interpreted as violation of the ABM Treaty was tangible evidence that the Bush administration was prioritizing its relationship with Russia in the context of the anti-terrorism campaign. 7 More importantly, the shifted priorities in Washington subsequently enabled the Bush administration to accede to Russia's desire that the United States and Russia enshrine in treaty form their agreement to make substantial cuts in their nuclear arsenals.

Taken together, then, the September 11 attacks have catalyzed improved U.S. relations with both Russia and China, which has muted the impact that U.S. development of missile defenses and other nuclear policy initiatives was otherwise generating. The desire to enlist Russian and Chinese support for the priority "war on terrorism" has impelled the Bush administration to soften (at least rhetorically) its stands on previously divisive issues. At the same time, the Bush administration's emphasis on the "war on terrorism" as the centerpiece of its global security strategy has mitigated the implications that U.S. missile defense deployment signified to China and Russia prior to September 11, offering them a basis, despite the Bush administration's absolute commitment to missile defenses, to foster good relations with the United States – at least for the time being. 8

Nuclear Proliferation: U.S. Policy Impacts on the Korean Peninsula

On the Korean peninsula, the impact of the post-September 11 transformation of U.S. strategic policy has been less sanguine. Here, the convergence of two factors – the Bush administration's nuclear policy initiatives and its policy of coercive confrontation of North Korea – have combined to provide Pyongyang with the opportunity (some argue the necessity) to resume its program to acquire its own nuclear weapons.

The Bush Administration's 2002 Nuclear Posture Review (NPR) billed itself as providing a major change in U.S. strategic policy to fit the new demands of the post Cold War and post-9/11 world. 9 However, the NPR does not call for a reduced reliance on deterrence per se. Rather, the "new triad" – the core innovation in the NPR – envisions supplementing deterrence with "new concepts" (such as counterproliferation), "active defenses" (principally meaning missile defense), and "responsive infrastructure" (principally meaning a reconstituted nuclear weapons production capability).

The NPR acknowledges that the dissolution of the Soviet Union eliminated the need to maintain a sizable nuclear force, and accordingly the Bush Administration is proceeding with plans, anticipated in the NPR, to reduce the U.S. nuclear arsenal by 2012 to an estimated 6000 warheads, of which strategically deployed warheads would number about 2200. 10 However, the NPR also envisions greatly diversifying the types of nuclear weapons in the arsenal, including production of new low-yield, earth-penetrating, and damage-limiting nuclear weapons suitable for tactical, first strike missions against types of targets far different than those in the Cold War, such as weapons of mass destruction (WMD) facilities in small "rogue" states like North Korea. 11

More crucially but less noticed, the NPR also calls for greater reliance on an "adaptive planning" approach explicitly blending conventional and nuclear capabilities as interchangeable options, selection between which would be determined solely on the basis of the contingency at hand. This vision for broadening tactical nuclear weapons use options is complemented with a call for increasing non-nuclear "strategic strike" capability, to create a seamless integration of capabilities erasing the view of nuclear weapons as a qualitatively distinct option with additional unique consequences.

The Bush administration's embrace of a wide range of tactical capabilities and first use options reaching well beyond deterrence breaks dramatically from U.S. Cold War policy by casting off deterrence as the central justification for U.S. nuclear armament. The administration's 2002 National Security Strategy section dealing with WMD threats lays out the justification for this move, arguing not only that new dire threats to U.S. security have emerged, but also that an adequate response to these threats requires an unprecedented offensive expansion of U.S. nuclear policy. 12 The administration's subsequent
Strategy to Combat Weapons of Mass Destruction expands this rationale, not only extending nuclear deterrence to cover chemical, biological, and radiological weapons threats, but also conveying the intention to enable the United States to threaten use of nuclear weapons for non-deterrence purposes and to expand U.S. flexibility to follow through on these threats and use its own nuclear weapons in non-retaliatory missions if it deems this necessary.13

Underlying this rationale for aggressive U.S. nuclear policy is an assumption, underscored in all these documents, that deterrence of WMD use by “irrational” rogue states is much more likely to fail than was deterrence of the Soviet Union during the Cold War.14 However, this proposition is highly debatable. In fact, Iraq, North Korea, and other “rogues” have been quite “rationally” cautious, never using WMD capabilities in any context in which retaliation was possible and a deterrent threat applied.15 These states in fact are more easily deterred than was the Soviet Union because they are both conventionally and strategically weak; U.S. force capabilities obviously dominate at every level. These countries’ pursuit of WMD capabilities likely has been motivated not by an irrational desire to attack the U.S. despite the consequences, but by the very rational motivation to deter U.S. attack upon themselves.16 North Korea, for example, may be pursuing its nuclear weapons option in recognition of its growing conventional inferiority to the U.S. and forces of the Republic of Korea aligned against it.17

On the basis of these flawed assumptions and rationales, however, the Bush administration undertook to leverage its nuclear policy initiatives as part of its intent to formulate a much more confrontational posture toward North Korea than had the preceding Clinton administration. Many Bush Administration officials brought with them to power the harder-line viewpoint that sustained U.S. confrontation of North Korea would eventually compel the regime to capitulate to U.S. wishes – or simply to collapse. Thus, officials routinely characterized North Korea as an irredeemable threat to U.S. interests and made clear that development of new tactical nuclear weapons, expansion of nuclear use policy, brace of pre-emptive strikes, and other strategic innovations were being developed to thwart exactly the kind of nuclear ambitions that the administration viewed North Korea to be undertaking. In addition to the expansion of potential nuclear weapons use evident in the public version of the Nuclear Posture Review (noted above), a leaked version of the classified portions of the review lists North Korea among a small number of countries specifically targeted with nuclear weapons.18

Following the September 11 attacks, the administration embedded U.S. policy toward North Korea within the broader, newly declared “war on terror,” famously linking North Korea to Iraq and Iran in the “axis of evil.” This linkage reflected the expectation that assertive U.S. actions, including military operations already underway in Afghanistan and under consideration in the Middle East, would also intimidate North Korea by implicitly signaling that it could become subject to the same type of pressure. Subsequently, as the Bush administration began heating up its confrontation with Iraq, Bush officials undoubtedly expected that the subjugation of Saddam Hussein, by choice or by force, would also serve to intimidate Kim Jong-il by implicitly signaling that North Korea could become subject to the same type of pressure.

The Bush administration’s confrontational approach climaxed at the end of 2002, beginning with U.S. charges in October 2002 that North Korea had developed a covert uranium enrichment program separate from the plutonium-based program frozen under the 1994 U.S.-North Korea “Agreed Framework.” This revelation triggered a cascading breakdown of the Agreed Framework structure: by the end of December 2002, North Korea had completely “unfrozen” its plutonium-based nuclear program, expelling International Atomic Energy Agency (IAEA) inspectors, removing IAEA seals and surveillance equipment throughout its Yongbyon nuclear complex, and announcing plans to reprocess the stored spent fuel.19 U.S. officials estimate North Korea now has “at least eight” functional nuclear weapons, and with both its plutonium and uranium programs unfettered it will likely be able to produce between 29-56 weapons per year, yielding between 120 and 250 nuclear weapons by the end of the decade.20

Thus, the Bush administration’s confrontational policies toward North Korea, accelerated in the wake of the September 11 attacks, backfired spectacularly. Whereas the Agreed Framework restrained North Korea’s plutonium-based nuclear program for nearly a decade, North Korea’s progress in increasing its stocks of fissile materials and becoming armed with nuclear weapons has now remained unleashed for two years.

The failure of the Bush administration’s approach to North Korea rests squarely on the fundamentally flawed assumptions and rationales that underpin the administration’s overarching strategic policies (and its nuclear policies particularly), combined with the shortsighted, often neglectful and clearly simplistic manner in which the administration sought to leverage that strategy to coerce Pyongyang into desired ‘behavior.’ This strategy holds out the hope that U.S. capabilities and pre-emptive threats will themselves be sufficient to deter states like North Korea not only from using WMD capabilities but even from acquiring them in the first place.21 However, it is neither empirically nor logically clear that threats of pre-emptive attack to deter an adversary’s acquisition of WMD are as inherently credible as threats of retaliatory attack to deter an adversary’s use of WMD. This significant distinction between “acquisition deterrence” and “use deterrence” is obfuscated in the most recent NPR. In fact, the opposite effect is more likely: whatever weak acquisition deterrence might accrue from counter-proliferation threats would be more than offset by U.S. adversaries’ increased motivations to
obtain capabilities to deter U.S. pre-emptive action, fueled by the general undermining of non-nuclear use and non-proliferation norms that re-dedicated U.S. reliance on nuclear threats could foster.22

In this manner, the Bush administration’s hostile posture toward North Korea appears to have fueled Pyongyang’s nuclear ambitions by challenging its confidence that its conventional threat against South Korea would prove sufficient to deter a U.S. attack. U.S. hostility also may have served to reinforce Kim Jong Il’s internal legitimacy, validating government propaganda focused on the U.S. threat and thereby serving to retard greater openness of the regime. The U.S. invasion of Iraq amplified this effect, providing Pyongyang with a ready justification for its nuclear ambitions: “The Iraq war teaches a lesson that in order to prevent a war and defend the security of a country and the sovereignty of a nation, it is necessary to have a powerful physical deterrent.”23

Thus, the Bush administration’s posture toward North Korea also fostered the conditions under which the uranium program’s revelation quickly precipitated a new crisis in U.S.-North Korea relations. Indeed, Kim Jong Il may have seen U.S. revelation of the uranium-based nuclear program as not a trap, but a “window of opportunity.” With the United States preparing for a major war against Iraq, U.S. threats to resort to the same kind of coercion of North Korea simultaneously were far less credible. Thus, Kim may have determined not only that avoiding Iraq’s pending fate required an active nuclear program but also that the crisis over the exposure of the uranium program offered an opportunity to resume that program at precisely the moment that a forceful U.S. response would be hampered by its resource and attention commitments in Iraq. Whether or not North Korea will ever be willing to negotiate away its nuclear program, clearly Pyongyang saw opportunities as well as dangers in escalating the confrontation with the United States precipitated by the Bush administration’s posture and policies.24

Conclusion

For many in Washington, the principal lesson of the Cold War is that U.S. military power eventually compelled an odious regime into submission and collapse. Even if this diagnosis were true,25 to apply it to the post-Cold War era would be classically to “fight the previous war.” The U.S. position today is fundamentally different than during the Cold War, in the most obvious fact of U.S. military, political, and even cultural pre-eminence. If this pre-eminence were not evident enough before September 11, it certainly is now: no other country could have, through unilateral change in policy direction, shifted the terrain of international politics so fundamentally.

This pre-eminence confers on the United States an unprecedented role of world leadership. The U.S. has overtly assumed this leadership on the issue of terrorism. However, the U.S. also exercises this leadership on other strategic issues, including nuclear weapons non-proliferation and arms control, whether it seeks to do so or not. Crucially, even in the context of a “war on terrorism,” the United States still has in its hands a host of choices on current strategic issues. Just as on the issue of terrorism, the choices the U.S. makes on these issues will decisively influence the reactions of many other states.

Ironically, the “war on terrorism” opened certain new opportunities in this regard. The need to enlist support of like-minded states and – more importantly – global civil society in a campaign against terrorism to a small extent did soften the Bush administration’s previous disavowal of multilateral approaches to security issues. However, the Bush administration gives no ground to critics who claim that the September 11 attacks demonstrate that spending billions of dollars on new nuclear weapons and missile defense will waste precious resources on the wrong kinds of threats.

The source of this retrenchment in the face of policy collapse is the conviction, shared among many Bush Administration policy-makers, that dramatic U.S. re-armament and a new aggressive posture are required in order to re-orient the purposes of U.S. military strength away from defending against threats and toward more proactive ideally-driven international ambitions. The National Security Strategy articulated these ambitions, embracing the unprecedented fact of unequaled U.S. power and influence and determining to maintain this position indefinitely in order to promote freedom throughout the rest of the world.26

This vision harkens to a peculiarly American nineteenth-century idealist internationalism, underpinned by the security of broad oceans, which rejected the requisites of routine European style international diplomacy, sometimes in favor of re-constituting international society on ethical terms (e.g. “the war to end all wars”), but other times in favor of pure power (e.g. “speak softly and carry a big stick”). The Cold War sustained this idealism by forcing the United States to confront indefinite vulnerability to an intractable adversary of equal power that, due to the advent of nuclear weapons, could not be met decisively on the battlefield. The end of the Cold War restored the image of American unassailability and liberated its long-dormant idealism.

Now, the Bush administration has brought the more aggressive and messianic variant of that idealism to the center of the U.S. posture in the world. This vision, articulated by neo-conservative strategists in and out of the administration, seeks at its core to cement the Reaganesque vision of American unassailability and mission to deliver a safer world through virtuous exercise of American power:

“[W]e do not use our strength to press for unilateral advantage. We seek instead to create a balance of power that favors human freedom... We will defend the peace by fighting terrorists and tyrants. We will preserve the peace by building good relations among the great powers. We will extend the peace by encouraging free and open societies on every continent... The United States welcomes our responsibility to lead in this great mission.”27

This vision represents a triumph of sorts for idealists over realists with—
in the more militaristic side of the U.S. political spectrum. Put another way, it represents the ascendance of unilateral militaristic idealism over liberal international idealism. Although John Lewis Gaddis depicts Bush’s National Security Strategy as rekindling Woodrow Wilson’s mission to make the world “safe for democracy,” in fact the casting of “terrorists and tyrants” as an “evil” to be vanquished through the global spread of U.S.-like political orders resonates more of Theodore Roosevelt. Restoring the sense of American unassailability, the deepest purpose and motivation for the Bush administration’s strategic policy imperatives (especially missile defense), is a prerequisite to carrying forth this vision.

But this vision, always part myth, is more illusory today than ever before. As the Bush administration’s own Strategy for Combating Terrorism recognizes in its pyramidal “Structure of Terrorism,” the September 11 attacks emerged from an ever more integrating globalization – the very globalization that U.S. political, economic, and social power now leads and from which it draws its strength. Pursuit of “Fortress America” offers false promises instead of real preparation for the next terrorist attack, and risks distracting attention and resources from the practical efforts that might successfully prevent that attack. Moreover, other states inevitably take military buildups that go beyond meeting clear and present dangers as signals of more aggressive intentions – this is basic international realism. Such behavior by the world’s most powerful state, backed by a military budget exceeding that of all other nations combined, cannot help but be threatening to other countries. America’s traditionally strongest allies already have trepidations about current U.S. intentions. Adversaries will respond in kind, to the extent that they are able, and new adversaries will emerge. As Michael May notes, “that lines will be drawn and enforced, with or without U.S. forethought, must be accepted as inevitable.” Disregard of these realities in pursuit of an impossible unassailability is more likely instead to exacerbate the security threats America already faces.

The tragedy is that an alternative vision of the U.S. role in the world, based on the variant of traditional American idealism seeking to constitute international society on ethical grounds, would also be more aptly responsive to the challenges of a globalizing world (of which the threat of transnational terrorism is one expression). If the September 11 attacks could be made to encourage U.S. policy-makers and analysts to think more holistically about vital strategic choices, such forward thinking could spark a new era in U.S. global leadership. This new era would be marked by a coupling of the campaign against terrorism with a genuine effort push for improvements in the conditions of repression and poverty throughout the world that fuel so many global problems, including terrorist extremism.

In Northeast Asia, such a change of U.S. posture would be salutary. The United States could take the initiative to break the impasse with North Korea by providing North Korea with its much-wanted security guarantee through a joint U.S.-China-Japan-Russia guarantee of security to the entire Korean Peninsula, rather than holding this prospect as a bargaining benefit to induce Pyongyang’s abandonment of its nuclear programs. More sweepingly, the United States could unilaterally initiate diplomatic relations and lift economic sanctions as well. Such a U.S. initiative would reassure Japan and South Korea of the U.S. desire to solve the Korean crisis peacefully, if at all possible, while simultaneously sustaining the U.S. security commitment to those countries. With skillful diplomacy, the U.S. could also gain the support of Russia, China, and European allies to forge the kind of unified international consensus on dealing with North Korea that was conspicuous in its absence with respect to Iraq. Such actions would satisfy North Korea’s own “criteria for judging that the U.S. has given up its hostile policy,” and in so doing they would put North Korea to the test: it could no longer hide behind its current justifications for its nuclear program or other military excesses.

More broadly, in this new era the United States would take the lead not only in a “war on terrorism,” but also in construction of the peace that must follow any war. Building this peace would require the U.S. to promote new conceptions of a global order better informed by the multilateral and non-military features defining the twenty-first century world. Taking on such a role would not only promote global peace and stability, but also serve more effectively than military defense alone to protect U.S. security against the new threats that the September 11 attacks revealed.

1 The White House, Remarks by the President to Students and Faculty at National Defense University, May 1, 2001; www.whitehouse.gov/news/releases/2001/05/20010501-10.html.
3 Ironically, this incident proved somewhat providential, offering something of a “reality check” to those in the administration pushing confrontation with China most fervently.

1 This difference was evinced early on by the varying results of President Bush’s meetings with Russian President Putin and Chinese President Jiang Zemin at the October 2001 APEC meetings in Shanghai. Gerald Baker, Old alliances provide warmest enthusiasts for new world order, Financial Times, October 22, 2001.
4 For an elaboration of the foregoing analysis, see Wade L. Huntley, Missile Defense: More May be Better – for China, The Nonprolif-
eration Review 9:2, Summer 2002.


For a good brief overview of key events, see www.ceip.org/files/projects/npp

For detailed estimates and critiques, see www.ceip.org/nsc/nss.pdf.


Ironically, North Korea’s indefensible artillery threat against the city of Seoul, rather than its incipient nuclear program, probably remains the most significant deterrent to U.S. pre-emptive action against Pyongyang. See Wade L. Huntley, Countdown in Korea, Center for Contemporary Conflict Strategic Insights, May 1, 2003; www.ccc.nps.navy.mil/respResources/si/may03/eastAsia.asp.

Nuclear Posture Review, op.cit.


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The Simons Centre for Disarmament and Non-Proliferation Research is an independent policy research centre and a joint undertaking of The Simons Foundation and the University of British Columbia.

The centre is dedicated to addressing a more peaceful world through three pillars of disarmament: military threats to human security, demilitarization and global governance, and the development of a legal and political framework to ensure human security. Research includes weapons of mass destruction, ballistic missile defense, weaponization of space, trade in small arms, and United Nations Reform. Initiatives include undergraduate, graduate, and post-doctoral research programs, graduate level courses, a Diplomat-in-Residence program, conferences, and community outreach.

Recently, the centre, sponsored by the Simons Foundation, hosted the third meeting of the Weapons of Mass Destruction Commission, which has been launched by the Swedish Government in December 2003. In March 2004, Simons Centre for Disarmament and Non-Proliferation Research co-sponsored a workshop hosted by the United Nations Institute for Disarmament Research on “Safeguarding Space for All: Security and Peaceful Uses”.

INESAP Information Bulletin No. 24, December 2004
Russia considers the Northeastern part of Asia a very important area. Two of Russia’s largest federal regions – the Siberian and the Far East regions – represent about 2/3 of the whole Russian territory (see Table 1). The territory of these regions is larger than that of the United States or China. At the same time their population is relatively small and comparable with that of North Korea or Taiwan.

The Eastern part of Russia is rich with natural resources including oil, natural gas, metals, etc. In particular, proved oil resources in the region are estimated as 1.3 billion tons, which is almost 20% of the total Russian proved reserves. At the same time, the territory of Eastern Russia is not well explored yet, so that some experts believe that oil resources are larger by an order of magnitude. If oil production is increased and an appropriate transportation system is created, the Siberian and the Far Eastern oil could become an attractive import option for China, Japan, and South Korea, as demand for energy resources grows in these countries.

The situation with natural gas is similar (see Table 3) – rich resources, a scantily explored territory, low production, and a great potential for export to other countries in Northeast Asia.

What is the level of economic cooperation of Russia with its neighbors in this region?

During the Cold War, the Soviet Union and the United States considered Northeast Asia as well as any other part of the world as an area of competition for projecting their influence. For different reasons there was very little economic cooperation between the Soviet Union and Japan, South Korea, or China. Meanwhile, the situation has changed and economic relations are improving. The total mutual commodity circulation that reflects economic cooperation has grown rapidly (see Table 4). On the other hand, figures for total commodity circulation show that neither the countries of Northeast Asia nor Russia consider each other as major economic partners. There is still a great potential for joint cooperation.
many people chose to move to the Western regions of Siberia. The population of the Siberian and Far East regions dropped by nearly 12% during the last eleven years, and it is very difficult to stop this tendency, because the population of Russia as a whole is diminishing. In particular, it dropped by almost 4 million people since 1992.8

At the same time, a high demographic pressure comes from China, where the density of population is much higher. Depending on the area taken into account, the density of population to the south of the Russian-Chinese border exceeds that to the north by a factor from 15 to 30.10 In particular, about 100-120 million people live in the Heilongjiang province alone, which neighbors the Primorsky Krai and the Khabarovsk Region. The majority of the population is relatively poor, and the unemployment rate is high. Since the Russian border has been opened for Chinese at the end of the 1980s, many have traveled to Russia as merchants or temporary workers.

The decline of the population and the Russian government’s inability to change this tendency gave rise to public concerns over the potential sinofication of the Eastern regions of Russia. Although there are different views on the seriousness of the problem and how to deal with it, experts in general agree that on the longer term Russia may face a Kosovo-like scenario if migrants from neighboring countries eventually make up the majority of the population and therefore dominate the local political power. Thus, Russian politicians frequently raise concerns about the possible loss of control over the Eastern part of Russia not as a result of general war with China or another country, but as a consequence of demographic changes in the region. It should be mentioned that Chinese authorities understand the problem and currently act responsibly. However, it is quite clear that any joint development of the regional resources like oil and gas will require an additional workforce. China is a very attractive source of cheap labor for the region. At the same time, the Russian authorities will have to find ways of keeping control over the migration process.

### The Role of Nuclear Weapons and Prospects for Reductions

The level of military confrontation between nuclear powers in the region has substantially decreased since 1980s. The bulk of today’s military forces is a legacy of the history. Both Russia and China continue to downsize their forces. Even though military host strategic submarines once the last Delta-III nuclear submarines will be retired. Thus, perhaps, the only place where strategic forces will remain in this part of Russia is Ukrainka, the home of strategic bombers.

As deployment of strategic nuclear forces in the Eastern part of Russia is curtailed, non-strategic nuclear weapons in the region may be assigned budgets are increasing, modernization still continues, although at a slower pace. At the same time, inferior by quantity but thus far superior by quality of its arms, Russia feels that it needs nuclear weapons to maintain a balance of forces.11

Currently, about 20% of the deployed Russian strategic nuclear forces remain in the Eastern part of Russia (see Table 7). As strategic forces shrink, the pace of reductions in the region is the fastest. In particular, three of the four divisions of the Russian Strategic Forces that have been disbanded since 2000 were located here. And the reductions will continue. Most likely, the SS-18 base at Uzhur will be closed down after 2010. The future of the SS-25 mobile intercontinental ballistic missiles (ICBMs) is also uncertain, as they are getting older. The submarine base on the Kamchatka peninsula will likely no longer have strategic submarines once the last Delta-III nuclear submarines will be retired. Thus, perhaps, the only place where strategic forces will remain in this part of Russia is Ukrainka, the home of strategic bombers.

As deployment of strategic nuclear forces in the Eastern part of Russia is curtailed, non-strategic nuclear weapons in the region may be assigned...

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<tr>
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</thead>
<tbody>
<tr>
<td>China</td>
<td>7</td>
<td>15.8</td>
<td>833.4</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>~ 6</td>
<td>~ 6</td>
<td>793.7</td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>1.1</td>
<td>4.2</td>
<td>376.9</td>
<td></td>
</tr>
<tr>
<td>For comparison: Russia</td>
<td></td>
<td></td>
<td>209.2</td>
<td></td>
</tr>
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</table>

Table 4. Commodity circulation (export + import) (billion US$)

<table>
<thead>
<tr>
<th>Region</th>
<th>1993</th>
<th>1998</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primorskii Krai</td>
<td>2,302</td>
<td>2,214</td>
<td>2,051</td>
</tr>
<tr>
<td>Khabarovsk Krai</td>
<td>1,621</td>
<td>1,535</td>
<td>1,427</td>
</tr>
<tr>
<td>Yevreiskaya Autonomous Region</td>
<td>219</td>
<td>203</td>
<td>190</td>
</tr>
<tr>
<td>Amursk Region</td>
<td>1,062</td>
<td>1,016</td>
<td>894.5</td>
</tr>
<tr>
<td>Chita Region</td>
<td>1,376</td>
<td>1,274</td>
<td>1,144</td>
</tr>
<tr>
<td>Buryatia</td>
<td>1,057</td>
<td>1,043</td>
<td>974</td>
</tr>
<tr>
<td>Irkutsk Region</td>
<td>2,872</td>
<td>2,768</td>
<td>2,561</td>
</tr>
<tr>
<td>Total</td>
<td>10,509</td>
<td>10,053</td>
<td>9,241.5</td>
</tr>
</tbody>
</table>

Table 5. Dynamics of population of the Russian regions that have a common border with China (thousand)

According to the author’s assessment, nearly one third of the 3,300 Russian non-strategic weapons are assigned for deployment with general-purpose forces in the Siberian and Far Eastern military districts (see Table 8). All of these weapons are currently kept at central storage facilities of the 12th Directorate of the Russian Armed Forces. In case of hostilities they can be deployed with surface-to-surface, surface-to-air, anti-ship, antisubmarine missiles, and other dual-use means of the Ground, Air, and Naval Forces.

Estimates of deployed nuclear forces of China are largely speculative and variable. According to U.S. experts, China deploys about 400 nuclear warheads.15 Russian expert estimates of the total Chinese arsenal are about two times higher (about 700 warheads).18 The nuclear forces of...
China will likely grow numerically in response to the buildup of the US missile defense systems.

Fortunately, the current situation in the region is quite stable. Russia reduces its strategic forces deployed in Eastern Siberia and the Far East. There are no signs that Russian non-strategic forces would grow there either. If China builds up its nuclear forces, the current pace is slow. However, it is quite clear that the current state of affairs cannot be preserved indefinitely. In particular, the existing situation reduces chances to open a productive dialog on transparency of non-strategic nuclear weapons between Russia, the US, and NATO. A way to break this deadlock could be to initiate talks between Russia and China on possible bilateral confidence-building measures in the nuclear area. Such discussions could involve both governmental and independent experts and become an important step toward improving security in Northeast Asia.

Conclusions

Several observations can be made from the above:

1. Russia is interested in a stable and peaceful development of its Eastern territories. It does not see an immediate external military threat from China or other countries in Northeast Asia, but Russia is concerned with the potential emergence of such a threat in future.

2. There is a great potential for growth of mutually beneficial economic cooperation between Russia and countries in Northeast Asia. However, the development of natural resources in Siberia and the Far East may create a complex demographic situation and provoke distrust and tensions in the region.

3. With respect to the regional situation in Northeast Asia, Russia considers its nuclear forces as an equalizer in a balance of military forces and as a “hedge” against potentially undesirable developments in the future (e.g. a Kosovo-like conflict or war).

4. In order to support a regional military balance, Russia may place more emphasis on non-strategic nuclear weapons assigned to its armed forces in Northeast Asia while its strategic forces shrink.

5. There is a need to start developing transparency and confidence-building measures between China and Russia on nuclear forces in order to achieve further reductions of nuclear arsenals.

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<table>
<thead>
<tr>
<th>System</th>
<th>Launchers (total)</th>
<th>Warheads (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-18</td>
<td>46 (126)</td>
<td>460 (1,260)</td>
</tr>
<tr>
<td>SS-19</td>
<td>0 (144)</td>
<td>0 (864)</td>
</tr>
<tr>
<td>SS-24</td>
<td>0 (15)</td>
<td>0 (150)</td>
</tr>
<tr>
<td>SS-25</td>
<td>126 (312)</td>
<td>126 (312)</td>
</tr>
<tr>
<td>SS-27</td>
<td>0 (36)</td>
<td>0 (36)</td>
</tr>
<tr>
<td>SS-N-23</td>
<td>0 (96)</td>
<td>0 (384)</td>
</tr>
<tr>
<td>SS-N-20</td>
<td>0 (100)</td>
<td>0 (1,000)</td>
</tr>
<tr>
<td>SS-N-18</td>
<td>64 (112)</td>
<td>192 (336)</td>
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<td>Tu-160</td>
<td>0 (14)</td>
<td>0 (168)</td>
</tr>
<tr>
<td>Tu-95MS16</td>
<td>15 (32)</td>
<td>240 (512)</td>
</tr>
<tr>
<td>Tu-95MS6</td>
<td>25 (32)</td>
<td>150 (192)</td>
</tr>
<tr>
<td>Total</td>
<td>1,168 (5,214)</td>
<td></td>
</tr>
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</table>

Table 6. Conventional military forces in Northeast Asia

<table>
<thead>
<tr>
<th>System</th>
<th>Launchers (total)</th>
<th>Warheads (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-18</td>
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<td>150 (192)</td>
</tr>
<tr>
<td>Total</td>
<td>1,168 (5,214)</td>
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</tbody>
</table>

Table 7. Russian strategic forces in Northeast Asia

<table>
<thead>
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<th>System</th>
<th>Launchers (total)</th>
<th>Warheads (total)</th>
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</thead>
<tbody>
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<td>25 (32)</td>
<td>150 (192)</td>
</tr>
<tr>
<td>Total</td>
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<td></td>
</tr>
</tbody>
</table>

Table 8. Estimates of Russian non-strategic nuclear weapons assigned to forces deployed in Northeast Asia

1 The figures for the population of Russia are taken from official data of the State Committee on Statistics (www.gks.ru) and correspond to January 1, 2004. Figures for other countries are taken from: Naselenie i Obshchestvo (Population and Society), N 74, August 2003, Information Bulletin of the Center for Demography and Human Ecology at the Institute of National Economy Forecasting, Russian Academy of Sciences.


The population of Russia was estimated at 148 million in 1992; see: Dire Demographic Trends Cast a Shadow on Russia’s Future, RAND Study, RB-5054, 2001.

The data for 1993 and 1998 were taken from: Galina Vitkovskaya and Zhanna Zaychonkovskaya, New Stolypin Policies in the Far East: Hopes and Realities, in: G. Vitkovskaya and D. Trenin, op. cit. The figures for 2004 are taken from official data of the State Committee on Statistics; www.gks.ru.

Galina Vitkovskaya and Zhanna Zaychonkovskaya, op.cit.


18 Vyacheslav Baskakov and Alexandr Gorskov, Beijing’s Nuclear and Missile Arsenal, Nezavisimoye Voyennoye Obozreniye, July 12, 2002.


The full report is available as a PDF file on “Non-Strategic Nuclear Weapons” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

This paper was written for the conference “The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

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China's Nuclear Policy

Ye Ru'an

Of all five nuclear weapon states, China and its nuclear policy are very unique. Unlike the two nuclear giants – the United States and Russia – that maintain overwhelmingly huge nuclear arsenals, China's nuclear force has remained at a very low level in the past four decades; and unlike the United Kingdom and France that are major allies of the United States, China is a non-allied developing country that pursues an independent foreign policy for peace.

On the day when China detonated its first atomic bomb 40 years ago, the Chinese Government solemnly declared to the world that China would not be the first to use nuclear weapons at any time and under any circumstances. Later, China made the commitment unilaterally and unconditionally not to use and threaten to use nuclear weapons against non-nuclear weapon states. This short paper tries to address three questions: 1. What drove China to go nuclear? 2. What is China's nuclear policy? 3. What is the future orientation of China's nuclear weapons development?

China's Decision to Make the Bomb - A Historical Perspective

For more than a century, from the Opium War in 1840 through the founding of the People's Republic in 1949, the Chinese nation had undergone untold sufferings caused by foreign aggression and subjugation and decades of civil wars. Immediately after China's War of Resistance against Japan was over, the United States began to give full support to Chiang Kai-shek and his regime politically, militarily, and economically in fighting against the Chinese Communists and the People's Liberation Army. However, after three years of bitter fighting, Chiang was utterly defeated and fled to Taiwan Province.

When the New China was born in October 1949, the whole country was in shambles, extremely poor, and backward with a meager economic and industrial base. Everything was crying out to be done for national rehabilitation and reconstruction. But the United States, already possessing nuclear weapons at the time, adopted a hostile and confrontational policy toward China. Under the so-called “domino theory,” the United States was intent to “roll back” the “Communist advance” and strangle the New China in its cradle.

When the Korean War broke out in 1950, hundreds of thousands of US troops quickly moved to the Sino-Korean border. American military aircraft frequently intruded into Chinese airspace in East and Northeast China, and American bombs were dropped in Shanghai and Shenyang. In the meantime, the US dispatched troops to station on Taiwan and brought atomic weapons into Japan. The US military encirclement of and economic embargo against China posed an extremely grave threat to China's security and survival.

What was more serious, in the early 1950s the US repeatedly threatened to use nuclear weapons against China. For instance, in the US Administration's policy documents formulated in 1953, it was stated that the United States would regard nuclear weapons as usable as other weapons in a military conflict with China and that once a full-scale conflict with China should break out, the US might launch decisive strikes at Chinese forces and facilities with all kinds of weapons, and if necessary, use a considerable proportion of atomic weapons. At a news conference in March 1955, President Eisenhower alleged that if war broke out in the Far East, the United States would use tactical nuclear weapons.

It was under such circumstances that Chinese leaders made the decision in 1956 on the research and development of nuclear weapons, with or without Soviet help. It was true that the Soviet Union did provide some assistance to China in the initial period of research on the peaceful use of atomic energy in the first couple of years. However, by 1959 and 1960, when Sino-Soviet relations began to rapidly deteriorate, the Soviet side withdrew all specialists, blueprints, and equipment. It was under these extraordinary circumstances that China was compelled to make the bomb by itself.

As noted in numerous statements of Chinese leaders and government documents over the decades, the sole purpose of China's development of nuclear weapons was to resist nuclear threats and blackmail against China and exclusively for self-defense. Therefore, China's nuclear weapons pose no threat to any other country. This has been substantiated over the decades not only by China's consistent stand on promoting international nuclear arms control and disarmament, but by China's handling of its foreign relations. China has never threatened to use nuclear weapons against any country, nuclear or non-nuclear, even when bilateral relations were at odds or in crisis, or in border conflicts with neighboring countries.

This brief account indicates that the US nuclear threat was the main driving force that compelled China to develop its own atomic bomb. This threat has not been removed even today as the United States still maintains an overwhelming force with thousands of strategic offensive nuclear warheads augmented by emerging missile defense systems. China remains one of the countries targeted with a pre-emptive nuclear strike as publicly disclosed in the latest US Nuclear Posture Review.

Major Elements of China's Nuclear Policy

1. What is the role of nuclear weapons in China's foreign and defense policy? In other words, what is China's nuclear strategy? To my mind, there has
never been use of a single term or set phrase that defines China’s nuclear strategy in official Chinese policy pronouncements or documents. Nor is it correct to describe China’s nuclear strategy by borrowing Western terminologies. However, it is not so difficult to understand China’s strategic concept or policy thinking with regard to nuclear weapons. To be accurate, perhaps I should first quote the official Chinese line as follows:

“China consistently upholds the policy of no first use of nuclear weapons, and adopts an extremely restrained attitude toward the development of nuclear weapons. China has never participated in any nuclear arms race and never deployed nuclear weapons abroad. China’s limited nuclear counterattack ability is entirely for deterrence against possible nuclear attacks by other countries.”

First of all, “no-first use”, in my view, is the core element of China’s nuclear policy. Of all nuclear weapon states, China is the only country that has undertaken not to use nuclear weapons first at any time and under any circumstances and is unconditionally committed not to use or threaten to use nuclear weapons against non-nuclear weapon states and nuclear-free zones.

Back in the early 1980s, China first proposed for the conclusion of a treaty on no-first use of nuclear weapons to be signed by all nuclear weapons states. In January 1994, China put forth a formal proposal with a draft treaty to the UN on this issue. At the Non-Proliferation Treaty (NPT) Review Conference in April 2000, China again called for such a joint commitment by all nuclear states so as to strengthen the NPT. And in September 1994, China and Russia signed a joint statement on “no-first use” and mutual non-targeting of strategic nuclear weapons. But the United States refused to make the same commitment bilaterally with China on “no-first use.” If all nuclear weapon states concluded such a treaty, and strictly abide by it, it would greatly promote nuclear reductions, dampen nuclear arms races, and at the same time better persuade some non-nuclear weapons states to give up their intention to possess nuclear weapons for fear of nuclear attack or blackmail. This would greatly enhance the NPT and the entire nuclear non-proliferation regime and create favorable conditions for achieving the ultimate goal of complete prohibition and thorough destruction of nuclear weapons in the world.

Secondly, China’s unilateral commitment on “no-first use” (and unconditional “no-use” against non-nuclear states and nuclear-free zones) clearly indicates that China’s nuclear weapons are exclusively for self-defense as a necessary means to deter any nuclear attack or as a last resort for retaliation if it suffers from a nuclear attack.

Thirdly, the self-defensive nature of China’s nuclear weapons and its “no-first use” policy pre-determine that China takes an extremely restrained approach in its nuclear weapons development (in both quantitative and qualitative terms). As China’s nuclear weapons are not for offense, there is no intention or motivation for China to have a high nuclear force level, nor to engage in a nuclear arms race. So, the bottom line of China’s nuclear development is to maintain a very small nuclear force with credible survivability and effective retaliatory capability.

In other words, as it may be inferred, China pursues a nuclear strategy of minimum deterrence for self-defense. This is best illustrated by the fact that in the past four decades, the number of China’s nuclear weapons has remained to be a very small proportion of the nuclear arsenals of either the United States or Russia (far smaller of their strategic weapons), and by the total number of nuclear weapons tests conducted by China (45) as compared with that of the US (1,030) and Russia (715) on record. It should be noted with emphasis that while the two nuclear superpowers were locked in their hectic, mirror-imaging nuclear arms race for global rivalry between the 1950s and the 1980s, China’s efforts for nuclear weapons development had remained restrained and modest, even when Sino-US and Sino-Soviet relations became very tense and confrontational at one time or another.

2. China’s position on and efforts for nuclear arms control and nonproliferation: Ever since China recovered its legitimate seat in the United Nations in 1971, and especially in the past two decades, China has been making tremendous efforts to promote international nuclear disarmament and non-proliferation. As early as in March 1986, China proposed that as the United States and the Soviet Union, which possess the largest nuclear arsenals in the world, should assume special and primary responsibility for nuclear disarmament and take the lead in stopping the testing, manufacturing, and deployment of their nuclear weapons of all descriptions and undertake drastic reduction and destruction of the dismantled nuclear weapons, so as to create favorable conditions for convening a broadly represented international conference on nuclear disarmament with the participation of all nuclear weapons states.

China has joined many other countries in sponsoring or endorsing hundreds of UN resolutions on nuclear reduction, prevention of nuclear war, and nuclear non-proliferation over the past three decades. China’s accession to the NPT in 1992 was a milestone in its nuclear non-proliferation policy and is a great contribution to the universalization of this important treaty and the reinforcement of the overall international non-proliferation system. Moreover, China has persistently, actively, and earnestly been participating in the multilateral disarmament negotiations at Geneva on all agenda items and has made great contributions to the negotiations on and conclusion of the Chemical Weapons Convention and the Comprehensive Test Ban Treaty.

China joined the International Atomic Energy Agency (IAEA) in 1984 and voluntarily placed its civilian nuclear facilities under the IAEA Safeguards and signed the Additional Protocol to the Safeguards Agreement between China and the IAEA in 1998, being the first nuclear weapon state that has completed the domestic legal procedures for its entry into force. China became a member of the Zang-
In the nuclear field in particular, China has persisted in exercising tight controls over nuclear exports and nuclear materials. In the nuclear materials control, since its accession to the IAEA, China has established a “State System for the Accountancy and Control of Nuclear Materials,” and a “Nuclear Materials Security System” that measures up to the requirements of the Convention on the Physical Protection of Nuclear Materials. In 1987, The Chinese Government issued the “Regulations on the Control of Nuclear Materials.” Under the Regulations, it instituted a licensing system for nuclear materials control, the application for and examination and issuance of nuclear materials licenses, the management of nuclear materials accounts, the accountancy of nuclear materials, the physical protection of nuclear materials, and relevant rewards and penalties. China’s nuclear export is handled exclusively by the companies designated by the State Council.

China adheres to the three principles of “guarantee for peaceful use only, acceptance of the safeguards of the IAEA and no re-transfer to any third country without the prior consent of the Chinese Government.” In the “Regulations of the People’s Republic of China on the Control of Nuclear Export” issued in 1997, it is further stated that China pursues a policy of not advocating, not encouraging and not engaging in the proliferation of nuclear weapons, not helping other countries to develop nuclear weapons, not providing any assistance to any nuclear facility that is not placed under IAEA Safeguards, not providing nuclear exports to it, and not conducting personnel and technological exchange or cooperation with it. The regulations also provide a rigorous examination system for nuclear export, severe punishment for violations, and a comprehensive, detailed control list.

**Future Orientation of China’s Nuclear Weapon Development**

Every now and then, some people in the world play up with the fallacy of a “China threat.” They are painting a threatening picture about China’s defense efforts and nuclear modernization. This can be found in media reports and comments or official statements and documents in certain countries.

It is universally acknowledged that strengthening and modernizing national defense is a key guarantee for protecting a country’s security and national interests. China is no exception. It is true that along with its economic growth, China’s defense expenditure has increased in recent years. In proportion to the gross domestic product (GDP), the annual defense spending had increased from 1.09% in 1995 to 1.50% in 2001. The increase is attributable to many items of expenditure, such as rising salary and allowance for both active servicemen and retired officers, more expenses for improving housing and social security, increased cost of maintenance (other than weapons and equipment maintenance), demobilization and rehabilitation funds, cost for international cooperation in anti-terrorism activities, etc., in addition to the improvement of military equipment. However, China’s defense expenditure has remained at a fairly low level as compared with other major powers.

As far as nuclear weapons are concerned, despite possible reduction and de-activation of a portion of US and Russian strategic nuclear warheads under the 2002 Moscow Treaty, the two nuclear superpowers will still retain large stockpiles of nuclear weapons. They, the United States in particular, are continuing to make vigorous efforts to modernize their nuclear forces with state-of-the-art technologies. In view of this, in order to ensure for national security and the effectiveness and survivability of its own nuclear force (smallest of the N-5), China has to make necessary but modest efforts for modernization. However, it can be said for certain that China will continue to restrain itself in future, as much as in the past, in its nuclear weapons development. I think that in observing or estimating China’s effort for nuclear modernization or the modernization of national defense, one should bear in mind the following three determining factors that underpin long-term prospects of China’s national defense:
Basic national conditions: China has a huge population of more than 1.3 billion, which accounts for about 20% of the world's total, but its arable land is only 7% of that of the world. Moreover, natural resources in China are not abundant for a rapidly developing economy, which is still at a fairly low level despite the rapid growth in the past two decades and more. At present, China's per capita GDP is only about US$1,000, which is a tiny proportion of that of all developed countries. This will not fundamentally change in many decades from now.

Long-term national development strategy: In view of the above, economic development and improvement of people's living standards are and will be the top priority and the central task for the government and the whole nation. In 1979, Mr. Deng Xiaoping and the Chinese leadership laid down this fundamental national development strategy and policy guideline. Its implementation since then has brought about significant changes all over the country. This guideline has been fully supported by people of the whole country as it conforms to their vital interest and ensures not only national prosperity and long-term political and social stability. This will not change either, irrespective of leadership change.

Independent foreign policy for peace: Peace and development are the common aspiration of all peoples in the world. China has been pursuing a foreign policy for peace ever since the founding of the People's Republic. China supports efforts for peaceful settlement of international disputes through dialog and negotiation, opposes policies of war, aggression, and expansion, and is against arms race, nuclear or conventional. As China has entered a new phase of development at the beginning of this century, it all the more needs a peaceful international environment and maintains stable, good-neighboring relations with countries on its periphery. In recent years, the Chinese Government has been making unremitting efforts to develop friendly and cooperative relations with all countries far and wide, and especially with our close neighbors. This will enable China to use its limited resources more for economic development and social welfare, less for national defense.

The conclusion is: China was compelled to develop nuclear weapons under nuclear threats and blackmail; China maintains a small but effective nuclear force only for self-defense purposes, which poses no threat to any other country; and China will continue to exercise utmost restraint in its nuclear weapons development and modernization in future.


Missile Defense Test Failed

The first test in nearly two years of a multimillion-dollar U.S. antimissile shield failed on Wednesday when the interceptor missile shut down as it prepared to launch in the central Pacific, the Defense Department said.

About 16 minutes earlier, a target missile carrying a mock warhead had been successfully fired from Kodiak Island, Alaska, according to a statement from the Missile Defense Agency.

An “anomaly” of unknown origin caused the interceptor to shut down automatically in its silo at the Kwajalein Test Range in the Marshall Islands, said Richard Lehner, a spokesman for the Pentagon's missile agency.

The aborted $85 million test appeared likely to set back plans for activation of a rudimentary bulwark against long-range ballistic missiles that could be fired by countries like North Korea.

Pentagon officials had hoped the test would set the stage for any decision by President George W. Bush to put the system on alert in coming weeks.

Initially, the system is designed to counter North Korean missiles that could be tipped with nuclear, chemical or germ weapons.

On Dec. 8, in reply to a question about switching the system on, Michael Wynne, the Pentagon's chief weapons buyer, said the plan was "not constrained by timing, exactly." But he said officials would await the test and "then we'll see from there." In 2002, Bush pledged to have initial elements of the program up and running by the end of 2004 while testing and development continued. ...

The test followed a week of delays caused by weather and technical glitches, including malfunction of an internal battery aboard the target missile on Tuesday, Lehner said. ... Because the mission was to have tested new hardware, software and engagement scenarios, it was termed a "flyby," not an attempted intercept.

This meant gathering data was the primary goal, not downing the target, according to the Missile Defense Agency.

When a shoot-down has been the chief test objective, the system so far has succeeded five out of eight times in highly scripted conditions.

The last test, attempted in December 2002, misfired when the warhead - a 120-pound, or 55-kilogram, "kill vehicle" of sensors, chips and thrusters designed to pulverize its target on collision - failed to separate from its booster rocket.

Boeing, as prime contractor, put together the ground-based shield, which is to be folded into a system involving airborne, sea- and space-based elements. ...
Chinese Perspectives on the Prevention of Space Weaponization

Hui Zhang


The control of space is aimed at assuring the U.S. access to space, freedom of operations within the space medium, and denying others the use of space. Indeed, a number of high-level official documents have shown the U.S.’ intention to develop, deploy, and use space weapons. The 2001 Commission, originally chaired by current Defense Secretary Donald Rumsfeld, warned of the need “to avoid a ‘space Pearl Harbor’” and the Commissioners believe “the U.S. government should vigorously pursue the capabilities called for in the National Space Policy to ensure that the President will have the option to deploy weapons in space to deter threats to, and, if necessary, defend against attacks on U.S. interests.”

In its Transformation Flight Plan (Nov. 2003), the U.S. Air Force lists a number of space weapon systems it would like to have for space wars. Furthermore, in August 2004, the U.S. Air Force released the Counterspace Operations Doctrine Document. This high-level official document shows clearly what the U.S. Air Force actually intends to do is to achieve and maintain space superiority — the “freedom to attack as well as the freedom from attack” in space. To preclude an adversary from exploiting space to their advantage, Offensive Counterspace (OCS) operations would attack, possibly pre-emptively, an adversary’s space capability, including satellites, space stations, or other spacecraft; communication links; ground stations; launch facilities; command, control, communication, computer, intelligence, surveillance, and reconnaissance (C4ISR) systems; and those operated by third party providers. As the document shows, to conduct these OCS operations, a number of space weapon systems would be used, such as ASATs, which include direct ascent and co-orbital systems that employ various mechanisms to affect or destroy an on-orbit spacecraft, and Directed Energy Weapons, such as land-, sea-, air, or space-based lasers.

Missile Defense and U.S. Control of Space

MD & ASATs

The control of space would require ASAT weapons in order to negate an adversary’s space capability, including satellites. The current deployment of U.S. missile defense would provide such ASAT capacities. The U.S. has deployed Ground-Based Midcourse Defense (GMD) systems since September 2004. Ten interceptors will be deployed by the end of 2004 (six in Alaska and four in California) and ten more (in Alaska) by end of 2005. This GMD system, however, will have no demonstrated defensive capability and will be ineffective against a real attack by long-range ballistic missile, because the technology is not ready: as yet, no flight intercept test has been undertaken under realistic conditions; such a system could be easily defeated by unsophisticated countermeasures; and there is no adequate tracking capabilities. In spite of this, GMD will have a significant ASAT capability. Many technical experts realize that satellite interception is technically easier than intercepting ballistic missiles. As Richard Garwin explained, “the satellite is far more fragile than is a nuclear warhead equipped with reentry vehicle; the satellite follows a highly predictable trajectory; the satellite is considerably larger than a warhead; the intercept time can be chosen, for the most part, at the convenience of the attacker, and the attack can take place within a short range of ground-based radars or laser systems to aid the attack.”

The GMD system, the sea-based midcourse defense system, and the Theater High Altitude Area Defense (THAAD) system all will have the capability of attacking satellites in a low earth orbit (LEO; below 3,000 km), and if given an augmented booster, these systems can even reach satellites in a geosynchronous earth orbit (GEO; 36,000 km). Moreover, as David Wright of the Union of Concerned Scientists points out, GMD “could intercept a large fraction of those satellites even from two deployment sites” and “the missile defense tests that have been done so far are much more relevant to demonstrating an ability to intercept satellites than to intercept missile warheads.”

Thus, many Chinese argue that one real purpose for the Bush administration’s rush for GMD deployment could be to acquire an ASAT capability for its space control strategy.

In addition, the U.S. pursues a number of other ASAT weapons programs. For instance, the Army has the Kinetic Energy Anti-Satellite program, launched in 1990, and would use a ground-launched kinetic kill vehicle to hit an enemy satellite and destroy it. Another potential ASAT weapon system — the ground-based Mid-Infrared Advanced Chemical Laser (MIRACL),
originally planned for Ronald Reagan’s Strategic Defense Initiative, is still under development. In addition, the U.S. Air Force has a research project on smaller satellites which could be used for surveillance and as anti-satellite weapons.

### Space-Based Missile Defense and Space Weapons

To control space and defend U.S. space assets, the US will need to control the adversaries’ access to space, which would require a global-cover- age missile defense system. In fact, as shown in related documents, missile defense has been taken as one important part of the U.S. “space control” strategy. For example, the U.S. Space Command’s Vision for 2020 (1997) noted the rationale for missile defense and global engagement and made it clear that National Missile Defense is a “key” to “Global Engagement Capabilities.” “Global Engagement is the application of precision force from, to, and through space.” Also, the US Space Command’s Long Range Plan shows a clear roadmap for the use of missle defense systems for space control.

The goal for an effective, global-coverage ballistic missile defense (BMD) system is to intercept intercontinental ballistic missiles (ICBMs) already in the boost phase, for which weapons such as a Space-Based Laser (SBL) and Space-Based Interceptor (SBI) are to be used. Also, a layered BMD system would include space-based sensors, such as early warning satellites (DSP/SBIRS-high) and space-based missile tracking system (SBIRS-low). Thus, a global BMD system would be partly space-based and therefore weaponize space. President Bush indicated in December 2002 that the United States would continue the “development and testing of space-based defenses, specifically space-based kinetic energy (hit to kill) interceptors and advanced target tracking satellites.”

Current U.S. BMD strategies aim to engage ballistic missile in all phases – boost, midcourse, and terminal. In addition, the Pentagon’s Nuclear Posture Review (2002) reveals one guidance for missile defense program development: “Missile defense is most effective if it is layered; that is, able to intercept ballistic missiles of any range in all phases of their flight.” Thus, many Chinese feel that U.S. plans to deploy missile defense is an intentional first step toward space weaponization.

Indeed, the current U.S. budget for missile defense shows continued interest in a number of space weapon related programs: a) The Near Field Infrared Experiment (NFIRE) satellite, carrying infrared sensors and releasable kill vehicles, is scheduled to be launched into LEO in late 2006. The infrared sensors are designed to gather infrared data to assist in distinguishing between a rocket body and a rocket plume during its boost phase flight. The data from these tests would be used to develop space-based boost phase interceptors. Moreover, the NFIRE on-board kill vehicle can be a potential space-based anti-satellite weapon. b) The Space-Based Interceptor Test Bed is funded to develop and test plans for a lightweight SBI. It is planned to launch about 3-6 satellites in an effort to build such a test bed in 2010-2011. This small numbers of SBIs would provide little defense against missiles, since a global coverage against missiles would need about thousands interceptors satellites in LEO. However, such small numbers could have very significant ASAT capability, including against satellites in GEO.

c) Research on the Space Based Laser had been conducted for some time for boost phase missile defense. In 2002, the Missile Defense Agency cancelled the SBL program. However, a number of directed energy initiatives can be found in various other programs. The possibility that the SBL program will be revived in the Missile Defense Agency is still there. In addition, a space-based BMD system would encourage other countries to deploy ASAT weapons, since, as discussed in the following section, these space weapons and sensor satellites would themselves become prime high value target and the most vulnerable elements for ASAT attacks.

Finally, in addition to these space weapon programs for missile defense, there are several space weapons research programs that the Pentagon plans for prompt, global force projection. These space weapons would be used to attack terrestrial targets. For example, the long-rod penetrator, often termed “Rods from God,” is one of the active research programs in the Pentagon. The use of space-based lasers against ground targets is also discussed.

### Operation Practice for “Space Control”

Beyond these space weapons programs, the organizational aspect is also steadily moving towards space weaponization. For example, in October 2002, the U.S. Space Command was merged with the U.S. Strategic command, which now unifies the management and operation of space systems, missile defense systems, and strategic nuclear forces. Since 2000, the U.S. has established 527th Space Aggressor Squadron and the 76th Space Control Squadron. And the U.S. Air Force Space Command conducted space warfare exercises in 2001 and 2003.

### Consequence of Space Weaponization

#### Space Weaponization and International Security

The advocates of space weaponization claim that U.S. space assets would face a “Space Pearl Harbor” threat. However, many experts do not believe there are credible threats to U.S. space assets from other countries. Besides the U.S., only the Soviets had explored, tested, and developed ASAT weapons or other space weapons. However, Russia announced a moratorium of its ASAT program in the early 1980s. There is little reason to believe that Russia has changed its policy against deploying such weapons. There is also no evidence that any other nations have any intention to launch a war in space. Although some countries would have the capability to attack U.S. satellites, there is no reason to believe that any government would take such a risk by incurring a deadly U.S. response. On the contrary, most countries, including China and Russia, have given high priority to negotiations on the prevention of space weaponization.
Many Chinese believe that the real purpose of "space control" is to achieve space domination. By unilaterally developing missile defense and pursuing space weaponization, the U.S. will establish a global military superiority in both offense and defense and dominate both outer space and the Earth, thus hoping to achieve unilateral absolute security and perpetual superiority. Moreover, because of their vulnerability to other cheaper, asymmetric measures (e.g., ground-based kinetic energy ASAT weapons), those space weapons are inherent first-strike weapons. Consequently, their deployment will disrupt the global strategic balance and security and further destabilize the international situation. Many Chinese are concerned that this will make U.S. hegemony more aggressive. With the unilateral absolute military superiority and security at the cost of other countries' security, the U.S. will gain absolute freedom in using or threatening to use force in international affairs. Specifically, the U.S. would use such freedom to interfere China's Taiwan affair. Indeed, the Taiwan issue is taken as one threat in the 2001 Commission Report. And furthermore, China was taken as an assumed enemy in the 2001 space war exercise.

Given the tremendous military advantage that space weaponization could provide, as a sole possessor, the U.S. would have great flexibility in launching global strikes and would put other nations in serious danger. Thus, it will inevitably encourage other countries to respond both politically and militarily. As one response measure, for example, other nations could develop ASATs to target those space-based weapon systems. It is widely believed that these space weapons and sensor satellites would themselves become prime high-value targets and the most vulnerable elements for defense suppression attacks. Since, as mentioned before, destroying a satellite is far simpler than destroying a warhead carried on a re-entry vehicle, therefore, for those systems (e.g., BMD) relying on weapons or crucial sensors based in space, as Prof. Ashton Cart (of Harvard University) stated, "ASATs attack on these components is probably the cheapest and most effective offensive countermeasure." It is reasonable to believe that other countries could resort to asymmetric methods to counter these critical and vulnerable space-based components in low Earth orbit.

Moreover, space weaponization would seriously obstruct the arms control and disarmament process. U.S. space-based BMD would end further reductions in the nuclear arsenals of the U.S. and Russia. China could build more missiles to maintain its nuclear deterrence. Eventually, failure to proceed with the nuclear disarmament process would damage the nuclear non-proliferation regime. As China's Ambassador Hu points out, "With lethal weapons flying overhead in orbit and disrupting global strategic stability, why should people eliminate WMD (Weapons of Mass Destruction) or missiles on the ground? This cannot but do harm to global peace, security and stability, hence be detrimental to the fundamental interests of all States." Consequently, U.S. space weaponization plans would inevitably lead to a new nuclear arms race and a weapons race in space and raise the risk of turning outer space into a battlefield.

Space Weaponization and Space Debris

As space has been developed and used for military and civilian purpose over four decades, a large number of man-made space debris has been created. These artificial objects – and of course natural objects (meteoroids) – create the particular environment of the Earth. The space debris results from spacecraft out of operation, discarded rocket bodies, launch- and mission-related castoffs, remnants of satellite breakups, solid-rocket exhaust, and frayed surface materials. Even a collision with a tiny piece could damage or destroy a spacecraft, since their approach velocity would be very high. The increasing population of space objects poses a considerable hazard to all kinds of spacecraft. Many scientists are already concerned about space debris.

There are about 10,000 debris space objects larger than 10 cm in size. However, the collision probability with a spacecraft is still rather low. Moreover, the larger pieces are traceable, so that space crafts can take measures (such as maneuvering) to avoid them. Accordingly, these larger objects do not yet pose a significant threat. While the space objects smaller than 1 cm probably exceed tens of millions and are hard to detect, spacecrafts would be easily protected against them by shielding (depending on the shield type).

The main threat to space crafts is from medium-size debris (between 1 cm to 10 cm), since they are very numerous and almost impossible to track and avoid. A spacecraft will be destroyed once it collides with such an object, and it is hard to shield against. It is estimated that there are over 300,000 medium-size debris objects – 20, 000 in LEO, 170,000 in MEO, and 20,000 in GEO. At present, these objects do not yet pose an unacceptably high risk for a spacecraft. However, it could be expected that even if the space activity continues in a business as usual (no space weaponization) scenario, if there were no mitigation measures to limit and control the future growth of the space debris population, the risk from space debris, in particularly in LEO, could increase within decades to a level which is very high or even unacceptable for spacecrafts. In practice, to reduce the risks to future space missions, scientists and engineers have investigated during the last years different debris mitigation measures and spacecraft protection techniques.

Weaponizing space would further worsen the space debris issues. Under U.S. space weaponization plans, a larger number of space weapons could be deployed. Most of these systems would be stationed in LEO. The launching and testing of these weapons would considerably increase space debris and pose serious hazards for satellites and other space activity. Moreover, the deployment of unlimited space-based weapons in the increasingly crowded realm of LEO would also limit orbit resource usage for civilian purposes.

Even worse, eventually these space weapons will be used to attack satellites – this is part of the U.S. space control strategy. In addition, an adversary could use ASAT weapons to attack...
these space weapons. Once a satellite is destroyed and fragmented, more orbital debris would be generated. For example, at an ASAT test in September 1985, the U.S. fragmented the Solwind spacecraft with an air-launched miniature homing vehicle. More than 200 catalogued pieces of debris were produced, and most remained in orbit for several years. While the fragments from SBI impacts on boost-phase missiles could not significantly increase the amount of orbital debris in LEO, an SBI would fragment a satellite into hundreds of pieces of tractable debris (larger than 10 cm) and far more medium-sized orbital debris. Then, these medium-size orbital debris, with mass of several grams to tens grams, at a collision velocity about 10 km/s, could fragment another satellite of hundreds of kilograms or a few tons. Based on the mass distribution of fragments generated in hypervelocity impacts, for example, a two-ton satellite could be broken into several hundred thousands medium-size pieces, hundreds larger ones, and billions of debris smaller than 1 cm. Thus, fragments from several shattered satellites could several times the current orbital debris in LEO.

Furthermore, many scientists are concerned that once a “critical density” of space debris is reached, a process called collisional cascading (or chain reaction)—collision fragments will trigger further collisions—would start. Thus, the Earth would be covered by a cloud of debris too dense to allow stationing any satellites or even passing through. It is also estimated that such a “critical density” of space debris in LEO would already be achieved when its population increases a few times. Some scientists estimate that the density may already be sufficiently great at 900-1,000 km and 1,500-1,700 km that a cascade of collisions can be sustained. Thus, fragmenting several satellites at LEO may lead to a chain reaction. Consequently, there would be no more satellites in LEO either for space exploration, civilian or military purpose, such as the Hubble Space Telescope (at about 600 kilometers), the Space Shuttle, the International Space Station, earth-observing satellites, photo-reconnaissance satellites, and part of the navigation satellites. As Prof. Primack (University of California at Santa Cruz) pointed out, “Weaponization of space would make the debris problem much worse, and even one war in space could encase the entire planet in a shell of whizzing debris that would thereafter make space near the Earth highly hazardous for peaceful as well as military purposes.”

In short, space weaponization will have a disastrous effect not only on global security but also on global economy, which is closely tied to assets in space.

4. Ibid, Ref. 1.
9. Ibid, Ref. 3.
Northeast Asia Regional Security: The Role of New Zealand and Australia

Terence O’Brien

New Zealand and Australia share a deep interest in a stable Northeast Asia because their own security and prosperity as countries at the southern rim of the great Pacific Ocean are conditioned by the security and prosperity of that key northern region. For Australasia, the consolidation of peace and security in Northeast Asia depends crucially upon a resolution of the nuclear issues on the Korean Peninsula. As two of the fifteen troop-contributing countries that defended the South in the Korean War, under the UN flag, both countries have, too, a stake in the final peace settlement that will ultimately replace the UN Armistice on the Korean Peninsula.

New Zealand’s interest in the nuclear issues on the Korean Peninsula is embellished by its non-nuclear policy. This signifies a solid commitment, nationally, to the principle and practice of non-proliferation at a point in history where the proliferation of weapons of mass destruction (WMD) is perceived to be the most acute threat to global stability and peace. Australia is committed to a different policy grounded in nuclear deterrence, counter-proliferation, and a close strategic alliance with the US. The status of New Zealand’s relationship with the US is one of friend but not ally. This is judged to be an acceptable position for the country, after formal suspension by Washington of US treaty obligations to New Zealand in 1985.

This contrast of basic policy position conditions perceptions as well as scope for joint actions between New Zealand and Australia even while their shared overall strategic interest means that the two countries combine in support of such initiatives as the Korean Energy Development Organization. Since the restoration of diplomatic relations with the Democratic People’s Republic of Korea (DPRK) in 2000, Australian Ministers have communicated “closely and unambiguously” in Pyonyang Canberra’s strong concern over North Korean nuclear ambitions and urged productive engagement in the six (earlier four) party talks process.

The threat of WMD proliferation must in Australia’s view be countered by direct action. The status quo of existing non-proliferation law and ‘talkfests’ of the Canberra Commission type are insufficient. Therefore, the government has aligned its position closely and enthusiastically with the US on (a) the Proliferation Security Initiative, where Australia is part of the core group of countries committed to the high-seas interdiction of suspected WMD cargoes including missiles; (b) the American system of Ballistic Missile Defence (BMD) intended to provide a shield of anti-missile protection for the US and partners, which is controversial in Northeast Asia at least with China; (c) the further strengthening of global counter-proliferation actions and institutions.

While New Zealand’s non-nuclear credentials might be seen to lend it a certain impartiality on the issue of non-proliferation and it possesses relevant experience from its original leadership role in the creation of the South Pacific Nuclear Weapon Free Zone, the New Zealand government displays no disposition to leverage those attributes, even were it ever asked to do so, into any sort of role in Korean Peninsular affairs. No New Zealand Minister has, as a result, visited the DPRK. Concerns about stability in its Pacific Island neighbourhood currently have first call on New Zealand’s attention, so do its finite resources. At the non-governmental level, New Zealand did act as intermediary in 1997-98 to facilitate the DPRK’s entry into the Asia-Pacific network of Track Two diplomacy. At the time, the DPRK readied itself to join the Association of Southeast Asian Nations (ASEAN) Regional Forum and unofficially sought non-governmental help to enlist in the Track Two process.

Bilateral contacts on the margins of ASEAN Regional Forum meetings provide New Zealand with its chief opportunity to engage directly the DPRK. New Zealand’s deep concern over the DPRK decision to withdraw from the Non Proliferation Treaty and re-start its nuclear reactor without IAEA safeguards has been voiced in the UN and in particular as a member of the seven-nation New Agenda Coalition (NAC), a like minded group of countries drawn from different international backgrounds, dedicated to re-energizing the agenda for treaty-based multilateral disarmament. New Zealand is the only NAC participant from the ASEAN Regional Forum.

UN Non Proliferation Treaty

Irreversible progress in nuclear arms reduction is, in the New Zealand view, a fundamental prerequisite for the achievement of effective non-proliferation. The targets of non-proliferation and nuclear disarmament carry equal weight. One does not trump the other. That is the very essence of the Non Proliferation Treaty. The indefinite possession of nuclear weapons by acknowledged nuclear weapon states is therefore fundamentally incompatible with effective and sustainable non-proliferation. This is a view common to all the NAC partners. There is an insuperable double standard emerging according to which WMD are now tolerable in some new hands (Israel, Pakistan, India) but not in others. Non-proliferation will never be effective in a situation where, moreover, unremitting efforts by major powers are directed to the creation of new tactical nuclear weapons, stealth tech-
nology, missile defence, and weapons in space.

The next five-yearly review of the Non-Proliferation Treaty occurs in 2005. Since the last review the horrendous shock of September 11, 2001, and its aftermath has monopolised the international security agenda. Attempts to re-focus genuine international attention on the fundamentals of WMD disarmament may provoke accusation of ignoring the perceived and more immediate threat of WMD falling into the hands of terrorists. Terrorism is not, however, the single prism through which every dimension of international relations must be calculated. Moreover, for most countries it is not their number one concern. In international security, disarmament and non-proliferation are twin parts of a mutually reinforcing process. Nuclear weapons are not useful in deterring terrorists, anyway.7 Indeed, their very existence in such enduring numbers incites thievery.

When countries arm themselves, it is a venerable tradition to explain their reasons always in terms of self-defense. In the modern world, the need to protect commercial confidentiality is also given as an explanation by those who resist international verification of their military capabilities. The US rejection of the inspection provisions of the Biological Weapons Convention angered even its best allies in 2001;8 likewise, the failure of the Comprehensive Nuclear Test Ban Treaty to enter into force and US non-ratification of the treaty compromise that verification regime; the very insistence upon a practice of “neither confirming nor denying” the presence of US nuclear weapons is self-evidently at variance with coercive insistence upon transparency for everyone else. BMD, despite the portrayal of its defensive purposes, actually increases US capacity for offence, particularly in the absence of any international missile control or disarmament law. Such factors nourish the unmistakable militarization of international relations in the present era.

Some New Zealand Perceptions on Northeast Asia Security

As this new century began, the first North-South leaders summit, held in Pyongyang in 2000, raised expectations that the acute differences that have divided the Korean Peninsular for half a century might be resolvable. The danger of a false dawn is nonetheless real given the longstanding perverse character of Peninsular relations when each Korea viewed the other as an aggressor, destabilizing and illegitimate. The new context does place the direction and pace of events more closely in Korean hands but other powers beyond must remain implicated. After all, the division of the Peninsular was the work of outsiders, not the two Koreas alone, and the North – prostrated economically by disastrous policies of self-reliance (juche) – has desperate need of outside support. The stereotype of the DPRK as erratic, intractable, and irrational needs nonetheless to be revised. The country’s grim tenacity, perverse opportunism, and dangerous brinkmanship must be understood (although not justified) as a product of an acute long-standing sense of vulnerability, including the loss of Cold War allies and exposure as a designated target of superpower strategic deterrence.9 Whether DPRK nuclear weapon ambitions are driven by grim determination to develop an effective deterrent or by an intention to create a bargaining chip (real or imaginary) so as to extract security assurances from the US that bolster regime survival, is immaterial. In the post September 11 world, the US is adamantly committed to confronting proliferation robustly, even – as Iraq demonstrated – the mere suspicion of WMD possession can be sufficient cause for war. DPRK nuclear weapon ambition possesses both a global and regional dimension for the US.

Nuclear Weapon Free Zones

Recent mortifying evidence of nuclear experimentation inside the Republic of Korea (ROK) reinforces the need for effective safeguards that include the entire Peninsular. The 1992 ROK-DPRK Declaration on the De-Nuclearisation of the Peninsular has, if DPRK claims are to be taken seriously, proved an ineffective curb on nuclear ambition. It might, however, provide a base from which the construction might begin of a Northeast Asia Nuclear Weapon Free Zone (NEANWFZ).10 This is not a new idea, but the timeframe, let alone substance, of its accomplishment would be problematic. Some believe it could only be pursued after the DPRK nuclear issue is resolved.11 Others believe it must await first the reunification of the Peninsular itself.12 Taiwan would have to be included in the coverage of any NEANWFZ, and this would create some key issues for China. None of the three nuclear weapon states involved in Northeast Asia have yet evinced any predisposition to accept the constraints involved for themselves under the terms of any NEANWFZ. However, experience elsewhere, in the case for example of the South Pacific Nuclear Weapon Free Zone (Rarotonga Treaty), confirms that agreement by and amongst the nuclear weapon states is not a precondition to negotiation, or indeed even conclusion of negotiation, of a treaty. However, the strategic equation of Northeast Asia is undeniably more complex.

Conclusions

Three features illuminate the regional reaction to the DPRK announcement to withdraw from the Non-Proliferation Treaty and develop a nuclear deterrent force.

First, all three of the DPRK’s immediate neighbours plus Russia have adamantly insisted from the outset that negotiation and persuasion must be the chosen path to resolve the crisis. This unanimity contrasts with the disarray inside the Atlantic community over how to respond to Saddam Hussein. The US, consumed by Iraq and Afghanistan, has had little real option other than to accept this regional consensus. It has proven resistant, however, to any idea that it should engage directly and substantively with the DPRK in conjunction with the six party talks.13

Second, the nuclear crisis on the Peninsular has, paradoxically, produced widening differences between the ROK and the US about defence ties as well as some re-evaluation inside Japan of the longer-term ramifications for the US-Japan alliance.14 The explanation lies in the evident
anxiety amongst allies about US unilateralism and a possible preventive strike against the DPRK from bases in Northeast Asia to produce regime change.\textsuperscript{15} Certain Asian analysts now profess that the stabilizing role of the US forward military presence in East Asia is exaggerated. The norms and institutions evolved by the region itself plus rising economic interdependence provide for them a more congenial basis for regional order.\textsuperscript{16}

Third, the emergence of China to a leadership role for the six-party Korean Peninsula talks is a notable evolution for Chinese regional diplomacy. How far this means that the People's Republic of China is now the pacesetter, or is acknowledged as such by the US, is still conjectural; so is the question of whether the six party talks are themselves actually the forerunner for a permanent Northeast Asia security framework. The present talks can readily be derailed either, for example, because of DPRK obduracy or because of unheeded interdiction on the high seas of DPRK cargoes.

Chinese analysts stress that the six party process will evolve only gradually, step-by-step. Some participants, after all, do not even maintain formal diplomatic relations with one another (US-DPRK; Japan-DPRK). Moreover, to what extend it might develop as a permanent fixture depends directly upon its accomplishments with the present crisis.\textsuperscript{17} China's preference will likely be for a forum that embraces a comprehensive approach, not a narrowly traditionalist framework. The present talks can readily be derailed either, for example, because of DPRK obduracy or because of unheeded interdiction on the high seas of DPRK cargoes.

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Such rivalry is not preordained. The geography of the vast region allows the prospect of coexistence between China as the pre-eminent influence on continental East Asia and of the US as predominant in maritime Asia\textsuperscript{19} with both implicated in regional institutions, fashioned principally according to Asian preferences that moderate behaviour and defuse tension. No Asian or Australasian country wants ever to be placed in a situation of having to choose between the People's Republic and the US. There are signs too of moves by North and South East Asia towards more exclusive forms of economic regionalism. Progress is unlikely to be swift. But within Northeast Asia the particular issue of energy provides a driving force for cooperation between Russia as a major oil exporter and the ROK, China, and Japan as major importers,\textsuperscript{20} particularly if the Middle East continues to be mired in controversy and conflict. The US has traditionally resisted any form of East Asian regionalism that would exclude a formal place for America. But ongoing judicious accommodations by the rest of East Asia to the unthreatening rise of China will, providing always that the rise remains unthreatening, change the context.

1 New Zealand Ministry of Foreign Affairs and Trade, New Zealand's Foreign and Security Policy Challenges, June 2003, p. 32.


4 From the Council for Security Cooperation in Asia Pacific (CSCAP); www.cscap.org.

5 Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa, Sweden.


14 William Tow and Russell Tedrow, Power Shifts, Challenges for Australia in Northeast Asia, Australian Strategic Policy Institute, June 2004, p. 10.


17 Chinese Institute of Contemporary International Relations (CICIR), Security Mechanisms of North East Asia; Vol 14, No 5, May 2004, p. 29.


20 CICIR, op. cit., p. 36.

This paper was written for the conference 'The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context' organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

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Model Treaty on the Northeast Asia Nuclear-Weapon-Free Zone

Hiromichi Umebayashi

This draft (version 4 of July 3, 2004) of the Treaty has been prepared in hopes of and with a view toward its serving as a provisional and tentative basis for future discussions and deliberations to be conducted by and among a large number of experts and specialists as well as citizens who are interested in the issues hereof.

Preamble

The States Parties to this Treaty,
1. Recalling that Northeast Asia is the only region of the entire world where nuclear weapons have been used in reality,
2. Acknowledging the hardship, both human and social, beyond all description, that has been brought about by the atomic bombings, with the damage to hundreds of thousand citizens and the destruction of two cities, and that still continues to the present date after about sixty (60) years,
3. Considering that there are a great number of atomic-bomb survivors even today who are living their lives in fear of anxiety and uncertainty in Japan as well as in the Korean Peninsula,
4. Recognizing that the nuclear weapons of today have the massive destructive power much greater than those used at the time of the aforementioned nuclear bombing, and are the only weapons that are able to destroy the human civilization created to date,
5. Concerned about the new military threat emerging today, implying the destruction of two cities, and the issues hereof.
6. Recalling the “Joint Declaration of South and North Korea on the Denuclearization of the Korean Peninsula,” which entered into force in February 1992, and Japan’s three non-nuclear principles that were established in 1967 and have been declared to be a National Principle of Japan,
7. Sharing, a common recognition that it constitutes a natural aspiration, which arises in the course of regional history, to seek to establish a Nuclear-Weapon-Free Zone in this region, on the basis of arrangements freely arrived at among the States concerned,
8. Recalling, on the other hand, many hardships caused by the wars of aggression and the colonial ruling in this region during certain periods in the past,
9. Recalling, at the same time, the sustained and strenuous efforts, having been exerted by the successive governments of the States in the region, in order to overcome such hardships for the future,
10. Bearing in mind the importance of developing friendship and pursuing peaceful cooperation by and among the States in the region, on the basis of such past efforts, while inheriting only the greatest legacies of such efforts,
11. Convinced that the establishment of a Nuclear-Weapon-Free Zone is the first step to be taken in preference to all other measures, in order to develop cooperative security in the region,
12. Desiring, by its establishment, to promote, in this region, the accession to and compliance with the already existent international treaties related to disarmament and arms control, such as the “Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction,” which entered into effect in 1997, as well as the “Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,” which took effect in 1972,
13. Convinced, by its establishment, of its contribution to promoting implementation of the nuclear disarmament obligation, set forth in Article 6 of the “Treaty on the Non-Proliferation of Nuclear Weapons,” which entered into force in 1970, and duly reaffirmed by the advisory opinion of the International Court of Justice on the “Legality of the Threat or Use of Nuclear Weapons,” issued on July 8, 1996,
14. Convinced also, by its establishment, of its additional contribution to the earliest possible realization of the world people’s aspiration for the total prohibition and complete elimination of nuclear weapons that has already been incarnated in a large number of international conventions and resolutions made by international organizations,

Have agreed as follows:

Article 1 – Definition of Terms

For the purpose of this Treaty and its Protocol:

(a) “Northeast Asia Nuclear-Weapon-Free Zone” means the area comprising the region consisting of the national territories of Japan, the Republic of Korea and the Democratic People’s Republic of Korea.

(b) “Territory” means the land territory, internal waters and territorial seas, the seabed and the subsoil thereof, as well as the airspace above them.

(c) “Intrazonal States” mean Japan, the Republic of Korea and the Democratic People’s Republic of Korea.

(d) “Neighboring Nuclear Weapon States” mean the People’s Republic of China, the United States of America and the Russian Federation among the nuclear weapon states as defined in the Treaty on the Non-Proliferation of Nuclear Weapons.

(e) “Contracting State Party” means a State that has deposited the instrument of ratification according to the provisions set forth in this Treaty, from among the six (6) States of the “Intrazonal States” and “Neighboring Nuclear Weapon States” altogether.
(f) “Nuclear explosive device” means any nuclear weapon or any other explosive device capable of releasing nuclear energy, irrespective of the purpose for which it could be used. The term includes such weapon or device in unassembled and partly assembled forms, but does not include the means of transport or delivery of such weapon or device if separable from and not an indivisible part of it.

(g) “Radioactive material” means any material containing radionuclide exceeding the clearance or exemption level recommended by the International Atomic Energy Agency (IAEA).

(h) “Radioactive waste” means any material that contains or is contaminated with radionuclide at concentrations or activities greater than the clearance level recommended by the IAEA and which no use is foreseen.

(i) “Nuclear material” means any source material or special fissionable material as defined in Article 20 of the Statute of the IAEA and as amended from time to time by the IAEA.

(j) “Nuclear installation” means a nuclear-power reactor, a nuclear research reactor, a critical facility, a reprocessing plant, a nuclear fuel fabrication plant, a spent fuel storage installation, a nuclear waste storage installation and any other installation or location in or at which significant quantities of nuclear materials, irradiated nuclear materials, radioactive materials or radioactive wastes are present.

Article 2 – Application of the Treaty
1. Except where otherwise specified, this Treaty and its Protocol shall apply to the “Northeast Asia Nuclear-Weapon-Free Zone.”

2. Should there be any dispute in relation with territory, nothing in this Treaty shall influence the status quo of the construction of dominion.

3. Nothing in this Treaty shall prejudice or in any way affect the rights, or the exercise of the rights, of any State under international law with regards to freedom of the seas.

4. Military facilities under the control of a Neighboring Nuclear Weapon State that are located within the territory of an Intrazonal State are considered to be a part of the Northeast Asia Nuclear-Weapon-Free Zone, and this Treaty and its Protocol shall apply to them.

Article 3 – Fundamental Undertakings with regard to Nuclear Explosive Devices
1. Undertakings by Intrazonal States
Each Intrazonal State shall undertake:

(a) Not to conduct research on, develop, test, manufacture, produce, acquire, possess, stockpile, deploy or use any nuclear explosive device by any means, anywhere inside or outside the Northeast Asia Nuclear-Weapon-Free Zone.

(b) Not to allow, inside any of the territories of the Intrazonal States, any other State, group or person to perform any act set forth in Article 1 hereof.

(c) To eliminate all dependence whatsoever on any nuclear weapon or any other nuclear explosive device in all aspects of its security policy.

(d) To exert effort for the diffusion of education worldwide with regard to the urgency of nuclear disarmament, including the transmission to the present and future generations of the facts on the damage inflicted on the citizens and cities by the atomic bombs dropped in 1945.

Article 4 – Non-Military Use of Nuclear Energy
1. Nothing in this Treaty shall prejudice the right of the Contracting States Parties to use nuclear energy for non-military purposes.

2. The Intrazonal States shall use nuclear energy for the non-military purposes in strict conformity with the safeguards agreement stipulated in Article 3 of the NPT.

3. Each Intrazonal State which has not done so shall conclude such full-scope safeguards agreement and its additional protocols with IAEA not later than eighteen (18) months after the entry into force of this Treaty.

4. The Intrazonal States shall pursue and develop cooperation among themselves in good faith to secure stable and sustainable energy for each of the Intrazonal States.

Article 5 – Sea Disposal and Air Release of Radioactive Materials
Each Intrazonal State shall undertake:

(a) Not to dump at the sea or release into the air any radioactive materials or radioactive wastes anywhere inside the Northeast Asia Nuclear-Weapon-Free Zone.

(b) Not to allow any other State, group or person to dump at the sea or release into the air any radioactive materials or radioactive wastes anywhere inside the Northeast Asia Nuclear-Weapon-Free Zone.

Article 6 – Prohibition of Armed Attack on Nuclear Installations
Each Contracting State Party hereto shall undertake not to take, assist or encourage, in any way, any action aimed at an armed attack by any means against nuclear installations within the Northeast Asia Nuclear-Weapon-Free Zone.

Article 7 – Establishment of the Commission for the Northeast Asia Nuclear-Weapon-Free Zone
For the purpose of ensuring the implementation of the provisions set forth
in this Treaty, the Contracting States Parties agree to establish the Commission for the Northeast Asia Nuclear-Weapon-Free Zone (hereinafter referred to as the “Commission”).

(a) All Contracting States Parties are ipso facto members of the Commission. Each Contracting State Party shall be represented by its minister of Foreign Affairs or his/her representative, accompanied by alternates and advisors.

(b) The function of the Commission shall be to oversee the implementation of this Treaty and ensure compliance with its provisions. In relation thereto, the Commission shall have deliberation with regard to the text set forth in the Preamble hereof in case of need.

(c) The Commission shall meet as and when necessary in response to the request of any Contracting State Party as well as the request of the Executive Committee, which is deemed to be established in conformity with the provisions set forth in Article 8 hereof.

(d) All of the Contracting States Parties shall be present in order to constitute a quorum for the Commission. Decisions of the Commission shall be taken by consensus, or failing consensus, by consensus of all but one (1) Contracting States Parties.

(e) The Commission shall elect, at the beginning of each meeting, its Chairperson and such other officers as may be required. The Chairperson shall be elected from among the three (3) Intra-zonal States among the Contracting State Parties. Their tenure of office shall last until an election of a new Chairperson, and other officers at the next meeting.

(f) The Commission shall decide the location of its headquarters, the financial matters of the Commission as well as its subsidiary organs, and the rules and procedures related to any other matters needed for their operations.

**Article 8 – Establishment of the Executive Committee**
1. There is hereby established, as a subsidiary organ of the Commission, the Executive Committee.

(a) The Executive Committee shall be composed of all of the Contracting States Parties to this Treaty. Each Contracting State Party shall be represented by one senior official as its representative, who may be accompanied by alternates and advisors.

(b) The Executive Committee shall meet as and when necessary for the efficient exercise of its functions.

(c) A constituent member of the Executive Committee that represents the Chairperson of the Commission shall assume the chairpersonship of the Executive Committee. All submission or communication made by a Contracting State Party to the Chairperson of the Executive Committee shall be disseminated to the other members of the Executive Committee.

(d) All of the Contracting States Parties shall be present in order to constitute a quorum for the Executive Committee. Decisions of the Executive Committee shall be taken by consensus, or failing consensus, by consensus of all but one (1) Contracting States Parties.

2. The functions of the Executive Committee shall be:

(a) To secure appropriate application of the Control System as stipulated in Article 9 hereof for the verification of full compliances with the provisions of this Treaty;

(b) To consider and decide on the “Request for Clarification” or the “Request for a Fact-Finding Mission” stipulated in Article 9, Item 2 (b), in the event of such requests;

(c) To set up a Fact-Finding Mission in accordance with the “Annex for the Control System” to this Treaty;

(d) To consider and decide on the findings of a Fact-Finding Mission and report to the Commission;

(e) To request the Commission to convene a meeting when appropriate and necessary;

(f) To conclude agreements with IAEA or any other international organizations on behalf of the Commission after being duly authorized to do so by the Commission;

(g) To carry out such other tasks as may, from time to time, to be assigned by the Commission.

**Article 9 – Establishment of the Control System**
1. There is hereby established a Control System for the purpose of verifying compliance with the obliged undertakings of the Contracting States Parties under this Treaty.

2. The Control System shall comprise:

(a) The IAEA safeguards system as provided for in Article 4, Item 3 hereof.

(b) A number of systems as provided for in the “Annex for the Control System” to this Treaty. The Annex shall include provisions for such systems as the “report and exchange of information” with regard to the information deemed to affect the implementation of this Treaty, the “request for clarification” with regard to a situation which may be considered ambiguous or which may give rise to doubts about the compliances with the provisions set forth in this Treaty, the “request for a fact-finding mission” in order to clarify and resolve a situation which may be considered ambiguous or which may give rise to doubts about the compliance with the provisions provided for in this Treaty, and the remedial measures to be taken in the event of the Executive Committee’s identifying a breach of this Treaty, as well as any other necessary provisions.

**Article 10 – Signature, Ratification, Deposit and Entry into Force**
1. This Treaty shall be open for signature by the People’s Republic of China, the United States of America, the Russian Federation, Japan, the Republic of Korea and the Democratic People’s Republic of Korea.

2. This Treaty shall be subject to ratification in accordance with the constitutional procedure of the signatory States. The instruments of ratification shall be deposited with XXX which is hereby designated as the Depositary State.

3. This Treaty shall enter into force on the date when the deposit of the instruments of ratification by all of the Intrazonal States Parties and by at least two (2) of the Neighboring Nuclear Weapon States are completed.

**Article 11 – Prohibition of Reservation**
This Treaty shall not be subject to reservations.
Article 12 – Amendments to the Treaty
1. Any Contracting State Party may propose amendments to this Treaty and its Protocol, including the “Annex for the Control System.” An amendment proposal shall be submitted to the Executive Committee, which, upon receipt of such proposal, shall immediately request the Commission to convene a meeting in order to examine such proposal. All of the Contracting States Parties shall be present in order to constitute a quorum for the Commission for amendment, and decisions of the Commission for amendment shall be taken by consensus.
2. The amendments once adopted shall enter into force thirty (30) days after the receipt by the Depositary State of the fifth instrument of acceptance from the Contracting States Parties.

Article 13 – Meeting for Review
Ten (10) years after the entry into force of this Treaty, a meeting of the Commission shall be convened for the purpose of reviewing the operation of this Treaty. A meeting for review of the Commission for the same purpose may also be convened at any time thereafter if there is consensus among all of the Contracting States Parties that comprise the Commission.

Article 14 – Settlement of Disputes
Any dispute arising from the interpretation of the provision set forth in this Treaty shall be settled by peaceful means as may be agreed upon by the Contracting States Parties to the dispute. If within one (1) month the parties to the dispute are unable to achieve a peaceful settlement of the dispute by negotiation, mediation, enquiry or conciliation, any of the parties concerned shall, with the prior consent of the other parties concerned, refer the dispute to arbitration or to the International Court of Justice.

Article 15 – Duration
This Treaty shall remain in force indefinitely.

Model Protocol to the Treaty on the Northeast Asia Nuclear-Weapon-Free Zone

The Contracting States Parties to this Protocol,

Desiring to contribute to efforts towards achieving total prohibition and complete elimination of nuclear weapons, and thereby ensuring the international peace and security, including the Northeast Asia,

Noting the Northeast Asia Nuclear Weapon Free Zone Treaty, signed at XX on the YY day of ZZ, 2xxx.

Have agreed as follows:

Article 1 – Respect for the Treaty on the Northeast Asia Nuclear-Weapon-Free Zone
Each Contracting State Party to the Protocol shall undertake to respect the Northeast Asia Nuclear-Weapon-Free Zone Treaty (hereinafter referred to as the “Treaty”), and not to contribute to any act which constitutes a violation of the Treaty by the Contracting States Parties thereto or its Protocol by the Contracting State Parties thereto.

Article 2 – Nonuse of Nuclear Weapons
Each Contracting State Party to the Protocol shall undertake not to use or threaten to use nuclear weapons, or any other nuclear explosive devices within the Northeast Asia Nuclear-Weapon-Free Zone.

Article 3 – Visit and Transit
Each Contracting State Party to the Protocol shall undertake to notify in advance and to have a prior consultation for approval with the concerned Intrazonal States when a Contracting State Party to the Protocol wants its ships or aircraft carrying any nuclear explosive devices to visit any ports or airfields located inside Intrazonal States, to transit their territorial airspace, or to navigate territorial seas in a manner not covered by the rights of innocent passage or transit passage of straits. Each Intrazonal State, in the exercise of its sovereign rights, shall remain free to decide to give approval or not after consultation.

Article 4 – Signature, Ratification and Entry into Force
1. This Protocol shall be open for signature by the French Republic, the United Kingdom of Great Britain and Northern Ireland.
2. This Protocol shall be subject to ratification. The instruments of ratification shall be deposited with the Depositary State.
3. This Protocol shall enter into force for each Contracting State Party on the date of its deposit of its instrument of ratification with the Depositary State.

Notes to “Model Treaty on the Northeast Asia Nuclear-Weapon-Free Zone”
1. Article 1, (b): In other nuclear-weapon-free zones treaties, the term “archipelagic waters” is generally included in addition to “territorial seas.” The term, however, has been deleted in this Treaty as there are no archipelagic waters existing within the Northeast Asia Nuclear-Weapon-Free Zone.
2. Article 1, (c): For the purpose of enumerating the names of States herein, they are enumerated in the descending order of larger population if there is no other inevitable or necessary reason to enumerate them otherwise.
3. Article 1, (c), (d), (e): One of the features of this Model Treaty is that the “Contracting State Parties,” defined in (e), are classified into two categories, “Intrazonal States,” defined in (c), and “Neighboring Nuclear Weapon State,” defined in (d). In the Draft 3, we include three states, namely South and North Korea and Japan in the Intrazonal States. However, it is very much worth considering that we include Mongolia as well into this category. It will be important to deliberate carefully, based upon information and analysis, over possible merits and demerits, resulting from inclusion of Mongolia.
4. Article 1, (f): The definition of “nuclear explosive device” is derived fundamentally from the Rarotonga Treaty.
5. Article 1, (g), (h): The definitions of “radioactive material” and “radioactive waste” are both derived from the Bangkok Treaty.
6. Article 1, (i), (j): The definitions of “nuclear material” and “nuclear installation” are both derived from the Pelindaba Treaty.

7. Article 2, Item 3: The portion of “freedom of the seas” is derived from the Pelindaba Treaty.

8. Article 3, Item 1, (a): The undertakings enumerated herein are the same as those set forth in the “Joint Declaration of South and North Korea on the Denuclearization of the Korean Peninsula” complemented by “research” and “development.”

9. Article 3, Item 1, (c): This is a provision not included in any other nuclear-weapon-free zone treaty. It has been included in this Treaty, considering that the States Parties to the NPT agreed to “diminishing role for nuclear weapons in security policies” in the final document adopted at the NPT Review Conference in 2000. This provision means the Intrazonal States shall discard their dependence upon so-called “nuclear umbrella.” Prohibiting the dependence on nuclear deterrence of nuclear weapon states may lead to a further relaxation of tension in the region.

10. Article 3, Item 2, (a): This provision, in other nuclear-weapon-free zones treaties, is generally included in their Protocols as a negative security assurance provision. Taking due account, however, of the profound depth of involvement of the three nuclear weapon states in this region in terms of security, it has been decided to be included in the body of the Treaty.

The inclusion of the security assurance provision in the body of the Treaty is deemed advantageous as it may enhance the incentive to negotiate this Treaty on the part of North Korea and Japan as their feeling of security is to be increased due to the inclusion. However, on the other hand, it is deemed disadvantageous in that the U.S.A. may become more cautious to the conclusion of the Treaty.

11. Article 3, Item 2, (c): This provision is an embodiment of the actual procedure currently taken by the government of Japan. It should be deemed possible that such procedure be applied to all other Intrazonal States. There is allegation claiming the existence of secret accords, not requiring prior consultations, between the U.S.A and Japan, which the government of Japan has been officially denying in a repetitious manner.

It is to be noted that the waters having contact with the Northeast Asia Nuclear-Weapon-Free Zone, i.e. Yellow Sea (Huang Hai), East China Sea, Sea of Japan (Tong Hai), Pacific Ocean, are all accessible without inconvenience via open seas. For Korea Strait (Tsushima Straits West Waterway) both South Korea and Japan adopt the three-nautical-mile system for territorial waters, and for Tsushima Straits East Waterway, Tsugaru Straits, Osumi Straits as well as Souya Straits (La Perouse Straits), Japan adopts the three-nautical-mile system for territorial waters, therefore, there exist open seas in all of the aforementioned straits.

This provision may be removed from Article 3, Item 2 hereof, and then be put, as follows, under Article 3, Item 1 (e), in a more conservative manner, as generally seen in other nuclear-weapon-free zone treaties:

Article 3, 1(e): Each Intrazonal State in the exercise of its sovereign rights remains free to decide for itself whether to allow visits by foreign ships and aircraft to its ports and airfields, transit of its airspace by foreign aircraft, and navigation by foreign ships in its territorial sea in a manner not covered by the rights of innocent passage or transit passage of straits.

To the contrary, stricter provisions may be adopted in place of the current provision of Article 3, Item 2, (c), including (i) to ban both partcall and transit, or (ii) to ban portcall and to obligate prior consultation for transit. In either case, such option would make some Neighboring Nuclear Weapon States much more difficult to sign the treaty.

Naturally, any change of this item (c) must be accordingly reflected in Article 3 of the Protocol of the Treaty.

12. Article 4, Item 4: This provision is related to an significant problem how a Northeast Asia NWFZ Treaty will solve the inequality, in terms of energy supply, that is derived from the fact that the 1992 South and North Joint Declaration on Denuclearization of Korean Peninsula takes an advanced position for both states not to possess nuclear reprocessing and uranium enrichment facilities, while Japan has already deeply involved in energy activities using such facilities. A concrete agreement on this issue will need vast amount of deliberations and negotiations among concerned states, probably far beyond the reach of this Model Treaty. In this Model Treaty, the obligation for future cooperation to solve this problem is stipulated.

13. Article 7, Article 8 and Article 9: For the “Commission for the Northeast Asia Nuclear-Weapon-Free Zone” and “Executive Committee,” the relevant provisions in the Bangkok Treaty have been used as reference.

14. Article 7, (b): It is to be noted that, as one of the functions of the “Commission for the Northeast Asia Nuclear-Weapon-Free Zone,” it includes, in its deliberations on the Treaty compliance, concerns with Northeast Asian regional peace and security and with global nuclear disarmament, as are described in the Preamble of the Treaty. In the Preamble, are stated concerns with Chemical and Biological weapons.

15. Article 7, (e): Electing a Chairperson for the “Commission for the Northeast Asia Nuclear-Weapon-Free Zone” from among the Intrazonal States among the Contracting States Parties is deemed to indicate the principal role to be played by the Intrazonal States in the operation with regard to this Treaty. 9, Item 2, (b)

As the text in Preamble has once been an object for deliberation by the Commission, the “report and exchange of information” set forth under these Articles shall also include the issues related to the text described in Preamble hereof.

18. Article 10, Item 3: As a requisite for the entry-into-force of this Treaty, the participation by three Intrazonal States is duly included in this Treaty. This is due to the fact that these Intrazonal States are the most responsible parties to this Treaty. It may be envisioned that the Treaty will enter into force without the participation of the United States because of a delay in its
ratification. Even in such an event, a normative effect under the fact that the Treaty has already been inked by the United States may be exerted, and it is deemed advantageous to have the Treaty enter into force in order that the international community may put pressure on the United States to ratify the Treaty as promptly as possible.

19. Article 11, Article 12, Article 13, Article 14 and Article 15: For the “Prohibition of Reservation,” “Amendments to the Treaty,” “Meeting for Review,” “Settlement of Disputes” and “Duration,” the relevant provisions in the Bangkok Treaty have been used as reference. Any provision with regard to withdrawal has not been included in this draft of the Model Treaty as we need more deliberation.

20. Protocol: The Bangkok Treaty has been used as reference, and is modified into a simplified form.

Civil Initiatives for Regional Security

The Japanese “Exclusively Defense-Oriented Policy” Taken by the Word

Kazuhiro Tamaki

Features of the security circumstances today in Northeast Asia can be summarized as follows: first, as the legacy of the Cold War era, there still exist the divided nations, the Republic of Korea (ROK) and the Democratic People’s Republic of Korea (DPRK). Second, there are two nuclear powers, China and Russia. Third, the other and most powerful nuclear superpower, the United States, is sustaining forward deployment of large offensive military forces in Japan and the ROK under individual mutual security agreements. Fourth, the military confrontation provides the DPRK with the rationale to acquire and develop nuclear weapons and ballistic missiles to transport them. And finally, by supporting and assisting the so-called “war on terror” by the U.S., both the ROK and Japan are deemed by Islamic societies as the enemy that shall be criticized and even defeated, which generates the potential threat of aggression by non-state entities.

Under such security circumstances, how can we achieve sustainable peace and security in Northeast Asia? This is the common question of all citizens living in this region. I would like to address my view on that question by briefly outlining the current political situation of Japan.

On October 4, 2004, Prime Minister Koizumi’s advisory panel on national security and defense issued its final report. The report describes first that the security of Japan, which is closely related to peace and stability in the whole of Northeast Asia, will continue to depend on the deterrence capability of the U.S. forces. And it recommends and encourages to improve flexibility, mobility, multifunctionality, as well as reliability of the Japanese defense capabilities as well as to introduce ballistic missile defense (BMD) systems. It also recommends the amendment of the various U.S.-Japan Security Arrangements to adapt to the ongoing U.S. Global Posture Review and to adjust the decision making systems for contingencies, similar to the National Security Council of the U.S. Thus, the panel proposes a comprehensive review of the “Basic Policy for National Defense” approved by the Japanese cabinet in 1957. Moreover, the report proposes to ease the ban on arms exports to the United States to reflect the progress made in joint research on missile defense.

On the basis of these recommendations, along with those from an internal panel of the Defense Agency, by the end of November 2004 the government is going to finish the review of the “National Defense Program Outline” that has been regulating Japanese defense policy both quantitatively and qualitatively since 1976.

In brief: what the Japanese leadership is going to do is to season the old-fashioned, Cold War-style defense posture, which emphasizes military deterrence and readiness, with the U.S.-made spices of “war on terror”, which in turn is characterized by the prevention of threats through preemptive attacks while ignoring the importance of diplomatic dialog and confidence building measures. It is clear that these postures will, and actually do, bring about nothing but a mindset of alertness and suspicion and incentives for a new arms race among the nations and peoples of Northeast Asia.

Toward Regional Security

In contrast to those military-centered initiatives, we, the Peace Depot, are preparing a proposal for an alternative initiative toward regional common se-
curity, based on the will of civil society and on the historical heritage which the citizens of Japan have been enjoying under the Peace Constitution. Its preamble stipulates that “we have determined to preserve our security, and existence, trusting in the justice and faith of the peace-loving peoples of the world,” while its Article 9 renounces any war and maintenance of military force. We must revitalize and implement these principles in the real politics of Northeast Asia.

Among the principles that follow from the Peace Constitution, the “Three Non-Nuclear Principles” and the “Exclusively Defense-Oriented Policy” are the most important. As for the Non-Nuclear Principles,” Hiro Umebayashi of Peace Depot drafted an actual and feasible proposal for a “Model Treaty on A Northeast Asia Nuclear Weapons Free Zone.” My speech focuses on the “Exclusive Defense-Oriented Policy” and its regionalization process.

The “Exclusively Defense-Oriented Policy” was first announced by the government in 1970. The policy’s meaning, according to the government, is “that military force cannot be exercised until armed attack is initiated, and that the scope and level of use of defense forces are kept to the minimum required for the purpose of self-defense. Moreover, the defense capability to be possessed by Japan must be limited to the minimum necessary level. Thus, this policy refers to the posture of passive defense strategy that is consistent with the spirit of the constitution.” In compliance with this policy, Japan has renounced the possession of long- and medium-range strike equipment such as ballistic missiles, aircraft carriers, long-range bombers, and so on, while also renouncing the overseas dispatch of its military forces, symbolically named the “Self Defense Forces.”

Nevertheless, we must state that the “Exclusively Defense-Oriented Policy” has been a fiction. The reason is clear. Under the bilateral “Treaty of Mutual Cooperation and Security” with the United States, Japan has admitted the deployment of offensive U.S. forces, including aircraft carriers and escort ships equipped with sea-launched cruise missiles, a fighter-bomber squadron, and a marine expeditionary unit, in its territory and allowed the projection of those forces to Vietnam, the Persian Gulf, and Afghanistan. Under the responsibility sharing referred to as “Spear and Shield,” the offensive posture of the United States and the defensive posture of Japan complement each other to form one “offensive defense posture.” This is the reason why the neighboring nations have no confidence in the Japanese “Exclusively Defense-Oriented Policy.”

With respect to the decision to introduce BMD systems, the Government of Japan announced to the public and neighbor states that BMD is for “exclusively defensive” uses. Simultaneously, however, the government announced that BMD will be complemented by the strike capabilities of the United States. Moreover, it is reported that the Defense Agency is seeking the opportunity to acquire capabilities of striking foreign territories of its own to “complement” the BMD. It seems that Japanese strategy planners argued that this is necessary because the current monitoring and detection technology is so insufficient that they need secure the response capabilities of BMD by other means. Consequently, and ironically, BMD opens the door to a pre-emptive “strike before launch” approach that is very far from the “Exclusively Defense-Oriented Policy” indeed. Thus, BMD functions as a catalyst to widen the rift between the defense posture of Japan on the one side and the Peace Constitution on the other.

In addition, in the diplomatic field, there is no doubt that the quick and full support of the U.S. “pre-emptive” attack on Iraq last March has made the Japanese “Exclusively Defense-Oriented Policy” much less trustworthy to the international society.

Therefore, our effort toward a common security in Northeast Asia will include the revitalization and implementation of this “Exclusively Defense-Oriented policy” and its globalization as an essential element. At the start of this process, we must share the common understanding of “Exclusively Defensive” in terms of international realpolitiks.

Defensive Security

In this sense, the United Nations’ report Study on Defensive Security Concepts and Policies of 1993 seems very suggestive. In the foreword of this report, then-Secretary, General, Mr. Boutros Boutros-Ghali, illustrated the rather complicated aspect of defensive security as “difficulty, if not impossibility, of distinguishing between offensive and defensive weapons systems.” And the report concludes naturally that the “offensive or defensive character of a weapon depends as much on the full context in which it is used as on its intrinsic properties. Even in chess, defensive and offensive games can be fought with the same sets of pieces” (paragraph 134).

In the context of Japanese BMD, the U.S. forces gain overwhelming military advantage to launch anti-land strikes once BMD rendered the ballistic missile capabilities of China or the DPRK powerless. No doubt, China or the DPRK will deem BMD as, at least, a part of an offensive weapon system. It is regrettable that not only the Government of Japan but also the largest opposition party, the Democratic Party, ignore this possible context and support BMD.

Then we must ask, how can the “Exclusively Defense-Oriented Policy” of Japan transform itself from a fiction to a genuine component of regional security? The UN Report is also suggestive on this question. It teaches that the achievement of defensive security depends upon “creating the political and military conditions necessary for eliminating threats to international peace and security through a transformation in the relation between States so that each State can feel secure from military threats.” This suggests that an “Exclusively Defense-Oriented Policy” or posture cannot be achieved unilaterally but only through multinational relations in the region. The UN report also describes that “defensive security” is closely related to the notion of common security, that the security of
every State within a given group or region is inseparably linked to that of others, and that it should be achieved through a gradual step-by-step process.

An international non-governmental organization, Global Action to Prevent War, proposes in its Program Statements, drafted by progressive researchers and activists that include Randall Forsberg, Saul Mendlowitz, and Jonathan Dean, a phased process of disarmament to reduce national military forces and replace them with modest UN forces to prevent war. They are:

■ Phase 1: Take initial steps to reduce the risks of major international war.
■ Phase 2: Make up to one-third cuts in forces and spending, with deeper cuts in production and trade of major weapons and small arms.
■ Phase 3: Trial Ban on Unilateral Military Intervention.
■ Phase 4: Transfer Responsibility for Global Security from National to International Institution.
■ Phase 5: Limit National Armed Forces to Short-Range Homeland Defense.

It is notable that Phase 5 of this proposal coincides with the implementation of “defensive security” or, in Japanese terminology, with the “Exclusively Defense-Oriented Policy.”

My view is that the teachings of the UN report and Global Action to Prevent War’s Program Statement are applicable to a process for building common security in Northeast Asia. For achieving this goal, it is critical that Japan should, in the first phase, announce firm and “double-standard-free” fundamental principles for national security.

That is, more concretely, the process shall be initiated by the announcement of a clearly defined “Exclusively Defense Status” by Japan, followed by a UN General Assembly resolution committing international society’s recognition of and respect for the status. This is like Mongolia who unilaterally announced its Nuclear-Weapon-Free status, which was consequently recognized by the UN General Assembly in 1998.

This announcement and its international recognition shall be seamlessly followed by a disarmament plan of Japan with a clear order of priorities, in which the capability of Japanese Self Defense force and the U.S. forces stationed in Japan to strike foreign territory should be eliminated with highest priority. The U.S. Forces cut will require hard negotiations with the United States. It may be difficult indeed, but not impossible, because it is the policy of the United States that it does not insist on stationing specific forces if it risks the partnership of its allies.

Such voluntary disarmament efforts of Japan, accompanied by arms control talks on specific weapons such as conventional ballistic missiles will set the precedence for a more comprehensive disarmament regime and then common security beyond missile defense will come into sight as a realistic goal.

1 See the Model Treaty in this issue of the INESAP Information Bulletin.

This paper was written for the conference “The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

Peace Depot

The Peace Depot is a non-profit, independent peace research, education, and information institution which aims to build a security system that does not rely on military power. It was launched in November 1997, after a seven-year preparatory phase, and became incorporated as a Non-Profit Organization in January 2000 under the Japanese NPO Act. Peace Depot embarks on the following seven aims:

- To become a think tank on peace issues to serve citizens and grassroots organizations, and to support peace education.
- To promote activities in collaboration with NGOs around the world to change the prevailing view that peace is assured by military power.
- To promote activities consistent with an understanding of the unique part that Japanese people may play to advance world peace, based on Japan’s pacifist constitution, its experience of atomic bombings, and reflection with regret upon its aggressive wartime role.
- To promote activities that emphasize accurate information based on primary sources and easy-to-understand analysis.
- To promote disclosure to the public of information on defense and diplomacy.
- To promote new cooperative relations between grassroots movements and specialist communities.
- To increase the social value of peace NGOs in Japan by fully utilizing the Peace Depot’s status of incorporation under the 1998 Act on NPO.

Peace Depot’s major programs are:
1. Nuclear Disarmament - provide information about nuclear disarmament and security issues in the Asia-Pacific region. Together with the Pacific Campaign for Security and Disarmament (PCDS), Peace Depot publishes the biweekly “Nuclear Weapon & Nuclear Test Monitor”.
2. Regional Security in the Asia-Pacific with research on U.S. Forces Japan.
3. Training NGO Activists and Researchers for Peace; this includes sending youth activists/researchers to major international peace events and holding seminars and workshops.
4. Emergency Projects. For more information on these programs, see www.peacedepot.org.

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Civil Initiatives for Regional Security
The Challenge of Hiroshima

Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context

Conference Statement

Six non-governmental organizations brought together experts and activists from nine countries in Hiroshima, Japan to discuss issues of global and regional peace and security. Almost 60 years after this city suffered the first atomic bombing, we confront new and continuing nuclear dangers in North East Asia and around the world.

An inspiring opening to the conference was provided by Hiroshima Mayor Tadatoshi Akiba, who discussed the Mayors for Peace Emergency Campaign to Eliminate Nuclear Weapons by 2020. A prominent sentiment that underlay the discussions during the meeting was the suffering experienced by the survivors of the atomic bombing, the hibakusha, and their courage and determination in their efforts to rid the world of nuclear weapons.

Despite the efforts of the hibakusha and the efforts of millions of other people for more than half a century to eliminate nuclear weapons, over twenty thousand remain deployed worldwide. Under the 1970 Nuclear Non-Proliferation Treaty (NPT), China, France, Russia, the United Kingdom and the United States agreed to negotiate for the elimination of their nuclear arsenals. Unfortunately, there are no such negotiations in progress or even on the horizon for further nuclear reductions. Entry into force of the Comprehensive Test Ban Treaty also remains an unrealized goal, in no small part due to the refusal of the United States to ratify the Treaty.

North Korea has announced its withdrawal of the NPT, and it has the capacity to develop nuclear weapons. It justifies this decision in part because the United States government has listed North Korea as a potential nuclear target. North Korea also cites other implied United States threats to use force against it, manifested by the continued deployment of powerful United States military forces in the region.

The United States and Japan are also proceeding with joint ballistic missile defense research, claiming a need to counter a North Korean missile threat. Missile defense deployment, and the possibility that it could be extended further to Taiwan, is viewed with great concern by China, and by other governments and peace movements throughout the Asia-Pacific region.

The United States is pursuing ambitious programs for the modernization of its nuclear forces, from its missiles and the warheads they deliver to the systems used to plan and execute nuclear strikes. China and Russia, the major nuclear powers in the region, also continue to modernize some elements of their nuclear arsenals, although at a far slower pace than the United States. In addition, the United States continues to develop new kinds of high technology conventional weapons, including increasingly accurate and long-range conventionally armed missiles. A growing proportion of United States military forces are being deployed in the Pacific region.

All countries in North East Asia and the surrounding region have a strong interest in a stable and peaceful environment. The development and deployment of dangerous weapons systems in the region undermines this goal.

After extensive discussions, the conference participants concluded:

■ The withdrawal of missiles to such locations as would reduce perceived threats to countries in the region;
■ Limitations and reductions of missiles in the region;
■ The creation of a North East Asia Nuclear Weapons Free Zone; and
■ The withdrawal of foreign military forces based in the region.

The participants agreed that the outcome of the 2005 NPT Review Conference will be critical for the future of non-proliferation and disarmament. The cry of the hibakusha - no more Hiroshimas, no more Nagasakis - must be taken up by the people of the world, strongly enough this time that the governments finally must listen and act to fulfill their legal obligations for the total elimination of their nuclear weapons.
The Challenge of Hiroshima
Conference Program

On October 8-11, 2004, the fourth conference of the project “Moving Beyond Missile Defense” was held at the Hiroshima Peace Museum in Hiroshima/Japan. The project is jointly sponsored by INESAP and the Nuclear Age Peace Foundation. This conference was additionally convened by the following organizations: the Hiroshima Peace Culture Foundation, the Hiroshima Peace Institute, the Mayors for Peace, and the Peace Depot.

Public Symposium: Linking Science and Civil Society for Missile and Nuclear Disarmament

- Welcome + Symposium Introduction (Carah ONG)
- Presentation of World Citizenship Award to Mayors for Peace
  - David KRIEGER (presenting the award)
  - Tadatoshi AKIBA (accepting the award)
- The Role of Municipalities for Disarmament (Tadatoshi AKIBA, Mayor of Hiroshima)
- Civil Society Initiatives for Disarmament (David KRIEGER)
- The Need to Think Ahead about Disarmament (Wolfgang LIEBERT)

Conference Introduction

- Conference Introduction and Welcome
  - Address by Tadatoshi AKIBA (Mayor, Hiroshima)
  - Scientists, the Bomb, and the Responsibility for Nuclear Disarmament (Shoji SAWADA)
  - Project Introduction (Jürgen SCHEFFRAN)

Northeast Asia Regional Security Issues: Problems and Solutions

Current Policies of Governments

- US Interests and Policies in Northeast Asia (Wade HUNTLEY)
- The Role of Australia and New Zealand (Terence O’BRIEN)
- Japan’s Interests and Policies in Northeast Asia (Mitsuo OKAMOTO)
- North and South Korea: Intra-Korean and Intraregional Relations (Bong-Geun JUN)
- China’s Interests and Policies in Northeast Asia (ZHANG Hui)

Status of and Views on Missile Defense and Space Weaponization

- US (Regional) Missile Defense and Space Weapons Planning (Regina HAGEN)
- The Role of US Missile Programs (Andrew LICHTERMAN)
- Regional Implications and Responses to Missile Defense and Space Weaponization:
  - China (ZHANG Hui)
  - Japan (Kazuhiko TAMAKI)
  - Russia (Pavel PODVIG)
  - Korea (CHEONG Wooksik)

Nuclear and Missile Disarmament in NE Asia: Prospects and Possibilities

Energy and Security

- Energy and Security (Jürgen SCHEFFRAN)
- Nuclear Energy and Security (M.V. RAMANA)
- Power Grid Interconnection for a Nuclear Free Korean Peninsula (Jungmin KANG)

Regional and Global Control of Missiles, Missile Defenses, and Space Weapons

- Regional Missile Free Zone Concepts (M.V. RAMANA)
- Options for Regional Missile Limitation in Northeast Asia (Akira KUROSAKI)
- Control and Prevention of Missile Defense and Space Weapons (Götz NEUNECK)
- Options for and Verification of Global Missile Disarmament and Space Arms Control (Jürgen SCHEFFRAN)

Regional and Global Nuclear Arms Control and Disarmament

- Prospects for the NPT in 2005 (David KRIEGER)
- Northeast Asia Security and Arms Control (Tim SAVAGE)
- A Northeast Asia Nuclear Weapons Free Zone Proposal (Hiro UMEBAYASHI)
World citizenship has become essential to our survival as a species. Our powerful technologies have made our problems global, and the solutions to these problems must also be global. If the Earth is destroyed, no country, no matter how powerful, will be spared the devastation. We all have a vested interest in preserving our planet. Our time calls out for world citizenship.

On our planet today are many greedy plunderers, individuals and corporations that would use up the Earth's resources for their own short-term profits, polluting the air, water and land without regard for the good of the planet and its inhabitants. These plunderers, who often seek out the weakest national link to gain greater advantage in enhancing their profits, are destroying our wondrous life-supporting planet.

Some governments have stockpiled thousands of nuclear weapons, the worst of all weapons of mass destruction, weapons that are capable of reducing our great cities to rubble. Despite obligations under the nuclear Non-Proliferation Treaty, these governments have clung tenaciously to their large nuclear arsenals, threatening the survival of the human species and most life on Earth.

Finding global solutions to global problems demands a worldwide constituency for change, a constituency of world citizens, who put the problems of the planet ahead of their concerns for their particular geographic portion of the planet. The number of world citizens on the planet is relatively small, but growing. The growth curve is in a race against time to save the planet from plunder and destruction and to achieve sustainability for future generations.

In 1998, the Nuclear Age Peace Foundation began presenting an annual award for World Citizenship. Previous honorees have been media innovator Ted Turner; Queen Noor of Jordan; poet and philosopher Daisaku Ikeda; artist Frederick Franck; and entertainer and humanitarian Harry Belafonte. This year’s honoree is - for the first time, an organization - Mayors for Peace.

Mayors for Peace was selected for their innovative approach to the abolition of nuclear weapons. They have initiated an Emergency Campaign to Ban Nuclear Weapons by the year 2020, which they call 2020 Vision. Witnessing the strain on the nuclear Non-Proliferation Treaty by the failure of the nuclear weapons states to fulfill their treaty obligations for nuclear disarmament and recognizing the dangers that nuclear arsenals pose to all cities, the Mayors for Peace created their Emergency Campaign. The Campaign calls for initiating negotiations for nuclear weapons abolition in the year 2005, concluding these negotiations in the year 2010, and completing the process of eliminating these weapons by the year 2020. The Emergency Campaign brings the issue of nuclear disarmament to cities throughout the world through the commitment of mayors who have a responsibility to protect their constituents.

In 2004, the Mayors for Peace Emergency Campaign brought 16 mayors and deputy mayors from 12 countries to the United Nations in New York for the Preparatory Committee meeting to the 2005 Non-Proliferation Treaty (NPT) Review Conference. The organization is currently making preparations to have more than 100 mayors and deputy mayors at the 2005 NPT Review Conference. Their presence made a strong impact in 2004 and will undoubtedly make an even greater impact in 2005.

The superb leadership of Mayors for Peace has come from its president, Mayor Tadatoshi Akiba of Hiroshima, and its vice-president, Mayor Iccho Itoh of Nagasaki. It is altogether fitting and proper that the leadership of this organization and campaign should come from these cities that suffered the devastating consequences of nuclear weapons dropped on them. We hope that the survivors of the bombings in these cities, the hibakusha, who are ambassadors of the Nuclear Age, will take particular pride in this World Citizenship Award and the efforts of their mayors for a world free of nuclear weapons. We also hope that this Award will help in mobilizing additional mayors to join in the global effort to eliminate nuclear weapons.

It is my honor and pleasure to present the Nuclear Age Peace Foundation’s 2004 World Citizenship Award to Mayor Tadatoshi Akiba representing the Mayors for Peace.

The World Citizenship Award 2004 was presented to the Mayors for Peace at the public symposium “Linking Science and Civil Society for Missile and Nuclear Disarmament”, October 8, 2004, in Hiroshima, Japan.

Challenges for Nuclear Disarmament

2004 World Citizenship Award to Mayors for Peace

- Nuclear Age Peace Foundation, represented by David Krieger
Emergency Campaign to Ban Nuclear Weapons
Acceptance Speech for World Citizenship Award

Tadatoshi Akiba

Dr. David Krieger, honorable guests, colleagues and friends. It is my greatest honor to represent 619 member cities of the organization Mayors for Peace in accepting this year’s World Citizenship Award from such a prestigious organization as the Nuclear Age Peace Foundation.

It is indeed a pleasure to be recognized here in Hiroshima by the Nuclear Age Peace Foundation among such prestigious leaders in the movement for the abolition of nuclear weapons. This organization, the Nuclear Age Peace Foundation, has spearheaded our movement by showing us the direction to follow. It has also given us concrete examples by taking specific measures that have been effective in accomplishing our goal.

The recent Nuclear Age Peace Foundation campaign called “Turn the Tide” is an excellent example of a job well done, one that will have a great effect on the world.

I also would like to add that we are fortunate to find a leader in the person of Dr. David Krieger as well as in the persons all of us here, leaders in a joint effort for the abolition of nuclear weapons.

I would like to take this opportunity to summarize what our organization, Mayors for Peace, has been trying to accomplish, what we are aiming at. To start my review, I would like to mention one trend that is very important, at least in my mind.

As Dr. Krieger mentioned, the problem of nuclear weapons was created by science and technology.

Partly because of this, our movement to abolish nuclear weapons is firmly based on science, scientists, scientific thinking, and all the relevant facts.

Here I am using the words “science,” “scientists,” and so forth broadly. Let me mention a few examples that might be noteworthy. In the 1980s, a great movement was created, the nuclear freeze movement, largely through the efforts of physicians.

Medical science, one of the scientific realms, declares that there is nothing these powerful scientists can do once nuclear war erupts.

Environmental scientists also show us clearly from the environmental and ecological points of view that nuclear war is not manageable. The only way to get rid of this danger is to abolish all nuclear weapons.

Other scientists and experts can tell you from their areas of expertise that the only way is to get rid of all nuclear weapons.

Here I would like to add another component to this list of experts’ opinions about nuclear weapons. That is, how mayors or city managers see things.

Actually there is an American President who describes what I am going to say very well. Let me quote him first.

“May you fool all of the people some of the time, you can even fool some of the people all of the time. But you can not fool all of the people all of the time.”

In a sense, this is an abstract statement but it is most true on the level of running a city, dealing with daily lives of citizens. For example, in lofty or high places, one could argue whether weapons of mass destruction exist or not and can get away with not saying the truth.

But on the level of issues that mayors deal with, when garbage piles up on the streets there is no denying it. You cannot just lie. We have to deal with daily lives of citizens at that level. That is why mayors really see the facts clearly. We see the truths that surround us very clearly, and we base our judgment on those facts and truth.

Last October, in Manchester, England, Mayors for Peace held an executive committee meeting. The discussion was based on facts that we have to deal with on a daily bases. We have come to the conclusion that nuclear weapons will have to be eliminated as soon as possible. We have set the deadline as the year 2020.

Although some people said that wouldn’t be doable, we set the year 2020 partly because of the hibakusha. Hibakusha is the Japanese word for survivors of atomic bombs.

As a matter of fact, after we announced the deadline we received warm words from our hibakusha friends. Their only complaint or criticism was that 2020 was not soon enough. Because they may not live to see the day.

To honor these hibakusha, we would like to stick to that goal and work harder in order to realize our goal by the year 2020. To summarize our activities, let me start with what the hibakusha themselves have done.

I believe it is very important to mention this. The World Citizenship Award, I am sure, has been given to Mayors for Peace because we do represent the voices of hibakusha.

In the Peace Declaration of 1999, I summarized and pointed out three important contributions that the hibakusha had made by that time.

The first one is the fact that they chose to live under circumstances in which they could not have been blamed had they chosen death.

They not only chose to live but to do so as decent human beings. This is quite an accomplishment that we tend to take for granted.

The second accomplishment is that they effectively prevented a third use of nuclear weapons.

When we tell their stories of August 6 and August 9, 1945, we feel like we live them. Certainly, anybody who
went through that experience wishes to avoid telling it. Despite that fact they kept telling the world what would happen if another nuclear weapon should be used.

The third important accomplishment is that they created and live a new world view. Dr. Albert Einstein thought it did not exist, but it does, in the minds of hibakusha. It has spread all over the world by now.

I would like to characterize that value as "reconciliation" rather than "retaliation." The hibakusha themselves say simply that no one else should go through the experience they had.

This spirit has been captured in the Memorial Cenotaph in the Hiroshima Peace Park as well as in the Japanese Constitution.

These are the footsteps on which the Mayors for Peace base our decisions and future activities.

The first major activity that the Mayors for Peace undertook in the context of the Emergency Campaign actually occurred in April this year in New York.

Mayors and deputy mayors gathered in New York City to attend the Preparatory Committee meeting of the Non-Proliferation Treaty (NPT) conference, talk to the national delegates from various countries, make speeches, talk to city council members in New York City, talk to journalists, non-governmental organizations (NGOs), and so forth. It was a series of very important activities, some of which were extremely effective.

I would like to quote a deputy mayors gathered in New York City to attend the Preparatory Committee meeting of the deputy mayor of London, Jenny Jones. She said, "At the national delegates from various countries, make speeches, talk to city council members in New York I was not sure what would happen but the entire experience was invigorating. I am recharged with energy and feel I can work even harder for the abolition of nuclear weapons once I go back to London." She was pleased, energized, and energetic. London will be represented next year in May. I am hoping Mayor Ken Livingston himself will join us.

The consensus among participating mayors and deputy mayors was that although not all of the comments from national delegates were encouraging, after we went through that experience, we felt that it is possible to abolish nuclear weapons by the year of 2020.

The second step of our activity is basically the one-year period between August 6 of this year until August 9 of next year. But we will put more focus on the period between August 6 this year until May next year.

During this period we would like to sponsor concerts, symposia, and other activities to raise public awareness and to gather more momentum worldwide. There are many different activities happening all around the world on a daily basis, and more mayors are joining the Mayors for Peace organization. Other organizations and NGOs are holding their own activities to help us gather all forces in May next year in New York.

The important component is for mayors and NGOs to approach their respective governments to get them to help us induce the NPT Review Conference to adopt formal documents outlining what we are proposing.

The third step is the NPT Review Conference itself, to be held May next year. By the way, next year is 60th anniversary of the atomic bombings. We would like to have at least 100 mayors from Mayors for Peace cities and also at least 1000 NGO representatives voicing the concerns and demands of grassroots movements around the world in New York next year.

Our aim, as Dr. Krieger also mentioned, is to have a universal nuclear weapons convention signed by the year 2010 and ultimately abolish all nuclear weapons by the year 2020.

We also have a contingency plan in case our present course does not materialize. But I am not going to tell you about that because we would like to concentrate on realizing our goal rather than fearing that we may not be able to accomplish it.

I also would like to tell you that our efforts have been doubled, tripled, or quadrupled – actually enhanced one hundred-fold by people of various organizations and NGOs around the world who have worked so hard.

Let me just point out a few things that did not happen in the previous movement for abolishing nuclear weapons.

Our efforts, grassroots movements and civil society movements quite often have been ignored by formal governmental structures.

In February this year, the European Parliament adopted a resolution supporting the Emergency Campaign of the Mayors for Peace.

In June in Boston, the US Conference of Mayors, consisting of 1183 American cities, adopted by acclamation a resolution whose content was even stronger than that of European Parliament.

Many governments, including those who sent their ambassadors to Hiroshima in recent years, have endorsed our emergency campaign.

In the area of NGOs, the International Physicians for the Prevention of Nuclear War (IPPNW), who won the Nobel Peace Prize in 1985, has also recently adopted a resolution endorsing our emergency campaign in Beijing.

And today we have the honor of receiving the World Citizenship Award from the Nuclear Age Peace Foundation, which is another way of endorsing our campaign in an effort to expand this effort to abolish all nuclear weapons by the year 2020.

In 1945, just after the atomic bombing, some people claimed that no life would grow in Hiroshima for 75 years.

Of course you see the trees and flowers now, so this statement was not true. But in a different sense, as long as we have nuclear weapons on this earth, one could claim that no real life is actually thriving on the earth. We do not have life actualizing its fullest potential as long as there are nuclear weapons. Therefore, let us make sure that the year 2020, 75 years after the atomic bombing, will be the year when real life is born again by abolishing nuclear weapons.

When Mr. Nelson Mandela was released from the prison after 28 years, he was asked by a journalist, "What are you going to do next?"

I suppose the journalist wanted to hear some important political ac-
tion that Nelson Mandela was planning at the time.

But Nelson Mandela answered, “I would like to listen to classical music while watching a beautiful sunset on a beach.”

In that spirit I would like to promise you that Mayors for Peace, and I personally, will do our best to accomplish our goal by the year 2020. And I know that all of you will join us, so that in the year 2020 we will be able to listen to Beethoven’s 9th Symphony and rejoice that finally peace has come while watching the sun set beautifully into the Seto Inland Sea over Hiroshima. Let us work together.

Thank your very much.

Tadatoshi Akiba is Mayor of Hiroshima and President of Mayors for Peace. The organization was founded in 1982. The Mayors for Peace can be contacted as follows: Hiro Sakata, Division Director, Mayors for Peace, 1-2 Nakajima-cho, Naka-ku, Hiroshima, Japan; tel. +81-82-242 78 21, fax +81-82-242 74 52; mayors@pcf.city.hiroshima.jp; www.pcf.city.hiroshima.jp/mayors.

Background
The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) entered into force in March 1970, becoming the central international agreement for the abolition of nuclear weapons. The NPT Review Conference in 2000 adopted a final document containing the promise of “an unequivocal undertaking by the nuclear-weapon states to accomplish the total elimination of their nuclear arsenals.” This promise was seen as a significant step toward the abolition of nuclear weapons, which has long been the most fervent desire of Hiroshima and Nagasaki cities.

However, the current world situation affords little optimism. The United States, the nuclear superpower, is evidently uninterested in implementing its NPT promise. It has publicly reserved the option of a preemptive first strike with nuclear weapons and has openly stated its intention to develop small “useable” nuclear weapons. North Korea has withdrawn from the NPT and has told the US it plans to build and possess nuclear weapons. The NPT regime teeters on the verge of collapse, and the elimination of nuclear weapons remains a distant and elusive goal.

In response to the mounting peril they perceive, the Mayors for Peace, other global associations of local authorities, NGOs and private citizens are now working together to promote an “Emergency Campaign to Ban Nuclear Weapons.” The purpose of this campaign is to eliminate all nuclear weapons by the year 2020.

Objectives
1) That the 2005 NPT Review Conference agree on:
   a) the immediate de-alerting of all nuclear weapons and
   b) the launching of negotiations on the elimination of nuclear weapons in 2005, with a mandate to conclude by 2010 a Nuclear Weapon Convention designed to eliminate all nuclear weapons by 2020.

2) That the nations of the world bring the Nuclear Weapons Convention into effect at the NPT Review Conference in 2010 and work in good faith to eliminate nuclear weapons within the following decade.

3) The creation of a peaceful world completely free from the threat of nuclear weapons.

Outline of the Campaign
The Emergency Campaign to Ban Nuclear Weapons targets the following four milestones:

Step 1: The NPT PrepCom 2004
The first milestone of the Campaign was achieved when a Mayoral Delegation was dispatched to the NPT Review Preparatory Committee meeting (PrepCom) held last April. ... At about the same time, official support for the Campaign was expressed by the European Parliament and the United States Conference of Mayors.

Step 2: Year of Remembrance and Action for a Nuclear-Weapon-Free World, 06 August 2004 - 9 August 2005
We will ask our member cities, other major cities and anti-nuclear NGOs around the world to facilitate the organizing of parades, concerts, rallies, vigils, symposia, athletic events, art competitions or other events to draw public attention to the nuclear issue during this year.

Step 3: NPT Review Conference, May 2 to 27, 2005
The campaign will
a) mobilize at least 100 mayors of major cities to attend the Review Conference and assist the NGO lobbying effort,
b) mobilize at least 1,000 NGO representatives to attend the 2005 Review Conference and lead the lobbying effort in pursuit of nuclear abolition,
C) mobilize one million people to be in the streets in New York during the conference to express the will of the people.

Step 4: Hiroshima-Nagasaki Process, June 2005
Set in motion alternative plans if Objective 1 mentioned above is not achieved.
Civil Society Initiatives for Nuclear Disarmament

■ David Krieger

The fate of the world depends upon whether humankind will be able to eliminate the world’s nuclear arsenals. Nuclear weapons, designed to cause massive damage to large populations, are essentially city-destroying weapons, as was tragically demonstrated at Hiroshima and Nagasaki. These weapons may be created in the hope that they will never be used, but this cannot be guaranteed. Once created, nuclear weapons are an ongoing threat to humanity and other forms of life. So long as these weapons exist, no leader can provide a guarantee that they will not be used.

I keep on my desk a small booklet, published by the Nuclear Age Peace Foundation, with the words of General George Lee Butler, a former Commander of the United States Strategic Command. General Butler, who advocates abolition of all nuclear weapons, believes that humanity has been given a “second chance” by our Creator. Here is the perspective of this retired four-star general who now sees himself simply as “a citizen of this planet.”

“Sadly, the Cold War lives on in the minds of men who cannot let go the fears, the beliefs, the enmities of the Nuclear Age. They cling to deterrence, clutch its tattered promise to their breast, shake it wistfully at bygone adversaries and balefully at new or imagined ones. They are gripped still by its awful willingness not simply to tempt the apocalypse but to prepare its way.

To them I say we cannot at once keep sacred the miracle of existence and hold sacrosanct the capacity to destroy it. It is time to reassert the primacy of individual conscience, the voice of reason and the rightful interests of humanity.”

These are powerful words, not the kind we are accustomed to hearing from politicians or military leaders. General Butler, an anomaly, is a retired air force officer, a graduate of the Air Force Academy, who once commanded the entire US strategic nuclear arsenal, and came away from this experience sobered by what he had learned. For a short time, General Butler spoke eloquently for a world free of nuclear weapons, his military background giving authenticity to his concerns.

But there are few military men such as General Butler, and fewer still who have spoken publicly on this most important of all issues confronting humanity. For the most part, military leaders and politicians appear comfortable moving forward with only slight variations of the nuclear status quo. It appears that if there is to be change toward a world free of nuclear threat, the leadership must come from civil society organizations. These organizations face the challenge of awakening largely dormant populations within somnambulistic societies that seem content to sleepwalk toward Armageddon.

Civil Society Leadership

In the area of nuclear disarmament, the role of civil society leadership is critical. We obviously cannot depend upon political leadership, which is capable in our frenetic world of only dealing with problems as they become acute. There is a furious pace to politics that dulls the political imagination and often results in less than visionary leadership.

There are two possible paths to awakening the political imagination on the issue of nuclear disarmament. The first and tragic possibility would be a sadly belated response to a nuclear detonation destroying a city, whether by accident or design, by a nuclear weapons state or by a non-state extremist group. The second would be by an effective campaign led by civil society that awakened and empowered the people of the planet to put sufficient pressure on their political leaders for them to take action as a political expedient without needing to engage their moral imaginations.

Clearly the second option is far preferable to the first. The critical question is whether civil society organizations can actually provide the leadership to sufficiently awaken a dormant public to in turn move political leaders to take action.

Why have civil society organizations and their followers not been successful in past campaigns calling for the abolition of nuclear weapons? Intrinsic psychological, political and social factors impede efforts to build a sustained and effective mass movement seeking this goal. A crude but accurate analogy can be made with the plight of a frog placed in a pot of lukewarm water and placidly treading water while the pot is gradually heated to a boil. Here are some of the reasons one could speculate that the frog (or our own species) fails to take the necessary action to save itself:

■ Ignorance. The frog may fail to recognize the dilemma. It may be unable to predict the consequences of being in water in which the temperature is steadily rising.

■ Complacency. The frog may feel comfortable in the warming water. It may believe that because nothing bad has happened yet (even though it has), nothing bad will happen in the future.

■ Deferece to authority. The frog may believe that others are in control of the thermostat and that it has no power to change the conditions in which it finds itself.

■ Sense of powerlessness. The frog may fail to realize its own power to affect change, and believe that there is nothing it can do to improve its situation.

■ Fear. The frog may have concluded that, although there are dangers in the pot, the dangers outside the pot are even greater. Thus, it fails to take action, even though it could do so.
Civil Society Initiatives for Nuclear Disarmament

Abolition 2000, a global network of over 2,000 civil society organizations and municipalities, was formed during the 1995 Non-Proliferation Treaty Review and Extension Conference by representatives of organizations that were disappointed with the manner in which the nuclear weapons states, particularly the United States, had manipulated the outcomes of the Conference. Despite the serious lack of progress by the nuclear weapons states in fulfilling their nuclear disarmament obligations to that point in time, the treaty was extended indefinitely. Abolition 2000 began with a Founding Statement, created by civil society representatives at the 1995 NPT Review and Extension Conference, which articulated its principles. The strong points of Abolition 2000 were that it was broadly international, included many forms of expertise, was activist in its orientation, and was committed to complete nuclear disarmament. This network was largely responsible for bringing the terms “abolition” and “elimination” into the dialogue on nuclear disarmament. It moved the discussion from arms control to abolition.

The initial goal of Abolition 2000 when it was formed in 1995 was to achieve an agreement for the total elimination of nuclear weapons by the year 2000. When this agreement by governments proved impossible to achieve, despite Abolition 2000 having drafted a Model Nuclear Weapons Convention, the network decided to continue its abolition work, maintaining contacts within the global network with the more than 2,000 civil society organizations and municipalities that comprised the network.

The Middle Powers Initiative (MPI) is a coalition of eight international civil society organizations. It was formed in 1998 to encourage middle power governments to promote a nuclear disarmament agenda. Only months after MPI’s formation, a group of middle power countries, calling itself the New Agenda Coalition (NAC), went public with a strong nuclear disarmament agenda. These countries were: Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa, and Sweden.

These initiatives have included marches, protests, appeals, policy recommendations, and civil disobedience. I will discuss a few of these important initiatives that have occurred in the post Cold War period, although there are far too many for me to provide a comprehensive overview. Some of these outstanding initiatives have been Abolition 2000, The Middle Powers Initiative, the Mayors for Peace Emergency Campaign to Ban Nuclear Weapons, and the Turn the Tide Campaign of the Nuclear Age Peace Foundation.

The Mayors for Peace Emergency Campaign to Ban Nuclear Weapons, also known as 2020 Vision, is a relatively recent campaign, having begun its work in 2003. The goal of the campaign is to press governments to begin negotiations for a treaty banning nuclear weapons in 2005, to complete negotiations on this treaty by the year 2010, and to eliminate all nuclear weapons by the year 2020. In a sense, this Emergency Campaign picks up from Abolition 2000, setting its target date for governments to complete negotiations just a decade further in the future than Abolition 2000. This Emergency Campaign has another important element. It is led by the mayors of Hiroshima and Nagasaki, two cities dedicated to the abolition of nuclear weapons, and is composed of mayors in over 600 cities.

The Mayors for Peace participated in the 2004 Preparatory Committee meeting of the 2005 Non-Proliferation Treaty Review Conference, bringing 16 mayors and deputy mayors from 12 countries to New York to attend the meetings. They are planning to bring over 100 mayors and deputy mayors to the 2005 NPT Review Conference. There is no doubt that the Mayors for Peace Emergency Campaign is bringing important new
energy to the global effort for nuclear disarmament. Abolition 2000 has created a special arm, Abolition Now!, to support the mayors campaign and that calls upon all countries to make public their plans for nuclear disarmament in accord with their treaty obligations under Article VI of the Non-Proliferation Treaty.

A new and hopeful campaign focuses on the United States, the world’s most powerful state, because US leadership and support is essential for serious global progress on nuclear disarmament. The campaign, called Turn the Tide, is a project of the Nuclear Age Peace Foundation. It seeks to inform and mobilize US citizens to participate in directing messages via the internet to their elected representatives on key nuclear weapons issues. The campaign utilizes sophisticated software to send action alerts and enables easy communications with key officials.

The Turn the Tide Campaign is based on a 13-point Statement:
1. Stop all efforts to create dangerous new nuclear weapons and delivery systems.
2. Maintain the current moratorium on nuclear testing and ratify the Comprehensive Test Ban Treaty.
3. Cancel plans to build new nuclear weapons production plants, and close and clean up the toxic contamination at existing plants.
4. Establish and enforce a legally binding US commitment to No Use of nuclear weapons against any nation or group that does not have nuclear weapons.
5. Establish and enforce a legally binding US commitment to No First Use of nuclear weapons against other nations possessing nuclear weapons.
6. Cancel funding for and plans to deploy offensive missile ‘defense’ systems which could ignite a dangerous arms race and offer no security against terrorist weapons of mass destruction.
7. In order to significantly decrease the threat of accidental launch, together with Russia, take nuclear weapons off high-alert status and do away with the strategy of launch-on-warning.
8. Together with Russia, implement permanent and verifiable dismantlement of nuclear weapons taken off deployed status through the 2002 Strategic Offensive Reductions Treaty (SORT).
9. Demonstrate to other countries US commitment to reducing its reliance on nuclear weapons by removing all US nuclear weapons from foreign soil.
10. To prevent future proliferation or theft, create and maintain a global inventory of nuclear weapons and nuclear weapons materials and place these weapons and materials under strict international safeguards.
11. Initiate international negotiations to fulfill existing treaty obligations under the Nuclear Non-Proliferation Treaty for the phased and verifiable elimination of nuclear weapons.
12. Initiate a moratorium on new nuclear power reactors and gradually phase out existing ones, as these are a primarily means for the proliferation of nuclear materials, technology, and weapons; simultaneously establish an International Sustainable Energy Agency to support the development of clean, safe renewable energy.
13. Redirect funding from nuclear weapons programs to dismantling nuclear weapons, safeguarding nuclear materials, cleaning up the toxic legacy of the Nuclear Age and meeting more pressing social needs such as education, health care, and social services.

Conclusions

For nearly 60 years, since the first nuclear test at Alamogordo, New Mexico, the world has been muddling through the nuclear dilemma. Despite the end of the Cold War, we are far from being secure from the nuclear threat. The threat today takes a different form, but is no less dangerous. In our divided world, there are terrible tensions and there is the possibility that nuclear weapons could end up in the hands of non-state extremists who would have no reservations about using them against the populations of many countries, including the nuclear weapons states. The irony of this is that none of the nuclear weapons in the arsenals of the nuclear weapons states can provide an ounce of deterrence or security against such extremists.

The only way to assure the security of the nuclear weapons states, or any state, from a nuclear attack, is to eliminate these weapons in a phased, orderly, and verified manner and place the materials to make these weapons under strict and effective international control. This is the reality of our common nuclear dilemma, and getting this message through to the leaders of nuclear weapons states, particularly the United States, is one of the most critical challenges, if not the most critical challenge, of our time. Only with the success of civil society in meeting this challenge can we have a reasonable expectation, in General Butler’s words, to “reassert the primacy of individual conscience, the voice of reason and the rightful interests of humanity.”

This presentation was given at the public symposium “Linking Science and Civil Society for Missile and Nuclear Disarmament”, October 8, 2004, in Hiroshima, Japan.

1 George Lee Butler, Ending the Nuclear Madness, Nuclear Age Peace Foundation, Waging Peace Series, Booklet 45, September 1999.
3 www.mpi.org.
4 Originally Slovenia was also a part of the New Agenda Coalition, but did not stay long in the coalition.
5 www.pcf.city.hiroshima.jp/mayors.
7 www.wagingpeace.org.

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Scientists, the Bomb, and the Responsibility for Nuclear Disarmament

Shoji Sawada

Dear friends, first I would like to express my deep appreciation for giving me the chance to speak at this important meeting both as a survivor of the A-bombing and as a Japanese physicist.

The Tragedy of the Atomic Bombing

Fifty-nine years ago, on August 6, a uranium bomb was exploded over the city of Hiroshima. In that instant, a huge amount of gamma rays turned the air into a 'fireball', a plasma state. At first, a large number of gamma rays and neutrons penetrated human beings. Soon after, the heat rays from the fireball burned people alive, turning many into instant charcoal. The expanding fireball produced a shock wave, which, with the blast, leveled buildings, trapping those inside, who burned alive from fire created by the heat rays. People tried to escape, their burned flesh hanging from their bodies like rags. Away from the hypocenter, 'black rain,' 'black soot,' and invisible particles fell, causing both internal and external exposure. People who wandered from place to place close to the hypocenter to search for family members received external and internal exposure from residual radiation. Survivors, including those who did survive the burns and injuries, soon suffered from acute radiation diseases, such as loss of hair, diarrhea, and internal bleeding due to the effects of primary and residual radiation, and they died one after another.¹

Three days later, on August 9, a plutonium bomb was detonated over the city of Nagasaki, and the same disaster was repeated.

Later, survivors suffered from delayed radiation injuries, leukemia, liver ailments, and various types of cancer. Even now, 59 years later, many of the surviving victim’s lives, minds, and livelihood are still being consumed.

Now I would like to discuss the concerns of scientists for the abolition of nuclear weapons and the cover-up policy of the nuclear powers, who neglect the damage as a result of radiation effects from the use of nuclear weapons and hide it to justify the possession of nuclear weapons.

Cover-up Policy of the US on Nuclear Damage

Shortly after the beginning of Japan's occupation, on September 6, 1945, Brigadier General T. Farrel, who was a commander of the research commission of the Manhattan Project, gave a press interview in Tokyo and published a statement that “In Hiroshima and Nagasaki, at present, the beginning of September, anyone for death has already died, and no one received a dose to make him suffer from atomic radiation.” To an objection raised by a journalist, Farrel made a counter-argument: “The atomic bombs dropped on Hiroshima and Nagasaki were detonated at such high altitude that no radiation remained, and that even if some people died later, it was because of injuries sustained at the time of explosion.” This statement is completely against the facts, although not entirely determined by the policy at that time. Scientists in the Manhattan Project, including Farrel, genuinely believed that any person close enough to the explosion to receive radiation damage would immediately have been killed by collapsing bricks first.

On September 19, 1945, the General Headquarters of the Allied Powers (GHQ) issued the press code that controlled and forbade publication of press and literature concerning the atomic bomb. This is because the government of the US was concerned about the international reaction to the use of such a bomb. The restrictions ended in 1952 when the San Francisco Treaty went into effect. This is the beginning of the US policy of the cover-up of radiation damage, especially of the problems of internal exposure by residual radiation.

The GHQ ordered the Japanese Government to cooperate with the Manhattan District Research Team and hand over all results of the A-bomb damage research done before the occupation. The results of Japanese scientists just after the bombing were therefore passed to the US. Late in September 1945, the US Army and Naval Surgeon Group organized the Joint Commission for the Investigation of the Effects of the Atomic Bomb in Japan. They made the Medical Faculty of Tokyo Imperial University to collaborate and investigated the bomb effects for about a year. All collected material and data was brought to the United States, including the data which was evidence for the effects of residual radiation. In 1950, the report The Effects of Atomic Weapons was edited by scientists of the Los Alamos Science Laboratory, the Department of Defense, and the Atomic Energy Commission. The distorted description in this report contradicted the real facts as it claimed that there was nothing attributable to fallout of the atomic bomb explosions in the air of Hiroshima and Nagasaki.

Atomic Bomb Casualty Commission

In the last years of the 1940s, the US adopted a definite world policy to govern the world in terms of nuclear weapons and by necessity was driven to study the effects on nuclear bombs, especially the effects of pri-
mary radiation, on the human body. On November 26, 1946, President Truman directed the National Academy of Sciences to found the Atomic Bomb Casualty Commission (ABCC). In 1950, after some preparatory investigations, the ABCC set up permanent institutions in Hiroshima and Nagasaki and began with the examination of atomic bomb survivors. Due to the occupation character of the ABCC and frequent changes of the US expert staff as well as bad feelings among the citizens of Hiroshima and Nagasaki, the activities of the ABCC as a whole became stagnant around 1955. Following the so-called Francis Committee’s recommendation, which was based on a review of ABCC activities, the ABCC started the Adult Health Study on 20,000 survivors in 1958 and the Life Span Study on 100,000 survivors in 1959. In 1975, the ABCC was closed and the Radiation Effects Research Foundation (RERF) was opened, but RERF took over ABCC’s staff, institutions, and projects as well as the inherent problems of the ABCC.

Research on the Damage of Atomic Bombing

A comprehensive survey by the Special Committee for Investigation and Research, which was established by the Japanese Academic Council, on the damage caused by the atomic bombs, was published in 1953 at the end of the US occupation. Later research concerning survivors in Hiroshima and Nagasaki had mainly been conducted at a local level by individuals or small groups of medical doctors and scientists. Although these studies obtained many valuable results, most of these studies had been abandoned or neglected as statistically insignificant because of their small scale compared with the massive research done by the ABCC. It is from the “International Symposium on the Damage and After-Effects of the Atomic Bombing of Hiroshima and Nagasaki”, organized by non-governmental organizations and held in Tokyo, Hiroshima, and Nagasaki in 1977, in the context of nuclear disarmament campaigns, that the damage caused by atomic bombings received comprehensive attention. Many scientists, among them physicists, experts on radiation biology, human and social sciences, as well as many peace activists from Japan and overseas attended the conferences and discussed the damage and after-effects of nuclear weapons in great detail.

The Bravo Hydrogen Bomb Test and Scientists

The US conducted the hydrogen bomb test ‘Bravo’ on the Bikini Atoll of the Marshall Islands on March 1, 1954. Fallout from this bomb test caused severe radiation damage to the fishermen of ‘The 5th Lucky Dragon’ boat, which was a large shock to the people of Japan. I was greatly shocked as a physics student that physics, after all, produced a weapon a thousand times more destructive than the A-bomb. This moved me to join the movement against nuclear weapons as a physicist. The shock of this Bikini incident created the nation-wide movement against atomic and hydrogen bombs, the first grassroots movement of its kind in Japan. This movement, in turn, gave birth to the first World Conference against A & H Bombs in Hiroshima in August 1955, and the World Conferences have been continued until the present.

Supported by this nation-wide movement, scientists persuaded the Japanese government to send an investigation ship, and they found that the contamination of the ocean caused by fallout from nuclear tests was more widespread and more serious than expected. The US also investigated radiation contamination but did not publish their results and continued to keep them secret. Moreover, the residents of the Marshall Islands were not informed of their exposure conditions and were used as guinea pigs to research radiation effects.

These investigations by Japanese scientists uncovered that the development of hydrogen bombs made this stage of humankind run into one in which the extermination of humankind themselves and of all life on Earth became a real possibility. Dr. Albert Einstein was informed about the results of the research on the radioactive fallout of the H-bomb tests by Japanese scientists. The Russell-Einstein Manifesto of 1955 states the dangerous situation of radioactive fallout as follows:

“... Such a bomb, if exploded near the ground or under water, sends radioactive particles into the upper air. They sink gradually and reach the surface of the earth in the form of a deadly dust or rain. It was this dust which infected the Japanese fishermen and their catch of fish. No one knows how widely such lethal radioactive particles might be diffused, but the best authorities are unanimous in saying that a war with bombs might quite possibly put an end to the human race. It is feared that if many H-bombs are used there will be universal death – sudden only for a minority, but for the majority a slow torture of disease and disintegration.”

Dr. Hideki Yukawa signed the Russell–Einstein Manifesto to show his support, and Japanese scientists welcomed this with great enthusiasm. Dr. Einstein’s main theme is that “the aim to avoid a world catastrophe must be a top priority over any other aims”, which is considered the “new morality” of the atomic age. Dr. Yukawa called it “Einstein’s Principle.”

Pugwash and Kyoto Conference of Scientists

In response to the Russell–Einstein Manifesto, the Pugwash Conferences on Science and World Affairs, a meeting of scientists, had been held since 1957.

In 1975, a small Pugwash Symposium was held for the first time in Japan. Dr. Yukawa, suffering from cancer, left the hospital in a wheelchair and made the opening speech of the symposium. In this speech, he appealed to Pugwash to go back to the basics of the Russell–Einstein Manifesto. Dr. Shinichiro Tomonaga proved with strong logic and argument that the nuclear arms race would go on without end as long as the nuclear deterrence theory was followed, and he led the discussion of the symposium. At Dr. Tomonaga’s suggestion, all participants watched a five-
hour film on the “Effects of the Atomic Bomb on Hiroshima and Nagasaki” on two nights. The film, which had been brought from the US, had a big effect on scientists from overseas, and many changed their position after seeing this film. After the symposium, most of participants signed the “Yukawa-Tomonaga Manifesto,” which criticized the nuclear deterrence theory. Among these scientists, Dr. Joseph Rotblat, who was the only scientist to desert from the Manhattan Project after having been informed of its real aim, was involved from the beginning, and he was the Secretary-General of Pugwash at that time. However, it took time for Pugwash to move from the deterrence theory as a whole before Dr. Rotblat took the president post and played his leading role in the 1990s.

Pugwash held its first annual meeting in Japan in Hiroshima, on the 50th anniversary of the Hiroshima and Nagasaki bombings. The scientists who attended were all invited to visit the Hiroshima Peace Museum, and were asked later of their impressions of the photos, materials, etc. They unanimously said: “We thought we had a rather powerful imagination, but the exhibits we saw were beyond imagination. We have always had discussions about what happened in the atmosphere above the mushroom cloud, but the photos and exhibits we saw showed the true picture of what happened under the mushroom cloud.” Pugwash has since then confronted the nuclear deterrence theory in statements of the Pugwash Council. Pugwash and its president, Dr. Joseph Rotblat, were awarded the Nobel Peace Prize in 1995. Pugwash has now embraced the Russell-Einstein Manifesto, of which the main aim is the abolition of nuclear weapons and an end to all war.

Studies on the Effects of Radiation and Scientists

Just recently, in spite of their old age, 161 survivors joined the collective lawsuit against the Japanese government in twelve district courts. The complaint is that the Japanese government should no longer refuse to certify radiation disease to survivors who have been worried about their health for the past 59 years, which has upset their lives. This lawsuit is a kind of struggle for the recovery of their human rights. Now, the number of atomic bomb survivors who have a survivor’s notebook is almost 280,000, but the number of those certified is just over 2,000, i.e. less than 0.8% of the survivors. The reason for this is that the criteria of A-bomb disease certification by the government in no way reflect the actual condition of the survivors.

For more than one year, I tackled this problem and realized that at the roots of this problem there lies the nuclear policy of the US government which has denied the effects of residual radiation, especially the effects of internal exposure. Combining this with the nuclear policy and the survivors’ lawsuits, I was forced to consider strongly the responsibility of scientists.

The primary radiation caused acute external irradiation of the survivors, while the residual radiation exposed them to both acute external and continuous internal irradiation. The ‘black rain’ is famous as the fallout which is a special phenomena caused by the high humidity of summer in Japan. It never occurred at the Nevada and Semipalatinsk nuclear test sites where the radioactive materials contained in the fireball became invisible tiny radioactive particles. In Hiroshima and Nagasaki, the radioactive ‘black soot’ fell in wide regions as survivors told witnessed. This fallout soot and fine particles would be carried away by wind or washed out by rain and after considerable time could no longer be measured physically. The only possible way to estimate the effects of fallout would be to analyze various results of investigation in the incident rate of the acute radiation disease among survivors. All investigations show that in 2-4 km or more distance, primary radiation of the atomic bomb could hardly cause acute diseases such as depilation, which occurred at a significant rate. No other explanation for this fact can be considered but fallout. On the basis of relations between the incident rate of acute radiation disease and exposure dose, I made an estimate of the exposure effects and found that the external exposure to primary radiation was the main effect for acute radiation disease in the region up to about 1.5 km from the hypocenter of Hiroshima, while for areas beyond 1.5 km fro the hypocenter, the major effects came from internal exposure caused by taking tiny fallout particles into the body.

Radiation Effects Research Today

In the examinations conducted by the ABCC and the successor organization RERF, the posture of the survivors and the shielding effect at the instant of bombing were investigated thoroughly, but the survivors’ behavior after the bombing not at all. This shows that initially the examination was mainly focused on the primary radiation effects.

Furthermore, recent epidemiological RERF studies defined the survivors who were exposed to a primary radiation dose of less than 0.005 Sv (on the basis of the “Atomic Bomb Radiation Dosimetry System 1986,” DS86) as control cohort, that is as a non-exposure group, and studied the higher mortality rate among survivors from delayed radiation injuries, such as cancer, compared with that of the control cohort. According to the estimates of DS86, a primary radiation
exposure of less than 0.005 Sv corresponds to a distance of 2.7 km from the hypocenter of Hiroshima. In reality, however, people in this area received a continuous internal exposure by taking radioactive fallout into the body, and it is estimated that this cause for acute radiation disease is about 100 times larger than that of the primary radiation. It is a natural result that the criterion of A-bomb disease based on the epidemiological examination of the RERF, which assumes zero effect of the fallout to the distant survivors, are far from the actual conditions of survivors.

From a similar study of the incidence rate of acute radiation disease among the entrant survivors, those who entered into Hiroshima for rescue work or to search for their families after the explosion, it is found that the effects of internal exposure due to the induced residual radioactive materials are much larger than those of external exposure. Leaving aside US policy, the epidemiological studies by the RERF consider only the effects of primary radiation and neglect the effects of residual radiation. The research projects of the ABCC were planned under a policy which does not take account of the effects of residual radiation. There are many scientists who do not recognize the effects of internal exposure of residual radiation of the atomic bombing even now because they are familiar with the results obtained from such biased research.

The Bush administration, going against the “unequivocal undertaking to accomplish the elimination of nuclear weapons,” agreed upon by the nuclear weapons states at the 2000 Non-Proliferation Treaty Review Conference, promotes a “preemptive attack” strategy with the use of nuclear weapons as an option. They engage in the research and development of “usable nuclear weapons,” such as “mini-nukes” and “earth-penetrating nuclear weapons.” Contrary to the claim of the US government, that the accompanying damage would be reduced by earth-penetrating nuclear weapon, in reality they will produce another “hell on Earth,” different from Hiroshima and Nagasaki due to much stronger and huger amount of residual radioactivity as compared to atmospheric explosions. When it comes to thinking about “usable nuclear weapons,” there exists a grave responsibility of scientists who did not tell the truth to the decision makers by neglecting the severe effects of internal exposure and residual radiation. By clarifying the real damage by radiation among the survivors of Hiroshima and Nagasaki as well as among the nuclear victims worldwide scientifically, it will become clear that the use of nuclear weapons – no matter how small – must never again be allowed, which will lead to the abolition of nuclear weapons.

Our scientists have the responsibility to appeal to the public for the abolition of nuclear weapons and an end to all war on the basis of truth and from the viewpoint of all humankind, which necessarily excludes the constraint of research objectives by any government.

Conclusion

Many Japanese scientists have been engaged in research work on the basis of a determination “never to be subject to research for military purposes,” which was adopted by the Science Council of Japan in 1949. This determination is a response of scientists to the Constitution of Japan which renounces armaments from a reflection of Japanese aggression wars and anticipates a war-free world as the future direction of humankind.

In Asia, the framework of peacekeeping, friendship, and cooperative relations is rapidly breaking away from the dangerous framework of world strategy of the US. Then the peace climate in Asia around Japan can rapidly change, and the principles of the Constitution of Japan will play their part more easily. The problem of North Korea as well as the issue of missile defense should be discussed on the basis of this climate change. Instead of leaving room for this development, however, the Japanese government sent the Self-Defense Forces to support the Iraqi occupation by the US, which breaks the Charter of the United Nations. The Japanese ruling circles strengthened their efforts to amend the current Constitution.

In this situation, I think it is important to talk about the future vision of mankind with young scientists, engineers, and students who aim to do research work in the future. Furthermore, it is necessary to appeal to the scientists who are involved in the research and development of nuclear weapons to reconsider their jobs from the viewpoint of all humankind and to notify that their jobs are contrary to the “unequivocal undertaking” to accomplish the elimination of nuclear weapons, agreed in the year 2000.

Let us create a global movement to make the next year, the 60th year of the atomic bombing, a year to achieve a decisive turn toward the nuclear-weapon-free world. Thank you very much.

1 My own experience was reported in INESAP Information Bulletin No. 22, December 2003, p. 33: Shoji Sawada, “My Experience of the Atomic Bombing.”

This paper was written for the conference “The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context” organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

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Shoji Sawada
The Need to Think Ahead About Nuclear Disarmament

Wolfgang Liebert

Ladies and gentlemen, dear Mayor Akiba, dear colleagues.

In 1995, two writers, the Japanese and German Nobel prize laureates Kenzaburo Oe (1994) and Günter Grass (1999) had a correspondence, which at that time was widely published. Both poets were stamped by their experience with wars of conquest waged by their respective home countries – then under the sway of a dictator - and specifically by the horrible crimes and consequences of those wars.

40 years after the end of World War II, Günter Grass wrote to his Japanese colleague:

“Two atom bombs fell and they changed the world. Ever since, our thoughts and our actions have been nuclear-contaminated. Ever since, mankind has been capable of destroying itself. (...) On the one hand, we remember the end of the war, on the other hand, the latent danger of nuclear self-destruction could not be over-ridden. Many seem to accept it as fait accompli, in combination with the protests that are revived now and then, only to decline again all to soon, accompanied by gestures of weakness and impotence. The power circles of this world have more stamina. Once it has been brought into the world deliberately, unwritten customary law favors this inordinate crime: the cynicism of political and economic power cannot be overcome by humanistic appeals.”

These sentences could be interpreted as pessimistic; to me, however, this analysis of the famous writer has rather a pragmatic touch and can point us to the reasons why we should proceed with our struggle for disarmament, and in particular for nuclear disarmament.

Over the last decades, the nuclear weapon states broke all promises to abolish nuclear weapons. In the years when the confrontation between the Eastern and Western blocs ended, they undoubtedly had the chance to make a world free from nuclear weapons come true. Instead, the leaders of the nuclear weapon states decided to keep nuclear weapons as a pillar of national security. Even worse, they also decided to utilize their nuclear weapons arsenals to emphasize their ambition to exert a vigorous influence on world politics based on this power and to enforce their own interests ruthlessly.

Strikingly inconsistent, the same political leaders try to convince other countries that access to nuclear weapons would not serve their respective security interests. Of course the latter is true, but how schizophrenic must they be to not question their own nuclear arsenal at the same time.

Accordingly, the terror of nuclear deterrence continues to threaten mankind. Currently, the active nuclear weapons arsenals have an explosive power comparable to nearly 400,000 atom bombs of the type used against the city of Hiroshima (we bow low to the victims and the hibakusha.) If we include the non-active but usable nuclear reserve, the worldwide nuclear arsenals are equivalent to more than half a million Hiroshima bombs.

When we compare the number of nuclear warheads that are currently stacked in the weapon states with those of 1970 (when the nuclear Non-Proliferation Treaty, NPT, entered into force), we realize that the numbers are roughly the same. It is quite obvious: more than three decades later, the promise of nuclear disarmament enshrined in the NPT has not been fulfilled to this day. Furthermore, the nuclear weapons materials from disarmed warheads are still mostly in stock both in the U.S. and in Russia.

To make things even worse, nuclear weapon powers like the United States amended their target lists to include non-nuclear weapon states that are suspected of striving for weapons of mass destruction. Therefore, these states are now also threatened by a nuclear attack. This seems to have a terrifying consequence: for these states, it is an additional incentive to obtain the nuclear weapons option. And they in turn, mirroring the nuclear weapons powers argument, justify these dangerous activities with the need to strengthen their national security.

This comprehensible, as it appears now, but unacceptable reasoning can also subliminally shape politics in other states. Any nuclear-weapons-capable member of the NPT can push nuclear weapons development quite far without formally violating the treaty. This is due to the civil-military ambivalence of nuclear technologies (like uranium enrichment and reprocessing), due to nuclear dual-use materials (like plutonium and highly enriched uranium), and due to the dramatic flaws of the NPT. The covert or subliminal path to the nuclear weapons option could therefore be tempting not only for state leaders or powerful circles in North Korea or Iran, but also in principle in Brazil, in major European countries, in Japan, and so on. In the case when there is no progress in nuclear disarmament to zero and further cases of nuclear weapons acquisition occur, then, this kind of latent proliferation will dramatically increase.

The probability that newcomer states or non-state actors, even terrorists, could go nuclear is growing due to the increasing availability of sensitive materials and technologies. For example, nearly 500 tonnes of weapons ready plutonium exists worldwide and only a few kilograms is...
sufficient to make a single nuclear weapon. At the same time, the asymmetries between the ‘haves’ and the ‘have-nots’ grows in terms of weapons as well as in terms of dual-use nuclear capabilities. Last year, a flourishing international nuclear black market was uncovered. All these developments, these interlinked chains of irresponsibility, put international security and any moves towards the aim of enduring international peace at risk.

The dangerous global asymmetry is further fuelled by the overall military technological development. This year, global military expenditure will reach a new high of more than 900 billion US dollar (roughly 100 trillion Yen). Half of it is spent by the United States, two thirds by the member states of the North Atlantic Treaty Organisation (NATO). These figures belie most threat scenarios that U.S. and NATO officials tell us daily.

As the partly leaked 2002 U.S. Nuclear Posture Review revealed, the most powerful military nation, the United States, is seriously considering the use of nuclear weapons against so-called ‘rogue’ states and thus risks unleashing a nuclear catastrophe. A new type of nuclear weapon, allegedly effective against bunkered targets, is under development in the U.S. This provokes further destabilisation of the existing global nuclear mess. These developments steer us along a totally wrong and most dangerous course. (A change for the worse in the international climate can easily provoke a new and more deadly arms race, renewing the danger of nuclear war.)

Indeed, a pessimistic view seems to be appropriate. But where the state leaders fail, it is up to us to find a solution and we must not recommend wrong or inappropriate remedies. Many still hope for a strengthened nuclear Non-Proliferation Treaty (NPT) and ‘stepwise’ disarmament measures, while completely neglecting the qualitative improvements of the nuclear armament.

In my view, the nuclear Non-Proliferation Treaty (NPT) does not provide the framework for a pathway to nuclear disarmament nor does it serve effective nuclear non-proliferation. To assign such attributes to the NPT is a lie and meant to render us submissive. There is much more truth in saying that the NPT perfectly serves the interests of the five recognized nuclear weapon states. They regard the NPT as a charter for maintaining their nuclear arsenals forever, including their constant modernization. The arsenals of Israel, India, and Pakistan seem now to be quietly becoming acceptable.

The inherent contradictions and loopholes of the NPT and the misbehaviour of the nuclear weapon states also means that we have to learn the unpleasant lesson that the validity of the NPT – enjoying as it does almost universal membership – cannot insure against the further spread of nuclear weapons.

Nevertheless, as it stands today we cannot do without the NPT, since it is the only existing treaty that deals with the problem of nuclear proliferation. So what are we to do?

Ten years ago, several colleagues and I gathered at my home university in Darmstadt, Germany, to discuss this seemingly hopeless situation. This was prior to the indefinite extension of the NPT foreseen for the 1995 Review Conference. I suggested that we not focus exclusively on the NPT. Rather, we as scientists should look beyond the NPT and pinpoint the real and challenging needs of nuclear non-proliferation and disarmament, which are closely interlinked.

I suggested to my colleagues that we should try to argue for a new and better international treaty, replacing the NPT at a given time in the near future. The new treaty, the Nuclear Weapons Convention, should be designed in a way to overcome the shortcomings, loopholes and contradictions of the NPT. The pattern for the Nuclear Weapons Convention has to be similar to that already set by the Biological and Chemical Weapons Conventions – that is, a total ban of nuclear weapons.

In the following months, together with more than 40 international scholars we were very busy working out these ideas. In April 1995, we were able to present a study of the International Network of Engineers and Scientists Against Proliferation (INESAP) at the United Nations in New York. The study was entitled “Beyond the NPT: A Nuclear-Weapons-Free World.” It comprised a comprehensive analysis of the nuclear question as a basis for laying out the way to the only secure international regime, i.e. a nuclear-weapon-free world. We suggested that the State Parties to the NPT and the non-members to the treaty should begin negotiations on a Nuclear Weapons Convention without delay.

Unfortunately, our proposal was not an immediate success. But the idea was picked up by international non-governmental organizations. By 1997 our network, INESAP, together with the International Association of Lawyers Against Nuclear Arms (IALANA) and the International Physicians for the Prevention of Nuclear War (IPPNW) were able to present the comprehensive text for a model Nuclear Weapons Convention.

The Nuclear Weapons Convention would ban the possession and production of nuclear weapons as well as all kinds of acquisition, use, and threat of use. The Convention would call for the elimination of the whole infrastructure for research into, manufacture, and possession of nuclear weapons and their means of delivery. It would provide a system of technical and societal verification as well as international control for the disposal of, or at least accounting for, and guarding, the remaining weapons-usable fissile materials. Upon entry into force, the Nuclear Weapons Convention would replace the NPT.

We outlined the cornerstone of a new regime that could be effective both in terms of nuclear disarmament and in terms of nuclear non-proliferation. To achieve both goals in one convincing strategy is as desperately needed now as it was then.

I would like to remind you that in 1996, the International Court of Justice gave an advisory opinion, upon request by the United Nations General Assembly, that the use and the threat of use of nuclear weapons “would generally be contrary to the rules of international law.” The Court concluded that therefore an obvious
gap in international law has to be filled by pursuing and concluding “negotiations leading to nuclear disarmament in all its aspects.” This is convincing support of what we delineated, namely the way to a nuclear-weapon-free world through a Nuclear Weapons Convention (NWC).

Over the years, in cooperation with international Non-Governmental Organisations – and with the help of the Nuclear Age Peace Foundation – we have continued to propagate the model Nuclear Weapons Convention. It was introduced as an official UN document by Malaysia in 1997 and was therefore translated into the official UN languages. In addition the draft treaty has been translated into Japanese by the international lawyers (IALANA). In the year 2000, together with IALANA and IPPNW, INESAP published a book entitled “Security and Survival: The Case for a Nuclear Weapons Convention.” We were, however, somewhat frustrated by the lack of progress with the NWC. Accordingly, we are more than pleased that the Mayors for Peace are now making use of the model NWC in their “2020 Vision” campaign.

Only the selfish interests of political leaders in a number of states – and powerful forces behind them – are blocking this single sensible path of action. If we could ask the population of the world, the mayors and the citizens of the threatened cities, then we would undoubtedly receive overwhelming support for this way of achieving a nuclear-weapon-free world.

Let me come back to the correspondence between Günter Grass and Kenzaburo Oe from the year 1995. Kenzaburo Oe wrote to his German colleague:

“I am not naive enough to believe that after the end of the Cold War those in political power will cooperate to develop a blueprint for a world without nuclear weapons (...) The simple but dreadful basic principle, which has lead to the endless expansion of the nuclear weapons system, is the strategy of ensuring security by deterring an adversary with one’s own military power. (...) (However,) the agenda for a post-Cold War world should rather have been based on continuing unilateral nuclear disarmament leading to the total elimination of these weapons – and thus ensuring security.”

These words of Kenzaburo Oe convey a very clear, understandable, and unambiguous message. We, as an international network of scientists, have been striving to work towards this goal. The political leaders could and should implement the concepts we have suggested.

Let me end by expressing my admiration for Hiroshima, which today is a flourishing and welcoming city, for its courage to face life and to strive for peace. Let me also express my admiration for Mayor Tadatoshi Akiba, who is so effectively leading the international Mayors for Peace. Their campaign to ban nuclear weapons is a sign of hope and is outstandingly useful for applying pressure to political leaders worldwide. Let us work together, with persistence and determination, for the elimination of the nuclear threat – in the interest of all human beings and nature on Earth.

This presentation was given at the public symposium “Linking Science and Civil Society for Missile and Nuclear Disarmament”, October 8, 2004, in Hiroshima, Japan.

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International Control of Tritium for Nuclear Nonproliferation and Disarmament

By Martin Kalinowski

Tritium is the neglected material in controlling the spread and further development of nuclear weapons. It is used by all nuclear weapons states to increase the explosive yield of atomic bombs and at the same time to miniaturize them. However, this radioactive material has not yet been put under appropriate international control comparable to the nuclear safeguards applied for plutonium and uranium. International Control of Tritium for Nuclear Non-Proliferation and Disarmament provides a unique resource on all aspects regarding the military use of tritium. It explains how a carefully designed tritium control will affect the non-proliferation of tritium and slow the nuclear arms race.

The book discusses the topic along the following chapters: Dealing with the civilian/military ambivalence of tritium; Diversion path analysis; Verification of an international tritium control agreement; Technical assessment of an international tritium control agreement; Appendix A: World tritium facilities, inventories and production capabilities; Appendix B: Abbreviations.

Intended audience: analysts in nuclear non-proliferation and disarmament; think tanks; military planners; journalists; nuclear scientists and engineers; and planners for nuclear energy systems.

Missile Control Under a Nuclear Weapons Convention

Alyn Ware

The most significant threat from ballistic missile programmes is the fact that they give the country developing the missiles the capability to deliver a weapon of mass destruction – most notably a nuclear weapon – to targets in both neighbouring countries and those further a-field.

While there are proposals to prohibit ballistic missiles and control other missiles (such as cruise missiles), the early achievement of such aims is most unlikely given the continuation of space launch programmes which use rocket technology easily convertible to ballistic missile use, and the dual-use nature of other missiles for conventional military use.

However, the threat from missiles could be reduced considerably if progress is made on prohibiting and eliminating their most dangerous payload – nuclear weapons. By the same token, the threat from nuclear weapons as they are being reduced pursuant to elimination would also be minimized if simultaneous progress is made on control and elimination of missiles – their principle means of delivery.

The importance of addressing both nuclear weapons and their delivery systems is recognized in the Non-Proliferation Treaty (NPT), the pre-ambles of which calls for “the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control.”

The importance of addressing both weapons and delivery systems is also recognized in current efforts being made to prevent the proliferation of both nuclear weapons and their means of delivery through such collaborative actions as the Missile Technology Control Regime, the NPT, the Proliferation Security Initiative, and UN Security Council Resolution 1540. However, such co-ordinated action is being undertaken in a predominantly discriminatory manner with those already possessing nuclear weapons and ballistic missile programmes being permitted to maintain – and even advance – their programmes while those without such programmes being prohibited from acquiring them.

Such a discriminatory approach is doomed to fail – for a number of reasons. First, the maintenance of nuclear weapons and missile programmes by some States prevents the development of robust verification and control mechanisms that would prevent the diversion of technology to other States. There will always be possibilities for other States to steal, buy, or copy technology and/or materials that would enable them to develop their own programmes. Second, the continued possession of nuclear weapons and their delivery systems creates a threat to other States which can prompt them into developing their own nuclear weapons and delivery systems in response – in order to deter a nuclear attack from those already possessing such weapons. Third, the fact that some States derive a special status from possession of such weapons creates an impetus for others to desire to also acquire such elite status. The celebrations of Indians when their government tested nuclear weapons demonstrated that desire to achieve a higher status and the joy when such status was achieved. Fourth, the maintenance of nuclear deterrence doctrines by the most powerful States affords nuclear weapons an even greater political power than the possession of large conventional military forces, and a greater power than if they were prohibited and considered universally illegitimate. The indication of such political power is evident in a number of situations, including the enhanced negotiating position North Korea attained once it started developing ballistic missile and nuclear weapons programmes, and the fact that the five most powerful countries in the Security Council – the Permanent Five – are all nuclear weapon states (NWS). Finally, the continued justification by possessing States of their nuclear weapons and ballistic missile programmes makes it much more difficult to develop the global norm against these weapons which would assist in the development and implementation of both domestic and international law to prohibit their development.

Thus, a comprehensive non-discriminatory approach to both nuclear disarmament and missile control is required. This is the approach being advocated by those proposing negotiations on a nuclear weapons convention (NWC).

What is a Nuclear Weapons Convention?

In the strict sense, a nuclear weapons convention is an international treaty or package of agreements, achieved through negotiations by States, prohibiting the use, threat of use, development, testing, production, stockpiling, and transfer of nuclear weapons and providing for the elimination of nuclear weapons and their delivery systems.

In the wider sense, a nuclear weapons convention is much more than just a treaty or package of treaties. It would represent the codification, i.e. the affirmation and implementation in international law, of a customary norm against nuclear weapons. It would give effect to a universal understanding that nuclear weapons are by their very nature illegitimate and thus require both prohibition and elimination. This customary norm already exists as demonstrated by the International Court of Justice (ICJ) in its 1996 Advisory Opinion which concluded that the threat or use of nuclear weapons was generally illegal. The achievement of a NWC would indicate that all States accept such a norm and are prepared to implement it.
A nuclear weapons convention would also be a vehicle for the implementation of already existing nuclear disarmament obligations, particularly those arising from the NPT and those which the ICJ affirmed as applying universally, i.e. even to non-parties to the NPT.

The adoption and implementation of a NWC would also involve a transformation of the political and security framework of the NWS, their allies, and the institutions in those. The change would be one from maintenance of nuclear weapons and deterrence policy to one of abolition and elimination. Once achieved, this transformation of personnel and operating systems in foreign ministries, defence ministries, nuclear weapons manufacturing facilities, and research and development laboratories would be difficult to then turn back again to nuclear weapons development.

The abandoning of nuclear weapons would also indicate a wider change in security doctrine. Nuclear weapons arose from a search for increasingly destructive weapons to fulfill security doctrines based on the development of superior force to an enemy in order to deter or overwhelm them in a conflict. Thus, prohibiting nuclear weapons would indicate an abandonment of the futile search for superior military power and an implementation of alternative doctrines based on common security, international law and the use of international mechanisms for conflict resolution and war prevention.

**A Model Nuclear Weapons Convention**

A NWC is much more than just a treaty or package of treaties. However, framing the development of a NWC through the lens of a comprehensive treaty can be helpful in identifying the political, legal, and technical elements that will be required for the achievement and maintenance of a nuclear weapons free world. For this reason, in 1996 an international consortium of lawyers, scientists and disarmament experts, led by the Lawyers’ Committee on Nuclear Policy, began work on drafting a Model Nuclear Weapons Convention.

The drafters had to consider the varied perspectives and security concerns of all States currently relying on nuclear weapons as part of their security doctrine – whether these were NWS, nuclear capable States, or allies of the NWS that have accepted extended deterrence doctrines. The drafters had to build into the treaty mechanisms that would ensure compliance with disarmament obligations, help States develop confidence that other States were complying, respond effectively to disputes or violations of the treaty, prevent the development of future nuclear weapons capability, ensure that individual as well as State responsibility would be established and ensure that sensitive information – military and commercial – would not be exposed.

The resultant Model NWC was submitted to the United Nations by Costa Rica in October 1997 and circulated by the UN in November 1997 (UN Document A/C.1/52/7).

The key components of the Model NWC (treaty) are described below.

**General Obligations**

The treaty contains both negative obligations, i.e. those actions which are prohibited, and positive obligations, i.e. those actions which are required of States Parties.

Negative obligations include the prohibition of the development, testing, production, stockpiling, transfer, use and threat of use of nuclear weapons, as well as preparations for use of nuclear weapons and the development of nuclear weapons grade material (plutonium or highly enriched uranium).

Positive obligations include the requirement for NWS to destroy their arsenals in a series of phases over fifteen years and requires delivery vehicles to be destroyed or converted to make them non-nuclear capable. States are also required to participate in activities aimed at transparency and education for the purpose of detecting and preventing prohibited activities and to report violations of the Convention, cooperate with the implementing Agency, and enact domestic legislation for implementation.

**Rights and Obligations of Individuals**

The drafters introduced a somewhat novel but vital aspect, not found in other international treaties at the time, of applying the obligations to individuals as well as States. This was based on the conviction by drafters that the prohibition of nuclear weapons would require the criminalization as well as the delegitimisation of nuclear weapons.

More recently, the United Nations Security Council, through Resolution 1540, recognized the need to address individual responsibility by specifically calling on States to adopt criminal legislation with respect to weapons of mass destruction. However the Security Council only applies this to non-State actors involved in the proliferation of such weapons. The treaty calls for criminal responsibility to apply to both State and non-State actors and to both the proliferation of nuclear weapons and to the current possession and development of such weapons.

The treaty also includes measures to protect individuals who provide information on possible violations of the treaty. This is in order to prevent situations like those faced by Mordechai Vanunu who was imprisoned for 14 years for exposing Israel’s nuclear weapons programme and is still unable to leave Israel.

**Agency**

The treaty proposes the establishment of an agency to implement the treaty. It would be responsible for verification, ensuring compliance, and decision making, and would comprise a Conference of all States Parties, an Executive Council and a Technical Secretariat.

**Verification**

The treaty calls for verification through declarations and reports from States, routine inspections, challenge inspections, fixed on-site sensors, satellite photography, radionuclide sampling and other remote sensors, information sharing with other organizations, and citizen reporting (societal verification). Whistleblower protection would be available to citizens reporting suspected violations of the convention.
The Agency would establish an international monitoring system to gather information, and will make most of this information available through a registry. Information which may jeopardize commercial secrets or national security will be kept confidential.

Conflict Resolution
The treaty includes provisions for consultation, cooperation and fact-finding to clarify and resolve questions of interpretation with respect to compliance and other matters. A legal dispute could be referred to the ICJ by mutual consent of States Parties, and the Agency itself would be empowered to be able to request an advisory opinion from the ICJ.

Compliance and Enforcement
The treaty provides incentives for compliance plus a series of graduated responses for non-compliance beginning with consultation and clarification, negotiation, and, if required, sanctions or recourse to the U.N. General Assembly and Security Council.

Phases for Elimination
The treaty outlines a series of five phases for the elimination of nuclear weapons. Steps in these phases include gradual reductions in stockpiles, de-alerting nuclear weapons systems, removing weapons from deployment, removing nuclear warheads from their delivery vehicles, disabling the warheads, removing and disfiguring the pits and placing the fissile material under international control. In the initial phases the U.S. and Russia are required to make the deepest cuts in their nuclear arsenals.

Nuclear Material and Nuclear Energy
The treaty prohibits the production of any fissionable or fusible material which can be used to make a nuclear bomb, including plutonium and highly enriched uranium.

Low enriched uranium is permitted for nuclear energy, but the treaty includes an optional protocol which would establish a program of energy assistance for States Parties choosing not to develop nuclear energy or to phase out existing nuclear energy programs.

Model NWC Provisions on Missiles
The Model NWC (treaty) provides for:

a) the destruction of delivery vehicles designed solely for the purpose of delivering nuclear weapons,
b) the destruction or conversion to non-nuclear use of dual-use capability delivery vehicles,
c) verification and preventive controls to be placed on dual-use capability vehicles,
d) the adoption of a protocol on prohibition of certain dual-use delivery vehicles which are deemed threatening to security regardless of whether or not they are capable of carrying nuclear warheads.

The treaty categorises delivery vehicles into two schedules according to whether they are designed solely for the purpose of nuclear weapons (Schedule 1) or whether they are dual-use capability delivery vehicles (Schedule 2). Depending on technological developments, certain delivery systems might be shifted from one schedule to another on agreement of States parties to the treaty.

The additional protocol, which would be optional, provides encouragement to States to abandon threatening missile programmes without requiring such action prior to entry into force of the treaty. It would be expected that additional States would adhere to the protocol over time - their perceived need for such missiles would be reduced as their potential adversaries also abandon such missile programmes and adhere to the protocol.

The Path Towards Nuclear Disarmament: Step-by-step, Comprehensive or Incremental-comprehensive
There are three general approaches towards achieving nuclear disarmament. The first, a step-by-step approach, entails negotiations on a limited number of initial steps towards nuclear disarmament, with additional steps being considered once the first steps are achieved. The step-by-step approach has achieved a number of concrete disarmament agreements. However, these have been limited in scope and have failed to prevent nuclear proliferation, reduce reliance on nuclear weapons doctrines by the NWS, prevent the modernization of nuclear weapons systems, or give any indication that nuclear weapons may indeed be abolished in the near or medium future.

A divergent perspective calls for comprehensive negotiations on the complete prohibition and elimination of nuclear weapons. This approach has been advocated by the Non-Aligned Movement which has called on the Conference on Disarmament to “commence negotiations … on a phased program of nuclear disarmament and for the eventual total elimination of nuclear weapons within a time-bound framework.”

However, there is some opinion that a comprehensive approach could prevent progress due to the myriad of issues and disarmament requirements that would have to be addressed before any complete disarmament agreement could be reached. In addition, the fact that some of the States possessing nuclear weapons do not yet accept comprehensive negotiations precludes the possibility of such an approach in the near future.

The NWC takes an alternative path forward, which combines the advantages of the first two approaches and has been described as incremental-comprehensive. Such an approach incorporates step-by-step measures within a comprehensive framework. This is an approach suggested - but not fully developed - by the program of action agreed at the 2000 NPT Review Conference.

Malaysia, which introduces a United Nations General Assembly resolution annually calling for negotiations towards a nuclear weapons convention, notes that “the road towards the total elimination of nuclear weapons will be a long and arduous one and would be best travelled through a series of well-defined stages, accompanied by proper verification and control mechanisms,” and that the NWC approach “… is, therefore, not incompatible with the step-by-step, incremental approaches already mooted by others.”
While it is important to concentrate international attention on concrete steps towards nuclear disarmament which are achievable in the short term, it is also important to simultaneously consider the requirements for a comprehensive nuclear disarmament regime in order to develop an international understanding of the final destination of the nuclear disarmament steps. It can be difficult to construct a path to nuclear disarmament if we do not know more precisely what will be the end goal, what might be the obstacles along the way, and what might be possible paths to overcome these obstacles.

The nuclear weapons convention provides a road map to nuclear disarmament – not yet perfect or complete – but one that can assist the international community move steadily and irreversibly towards nuclear disarmament. A purely step-by-step approach, on the other hand, has been described as “like travelling in an old jalopy with a broken steering wheel, no idea of the final destination and questionable commitment to even reaching it.”

Malaysia explains in more detail the incremental-comprehensive approach in a working paper prepared for the 2005 NPT Review Conference on Legal, technical and political elements required for the establishment and maintenance of a nuclear weapons free world.

The paper notes that “Consideration of the elements of a nuclear disarmament regime at this stage could help give direction to intermediate steps and to overcome some of the roadblocks in the current disarmament fora,” and links certain elements and steps identified in the Model NWC with the 13 disarmament steps agreed at the 2000 NPT Review Conference and the agenda for nuclear disarmament developed by the New Agenda Coalition (Brazil, Egypt, Ireland, Mexico, Aotearoa/New Zealand, South Africa and Sweden).

**Political Reality and a NWC**

Calls for negotiations towards a NWC – whether made by individuals, organizations, or governments – have often been dismissed as unrealistic and thus without merit. However, both claims can be refuted.

Even if it were unrealistic to expect the achievement of a NWC in the short or medium term, consideration of what would be required in a NWC would have merit. Such consideration could, for example, assist in the development of disarmament steps which, while limited, would still be valuable in their own right. In addition, consideration of the legal, political, and technical elements that would be required for a NWC, and preparatory work on these, could ensure that once the political conditions are right for negotiations, they will be able to proceed much quicker and more successfully than if no prior planning had occurred. An example of such preparatory work is being undertaken by the United Kingdom on the verification requirements for nuclear disarmament. On the basis that one day the UK will join nuclear disarmament negotiations, the Ministry of Defence is undertaking a study on how to verify the disarming and destroying of their nuclear weapons systems.

Such preparatory work will not only make negotiations move more quickly once they start, it will also help overcome blocks to the commencement of such negotiations – such as the current lack of confidence in the ability to verify or enforce compliance of a NWC. The preparatory work undertaken in the late 1980s and early 1990s on the development of seismic and radioisotope monitoring, for example, helped build the confidence necessary for the commencement of negotiations on the Comprehensive Test Ban Treaty in 1993, which was concluded in 1996.

It is important, however, to consider the possibility not only of preparatory work which will assist negotiations on a NWC once they commence, but also of commencing such negotiations now. Are such negotiations really unrealistic or idealistic in the current political circumstances?

The claim of ‘unrealistic’ or ‘idealist’ is often made by those with an interest in maintaining the status quo and those lacking the imagination to consider the possibility of change. It was a claim made for example about the visions to end slavery in the US south, to advance the vote to women in Western countries, to end the South American dictatorships, or to end apartheid in South Africa. On the other hand, merely imagining a change or claiming the high moral or legal ground – and the verdict on nuclear weapons announced by the International Court of Justice in 1996 definitely confers this high ground to nuclear abolitionists - does not of itself indicate that the practice will necessarily end. A more sophisticated analysis of political forces is necessary to give some idea of the possibility of nuclear disarmament.

Such an analysis is beyond the scope of this paper. However, a cursory glance at the situation would indicate that despite some negative developments – particularly in US nuclear doctrine and in the withdrawal of North Korea from the NPT - it would appear that the scales could tip towards the side of the optimist abolitionists given:
- the spread of nuclear weapon free zones to over half the world,
- public opinion polls indicating support for a NWC even in the NWS,
- the achievement of an unequivocal commitment by the NWS at the...
2000 NPT to achieve the elimination of nuclear weapons,
■ the shift by many NATO States to support the United Nations disarmament resolution introduced by the New Agenda Coalition countries,
■ over 2000 organisations joining Abolition 2000 - an international network supporting a NWC,
■ over 600 cities joining the Mayors for Peace Emergency Campaign for the Elimination of Nuclear Weapons,
■ the growth of the recently established Parliamentary Network for Nuclear Disarmament to engage hundreds of parliamentarians from 50 countries in nuclear disarmament actions.
Welcome as these developments may be, are they sufficient to overcome forces which keep nuclear weapons firmly within the doctrines of the NWS?

In 1960, Hans Morgenthau, often referred to as the father of realism, noted that nuclear disarmament was impossible without changing the existing power structure, as the development of such weapons was an unavoidable result of States competing for power through military advantage. Merav Datan has commented that “According to the realist view, therefore, nuclear weapons are a symptom of the fundamental power struggle that defines relations between States, and nuclear disarmament is a superficial manifestation of this power struggle.”

Whilst State predominance in the development of political reality has never been an absolute – in fact the rise of the nation-State is a relatively new phenomenon in history - it is inarguable that for the 19th and 20th Centuries at least, State competition was indeed a major force shaping international politics and security.

However, other factors are becoming as powerful as State competition, arising from such developments as the breakdown of the USSR-USA super-power competition and more recently the development and increasing role of international organizations, international communication systems, non-governmental organizations, international legal mechanisms, global consciousness, and the globalization of markets.

Datan, commenting on the influence of just one of the growing internationalist communities – international parliamentary networks – notes that “parliamentarians are perfectly situated to challenge outdated “realistic” notions of security and international relations as merely a struggle for power through military means. By uniting to challenge the most flagrant symbol of military power and call for the abolition of nuclear weapons, the Parliamentary Network for Nuclear Disarmament can help promote new and even more realistic notions of the symbols of power and the structures of power, better suited to today’s realities and the political will of the world’s citizens.”

The NWC is both an expression of, and a vehicle to more quickly achieve, this emerging world where international law and cooperation replace the reliance on competition and force. Existing and emerging dangers, including the possibility that we could be derailed by a nuclear disaster, may prevent us achieving such a world. However, the question should not be one of whether or not a NWC is possible, but how we can more quickly achieve one in order to ensure that such a disaster never occurs.

In difficult human endeavours, whether it be climbing Mount Everest, reaching the moon, or abolishing nuclear weapons, the key factor in reaching the goal is to make the decision and then act. Difficulties then become problems to be overcome rather than rationales to prevent progress. The Nuclear Weapons Convention provides a map for climbing the mountain to a nuclear free world - for planning routes to avoid pitfalls and for making preparations for some of the difficulties which could be faced along the way.

Is it time to start the journey up the mountain? As Sir Edmund Hillary said about trying to scale the highest mountain in the world: “Nothing ventured – nothing gained.”

1 The five States that tested nuclear weapons prior to 1970, for example, are acknowledged in the Non-Proliferation Treaty as Nuclear Weapon States. These are the same five States that alone hold veto power in the UN Security Council.
3 See for example UNGA resolution 58/46, Follow-up to the advisory opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons, adopted by the UN General Assembly on December 8, 2003; http://ods-dds-ny.un.org/doc/UNDOCGEN/NGO/03/455/6/7/PDF/N0345567.pdf?OpenElement.
4 Alyn Ware, The Nuclear Disarmament Journey: Steps leading to the final goal; www.lcp.org/mnw/Disarmament%20Journey.htm.
5 Alyn Ware, op.cit.
8 Merav Datan, op.cit.

This paper was written for the conference "The Challenge of Hiroshima. Alternatives to Nuclear Weapons, Missiles, Missile Defenses, and Space Weaponization in a Northeast Asian Context" organized by INESAP and the Nuclear Age Peace Foundation on October 8-11, 2004, in Hiroshima, Japan.

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Unraveling the NPT
On Nuclear Weapons, Missile Defenses, and Space Weaponization

Regina Hagen

Six decades ago, one country envisioned acquiring decisive military advantage over the rest of the world by building and monopolizing nuclear weapons. But it didn’t take long before other countries followed the US example. The presumed strength turned into the nightmare of nuclear arms races, overkill, and the prospect of mutual annihilation. To date, trillions of dollars have been spent by nuclear weapon states on optimizing warheads, delivery systems, and the infrastructure required for their use. Today, we are repeating this dangerous example and extending it into space.

Only by keeping the full spectrum of weapon systems in mind can disarmament be achieved. Part of this picture is the need to restrict the military use of space. The growing dependence of high-tech military forces on satellites results in a vicious circle of threat (or perceived threat), protection, defense, offense, and counter-offense. Weaponization of space by some states would encourage other, less technologically advanced countries, to counter asymmetrically – and nuclear weapons would certainly be one of the options, for example, to destroy ground stations and thus disable the command and control infrastructure for space weapons. Even if nuclear weapons were ruled out, other means to offset the space advantage would be found.

It is not a coincidence, therefore, that Article VI of the Non-Proliferation Treaty (NPT) obligates the member states to “a Treaty on general and complete disarmament under strict and effective international control.” This was confirmed at the 2000 NPT Review in Step #11 of the 13 practical steps: “Reaffirmation that the ultimate objective of the efforts of States in the disarmament process is general and complete disarmament under effective international control.”

MD – Bound for Proliferation

Rather than fulfill their disarmament obligations under the NPT, some countries have directed their energy into building missile defenses. Russia still maintains a small protective shield around Moscow, which had been allowed under the now-defunct Anti-Ballistic Missile Treaty. The US, however, has higher ambitions: global systems deployed on land and on sea, in air and in space. President Bush said a few years ago that “Defenses can strengthen deterrence by reducing the incentive for proliferation.” The opposite is probably true. A recent report shows that construction of the Russian missile defense system in the 1960s provoked the US not only to considerably increase the numbers of its nuclear systems but spurred it to increase the quality of its arsenal by developing multiple independently targetable re-entry vehicles, the so-called MIRVs. MIRVs were poised to be eliminated under START-II, but now we observe their speedy revival.

In response to US missile defense programs, China is said to be developing new missiles for MIRVs. China will also increase the number of its missiles and may eventually place its nuclear weapons on constant alert.

Russia tested a hypersonic weapon just a few weeks ago. The prototype was proven to maneuver quickly in altitude and in direction while in orbit, thereby making “any missile defense useless”, as a senior Russian general commented after the test. Furthermore, the US encouraged Russia to maintain the high alert status of its nuclear arsenal to counter Russian missile defense fears, thus increasing the risk of an inadvertent or unauthorized nuclear strike.

We can also anticipate a missile defense arms race. Australia and Japan have already decided to participate in US missile defense programs. Canada and the UK are negotiating their involvement. The US is conducting a survey of where in Europe it could deploy interceptors for its ground-based system. NATO is doing a feasibility study for its own system – extending the scope beyond the tactical range. Israel cooperates with the US on its Arrow system. India wants to buy the Israeli system. Russia keeps the Moscow system running and offers SS-300s for sale.

Here at international fora, governments speak only of horizontal proliferation, while the US itself is actively engaged in serious vertical proliferation of missile defense schemes. The Pentagon’s Defense Science Board defied a defense appropriation ban to examine the use of nuclear weapons in missile defense. The Pentagon also has efforts under way to develop miniature kill vehicles, up to a dozen of which could be carried by one interceptor. That means MIRVing missile defense!

Space – Field for Future Arms Races?

We all are aware of the close link between missile defense and space weaponization, and it has been made even clearer by the latest US Air Force Transformation Flight Plan. One example out of many might suffice to make the case:

A Ground Based Laser is envisioned for the future. This system “would propagate laser beams through the atmosphere to Low-Earth Orbit satellites to provide robust defensive and offensive space control capability.” As if this weren’t enough, an additional component5 “will significantly extend the range of both the Airborne Laser and Ground-Based Laser by using airborne, terrestrial, or space-based lasers in conjunction with space-based relay mirrors to project different laser powers and frequencies to achieve a broad range of effects from illumination to destruction.”

Further systems described in the Air Force document are:

Air-Launched Anti-Satellite Missiles “to intercept satellites in low earth orbit” (thus creating space debris that would then threaten all space assets);

the Counter Satellite Communications System “to deny and disrupt an adversary’s space-based communications system”;

India wants to buy the Israeli system. Russia keeps the Moscow system running and offers SS-300s for sale.
and early warning” plus a Counter Surveillance and Reconnaissance System “to deny, disrupt, and degrade adversary space-based surveillance and reconnaissance systems” (both depriving the adversary of its ability to know what is going on and consequently increasing the risk of a full-scale (nuclear) strike);

- Hypersonic Cruise Vehicle able to “reach time-critical targets up to 9,000 nautical miles away within two hours with payloads up to 12,000 pounds;”

- Hypervelocity Rod Bundles – the so-called “Rods from God” - to “provide the capability to strike ground targets anywhere in the world from space;” and many more.

Obviously, under the current Bush administration, the previous restrictions on using space offensively have been thrown overboard at an incredible pace. In the words of Air Force Space Command: “The major question in fielding offensive counterspace systems is the political will to do so.”

A recent study found that the use – or the possibility of the use – of space weapons could trigger a nuclear response from the other side. Moreover, if warfare were extended to outer space, commercial satellite investments would be greatly endangered. Accordingly, the looming weaponization of space must not be simply dismissed as a crazy fantasy of the military “boys with their toys.”

If the US continues to work on anti-satellite weapons and eventually deploys them, Russia and China – who have both declared a moratorium on ASAT testing – may do the same. India will not sit by. In such a scenario, I dare say that even the European Union would move to weaponize space. US attempts to prevent such proliferation would give further rise to security tensions.

Recently, a syllogism echoed through some military and political circles that those who control low-earth orbit control near-earth space; that those who control near-earth space dominate Earth; and that those who dominate Earth determine the destiny of mankind. It might well be true that those who control space determine the destiny of humankind – but most likely in a very negative way.

Rather than enter into a new arms race in space and destabilize the security environment even more, disarmament and a ban on missile defenses and space weapons are the proper solution. Therefore, the current initiatives to negotiate a space weapons ban are of utmost importance. On June 2002, China and Russia introduced a Joint Working Paper with Possible Elements of a Space Weapons Treaty to the Geneva Conference on Disarmament (CD). The paper was sponsored by several other countries and led to intensive discussion. As a result, in 2003 China and Russia felt encouraged to follow up by introducing a Compilation of Comments and Suggestions to the Working Paper. This initiative deserves your strongest support. We also applaud the Canadian efforts to develop a “new comprehensive approach seeking to integrate space security issues with the international community’s need for security and equitable access to space for peaceful purposes,” which has recently been presented at a seminar in Geneva.

Over the years, NGOs have also contributed constructively to the debate, suggesting, for example, “a comprehensive approach to deal with missiles and [ ] a ‘framework’ agreement to restrict the development, testing, and deployment of all ballistic missiles and missile defenses” two years ago. And a scientific Proposed Treaty on the Limitation of the Military Use of Outer Space even dates back to NGO efforts of 1984.

Our proposals

Last year, we offered specific proposals to help prevent an arms race with missiles, missile defenses, and space weapons. Rather than repeat those recommendations in detail here, let me just list them in short:

- Stop testing missiles and missile defense systems.
- Initiate negotiations for an international treaty banning tests of ballistic missiles and of missile defense systems.
- Initiate negotiations for a global treaty banning ballistic missiles and missile defense systems.
- Prohibit any research, development, testing, building, and deployment of weapons for use in space.

The time is ripe for disarmament in all its aspects, including the prevention of further steps toward missile defenses and space weaponization.

This presentation was prepared for the NGO Presentation session of the 2004 Non-Proliferation Treaty Preparatory Committee Meeting. The text was read to the diplomats by Charlotte Wobbiafah, a student from the International Law Campaign.

1 Office of the Press Secretary, May 1, 2001, Remarks by the President to Students and Faculty at National Defense University; www.whitehouse.gov/news/releases/2001/05/20010501-10.html.
3 Namely the Evolutionary Air and Space Global Laser Engagement (EAGLE) Airship Relay Mirrors.
Why the Conference on Disarmament Still Matters
What NGOs Need to Do

David Atwood

The last time the Conference on Disarmament (CD) undertook sustained negotiations was in 1996, at the time of the completion of the ill-fated Comprehensive Test Ban Treaty. While there have been previous follow-up periods in the history of this Geneva-based body and its predecessors, there is nothing to rival this stretch of inactivity and lack of productivity. Whatever the international political factors at the roots of this failure, the members of the CD themselves appear to be incapable, their protestations notwithstanding, of actually facing some of the basic institutional structural and cultural factors which also hamstring this body.

It is, therefore, perhaps strange to be arguing, as this small paper will do, that the CD still matters and why organizations with an interest in the future of disarmament should pay attention to the situation in Geneva.

Remembering Why We Have a Conference on Disarmament

The creation of the CD at the time of the First UN Special Session devoted to disarmament in 1978 was recognition that the broad range of disarmament-related concerns at the time were the concern of all the peoples of the world, and not just the superpowers. While a relatively small number of countries made up the original membership of the CD, they were charged with representing the concerns and interests of the international community as a whole. The CD has expanded in membership since 1978 and now has 66 members, but it is still far from a universal body. Members of the CD, therefore, continue to carry responsibilities to the international community as a whole, a fact that many appear to regularly forget in their pursuit of narrow national interests.

The negotiation of the Antipersonnel Mine Ban Convention outside the CD shows that there are situations where serious and effective multilateral treaties can happen in other ways. But in the minds of most governments around the world, the CD remains the central multilateral body with responsibility for negotiating agreements on disarmament concerns considered critical to international security. Because of this, and in the absence of plausible alternatives except around specific limited issues, the dysfunction in the CD should be of major concern to publics horrified by the range present and future threats posed by weapons developments.

A Vicious Circle Leading Only in One Direction

The longer the stalemate in the CD goes on, the less interest there is in it by concerned publics and by governments. But decline in interest has a number of serious consequences. As public interest declines, so too does the sense of pressure that governments feel. The fault does not lie with NGOs – it lies with the governments. But the absence of engagement with the CD is wrongly interpreted by some CD members as showing a lack of concern by NGOs in the issues for which the CD has responsibility. Equally, as the stalemate goes on, there is a noticeable reduction of high level engagement by governments in the CD. In recent years, the number of countries appointing ambassadors solely to the CD has dropped, delegations have been reduced, and the level of expertise within delegations has consequently declined.

It may well be that there is little that can be done in the foreseeable future to unblock the CD as it is currently structured. This must not mean, however, a further decline in either NGO or government engagement. Otherwise, those who really don’t want the CD to work effectively and who are not very interested in multilateral disarmament progress achieve their ends through sheer attrition.

Why Geneva Matters More Than You May Think

Geneva is a major centre for disarmament-related activity – on landmines, on biological weapons issues, on small arms, etc. – quite apart from the CD itself. This is the case in large part because the CD (and hence delegations with staffs dedicated to disarmament matters) is here. Hence, the importance of the CD extends beyond the specificities of the CD itself. Governments need to realize that a further decline in their CD engagement will also mean a decline in the capacities of the other Geneva-based disarmament processes. Similarly, NGOs need to come to understand that by focusing more attention on Geneva as a global focal point for disarmament concerns, they can also help to increase the pressure that governments feel over the real dissatisfaction which exists about inaction in the CD and the state of multilateral disarmament processes generally.

Engaging with the CD: Now Is the Time

The annual session of the CD runs from January to mid-April, mid-May to the end of June, and early August to mid-September. Because of this extended way of working and because very little of anything that ever happens during these many weeks each year is actually open to NGOs, it is very difficult for most NGOs to maintain a regular presence in Geneva. Nevertheless, there are many ways in which NGOs can engage more effectively with the member governments of the CD.

Following the CD

While coverage of the CD is limited, it is not a closed shop entirely. For NGOs not based in Geneva, the best way to follow the CD is by regularly consulting the DDA website on http://disarmament2.un.org/cd/. Here you will also find “provisional verbatim” documents from the formal sessions of the CD as they come on-line. But you should also consult www.reachingcrliticalwill.org for the coverage which Reaching Critical Will provides on the CD. Also, you can get regular analysis of the CD through Disarmament Diplomacy, the project of the Acronym Institute. (see www.acronym.org.uk/dd/).

Pressuring Your Government

Geneva representatives to the CD operate on instructions from their capitals. Those NGOs...
able to follow the work of the CD in Geneva are often told by government representatives that governments act when they feel domestic pressure to act on particular. Be in touch with your own relevant government departments as well as your parliamentary representatives to find out what your government is doing at the CD. For those countries not members of the CD, find out if your government is an “observer” state to the CD and, if not, why not. In putting your disarmament positions forward, relate these as closely as possible to action opportunities and realities in the CD. Let the NGO Committees on Disarmament in Geneva and New York know what you are doing (see addresses below).

Submitting Documents
Most NGOs are unaware that they have the right to submit documents to the CD. Most annual sessions now pass without any significant written input from NGOs. This only feeds the sense that there is no public interest. The Secretariat to the CD will notify all Geneva missions of documents received and will make these documents available upon request to Missions requesting them. NGOs are encouraged to send documents related to the broad range of issues on the CD’s “agenda” to: Mr. Enrique Roman-Morey, Deputy Secretary General of the Conference on Disarmament, Conference on Disarmament, Palais des Nations, avenue de la Paix 8-14, 1211 Geneva 10, Switzerland. You could also send these electronically to him on eroman-morey@unog.ch. In your cover note to your publication, please say that you are submitting your publication to the Conference on Disarmament and that you would appreciate his assistance in making delegations aware of the receipt and availability of it. Instead of a report at the end of this year’s CD which says NGOs submitted no documents in the 2004 session (as was the case last year), it would be wonderful if the CD were flooded with well researched, well argued positions on disarmament concerns. If you wish to get documents directly to the Geneva missions, the NGO Committee for Disarmament can supply you with a list of Mission permanent representatives and addresses.

Formal Recognition of the Importance of an NGO Role: Small Progress
While there are few NGOs regularly in Geneva, the steps they and others have taken – and the engagement of NGOs more generally with other disarmament processes both within and without Geneva – means that there is growing recognition among many governments that the present relationship between NGOs and the CD is inadequate and ultimately self-defeating. The almost total exclusion of NGOs from the work of the CD not only puts the CD at odds with nearly every other multilateral process but also is costing the CD dearly in valuable expertise and in outreach work to publics. Some governments – notably Egypt, Sri Lanka, Japan, Canada, Ireland, and Kenya in recent years – have made major efforts to get the rules of the CD changed so that NGOs can be more effectively included in the life of the CD.

It is impossible to report major progress, but two steps taken this year signal an opening to the role of NGOs. These are small steps indeed, but it is critical that we take full advantage of them. The first is that NGOs will be allowed twice during any given annual session to display documents outside the room where the CD meets. The NGO Committee will make suggestions as to when these two times might best be. The initial view on this is that this should be done when there may be a major parallel conference or initiative underway which would also bring NGOs in numbers to Geneva.

The second concession is that NGOs will be allowed to address an informal meeting of the CD once an annual session. However, this will only come into play once the CD has adopted a “programme of work,” something which has been blocked, with one short exception, since 1996. Nevertheless, NGOs must think how best to do this most effectively and be ready, should the time come. The NGO Committee for Disarmament will have the responsibility to put this into place.

The CD and the NPT Review Conference: Why Geneva is Critical in the Coming Months
Many NGOs will be unaware that many of the diplomats who represent their governments at the Non-Proliferation-Treaty (NPT) preparatory meetings and Review Conferences are also representatives to the CD. The 2005 Review Conference of the NPT appears headed in a bad direction. If you are working to see that this doesn’t happen, then you should put Geneva on your list of “intervention points” over the coming year. Governments need to feel the hot breath of the public on their necks. Here are some important steps in this:

- Send documents on disarmament issues to the UN Department for Disarmament Affairs in Geneva (address above) requesting that Missions in Geneva be notified; and send a copy of what your sending to Geneva to your government ministries responsible for the CD and the NPT, telling them what you’ve done.
- When writing to your government ministers and members of parliament, send a copy to the Mission of your government in Geneva, regardless of whether your government is a member of the CD.
- Plan to come to Geneva at least once between now and the NPT Review Conference, 2-27 May 2005. Visit your representatives here as well as the Missions of other key states in the CD and let them know how you feel. It is very important that NGOs be seen. Between now and the Review Conference it would be good if there were significant numbers of NGOs in the balcony on Thursday mornings (the only “open” meeting of the CD each week), letting CD members know that they are being watched.
- Organize a meeting or an event in Geneva in the coming months. One of the most important things NGOs do in their engagement with governments in Geneva is to organize seminars and meetings for those governments. Formal methods of inclusion within the CD are far less important than what can be achieved informally through bilateral discussions and meetings of all sorts.
- Join the NGO Committee for Disarmament. This small Committee (at present) needs all NGOs that care about disarmament issues to join. Then this Committee will be able to serve you better as the interface with the UN system. Write to the Committee at the address below, with a letter outlining your work and if possible with a sample newsletter or publication showing what you are doing on disarmament. All requests for membership are reviewed by the Committee twice a year.

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Energy and Security: From Conflict to Cooperation

Jürgen Scheffran and Clifford Singer

The link between energy and security is not self-evident. While energy is connected to natural science and engineering, security is a political term, aiming for the absence of threat and the prevention of dangers to human life and society. Physical power, which is the rate of energy use, can be used productively, by supporting life and wealth, or destructively, by inflicting damage to life and the environment. Access to physical power sometimes transforms into political power. Thus, the link between energy and security is multifaceted:

- Energy security demands a sufficient energy flow to ensure the wealth desired by human beings and society, while the lack of sufficient energy flow is perceived as a threat that needs to be prevented.
- Energy has a direct impact on security if states take military action to "protect" their energy-related interests by use of force, leading to wars over fossil fuels.
- Wars, civil wars, and other forms of conflict or social disruption can impede access to energy resources.
- The energy system itself may cause risks and conflicts, e.g. by having disaster potential or polluting the environment, globally or regionally.
- The energy system and its various components are potentially vulnerable to attack by non-state actors as well as by national armies.
- The discussion of which energy path to take can turn into serious conflicts and struggles within or between countries, companies, and citizens.
- On the positive side, energy use as well as the prevention of risks and conflicts can be a field for international cooperation and global security. Thus, lack of energy, its use and misuse, and its side effects can impair the security of individuals, groups, nations, and mankind. Conversely, the state of security can have an impact on energy access, distribution, and use. This interaction is particularly evident in the Middle East where the quest for oil is linked to the proliferation of weapons of mass destruction. In the following we explore energy-security links. The news box shows that both many of today’s conflicts and areas of international cooperation are in one or the other way linked to energy.

**Fossil Wars: Obsolete Concepts and Historical Inertia**

The idea that there are likely threats to oil imports that are strategically critical to developed countries persists through historical inertia and is used to leverage domestic political contests. History provides examples of catastrophic consequences of launching wars based on obsolete concepts. These include the quest for historical prestige (in the origins of the Franco-Prussian War and First World War) and Lebensraum (in the origins of the European and Asian theaters in WWII). Energy resources explicitly entered the international security scene during the Franco-Prussian War, when the commandeering of the Lorraine ironfields by Germany set the stage for WWII and WWII.

Germany and Japan precipitated WWII by attacks supported by an ideology of expanding Lebensraum. In the nineteenth century in Europe and long before in Japan, population pressure and the financial needs of monarchies had made control of large land areas important. By the 1930s, declining fertility rates had made the pursuit of Lebensraum obsolete, but the historical inertia of the concept continued to provide its proponents with domestic political leverage.

Historically, the strategic importance of access to oil imports dates to the conversion of the British naval fleet to oil starting just before WWI, and there has been Anglo-American cooperation on projecting military power in the Persian Gulf region ever since. After WWII, the harsh winter of 1949 convinced the United States that continuity of oil supplies to Western Europe was needed to

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**News on Energy Security, November 15, 2004**

(Source: Institute for the Analysis of Global Security, www.iags.org)

- Global Energy Security in the Time of World Terror (Event)
- Baku-Tbilisi-Ceyhan pipeline: not yet finished and already threatened
- A strategic approach to pipeline security
- Terrorism goes to sea
- Radical Islam and LNG in Trinidad and Tobago
- Chinese Islam and LNG in Trinidad and Tobago
- Breaking free from energy dependence
- Terrorists have oil industry in cross hairs
- Protecting Iraq’s precarious pipelines
- Suez Canal opens after jammed tanker freed
- Militants fire grenades at Manila oil offices
- Philippines: Tighter security at Pandacan oil depot ordered
- PKK attacks oil pipeline in southeastern Turkey
- Iran’s oil revenues to hit $35B
- Iran wants China to replace Japan as top oil importer
- China signs $70 billion oil and LNG agreement with Iran
- Asia’s great oil hunt
- Will China, US Have to Compete in Global Search for Oil?
- China Looks to Latin America for potential oil supplies
- Energy at the source of Sino-Kazakh rapprochement
- China’s oil ties to Sudan force it to oppose sanctions
- Oil, arms stymie UN efforts on Sudan
- Expert: Russian oil exports may decrease
- India appoints standing committee on oil diplomacy
- India and Iran in gas partnership
- IEA report: Dependence on Mideast oil to grow
- China: Coal liquefaction plants spark hope
- EU-China energy and environment program launched
- President Bush signed Biodiesel Tax Incen-
avoid more upheaval and the need for yet another massive U.S. intervention there. At this time, the Western Hemisphere was self-sufficient in oil, so the U.S. interest was in buttressing Europe’s traditional sphere of influence rather than ensuring continuity in Western Hemisphere oil production. The United States intervened over oil nationalization in Iran as early as 1953, and gradually took over Britain’s force projection role after the post-1956 British retreatment from East of Suez. This first involved supporting Israel as a military ally in the Middle East while the United States was pre-occupied with Vietnam, and then directly positioning U.S. military equipment in the Gulf region.

The critical role of oil in WWII military operations cemented the idea that secure oil supplies are strategically essential. This view was reinforced when the oil-dependent countries were hit by the Yom-Kippur War in October 1973 and the following oil crisis, which came together with price increases of the Organization of Petroleum Exporting Countries (OPEC) and a world-wide recession. Western countries took countermeasures, and in 1974 the International Energy Agency of the Organization for Economic Cooperation and Development (OECD) was initiated with the encouragement of U.S. Secretary of State Henry Kissinger.

The U.S. policy that then evolved is reflected in a summary of the “Carter Doctrine” from the President’s 1980 “State of the Union” address: “An attempt by an outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.” The Carter Doctrine was explicitly broadened to cover potential regional as well as external control over oil resources in President Clinton’s 1996 National Security Strategy document:

“There are three basic categories of national interests that can merit use of our armed forces. The first involves America’s vital interests, that is, interests that are of broad, overriding importance to the survival and vitality of our national identity—the defense of U.S. territory, citizens, and allies and our economic well-being. We will do whatever it takes to defend these interests, including—when necessary—the unilateral and decisive use of military power. This was demonstrated clearly in the Persian Gulf through Desert Storm and, more recently, Vigilant Warrior, when Iraq threatened aggression against Kuwait in October 1990.”

Note that the United States did not have a formal alliance with Kuwait before Iraq attacked it in 1990, and the defense of U.S. territory and citizens was not an issue. Thus the justification cited in this quote for Operation Desert Storm is evidently related to economic well-being as a vital national interest (i.e., oil). The Iran-Iraq and Kuwait wars were fought explicitly over control of oil resources, but also gave ruling factions in all of the participating Gulf states an excuse for maintaining rule by nondemocratic regimes.

The idea of years-long war over access to oil as a critical military supply becomes increasingly obsolete. Subsequent developments made access to cheap Persian Gulf oil much less economically important. These developments included a dramatic decline in the oil intensity of economic production after 1973, the diversification of accessible oil suppliers after the Soviet collapse, and evolving mass production capacity for much more fuel-efficient hybrid automotive engines as well as other alternative forms of energy supply.

**How Long Will the Fossil Age Last?**

Since the end of the nineteenth century, coal has been increasingly replaced by oil as a cheap and abundant energy resource that can be easily transported over great distances and stored over a nearly unlimited time period. Increasingly, natural gas is taking over as a more environmentally friendly but harder to transport fossil energy. Because it depends on finite resources, the era of cheap fossil fuels will come to its end. Extrapolating the current supply rates into the future, the period for exhaustion of resources extractable with current technology and levels of capital and labor per unit energy production are given as 42 years for oil, 65 years for gas and 169 years for coal. Barring any major new developments in extraction technology, some think that as much as half of the oil that will ever be used has already been exhausted. In any case, we appear to be approaching a situation where the rate of learning how to extract oil more efficiently is being outpaced by the depletion of more readily extractable resources.

While the living conditions in the industrialized world have been associated with high energy consumption, the *per capita* energy consumption in the developing world is much lower, exacerbating deprivation that itself can in some cases lead to conflict. If in the coming years large energy consumers like China and India increase their oil imports, the increased competition for oil will push up international oil prices and further impede development in even poorer countries.

A key problem with fossil fuels is their unbalanced geographical distribution, which makes oil an issue for geopolitics. The largest reserves of fluid fossil fuels are located in crisis regions where the dependence of a few producers in the so-called “Strategic Ellipse,” stretching from the Middle East to Central Asia, intensifies a new “Great Game” over political influence in this region. Currently identified oil reserves are concentrated in the Middle East (ca. 67%), natural gas in the successor states of the former Soviet Union (43%) and the Middle East (29%), and overall resources extractable at the high 2004 price levels may be similarly concentrated.

Some industrialized countries, led by the United States, still have a policy of trying to enforce the access to these resources by a variety of means, including use of the military. In the Middle East, where a complex web of conflicts is rolling between Jews, Palestinians, neighboring Arabs, and the West, the link between energy, violence by nonstate actors, war, and the proliferation of weapons of mass destruction is most prominent. This is vividly shown by the Iraq wars. Iran’s nuclear program is facilitated by Iran’s oil sales and may be seen as a hedge against other powers’ quest for oil, but in return became a primary source of the security concerns that the same program hedges against.
Besides the Middle East, the oil-rich republics of the former Soviet Union are also striven by conflict. Their estimated oil resources are comparable with those of the United States and the North Sea, and their natural gas reserves are even larger. There are conflicts over the best transport routes (especially pipelines), the legal status of the Caspian Sea, U.S. sanctions against Iran, and finally the bloody war over Chechen independence.

**Oil Dependence and US Power Projections**

Since domestic U.S. oil production is in a long-term decline and at the same time the U.S. demand for oil increases, the United States is increasing its dependence on oil imports. With more than 25% of global crude oil consumption, the United States is the world’s biggest energy consumer, with more than half imported. According to the U.S. Department of Energy, by the year 2020 expected U.S. oil import rates may increase by two thirds. Part of this oil would be delivered from oil fields in Latin America, Africa, Russia, and the Caspian Region, but the largest share is expected from the Gulf Region. With an estimated reserves of 113 billion barrels, Iraq is second behind Saudi-Arabia (262 billion barrels), which owns more than 25% of worldwide oil reserves and produces 40% of its GDP in the oil business. (Seven barrels corresponds to about one metric ton.) Together with Iran, Kuwait, and the United Arab Emirates, these countries control more than two third of the world’s known oil reserves.

The Bush government has given oil a high priority in energy security and sees dependence on oil imports as a security problem: “A fundamental imbalance between supply and demand defines our nation’s energy crisis. As the chart illustrates, if energy production increases at the same rate as during the last decade our projected energy needs will far outstrip expected levels of production. This imbalance, if allowed to continue, will inevitably undermine our economy, our standard of living, and our national security.”

The security implications of U.S. oil dependence are highlighted by the recent wars in the Gulf region. The 2003 U.S.-led invasion of Iraq was apparently motivated by a desire to demonstrate the transformative power of U.S. military force. It is not accidental that an oil-rich country was chosen for this demonstration, rather than countries that had developed and exported nuclear and missile technology (Pakistan or North Korea), a historically repressive and meddlesome regime not party to the Chemical Weapons Convention (Syria), or weaker countries violating human rights on a large scale (such as Sudan). The huge costs of the war of several hundred billion dollars cannot be economically justified by the improved access to oil. Indeed, the invasion was followed by prolonged disruption of Iraqi oil and near record inflation prices for crude oil. A political unit such as the U.S. government does not act like an economic entity, however, those corporations do which profit from the war as well from rebuilding Iraq. As long as enough voters can be convinced of the acceptability of the war then they accept its cost.

**Climate Change and Global Security**

The environmental risks of fossil energy use can hardly be ignored. Coal mining changes the landscape and spoils ground water, and burning coal emits acid pollutants, photochemical substances and greenhouse gases. Oil may have less impact on climate, but still pollutes water, soil, and the atmosphere, sometimes with disastrous consequences if an oil transport ship sinks. Compared to the other fossils, natural gas is less polluting, even though transport and use bear dangers of explosive accidents, in particular for liquefied natural gas (LNG). Over-dependence on mineral resources for revenue can amplify existing conflicts, fuelled by the uneven and unbalanced distribution of benefits, costs, and risks. For instance, the oil and gas resources in the Niger Delta have long been exploited by foreign oil companies, without compensation for local people who suffer environmental and health problems from oil extraction.

Climate change induced by anthropogenic emissions of greenhouse gases, in particular of carbon dioxide from fossil fuel consumption, is one of the most serious global problems and may eventually be a factor in international security. A comprehensive scientific analysis on the current and future state of the global climate system is given by the reports of the Intergovernmental Panel on Climate Change, which released its most recent report in 2001. If greenhouse gas emissions continue, the expected increase in global mean temperature by 3 to 6 degrees reported by the IPCC would put man and nature in many regions of the world under extreme stress, causing incalculable risks and deep impacts on the Earth’s natural balance. Flooding and droughts, water scarcity and increased forest fires, heavy storms and changing ocean currents, dwindling glaciers and sea-level rise are disasters that can affect many people. Not less severe are slow changes, such as harvest losses, degradation of biodiversity, and the increase in hunger and poverty if the rate of climate change outpaces
adaptive reallocation of labor and other means of production. These problems affect developing countries in the South, which are more vulnerable due to their natural geographic conditions and the lack of adaptation capabilities, even though they are less responsible for global warming.

If a stabilization of greenhouse-gas concentrations cannot be achieved at a tolerable level, mankind may cross a critical point of no return, with potentially disastrous consequences. The decline of the thermohaline circulation that drives the warm Gulf Stream in Europe, the release of greenhouse gases such as methane from polar ice into the atmosphere, the long-term destabilization of the ice shelves in Western Antarctica, with an associated sea-level rise by 4 to 6 meters, and the changing precipitation patterns of the Monsoon in Asia could affect the life of hundreds of millions of people.

The interests of those who address the severe risks of climate change are in contradiction to those who are interested in maintaining the economic system that leads to global warming. Per capita energy consumption and gas emissions in industrialized countries exceed that of poorer developing countries by an order of magnitude. Accordingly, by ratifying the Kyoto Protocol many industrialized countries agreed to limit their emissions, while developing countries still can expand their energy consumption with their economic development. Until it is fully implemented and augmented by further measures by non-signatories and signatories alike, however, the Kyoto Protocol will have only modest impact on global warming. Unless and until further effective measures are adopted, disputes over the responsibilities for reducing and redressing the impact of global warming will continue.

The dispute over who is responsible for global warming is but an aspect of a broader disagreement over how to bridge the growing gap between environmental and economic goals, thus achieving wealth without destabilizing the climate. With large-scale climate change, grave social and economic disturbances and instabilities are expected which could generate or intensify conflicts on multiple levels. Climate change can contribute to a decline and widening gap in living conditions, and first of all affects those social groups that are too weak to master the consequences, while more wealthy groups are better equipped to take protection measures against disasters or long-term change. A few actors may feel to be possible “winners” while most people would be rather “losers” of global warming. Imposing the consequences on those who are “remote” in space and time marginalizes the affected social groups at the “peripheries” (inner-societal inequity), deepens the contradiction between poor and rich countries (inter-regional inequity), and postpones the problems and burden to future generations (inter-temporal inequity).

In order not to exceed the adaptation capacity of natural and social systems and keep the adverse consequences within limits, guardrails for tolerable climate change have been defined. According to such an approach, the carbon concentration in the atmosphere should not exceed a doubling compared to pre-industrial levels, which corresponds to a stabilization at 550 ppm (parts per million) carbon equivalent in the atmosphere and a temperature increase of two degrees Celsius compared to 1860. Without carbon capturing and sequestration, this target can only be achieved by a reduction of greenhouse gas emissions of at least 50%, which exceeds the Kyoto limits by a factor of ten.

Chain Reactions and Nuclear Conflicts

Nuclear power has been the subject of intense controversy. For its early proponents nuclear energy represented the promise of unlimited power, “too cheap to meter.” For the opponents, the radiation sign and the nuclear reactor containment dome became symbols of a complex, inherently unsafe and centralized large-scale technology – the evil genie leaving the bottle. All elements of the nuclear fuel cycle became targets of a rising protest movement: uranium mining, fuel element production, reactor operation, reprocessing, transport and storage of nuclear materials. The conflict spread to the scientific community, which until today is split on the impact of low-level nuclear radiation on living organisms and the resulting long-term casualties of radiation releases into the environment.

The reactor accidents at Harrisburg 1979 and Chernobyl 1986, in the hearts of the two former Cold-War adversaries, indeed demonstrated that hypothetical nuclear disasters could become reality and affect millions of people, not to speak of the billions of dollars and rubles spent on crisis management and disaster remediation.

While nuclear accidents occur on short time scales from hours to weeks, and critical events in a disaster may be even decided in minutes, the storage of nuclear waste concerns very long time periods. To sit out the decay of harmful radioactive isotopes, the material has to be isolated from the atmosphere for thousands of years, being a burden for future generations without a guarantee that societies are stable long enough to keep the material from re-entering the biosphere. Whether available technical solutions are adequate and politically manageable remains a subject of intense debate.

What is undeniable is that a single multi-kiloton nuclear explosion in a populated area would be the largest single human catastrophe since the end of WWII. A national security connection can be identified at the origins of almost every nuclear energy program. Such connections range from justification for government spending on technology with military potential, to co-ordination of the nuclear programs in non-nuclear-weapons states and those of nuclear allies, to maintenance of “recessed nuclear deterrence” capability by formally non-nuclear-weapons states, to actual co-production of electricity and weapons plutonium or tritium and dual use of uranium enrichment facilities for electricity and weapons production.

So far, the inherent overlap between the proliferation of nuclear power and of nuclear weapons has not been completely resolved by the safeguards of the International Atomic Energy Agency. In some cases, this overlap occurs within the bounds of agreed safeguards. This includes the recessed deterrence capability provided by Japan’s otherwise uneconomic fuel reprocessing program and the promise of Iran to stay within the bounds of the nuclear Non-Proliferation Treaty (NPT) even if it continues to enrich uranium. In other cases, NPT member states have hidden
acquisition and use of potentially weapons-relevant nuclear technology, as did Iraq, Libya, North Korea, and Iran.

Another potential security issue is vulnerability of energy facilities against war strikes or attacks by non-state actors. This is not only a problem for nuclear energy (though it can be particularly grave here) but for other energy facilities as well, such as oil and gas pipelines, oil tanks, big dams, LNG production and transport, or crucial nodes of the electricity grid.

As with any other energy technology, the risks of nuclear power have to be put in relation to its benefits and costs. The relative energy share of nuclear power plants is far below previous expectations, worldwide the thermal equivalent amounts only to about five percent of all energy use. While a few countries heavily rely on nuclear power, such as France and to some extent Japan, many countries have downgraded their nuclear energy programs, due to low public acceptance and cost overruns. Some, notably Germany, have at least in principle decided to phase out domestic nuclear electric production. Even with a revival of nuclear energy, as some expect now in response to energy shortages and climate change, it cannot provide a sustainable solution to the world’s energy problems in the very long term.

Towards Sustainable Security in the Energy Sector

By coordinating their own stored petroleum reserves and policies,16 major oil importers could position themselves to deal much more effectively and efficiently with OPEC through trade negotiations than by threat or use of military force. This would allow to limit the threat of use of NATO countries’ military force against OPEC members to discouraging unlikely outside attacks on OPEC countries or direct and substantial actual violence inflicted on NATO members. This in turn should substantially reduce or even eliminate future international conflict over who has control of energy resources, whether it be oil or gas.

Thus, from both a military and economic perspective, international conflict over fluid fossil energy resources may be made obsolete. However, this also requires that conflict over who has control over energy resources is no longer used to leverage domestic politics, particularly in the United States. Eventually countries will learn that fighting over who has control of oil resources is counter-productive or even ruinous, just as WWI and WWII convinced Europe that fighting over who has control of coal and steel production was obsolete. The essential question is when and how this lesson will be learned when it comes to other energy resources.

Moreover, with oil and natural gas likely facing increasing inflation-adjusted costs during the twenty-first century and capital-intensive nuclear power remaining problematic in the eyes of the public, coal will likely remain a major energy source for quite a while, at the cost of polluting the atmosphere and the risk of substantial damage from climate change. Even if the shorter-term risks of conflict over fossil fuels and mismanagement of nuclear materials can be reduced, coal will be economically competitive where cheap resources are nearby or nuclear power is politically unacceptable or mismatched in complexity with the locally available technological base. Along with increasing efficiency of energy use, the increasing use of renewable energy can provide an alternative to continued reliance on carbon burning with all of the above-mentioned risks.

After overcoming the start-up problems, renewable energy sources (other than large dams) offer an alternative with less risks, conflicts, and security implications. International wars, armed conflicts, and other disasters from use of renewables are quite unlikely compared to oil and nuclear technology. For small-scale projects, disputes can be managed or mediated. A study of the International Energy Agency on the environmental implications of renewable energies comes to the conclusion that “This report shows that renewables can make a significant contribution to reducing greenhouse and acid gas emissions. Renewables have their own environmental impacts but these are often small, site-specific and local in nature. Nevertheless, their deployment should be accompanied by the many methods identified in this review for ameliorating their potential impacts.”17

However there are risks if renewables are scaled up to the same order as fossil and nuclear energy at a breakneck pace. Because renewables need large areas to gather energy, as can be seen from large dams, they run into land-use disputes, first of all with food production.18 To avoid problems that plagued the existing energy system, a sustainable energy transition would take care of the economic, social, and ecological compatibility of each of the respective technologies. A comprehensive assessment would fully account for the material and energy flows in the life cycle, from resource exploration to disposal, and take the socio-economic impacts into consideration, including acceptance and conflicts. With careful attention to regulation of biotechnology use and safety standards for production and maintenance of power generation and transmission equipment, risks to health and the environment could be reduced.

This implies that the energy system and the societal conditions adapt to each other, and that societies do not rely on one single form of energy but rather on an appropriate mix, gradually phasing out the old path combined with energy savings and increased efficiency, while investing into new technologies. A future society with various kinds of renewables produced and consumed all over the place, would be different from today’s. The ability to generate energy could be much more broadly distributed, either for use on site or for sale in an open market. Future renewable and more decentralized energy technologies should no longer be a source of armed conflict, cause proliferation concerns or raise fears about vulnerabilities. Instead they should strengthen international cooperation and contribute to a more peaceful and sustainable system of global security.20

Literature

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ACDIS is an interdisciplinary research, teaching, and public service program, devoted to advancing and disseminating knowledge about the problems of war and peace. Established in 1978, the program’s primary areas of focus include: energy uses of technology and energy security; South Asian regional security issues; arms control and nuclear non-proliferation policy; conflict management; globalization; democratization in Russia and Eastern Europe; human rights; and military history.

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- Cheney 2001, p. 8-5.

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India’s Uranium Enrichment Program

M.V. Ramana

The last two years have seen revelations about secret uranium enrichment programs in Iran and South Korea. An older uranium enrichment program about which little is known publicly is India’s. Details of uranium enrichment activities have been kept largely secret in India, even more so than its other nuclear activities. Here I summarize what is known about the program, estimate its capacity and how much weapons-grade uranium could be produced at this facility should it be used to do so.

India’s interest in uranium enrichment dates back to the early 1970s. But it was only in 1986 that Indian Atomic Energy Commission Chairman Raja Ramanna announced that uranium had successfully been enriched. According to one report, a pilot scale plant has been operating in the Bhabha Atomic Research Center complex since 1985. A larger centrifuge plant has been reportedly operating at Rattehalli, Karnataka, since 1990. This is India’s main uranium enrichment facility. There is also an experimental laser enrichment program.

Construction of the Rattehalli plant started in the mid 1980s. During the initial years of operation, the plant reportedly had “frequent breakdowns as a result of corrosion and failure of parts.” It is therefore not surprising that many leaders of the Indian Department of Atomic Energy (DAE) held that uranium enrichment was very difficult and were skeptical of Pakistani claims that they had succeeded in enriching uranium to weapons-grade levels. Indeed, at least one chairman of the Indian DAE has privately argued that Pakistan did not have a nuclear weapon capability because it could not have succeeded in enriching uranium to weapons-grade levels because of the difficulties in constructing centrifuges of the required capacities.

The Rattehalli Plant and the Nuclear Submarine Program

The primary purpose of the Rattehalli plant appears to be to enrich uranium for the Indian nuclear submarine, officially termed the Advanced Technology Vessel (ATV), program. It is also possible that enriched uranium from this facility was used in the hydrogen bomb tested on 11 May 1998. Highly enriched uranium (HEU) is used in U.S. and Russian thermonuclear weapons.

According to a report from the early 1990s quoting unnamed official sources, the Rattehalli facility consists of “several hundred operating centrifuges made of domestically- produced maraging steel” with “a likely design throughput of under three separative work units (SWU) per machine per year.” One could take this to mean a total enrichment capacity of about 1,000-2,000 SWU/year. In 1997, it was reported that the DAE was planning to “build and install rotor assemblies of improved design.” Different enrichment levels for the output of the facility and the fuel used in the ATV submarine reactor have been reported these range from 6%-45%, but we will assume a range from 30-45%.

If, as Indian officials state, the primary purpose of the Rattehalli facility is to produce fuel for the ATV program, an analysis of the submarine reactor requirements could help estimate the uranium enrichment capacity. Strictly speaking this would only provide a lower bound. However, since the program has had operating difficulties, it is quite likely that the actual capacity is reasonably close to this lower bound.

Despite relatively prolific coverage of the Indian nuclear submarine program in the media, there is considerable confusion about its technical characteristics. In part this reflects the fact that the program started over 25 years ago and has evolved considerably over the decades. After numerous setbacks and failures, by the late 1990s a reactor design was finalized, and testing of a prototype commenced at the Kalpakkam nuclear complex in southern India. This implies that between 1990 and the late 1990s, the Rattehalli complex should have produced at least sufficient enriched uranium to fabricate the reactor core.

HEU for the Submarine Reactor

The amount of enriched uranium needed for a nuclear submarine reactor depends on a number of factors. These include the reactor power rating, the level of enrichment, the time intervals between core refuelings, the burn-up (which determines the fraction of the initial U-235 that is consumed before re-fueling), the reactor design (including factors such as fuel geometry, the use of burnable absorbers, and so on), and the use pattern (the average number of effective full power days per year or the average power the reactor produces through its lifetime). None of these are definitively known, and there are contradictory reports on some of these quantities (such as the power rating of the reactor).

One can set a lower bound on the power required by a submarine by estimating what is needed to overcome drag at the maximum design velocity. The maximum velocity of the ATV is usually given as about 30-35 knots, which corresponds well to maximum velocities reported for other nuclear submarines. At the lower value of 30 knots (15 m/s), the ATV would take about 36 hours to go from Thiruvananthapuram, a likely site for India’s strategic nu-
clear command center, to Karachi, Pakistan’s chief port and a likely site of naval blockade by India in the event of a war.

Assuming this speed and reasonable values for the other physical variables, the reactor power needed is about 112 MWth. However, this estimate is sensitively dependent on the assumptions made about various quantities. Therefore, it may be safe to assume that the submarine reactor power is somewhere between 90 MWth and 150 MWth.

The amount of uranium that is required for the submarine reactor core to operate at this power level depends on the reactor design, the time between re-fuelings, as well as the operational procedures and patrol routines followed by the submarine. For the same power rating and time between re-fuelings, the uranium inventory for a submarine that has a more demanding patrol routine would be higher. The core of the ATV is reported to have a design lifetime of ten years. If the ATVs are expected to have longer operational lifetimes, the core would have to be replaced at longer intervals.

Estimates of the U-235 requirements for U.S. submarines are about 0.6-0.7 g/shp-year, while the requirements for Russian submarines are likely to be about 0.315-0.35g/shp-year. The propulsion power rating for Charlie Class submarines is 20,000 shp. Similarly, the Sevmorput nuclear icebreaker/cargo ship requires about 0.375 g/shp-year of U-235. Due to the smaller distances that the ATV is likely to traverse, one could assume that the ATV will require about 0.3 g/shp-year of U-235. Based on all these different assumptions, I estimate that the core of the ATV might use about 40-160 kg of U-235, with a median estimate of 90 kg. The actual amount of uranium used will also depend on the level of enrichment.

### HEU for Nuclear Weapons

An additional demand for enriched uranium might be to test or manufacture thermonuclear weapons. In two-stage thermonuclear weapons, enriched uranium can be used in the primary, in the “pusher” encasing the fusion fuel. Enriched uranium may also be used to replace the “blanket” surrounding the warhead, which is usually made of depleted uranium, so as to increase the yield of a thermonuclear weapon. However, according to the official announcement that followed the 1998 tests, “the yield of the thermonuclear device tested on May 11 was designed to meet stringent criteria like containment of the explosion and least possible damage to buildings and structures in neighboring villages.”

If this were indeed the case, it is likely that the blanket may have been made of inert material. The requirement for enriched uranium may only be a few kilograms used in the spark plug in this case. We will assume this figure to be 5 kg and that about 10 kg of U-235 was produced for the test carried out on 11 May 1998. Apart from the amount actually used in the device exploded, this would also include processing losses and material used for conducting laboratory experiments.

In this scenario, the Rattehalli plant should have produced at least 100 kg of U-235 by 1999 for the submarine core and the thermonuclear device tested on 11 March 1998. Depending on whether India decided to stockpile thermonuclear weapons, there may or may not be a continuing demand for enriched uranium for weapons.

### Estimated Enrichment Capacity

Enrichment capacity is measured in Separative Work Units (SWU), or more precisely kilogram SWUs, and is the quantity of separative work (indicative of energy used in enrichment) when the quantities of the feed (usually natural uranium), the enriched product, and the remaining tails are expressed in kilograms. The enrichment capacity requirements, the feed requirements, and the amounts of uranium enriched to different levels containing 1 kg of U-235 are summarized in Table 1. For a given tails enrichment level, the SWU requirements per unit mass of U-235 does not depend strongly on the enrichment level. This SWU requirement may be lowered by using a higher enrichment level for the tail, but that would significantly increase the amount of uranium used as feedstock. Therefore, it may be safe to assume that the tails enrichment level is 0.3%, which means that it would take approximately 200 kgSWU to produce a kilogram of U-235. Thus, manufacturing the 90 kg submarine core would require 18,000 kgSWU of enrichment capacity. A 40 kg core would require 8,000 kgSWU of enrichment capacity and a 160 kg core would require 32,000 kgSWU of enrichment capacity.

Based on reasonable assumptions about when enrichment started and the tail enrichment level, our estimates of enrichment capacity are listed in Table 2. The best estimate of current (2004) capacity from our analysis is 4,800 kgSWU/year. However, we emphasize that there are significant uncertainties and so it would be more reasonable to quote a range of enrichment capacities, namely 3,900-10,400 kgSWU/year. The amount of enriched product produced would depend on the enrichment level. For example, if the facility were producing weapons-grade uranium (93% enrichment), then with this range of capacities, the

<table>
<thead>
<tr>
<th>Enrichment Tails</th>
<th>SWU/kg</th>
<th>Kg-EU/kg-U-235</th>
<th>kgSWU/kg-U-235</th>
<th>kg-feed*/kg-U-235</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>0.3</td>
<td>59.8</td>
<td>3.3</td>
<td>199.3</td>
</tr>
<tr>
<td>40</td>
<td>0.3</td>
<td>81.5</td>
<td>2.5</td>
<td>203.7</td>
</tr>
<tr>
<td>45</td>
<td>0.3</td>
<td>92.4</td>
<td>2.2</td>
<td>205.3</td>
</tr>
<tr>
<td>40</td>
<td>0.2</td>
<td>96.6</td>
<td>2.5</td>
<td>241.5</td>
</tr>
<tr>
<td>40</td>
<td>0.5</td>
<td>64.4</td>
<td>2.5</td>
<td>161.0</td>
</tr>
</tbody>
</table>

*Feed is assumed to be natural uranium.

Table 1: SWU Requirements
facility could produce about 20-50 kg every year. If the facility were producing 30-45% enriched uranium, then it could produce about 40-175 kg of enriched product and 4,500-12,400 kg of depleted uranium every year.

There is no indication that India is seeking to fuel any of its Light Water Reactors with indigenous enriched uranium. This is also borne out by the above estimates of the capacity. A facility with a capacity of about 10,000 kgSWU/year could produce about 2.6 tons of 3.3% enriched uranium each year. This is to be compared with the initial core loading of 66 tons for the VVER-1000 reactors that India is importing from Russia.25

Thus, at the estimated range of current capacities, it would take decades for India to enrich sufficient uranium for even one reactor core.

This estimate of enrichment capacity also has implications for the size of the nuclear submarine fleet that can be sustained by India. At 200 kgSWU/kg-U-235 and 90 kg U-235/reactor core, a 4,800 SWU/year facility could produce a reactor core in about four years. Nuclear strategists have argued that India requires a fleet of three to five submarines.26

Since each submarine would need a new core in ten years, the estimated current capacity may be just insufficient to produce the enriched uranium requirements for three submarine fleet. But since the enrichment capacity can be increased, this may not be a major bottleneck.

### Table 2: Estimates of enrichment capacity

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Average enrichment capacity (1991-1999)</th>
<th>Enrichment capacity in 1999&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Current enrichment capacity (2004)&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submarine core (90 kg U-235)</td>
<td>2,250 kgSWU/y</td>
<td>3,000 kgSWU/y</td>
<td>3,900 kgSWU/y</td>
</tr>
<tr>
<td>Submarine core (160 kg U-235)</td>
<td>4,000 kgSWU/y</td>
<td>6,500 kgSWU/y</td>
<td>9,600 kgSWU/y</td>
</tr>
<tr>
<td>90 kg submarine core + 1998</td>
<td>2,500 kgSWU/y</td>
<td>3,500 kgSWU/y</td>
<td>4,800 kgSWU/y</td>
</tr>
<tr>
<td>thermonuclear test (10 kg U-235)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 kg submarine core + 1998</td>
<td>4,250 kgSWU/y</td>
<td>7,000 kgSWU/y</td>
<td>10,400 kgSWU/y</td>
</tr>
<tr>
<td>thermonuclear test (10 kg U-235)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>assuming linearly increasing capacity and rounded off

### Literature:


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1 For example, the location of the uranium enrichment plant was not included in the list of nuclear sites exchanged by the governments of India and Pakistan as a confidence building measure, Hibbs, 1992a.
2 Albright et al., 1997, pp. 269-270.
4 Fera and Srinivasan, 1986.
5 Hibbs, 1992b.
6 Fera and Srinivasan, 1986.
7 Albright et al., 1997, pp. 270.
8 Though the yield of the nuclear test and therefore the success of the design have been questioned, there is no reason to doubt official Indian assertions that a two-stage thermonuclear bomb was tested.
9 Hibbs, 1992b.
11 For a more detailed analysis of these requirements see Ramana, 2004.
12 For a useful history of the program see Rethinaraj, 1998.
13 Raghuvanshi, 2001; Kumar, 1998; Gopalakrishnan, 2000. One report claims that these tests are of a “scaled down reactor” but this has not been corroborated elsewhere. Even if true, it is still likely that the Rattleshall...
Another Nuclear White Elephant

Zia Mian and A.H. Nayyar

Bearing in mind the fact that the Chashma-1 nuclear power plant has proved nothing to write home about, there seems to be little justification for the Chashma-2 project. Are all things nuclear above the law?

Pakistan has signed up to buy its second Chinese-made nuclear power plant. This new plant will be identical to the earlier reactor at Chashma, designed and built by the Chinese, on the banks of the Indus River, about 30 miles from Mianwali. The project has been given the go-ahead despite the fact that the experience with the first reactor has not been encouraging. Economic factors related to the project are dubious and many questions that were raised about the safety of the Chinese design and the location of the first reactor at Chashma remain unanswered.

The deal for the Chashma-2 nuclear power plant was signed in May this year. It is said that the reactor will be built in less than seven years, with some reports suggesting it might start operating by 2010. But building a nuclear power plant is no simple matter. There were similar claims about the Chashma-1 plant. When the Chashma-1 contract was signed at the end of 1991, it was thought that the reactor would start operating in six years. But it took almost nine years before it was finally handed over by the Chinese to the Pakistan Atomic Energy Commission (PAEC) in late 2000, and it was only formally inaugurated in early 2001. It is quite likely that the schedule for Chashma-2 will slip too, and it may be closer to 2015 before the reactor starts producing electricity.

Economics factors related to nuclear electricity are quite mysterious in Pakistan, since the PAEC cloaks itself in secrecy and seems reluctant to give away any kind of detailed accounts. But it was reported that the Chashma-1 reactor cost somewhere between US$ 600 million and over US$ 1 billion. Some informed sources suggest the actual cost was about US$ 1.3 billion, that is, approximately double the cost that was originally claimed. This is a staggering figure considering that the plant was designed to produce only 300 MW, meaning over US$ 4 per MW of electrical power capacity. For comparison, this is more than twice the cost for every megawatt of electricity generating capacity from the Ghazi Barotha hydroelectric project inaugurated by President Musharraf in August 2003. It has been reported that Pakistan has budgeted Rs 54.392 billion for the Chashma-2 reactor. As with Chashma-1, the actual final cost is likely to be higher.

The operating costs of nuclear reactors (per unit energy produced) are invariably higher than those of a thermal power plant. This is true in Pakistan’s case. Thus the electricity produced by nuclear power plants is bound to be costlier.

While China designed and built the Chashma-1 project, which the PAEC now operates, it is Wapda that has to buy electricity (to distribute it for domestic use etc). In 2003, Wapda signed to produce only 300 MW, considering that the plant was designed to be much cheaper than what is being charged. This is a staggering figure of Rs 3 billion. One senior official is of the view that the Chashma-1 plant is “going to eat our revenues for decades.” There is no reason to expect that electricity generated by Chashma-2 will be any cheaper. But whatever the cost

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CISED aims to promote environmentally sound and socially just development by contributing critically and constructively to public and academic debates. Its mandate is to work on issues at the interface of environment and development.
may be, Wapda and electricity consumers will have to pay.

Wapda officials have also protested that the Chashma-1 project is not a reliable one, compared to its own power plants or the ones run by commercial independent power producers. They say the plant has been frequently shut down without any prior warnings and requires long maintenance periods. For instance, according to the PAEC’s own reports, in 2002-2003, the project remained out of operation for nearly 175 days. In one incident, it took the authorities 33 days to repair a breakdown.

Part of the problem is that Chashma-1 is one of those plants that are called ‘turn-key’ projects. The design is Chinese and all the major components were made in China. All Pakistan did was pay for it and turn the key to start it. The Chashma-2 plant will be the same, because the PAEC is not involved in the basic design and engineering work. Therefore, if something goes wrong they will not be able to fix it. In such a situation, Chinese engineers have to be called upon to fix the plant. They charge extra for this, of course. There is little incentive for them to let Pakistani engineers take part in the repair work. So the PAEC remains dependent on Chinese expertise.

This is a more serious problem than it may appear. While the PAEC is clearly operating a reactor of which it has very little experience, it is also not clear whether China has the required competence.

Chashma-1 and Chashma-2 plants are based on a Chinese prototype reactor that was built in 1990. Owing to serious design problems, China decided not to build any more for itself. Instead, it first sold one copy, and now a second, to Pakistan. The original Chinese reactor (at Qinshan) suffered an accident in 1998. The reactor had to be shut down for a year. China could not fix the problem, and had to contact a US company to do the repair work. This included redesigning one part of the reactor. Tens of millions of dollars were paid to the American company. If China cannot deal with problems at its own independently designed reactor, it is by no means clear that it will be able to fix all the problems at Chashma-1 or Chashma-2. Perhaps the PAEC expects the Americans to come and help.

Other problems include the location of the reactors. It is close to the banks of the Indus River in an area where there may be earthquakes and where the properties of the soil may make the effects of an earthquake more severe than otherwise. An accident, God forbid, would have very serious consequences. In case of a large release of radioactivity, as happened at the Chernobyl nuclear power plant in 1986, Pakistan could face catastrophic problems. Estimates suggest that in the long-term there could be over 12,000 cancer-related deaths, and perhaps three times as many cases of cancer. There would also be radioactive contamination of the land, the Indus River, and possibly the groundwater. The effects, as at Chernobyl, could last for decades.

These are grave risks to run. They seem foolish given that both projects are small power plants, together making up just over three per cent of the already installed electricity generating capacity in the country. Reducing the enormous power theft in the existing electricity distribution system (about 40 per cent) could easily save more electricity than would be produced by both these nuclear plants. Similarly, investing the same amount of money in electricity conservation, for example by making motors, fans, fridges, and lights more efficient, would go a long way to removing any need for these plants altogether.

Poor economics, uncertain safety, and potential environmental dangers that have surrounded the Chashma-1 plant, all suggest that there needs to be a serious public debate before the Chashma-2 project is allowed to become a reality. The same demand was made about Chashma-1. In 2000, a coalition of Pakistani environmental groups and other non-governmental organisations wrote to President Musharraf asking him to stop work on Chashma-1 until there had been a detailed public environmental impact assessment of the plant. They argued that people are entitled to know and decide the dangers that will be run in their name. This kind of public assessment is required by the law, under the 1997 Pakistan Environmental Protection Act. But since the Chashma-1 plant was almost operational, the PAEC refused to admit that any public assessment was needed or possible, and the government just went along. The environmentalists were ignored.

It is not too late to do the right thing about the Chashma-2 Nuclear Power Plant. This project is still on the drawing board and there is still plenty of time for a public environmental impact assessment. It remains to be seen if all things nuclear prove to be beyond the law, beyond public debate and beyond reason.

This article was first published in Dawn Internet Edition on 23 July 2004; http://www.dawn.com.

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Talks Between India and Pakistan

Dec. 12, 2004, Global Security Newswire
Nuclear-armed rivals India and Pakistan held talks in Islamabad on developing nuclear confidence-building measures, according to Agence France Press. Among the topics that were expected to be discussed by senior officials were the creation of a nuclear hot line between foreign ministry officials from both countries and a formal system of advance notification of missile tests.

“There should not be an accidental or unauthorized launch or exchange of nuclear weapons, that will cause havoc,” Pakistani Foreign Affairs Ministry spokesman Masood Khan said. The delegations met for more than two hours, AFP reported. “We are trying to finalize a joint statement,” Khan said. Experts from both countries also met for a second day of talks on conventional confidence-building measures, AFP reported.
In this article, I want to talk about the history of the possibilities of applying nuclear fusion technologies to the development of nuclear weapons in Japan to date. Some people are concerned about nuclear weapons ambitions in Japan because the Japanese Government strongly promotes nuclear power for commercial use. In fact, Japan has 52 nuclear power plants, which makes the country number 3 in the world, and has about 5.4 t of plutonium. Moreover, a new re-processing power plant and a fast breeder reactor are under construction. And yet the Government insists that all these facilities are only for commercial use and they quote the IAEA's findings that Japan's nuclear policy is restricted to peaceful uses.

Obviously, nuclear armament is not only linked to plutonium production technologies. For example, a nuclear reactions database created for physical studies may also be used to develop nuclear armament technology. Therefore, from the viewpoint of socially responsible scientists, it is important to monitor whether the technology is being abused by politicians or policymakers. In the following, I will discuss nuclear fusion research and development (R&D) technology in Japan since the 1950's. In this context, some basic physics of nuclear fusion is given in the appendix for readers who are not familiar with this field.

### Inertial Confinement Fusion

The Institute of Laser Engineering at Osaka University has worked hard at realizing Inertial Confinement Fusion (ICF) since the 1970's. Although most of the research focused on a spark ignition system, a fast ignition system was developed in 2002, and it has continuously produced good results to date. This was a breakthrough in ICF research. In order to create the high pressure confinement and pellet fuel heating, the spark ignition system uses only one type of laser, whereas the fast ignition system uses two kinds of lasers for each target. As a result, the latter can operate with smaller power lasers, and proponents of this technology expect this will allow construction of a small and economically competitive reactor for commercial use in the future. The table above shows a comparison of the two systems.

<table>
<thead>
<tr>
<th>Laser energy</th>
<th>Gain of pulse energy</th>
<th>Pulse energy of nuclear fusion</th>
<th>Pulse repetition (laser)</th>
<th>Electric power</th>
</tr>
</thead>
<tbody>
<tr>
<td>[MJ]</td>
<td>[W]</td>
<td>[J]</td>
<td>[Hz]</td>
<td>[MWe]</td>
</tr>
<tr>
<td>Fast ignition system</td>
<td>0.3</td>
<td>-80</td>
<td>-20</td>
<td>3</td>
</tr>
<tr>
<td>0.6</td>
<td>150</td>
<td>90</td>
<td>3.3 (10)</td>
<td>100</td>
</tr>
<tr>
<td>1.0</td>
<td>200</td>
<td>200</td>
<td>3 (15)</td>
<td>240</td>
</tr>
<tr>
<td>Spark ignition system</td>
<td>2</td>
<td>100</td>
<td>200</td>
<td>3 (15)</td>
</tr>
<tr>
<td>4</td>
<td>100-150</td>
<td>400-600</td>
<td>-3 (6)</td>
<td>-600</td>
</tr>
</tbody>
</table>

Then a dose equivalent H is represented by the following equation (quality factor is 10, correction factor is 1):

\[
H = 14[\text{Gy}] 
\times 10 \times 1 = 140[\text{Sv}]
\]

According to the International Commission for Radiation Protection (ICRP) recommendations, this exposure causes serious damage to the nerves and can lead to death of even those people who are 100 m away from the explosion.

### Magnetic Confinement Fusion

The JT-60 of the Japan Atomic Energy Research Institute is one of the largest experimental tokamak plasma devices in the world. It achieved world record 1.25 for the Q-value (ratio of output to input) in 1998. For Magnetic Confinement Fusion (MCF), tritium is needed to sustain the nuclear reaction. Tritium production and tritium handling systems accordingly cause concern that MCF could be abused for military purposes. Although MCF devices like the JT-60 are not used to conduct deuterium-tritium reaction experiments, the Hydrogen Isotope Research Center at Toyama University has been conducting tritium handling studies since the 1980's.

The International Thermonuclear Experimental Reactor (ITER), the op-
eration start of which is planned for approximately 2013, will use 2.8 kg of tritium (the equivalent to $10^{18}$ Bq). According to the plan, the tritium will be bred from lithium in the blanket that surrounds the vacuum vessel and neutrons from the confined plasma. These reactions are as follows,

$$D + T \rightarrow ^{4}\text{He} + n$$

: Nuclear fusion reaction

$$n + ^{6}\text{Li} \rightarrow ^{4}\text{He} + ^{3}\text{He}$$

: Tritium breeding reaction

$$n + ^{7}\text{Li} \rightarrow ^{4}\text{He} + ^{4}\text{He} + n$$

: Tritium breeding reaction

$$^{9}\text{Be} + n \rightarrow 2n + ^{2}\text{He}$$

: Neutron doubled reaction

Rokkasho village in Aomori prefecture, where nuclear cycle facilities and the U.S. Misawa Air Base are located, is the candidate site for the ITER. The Japanese government never laid open why they decided on this site despite the fact that there are better-suited sites like Tokai village in Ibaraki prefecture.

Science and Technology in Japan and Recent Political Developments

There is little doubt that the studies mentioned above investigate fusion for commercial uses, but generally it is very difficult to distinguish between R&D studies for peaceful and those for military uses. Therefore, these technologies need to be safeguarded well and the facilities need to be supervised by a third party if we are to apply the "precautionary principle" to nuclear research as is already state-of-the-art in the field of environmental studies. Although the energy released by fast ignition systems is much smaller than needed for a nuclear bomb, the technology enables laboratory-scale and reproducible experiments. Furthermore, because we talk about a large-scale simulation study and with linear characteristics (i.e., the experiment keeps proportion even when it is scaled up), it has some similarities with subcritical nuclear tests.

The same applies to tritium production and handling technology. Even though scientists not might have dual-use thoughts, we need to keep an eye on R&D in this field.

Energy policy is one example of the ambivalent policy of the Japanese government. According to the long-term energy outlook released by the Ministry of Economy, Trade, and Industry, demand for electrical electricity will saturate in the 2020s. Furthermore, with the partial liberalization of the electrical power market soon to be continuing, it is economically unwise to build additional nuclear plants, even when it comes to light water reactors. In addition, fuel cell and renewable technologies have high potential in Japan and citizens want these power types. In this situation, the Government cannot convince us that there is need to promote nuclear fusion for power production.

Those scientists and engineers who are not concerned with the dual-use potential of a technology can easily be used as fig leaves by politicians with dual-use intentions.

In 2003, a Japanese magazine conducted an interesting survey on the opinions of the young-generation members of the Japanese parliament, the Diet. The results show that over 64% responded that Japan should amend Article 9 of its Constitution (see Fig. 1). 14% thought that Japan might in the future possess nuclear weapons. Japan declared the abandonment of war in Article 9 of its Constitution, and any revision of this part of the Constitution has been a taboo in the past. However, as relations with North Korea have been worsening, people are changing their mind. Half of those who responded to the poll said that the current diplomacy on North Korea was insufficient and indulgent. It seems that the rise of a new generation who does not know war has created a shift from "peaceful diplomacy based on disarmament" to "national security based on disarmament."

Conclusions

This article briefly discussed the possibilities of applying nuclear fusion technologies to the development of nuclear weapons. It is difficult to come to any conclusions on this issue. Certainly, in Japan, the technologies examined here have so far not been directly used for military purposes. However, this does not automatically mean that the Government of Japan will exclude the possibility to possess nuclear armament also in the future. Therefore, we need to follow this issue closely.

Appendix

Whereas nuclear fusion at a high temperature or electricity production based on such technology has not yet been achieved, the required conditions for nuclear fusion reactions have been determined theoretically (Lawson Criterion). In the case of a DT reaction, it requires not only the specific temperature that causes nuclear fusion, but the output energy must be at least equal to the input energy. To sustain a nuclear fusion reaction, adequate time $\tau$ [s] and density $n$ [cm$^{-3}$] must be maintained.

Lawson Criterion :

- $T = 100$ million K ($=10$ keV) and $n\tau > 10^{14}$ [s cm$^{-3}$]
- $n\tau = 10^{17}$ [s cm$^{-3}$ eV]

According to the above equations, two approaches to nuclear fusion are possible: the longer time approach or the higher density approach. The former is called Magnetic Confinement Fusion (MCF), and the latter is called Inertial Confinement Fusion (ICF) (see Fig. 2). (In the sun, the confinement energy comes from its own gravity. As for the hydrogen bomb, high density and temperature are created by the energy of previously ignited atomic bomb.)
MCF does not require high density but a longer reaction time: \( \nu \sim 10^{14} \text{ cm}^{-3} \) and \( \tau \sim 1 \text{ s} \) each. This approach needs a magnetic field for confinement, which is why it is named MCF.

ICF requires high density but not a long reaction time: \( n \sim 10^{26} \text{ cm}^{-3} \) and \( \tau \sim 10^{-12} \text{ s} \). When a high-power laser beam fires on the fuel pellet, the pellet is compressed by the counter-reaction of the high-temperature plasma’s expansion. The name “Inertial Confinement” comes from the fact that the expansion needs certain time – i.e. the pellet must be kept inert for a certain period.
Power Grid Interconnection for a Nuclear Free Korean Peninsula

Jungmin Kang

The third round of the six-party talks held in Beijing, June 23-26, 2004, ended with an agreement to resume discussions by the end of September. Even though the six parties stressed the need to take first steps toward the de-nuclearization of the Korean peninsula as soon as possible, big differences remain between the United States and the Democratic People’s Republic of Korea (DPRK) over the scope of a nuclear freeze, its verification, and other related measures. No breakthrough is expected in the US-DPRK nuclear deal due to a serious lack of mutual trust.

In response to the energy issue, fortunately, the United States agreed to the proposal that other parties - the Republic of Korea (ROK), Japan, China, or Russia - provide energy assistance to the DPRK if the DPRK agrees to commit to the dismantlement of its nuclear program. It would be worthwhile to consider a new strategy to help the DPRK to de-nuclearize by providing energy support to the country even before such a commitment. Energy support to the DPRK could have positive effects on the resolution of the DPRK nuclear conundrum since it could contribute to reducing political tensions around the Korean peninsula.

The ROK-DPRK-RFE Power Grid Interconnection

Regional energy cooperation could provide various benefits to all participating countries, it could in particular increase the energy security of all participating countries by increasing optimal use of existing resources, technology, etc. and by improving energy market efficiency and secure cost-effective energy supply through energy market integration and system interconnection.

The regional power grid interconnection is a good example for regional energy cooperation. Among others, the advantages are as follows: reduction of future capacity reserve requirements and consequently savings in investment costs; reduction of operating reserves so as to reduce the operating cost; resolution of the location problem; easing of the environmental problems; etc. Hence, the regional power grid interconnection will be to the economical as well as environmental benefit of all participating countries. However, many challenges are anticipated in realizing the regional power grid interconnection for the Korean peninsula, such as: high capital costs and investment risks; no regional financing mechanism; absence of legal systems that deal with different processes on contract enforcement and dispute resolution; and different technical specifications, among them different operating voltages and frequencies of neighboring power grids.

There are several examples of regional power interconnections worldwide. The largest one is located in Europe: the national energy systems of Western European countries are interconnected with national grids of both Central and Northern European countries. Canada and the United States also operate connected power grids, where Canadian hydro power stations provide electricity for US consumers. Another connected power grid exists among ASEAN countries.

A feasible example of a regional power grid interconnection for the Korean peninsula is an electricity transmission system between the Russian Far East (RFE) and the ROK, with the connection running over DPRK territory. It would allow the RFE to export power generated at existing and new hydro power stations to the ROK. David von Hippel of Nautilus Institute estimated that the capacity of the line could be up to 3 GWe with operation start in 2010 and costs of about US$ 2.5 billion. With the help of this line, work on two pressurized water reactors (PWRs) that were under construction by the Korean Peninsula Energy Organization (KEDO) at Sinpo in the DPRK could be cancelled.

Benefits for the RFE

The RFE would provide most of the electricity to be exported to the ROK via the DPRK. Recently, the RFE has been expressing that it would welcome such an arrangement. As of the end of 2003, the installed capacity of the RFE was at 7.2 GWe and it will likely increase to about 9.1 GWe by 2010. According to an RFE analysis from 2004, the RFE could supply up to 3 GWe to the ROK. To that end, the 500 kV transmission line from Vladivostok to Chongjin in the northern part of the DPRK could be extended to the border of the ROK and further south. The RFE could thus sell its abundant electricity to the ROK.

Benefits for the DPRK

Against the background of a serious domestic energy shortage, the DPRK has recently shown obvious interest in an ROK-DPRK-RFE power grid interconnection. In May 2004, a DPRK delegate made the following remarks about a power-sharing arrangement in the Korean peninsula at a forum held in Seoul: the DPRK was already building a new power-sharing system with Russia; connecting the system with the power grid in the ROK would make the sharing more successful; and the relevant governments should
discuss actual action plans to realize the regional power network. For hosting the transmission line, the DPRK could receive either an annual lump-sum or a certain amount of electricity per kWh transferred.

**Benefits for the ROK**

The ROK would be the major recipient of electricity to be imported from the RFE via the DPRK. The ROK government showed an interest in such an arrangement for the Korean peninsula at the Seoul Forum in May 2004. The ROK met with considerable difficulties in building new power plants due to strong objections by local communities that concern environmental impacts. With the RFE’s electricity supply, the ROK could meet its surging energy demand while reaping environmental and economic benefits.

Since the first commercial nuclear power reactor started in the ROK in 1978, fifteen PWRs and four CANDU (Canadian Deuterium Uranium) reactors became operational as of mid-Aug. 2004. One more PWR is under construction, with eight additional PWRs to be ready by the year 2015. However, rapidly growing "anti-nuke" movements organized by local residents and non-governmental organizations make it difficult for the ROK to deploy all planned PWRs by 2015. Furthermore, for two PWRs that are planned for 2014 and 2015, no site has yet been designated. The same is even true for thermal power plants planned to be available after 2015. It is safe to assume that by 2015, no more than two PWRs might actually be deployed in the ROK. Therefore, the ROK should seriously consider ways to cover its electricity deficiency of more than 2 GWe by 2015. Electricity supply from the RFE to the ROK by way of an ROK-DPRK-RFE power grid interconnection could be a solution to meet the ROK’s electricity demand in the long-term.

Electricity import from the RFE in the order of 2 MWe could replace the deployment of two 1 GWe PWRs, which would bring major environmental and economic benefits to the ROK: the generation of nuclear wastes such as spent nuclear fuel, Low and Intermediate Level Waste (LILW), and radioactive waste from decommissioned reactors would be noticeably reduced.

Assuming 1 GWe of nuclear capacity, 90% capacity factor, 34.9% average thermal efficiency, and 44,000 MWd/tHM average burnup, the annual amount of spent fuel discharged from a 1 GWe PWR amounts to 21.4 tHM. The 1 GWe PWR would discharge about 856 or 1,284 tHM of spent fuel during its lifetime of 40 or 60 years with life-extension, respectively. The average annual volume of LILW discharged from 1 GWe PWR in the ROK is about 28 m3. The 1 GWe PWR would accordingly discharge about 1,120 or 1,680 m3 of LILW during its lifetime of 40 or 60 years, respectively. The weight of radioactive waste arising from decommissioning of the 1 GWe PWR is estimated about 10,000 t, according to an OECD/NEA analysis from 2003. Therefore, the 2 GWe electricity supply from RFE to the ROK would provide significant environmental benefits to the ROK by reducing the amount of those hazardous radioactive wastes discharged during the operation and after shutdown of a 1 GWe PWR two times.

Considerable cost savings related to the storage and disposition of those radioactive wastes are anticipated for the case of non-deployment of two 1 GWe PWRs in the ROK. This study assumes that the unit costs for storage and disposition of PWR spent fuel, decommissioning of PWR, and disposition of LILW are 100-200 US$/kg HM, 320 million US$ per one 1 GWe PWR, and 1,600-3,200 US$/m3 LIW, respectively. Based on the above cost assumptions, the cost savings from the avoidance of nuclear waste generation for the case of non-deployment of 1 GWe PWR are approximately 1.0-1.1 billion US$ or 1.4-1.5 billion US$ (total undiscounted costs) over a lifetime of 40 or 60 years, respectively. Therefore, 2 GWe electricity supply from the RFE to the ROK would save the ROK twice the amount of the above mentioned costs. Moreover, the ROK can save the construction cost of the two 1 GWe PWRs of about 1.6 billion US$ each.

If we assume that 2 GWe imported from the RFE could also substitute the same amount of electricity generated at thermal power plants in the ROK, it would not only result in a significant reduction of air pollutants (such as SO2, NOx and other particles) and greenhouse gas (such as CO2) emissions but also solve the problem of having to select power facility sites against the will of the local population.

**Conclusions**

Even though there would be many challenges in realizing the regional ROK-DPRK-RFE power grid interconnection, it could create a win-win situation for the ROK, the DPRK, and the RFE by providing environmental and economic benefits to all three countries, if implemented.

Furthermore, via the ROK-DPRK-RFE power grid interconnection, energy support to the DPRK could get the DPRK involved in the multilateral energy cooperation system, reduce political tension around the Korean peninsula, and thereby bring a positive effect in resolving the DPRK nuclear conundrum.

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Time to Establish an International Sustainable Energy Fund

Alice Slater

The 1995 founding statement of the Abolition 2000 Network recognized the “inextricable link between nuclear weapons and nuclear power” and called for the establishment of an International Sustainable Energy Agency. The International Atomic Energy Agency (IAEA), established under the Non-Proliferation Treaty, that recognizes an “inalienable right” to the peaceful uses of nuclear technology, serves dual and conflicting functions, responsible for guarding against nuclear proliferation while promoting nuclear power, the inevitable precursor of the very proliferation it is designed to prevent.

The Abolition 2000 Sustainable Energy Working Group drafted a Model Statute for the creation of an International Sustainable Energy Fund (ISEF) that incorporates the growing interest for a detailed financing mechanism through which to implement sustainable development objectives. The creation of ISEF would go a long way to address the most immediate and urgent challenges of the new century: nuclear proliferation and global climate change caused by the consumption of fossil fuels. In 2001, ISEF was introduced at the ninth session of the United Nations Commission on Sustainable Development (CSD-9) in New York. It was subsequently discussed at the Financing for Development Roundtable on “Global Taxation” and at the European Union/North American Regional Roundtable that same year. It was also noted by the International Forum on Globalization in Alternatives to Economic Globalization, a report widely distributed at the third World Social Forum in Porto Alegre, Brazil, (2002) as “among the more comprehensive and widely circulated” statutes for alternative global operating systems.

ISEF was widely promoted and broadly supported in the lead-up to the World Summit for Sustainable Development (WSSD) in Johannesburg, South Africa, where it generated interest among governments, and was introduced at a “Friends of the Chair” meeting with the WSSD Secretary General and 25 member states, but was never placed on the official agenda. Funding issues, targets, and timeframes which it supports are formalized in the Sustainable Energy Initiatives of the 2002 NGO Energy and Climate Caucus, which were submitted at preparatory meetings to WSSD (Preparatory Committee 4) and are incorporated as Appendix I in the Statute.

Neither at WSSD nor since, have governments committed outright to funding for sustainable forms of renewable energy. Instead, they futilely rely on voluntary accountability by non-government entities, including multinational and private corporations, for solutions to the problems of worldwide poverty and inequitable access to energy. Despite years of professing their support for the progressive phase-out of harmful subsidies which support global warming and nuclear proliferation, they also refuse to negotiate specific targets and time-frames for accomplishing this and meeting their commitments.

Indeed, the overall amount of subsidies, direct and indirect, to conventional energy producers has actually increased over the past ten years, especially in industrialized countries. Estimates of subsidies, globally, amount to US$ 200 billion annually, not including infrastructure and other indirect relief. Experience demonstrates that without targets and timeframes, it becomes impossible to ascertain how, or in fact, whether, progress towards zero-emissions is actually occurring.

Functions and Funding of ISEF

ISEF is designed to support projects to promote energy conservation and sustainable sources of renewable energy. It is intended that funding for ISEF come from monies saved from the phasing out of subsidies by industrialized governments that support unsustainable forms of energy. It therefore provides an economic basis for partially counterbalancing the market effects of eight decades of subsidies relief as well as ecological damage caused by eighty years of conventional energy production and consumption.

A specific function of ISEF is to support diverse participation in all energy policy and project decision-making by underrepresented groups, such as the rural poor and low-income, indigenous peoples who populate developing countries and countries in transition. Half the world’s two billion poorest people lack adequate access to electricity and water and are least able to defend themselves against the negative impacts of fossil fuel and nuclear energy technologies. ISEF offers a win-win solution to governments and civil society alike by addressing this inequity.

Yet, in order for there to be sufficient time to put such projects in place, governments would have to commit to the establishment of such a fund.

An International Sustainable Energy Fund would produce increased returns by promoting existing renewable technologies, energy efficiency, and new applications that are clean, safe and inexhaustible in supply. Its approach guarantees a safer, cleaner world with access to more affordable and more reliable energy.

ISEF would, among other things:
(a) use 80% of the fund's income to support sustainable energy and pilot projects, including those in developing countries and economies in transition;
(b) be financed with at least 20% of the monies saved from phasing out governmental subsidies that support unsustainable forms of energy;
(c) help increase the global share of renewable sources of energy to 10% within five years of ratification and to 25% within ten years;
(d) assist OECD governments in disclosing subsidies to unsustainable energies, assist their redirection to sustainable energies, and monitor compliance with same, all within specific timeframes;
(e) help integrate external costs (such as those to health and the environment) in national energy policy and pricing decisions by a full life-cycle cost accounting;
(f) facilitate research, development, and the exchange of information and best practices between states;
(g) assist the transfer of sustainable energy technologies, materials, delivery systems, and services;
(h) assist states in meeting national targets for greenhouse gas reductions.

As Distinguished from the Kyoto Protocol

The implementation of ISEF would yield far greater benefits than we could realize from the Kyoto Protocol. Whereas ISEF specifically excludes nuclear and large-scale hydropower from its definition of clean, sustainable energies, Kyoto is unclear as to whether or not the permissible range of its “clean development” activities includes them. Moreover, Kyoto may reduce global emissions, but won’t actually fix the underlying problem, because it does not include renewable energy introduction targets. The development of renewable energy technologies, unaided, will not happen quickly enough to alleviate the negative effects of global warming, as renewables presently comprise less than 2% of global energy production. And most scientists agree that the emissions reduction targets agreed to by industrialized countries – 5.2% below 1990 level – are inadequate to address global warming.

A reduction in emissions is not even guaranteed under Kyoto. “Even if the countries of the North were to dramatically reduce emissions, those cuts would be overwhelmed by the [expected carbon emissions] from India, China, Mexico and Nigeria,” who cannot afford to go solar, and who in large part do not even have access to electricity. And emissions from the former Soviet republics, currently below the 1990 limits allowable under Kyoto, could actually result in an increase of up to 50% to 120% in emissions by 2012.

Kyoto creates “transferable rights to dump carbon...far in excess of the capacity of these [natural] systems to hold it.” Therefore, critics argue, commodity-trading in emissions amounts to no more than a license to pollute under the rubric of ‘free-trade.’ Its much heralded “flexibility mechanisms” not only delay the end of fossil fuel extraction, they cannot be shown to lead to any tangible environmental benefits.

Under Kyoto’s Clean Development Mechanism, developed countries can ‘invest’ in developing ones by purchasing their carbon credits. But credits earned by developed countries will allow them to increase their emissions, while developing countries, which are not required to make reductions at this stage, will not emit any less. Rather than transferring much-needed renewable technology to countries in transition and liberating them from a form of energy ‘colonialism,’ the heaviest polluters are effectively given the nod to continue burning filthy fossil fuels while paying developing countries, already disproportionately impacted by climate change, to forego that option. The transfer of renewable energy technologies to developing and transitional countries, by contrast, is an essential part of ISEF.

Kyoto’s benefits, if any, are impossible to quantify. Kyoto was ratified without first working out a method for its implementation, so stakeholders are not called to account and cannot measure the effectiveness of their trading. According to the Canadian Coalition for Responsible Environmental Solutions, “You wouldn’t take out a mortgage on a house you had never seen at a rate you had never discussed. That is the same as ratifying without first working out the implementation.” ISEF is superior to Kyoto by calling for clear targets and timeframes to redirect subsidies towards sustainable energy solutions.

Stalled in Its Progress, as Has Its European Counterpart

No government has yet had the political and moral will to realize in concrete terms, rather than non-binding agreements, its prior UN commitments, by agreeing to endorse ISEF before the UN. Doing so would be a first step toward actually implementing a meaningful and effective outcome to the problem of global climate change and nuclear proliferation.

In 2001, at the Berlin Conference on Technology Transfer for Renewable Energies (organized by EUROSOLAR, the European Association for Renewable Energies) a call went forth for the creation of a similar initiative, an International Agency for Renewable Energy (IRENA) to be founded and funded by national governments. A draft statute was also created, similar to the proposed model statute for ISEF. A World Council on Renewable Energies (WCRE), created at that time, endorsed IRENA, arguing that it went beyond the Kyoto Protocol by replacing the CO2-reduction targets of Kyoto with renewable energy introduction targets, as is proposed in ISEF. As with ISEF, parliamentarians at that and subsequent meetings were unsuccessful in finding a government to champion the establishment of a sustainable energy agency.

Sustainable Energy Defined

Sustainable energy is defined as energy which, in its production or con-
sumption, has minimal negative impacts on human health and the healthy functioning of vital ecological systems, including the global environment, and that can be supplied continuously to future generations on earth. Such forms of energy include, but are not limited to the following: solar thermal, solar photovoltaic, wind, hybrid wind-solar, fuel cell, geothermal, small-scale hydroelectric, and tidal.

It also includes certain forms of bio-mass. ‘Clean’ biomass includes non-genetically modified, sustainably grown energy crops and retrievable agricultural wastes (but not factory-farmed livestock residues, which contribute to air and water contamination as well as unsustainable farming practices.) With clean bio-mass, a natural cycle is maintained in which carbon is extracted from the atmosphere during plant growth, and is released during hydrogen production, so no net greenhouse gas emissions result.

This definition specifically excludes nuclear and fossil fuel energy or their ‘improvements.’ Nuclear power is characterized by industry as a sustainable, clean energy source because the reactor does not in itself produce any CO2. But the nuclear fuel chain is a significant source of such emissions. Massive inputs of fossil fuel are required to mine and transport uranium, build the reactors of a nuclear power plant, maintain their parts, transport tons of nuclear waste and decommission them when they have outlived their utility. And at all points in the life cycle of a nuclear reactor, havoc is caused by radioactive contamination of air, water, and land.

The Promise of Sustainable Energy

Renewable energies are an obvious solution to the energy problem. They are safe, low-risk technologies, impervious to swings in fuel prices and potential disruptions in fuel supply. Yet, they account for only 3% of the world’s electricity despite the fact that the renewable energy sector is the fastest growing segment of the market and is poised for explosive growth.

Every year, the sun pours 2,000 times more energy onto the planet than the world’s current consumption. Countries blessed with sufficient sunshine, wind, or geothermal resources can power every one of their homes, offices, and factories, with excess capacity left over for other uses. The US’s entire current electricity requirement could be met from just 9% of Nevada’s desert covered in solar systems. Or, it could be met by the wind resources in 3 states alone – North Dakota, Kansas, and Texas –, which have been characterized as the Persian Gulf of wind. In fact, wind could supply all of Europe’s residential electricity needs by 2020. A mere 3% of wind resources worldwide could provide 30% of our global energy needs. Yet these resources remain virtually untapped. Why?

Within the last 25 years, the promises of natural, renewable energy sources have not been realized. That failure is due to the continued corporate welfare to well-established, commercial industries by the US, EU, and other industrialized nations, which, since 1992, collectively have spent billions of taxpayer’s money to prop up these aging, unsafe and economically unviable fuel sources. At the same time, new environmentally sound alternatives have received a scant, one-tenth of that funding.

The Promise of Hydrogen

Hydrogen generated by renewable sources of energy provides a ‘post-petroleum’ solution to the seemingly intractable problems of global warming, international security, and the monumental social and environmental concerns that are the subject of countless U.N. conferences and agreements. A nation’s reliance on foreign sources of petroleum and natural gas from volatile and unstable regions in the world disappears in a ‘green’ hydrogen economy, one that is created from the abundant and sustainable resources of sun, wind, water, and geothermal heat. As part of a system of distributed generation, fuel cells in small, off-grid applications are also free from the public health and safety threat posed by nuclear power plants and inherently unattractive as terrorist targets. Hydrogen fuel can provide an endless supply of zero-emissions energy; as an energy source, its only byproducts are pure water and heat, infinitely recyclable and inherently sustainable.

A shift to fuel cells and a hydrogen economy can be as “far reaching in its ... impact on ... the global economy as the steam engine and coal were in the 19th century and the internal combustion engine and oil were in the 20th.” Not only can hydrogen be produced domestically by every country – creating new jobs and economic security – it can be employed in virtually every application where primary fuels are used today.

Governments can jump-start the new hydrogen economy by becoming hydrogen’s first major commercial customers and converting their own sizeable fleets and infrastructure to accept hydrogen. In making large purchase commitments in the transportation sector, where 800 million vehicles worldwide can be adapted to hydrogen use, a publicly-driven drive for hydrogen energy can help to create vast economies of scale, thereby attracting private investment, driving costs down, and shortening the pay-back period for new technological applications. With such public access to affordable hydrogen assured, governments can put their vast federal resources in service of a vigorous, credible public campaign to shed permanently the habit of fossil fuel reliance.

Mainstreaming a Global Renewable Energy Economy

Establishing a global renewable energy economy – that will produce the electricity to produce hydrogen – can be done today without incurring further governmental expense. It can be done by re-directing the hundreds of billions in global subsidies which are still given to mature fossil and nuclear fuel industries, resulting in even more fossil fuel pol-
olution and more nuclear power plants. With the playing field skewed so much in favor of the established industry, how will young, renewable energy companies ever compete fairly in the marketplace? An International Sustainable Energy Fund would promote the progressive phasing out and re-direction of these subsidies towards clean technology markets, insure a funding mechanism for implementing these changes, and level the playing field for clean, safe sustainable energies.

Most countries’ strategies feature diminishing returns: no matter how much they increase fossil fuel output, they are burning a finite resource and contributing to a reduction in future potential with every barrel consumed. Likewise, their strategies calling for billions in new subsidies for nuclear power neither reduce its safety risk nor resolve problems with the transportation and storage of its lethally radioactive spent waste. Taxpayer dollars doled out for such inefficient, emissions-heavy fuels as these artificially prop up non-renewable industries and slow the emergence of sustainable energy markets.

According to the Intergovernmental Panel on Climate Change, removing energy subsidies alone could cut global CO2 emissions by up to 18%. And by shifting these funds from non-renewable industries to renewable technologies, tens of thousands of new jobs could be created without costing governments once cent in new funds, all the while decreasing the long-term costs of greenhouse gas emissions and nuclear waste disposal, storage, and clean-up. According to Greenpeace and the World Energy Council, shifting just one year’s worth of Europe’s subsidies – US$ 15 billion – to renewable energy sources could make the entire international solar industry cost-competitive with conventional sources of energy and ramp up a self-sustaining solar energy market throughout Europe.

“The conversion to a hydrogen economy is not a problem of limited technologies but of political priorities.” The failure of governments to finance a just transition to a renewable energy will force the world to pay billions in clean-up and liability costs, as well as other intangibles such as the cost to public health and safety. Promoting a sustainable future, based on locally available sources of energy, equally available to all on the planet, is an idea whose time has come.

1 Abolition 2000 is an international global network working for a treaty to eliminate nuclear weapons within a time-bound framework. It is open to all organizations endorsing the Abolition 2000 Statement. See www.abolition2000.org for more information and www.abolition2000.org/statement for the founding statement.


5 Organisation for Economic Cooperation and Development.


7 Ross Gelbspan, op. cit., p. 6.


22 Greenpeace, op. cit.

23 Greenpeace, op. cit.

Art or Bioterrorism?  
Implications of the Kurtz Case for Research Science and for Limiting Terrorist Threats

Margaret E. Kosal

One spring morning in 2004, Professor Steven Kurtz of the State University of New York (SUNY), Buffalo campus, woke to the horrid discovery that his wife of twenty years had died overnight from a heart attack. He called 9-1-1 for emergency services. Paramedics arriving at the Kurtz home noticed technical equipment that would normally only be found in a clinical or research laboratory. If the emergency responders had not been suspicious and had not acted on those suspicions, it would have been worrisome. What happened later - the investigation of Kurtz and colleagues by the U.S. Department of Justice and the Federal Bureau of Investigation's (FBI's) Joint Task Force on Terrorism under bioterrorism statues - might have more worrisome implications for both academic research and limiting the threat of bioterrorism.

The Art

Kurtz is a founding member of the Critical Arts Ensemble (CAE). A multi-media, artist collective, CAE explores the political and social implications of science, particularly biotechnology, on people and for people who aren’t scientists.

Many CAE productions are theatrical in nature. One project was intended to evoke dialogue regarding the historical and modern roles of the United States in biological warfare. As part of a mock ‘anthrax’ attack, the CAE used biological warfare simulants – some of the same microbes that the U.S. military used for testing the dispersal and spread of biological warfare agents. Some of these simulations were done over civilian areas.1 Among the materials seized from Kurtz’s home were unspecified books on biological warfare, books that had been incorporated in the CAE’s The Marching Plague project.

Kurtz and the CAE also critiqued the blending of biotechnology with agriculture. Much of the laboratory equipment found in the Kurtz home, including a commercial polymerase chain reaction instrument for DNA extraction and amplification, was part of a project on genetically engineered food. Audience members would be invited to bring food samples from their homes or seeds in order to test for the presence of non-native genes – transgenic ‘contamination.’ Such displays had been exhibited in public since 2002.

Neither Kurtz nor the CAE is the first to incorporate biotechnology or even genetic engineering into art.2 Chicago-based artist Eduardo Kac triggered a commotion in 2000 when he announced the creation of Alba - a green fluorescent bunny.3 Kac’s transgenic artwork involved the insertion of a gene isolated from jellyfish, for the green fluorescent protein, into the rabbit’s DNA. Before Kurtz and Kac’s work, the Massachusetts Institute of Technology’s Joe Davis pursued the interplay between genetic engineering and art. However, his work, such as E. coli engineered with an iconic image encoded into the bacteria’s DNA, is considerably less tactile.4 Other artists to explore biotechnology include Lauri Cinto, who has made an unsubstantiated claim of creating a cactus that grows human hair, and Marta de Meneze, artist-in-residence at Imperial College in London, who uses modern biology techniques to manipulate developing butterflies that display unnatural ‘artistic’ wing patterns.5

The Agents

The bacteria found in Kurtz’s home, Bacillus atrophaeus, Serratia marcescens and a non-pathogenic variant of endogenous E. coli, do not appear on any list of controlled microorganisms, e.g., the U.S. select agent list.6 All of the microbes are considered suitable for manipulation under the lowest level Biosafety standards (Biosafety Level 1, or BSL-1). These microbes are the types found in biology laboratories used by high school and first year university students, even some middle school laboratories. The New York State Health Department acknowledged that the bacteria found at the Kurtz home “posed no health risk in or around the house.”7

One of the agents, S. marcescens, is a classic biological warfare agent. Used as model organisms in place of more lethal biological agents, simulants are non-pathogenic microbes or biological substitutes. Between September 1950 and February 1951, aerosolized S. marcescens (“SM” in U.S. military code) was intentionally released from offshore U.S. Navy vessels in the San Francisco Bay and spread over the inland San Francisco area to test the effectiveness of novel dispersal methods.8 The U.S. military successfully disseminated and tracked the simulants. The bacteria was later implicated in the death of one man and the hospitalization of ten men and woman.9 Although the cause of this particular outbreak has never been conclusively linked to the biological warfare dispersal simulation, S. marcescens is now known to be a human pathogen responsible for a significant percentage of nosocomial (hospital-acquired) infections.10 Kurtz wanted to use S. marcescens for the same reason that the former U.S. offensive biological weapons program did - it has a bright red-pink color that is easy to track. Whether used in a true biological warfare dispersal simulation or in a performance art project, determination of the bacteria’s successful spread is simple and straightforward.
Kurtz received the samples from Professor Robert Ferrell, then-chair of the University of Pittsburgh’s Human Genetics Department within the Graduate School of Public Health. When Kurtz became aware that \textit{S. marcescens} has been rarely associated with pneumonia and urinary tract infections, he wrote to Ferrell asking for “any other ideas on another bacteria [sic] that can travel by air and be easily identified on a petri [sic] dish, and – most importantly –, is unequivocally classified as nonpathogenic?” Kurtz was clearly concerned with using bacteria that would not harm himself or anyone in a CAE project audience.

The nonpathogenic \textit{E. Coli} recovered from Kurtz’s home was part of a two-year-old performance art project that toured, with advertising, across America. There was no subterfuge or effort to conceal the artistic work – research in art – that was attempted by any of the CAE members.

Concern for public safety was cited as a major factor prompting the investigation. This is a legitimate re-action. Supporters of Kurtz recognize and accept this public health need. Even the CAE Legal Defense Fund spokesman, Greg Bardowitz, has acknowledged that the initial circumstances “were enough to warrant a full investigation.” Claire Pentecost of the School of the Art Institute of Chicago and past collaborator on CAE projects agreed. “I think it was reasonable for them to look into it when they first saw the equipment in someone’s house.”

The Case Against Kurtz

The original search warrant and subpoenas issued to Kurtz and eight art colleagues by the FBI’s Joint Terrorism Task Force referred to the portion of the U.S. Biological Weapons Anti-Terrorism Act of 1989 dealing with prohibitions on possessing “any biological agent, toxin, or delivery system of a type or in a quantity that, under circumstances, is not reasonably justified by a prophylactic, protective, bona fide research, or other peaceful purpose.” It is that last part – for other peaceful purpose – that CAE supporters from art and science see covering Kurtz’s activities. Richard Mears, a University of Maine professor of criminal justice commented, “the real issue is what was his intent.”

Eventually, Kurtz was not charged under bioterrorism laws but was indicted on two counts of mail fraud and two counts of wire fraud for each of two bacterial cultures found in his home, \textit{S. marcescens} and \textit{B. atrophaeus}, which had been obtained from the American Type Culture Collection (ATCC). His wife’s death was determined to be from natural causes, nothing related to the bacteria found in their home. Indicted along with Kurtz was Professor Robert Ferrell, who gave Kurtz the bacterial samples. Recipients of ATCC products are prohibited, by contract, from redistributing any microbiological samples purchased.

According to the indictment (available on the internet at CAE Defense Fund website, ; Kurtz is charged with not being a properly registered customer with the ATCC - which he wasn’t. He did reportedly submit an application to become a registered customer, but it was denied due to his improvised facilities and lack of established biosafety protocols. Ferrell is charged with ordering with intent to transfer material to Kurtz and with transferring ATCC-supplied material in violation of the letter of the contract he signed – which he did.

At this writing, the case has not gone to trial. For the time, Kurtz has returned to teaching art at the upstate New York college. Due to his ill health – complications of non-Hodgkins lymphoma – Ferrell still has not traveled to Buffalo for his arraignment on the mail and wire fraud charges.

Implications for Research Scientists

Questions about the after-effects of the investigation and indictment surfaced quickly. The main issue is whether this case will discourage those contemplating work that might bring similar scrutiny. The question of a ‘chilling effect’ is probably less critical for iconoclastic artists than experimental scientists seeking tenure track positions or National Institutes of Health grant renewals. In direct response to the Kurtz case and after questioning by the FBI, Professor Adele Henderson, chair of the SUNY-Buffalo art department, commented “this is a free speech issue, and some people at the university remember a time during the McCarthy period when some university professors were harassed quite badly.” This cooling enthusiasm, however, can be read in the skeptical words of Steven Teitelbaum, President of the Federation of American Societies for Experimental Biology: “Bureaucracies want to justify their existence. They tend to be overzealous.” Teitelbaum speculated that scientists would not pursue research that attracts “such negative scrutiny.”

The Kurtz investigation follows two other academic cases with bioterrorism overtones. Tomas Foral, a University of Connecticut graduate student studying molecular biology and U.S. National Guard volunteer, was charged under the Patriot Act with possession of anthrax-containing tissue in 2002. The samples in question, reportedly dating to the 1960’s, were stored in a locked freezer within his research group’s laboratory space. Rather than going to trial and risking a ten-year prison sentence, Foral agreed to participate in a community service program.

Professor Thomas Butler, affiliated with Texas Tech University Health Sciences Center, has experienced much harsher consequences. Butler illegally imported cultures containing \textit{Yersinia pestis} (the causative agent of the plague and high on the select agent list), from Tanzania into the U.S. In an effort to hide the samples, he reported them stolen in January 2003. Like Kurtz and Ferrell, Butler was eventually charged with mail and wire fraud along with more serious accusations related to illegal payments from major pharmaceutical firms; he was convicted in March 2004.

These cases further illustrate the tough stance that the U.S. Justice Department is taking toward allegations that even hint at bioterrorism or the
involvement of select agents. These two legal actions involved practicing academic researchers – one just starting a technical career and the other a highly respected expert on Y. pestis.

The Kurtz case drew in a bioscientist, University of Pittsburgh’s Ferrell. Before moving to SUNY-Buffalo, Kurtz had taught at Carnegie Mellon University, also located in Pittsburgh.23 The two academics became acquainted when working in western Pennsylvania. Allegedly, Ferrell obtained microbes from the ATCC then transferred them to Kurtz, apparently as a collegial gift.

Rarely have academics charged a fee for the exchange of samples. Scientists regularly share small samples domestically and internationally. Many such collaborations have existed for a decade or more. Grant proposals or co-authorships in technical papers may formalize some of these, but more often acknowledging footnotes to a manuscript log the exchanges. Typically it is considered part of the academic culture or, more realistically, done with the expectation that in the future there will be a return of assistance in some manner. It would be an obscene waste of resources to imagine FBI agents skimming the pages of Cell or the Journal of Biological Chemistry seeking researchers who received or gifted samples to colleagues.

On the bench-side, researchers with historical access to agents for legitimate purposes cannot return to the old way of thinking or behaving. The research culture in the U.S. is struggling to catch-up to the legal culture. Attitudes toward and boundaries on biotechnological research have changed. Scientists need to understand and internalize the reality that there are no longer pro forma-style regulations that can just be checked off or initiated without considerable fore- and after-thought. This applies to both the choice of research – what agents might be involved and repercussions for terrorist use – and how research and sharing of samples will be done. Casual exchange of materials for legitimate research endeavors among colleagues knowing each other for years or decades – from cell lines to mutants (transgenic organisms) to DNA sequences – cannot be done without considering implications regarding bioterrorism and the associated U.S. statutes. The scientific culture in the U.S. has to adapt to contend with the Justice Department’s shift in focus.

Reactive prosecution is one route to accomplish this culture change. Another path is via pro-active education of the scientific community on the risks and new responsibilities of biotechnology research in an age of terrorism.24 The Federation of American Scientists (FAS) recently launched a pilot program, Biosecurity for Biologists, to promote awareness of security issues among undergrad-uate- and graduate-level biologists at Research I institutions.25 This project represents an excellent start to address the need to instill a culture of responsibility regarding biosecurity into research science.

In an era of increasing interdisciplinary research – when former “chemical engineering” departments are renamed “chemical and biomolecular engineering,” and when electrical engineers are designing complexes that bind carbon nanotubes to DNA – attempts to narrowly demarcate research into traditional departmental divisions are fast emerging as evidence of parochial myopia. Biosecurity training efforts need to consider the multidisciplinary nature of modern biotechnology research, particularly regarding novel dispersal and delivery methods. Pragmatically, initial efforts should target research scientists manipulating live microorganisms, but an overall agenda to educate research scientists on the potential bioterrorist risks of their work must not be constrained by restricted academic boundaries that began to erode in the 1960’s with the age of molecular biology.

While members of the physics community have the American Physics Society’ Forum on Physics and the medical community has Physicians for the Prevention of Nuclear War, historically groups of biologists, chemists, and researchers in allied fields have not formed organized professional groups to seriously consider the potential links between their experimental research and non-proliferation issues.

Academics need to participate in meaningful dialogue to implement policies and protocols from within their ranks. If scientists ignore the ways research culture might need to be systematically altered or react purely defensively to an enjoinder to their scientific or proprietary territory, a regulatory policy will be developed and implemented from outside the scientific and technical community. Alternatively, federal investigations of U.S. scientists might proliferate.

More bridges need to be built and fortified between technically trained individuals, especially those with recent experience in the modern research setting, and those instrumental in policy development and implementation, on the national and international stage. Donald A. Henderson, Senior advisor at the Center for Biosecurity of the University of Pittsburgh Medical Center and former director of the World Health Organization’s global smallpox eradication program commented, “I am absolutely astonished… [B]ased on what I have read and understand, Professor Kurtz has been working with totally innocuous organisms. I am dismayed by what appears to me to be yet one more instance in which knowledgeable persons in the field of bioterrorism are not being brought in and consulted to ascertain what might be real problems and what are purely spurious problems.” The role of scientists is vital, both to protect the freedom of the academic research environment – whether it be performance art or proteomics – and to minimize the threat of terrorists misusing biotechnology for malicious intents.

It is notable that all three of these cases – Kurtz/Ferrell, Butler, and Foral - have focused on individuals engaged in academics, from art to molecular biology. We have not seen any publicized investigations of behavior in violation of bioterrorism prevention statutes directed at private corporations.

There is another ‘chilling effect’ to be considered in the fallout from the Kurtz case. The seriousness devoted to bioterrorism investigations
risks being diluted to the level of copy-cat white powder ‘anthrax’ scares. While law enforcement must react to every case, the greater public’s response is quickly numbed. As an LA Times editorialist wrote, “the effort to paint Kurtz as a bioterrorist in the making would be funny if it wasn’t so frightening.”26 It is legitimate to wonder how this case contributes to securing America from a bioterrorist attack. In the end, the U.S. Justice Department charged Kurtz and Ferrell with mail fraud. The individual or individuals responsible for the fall 2001 anthrax deaths have not been identified or caught to be charged with anything. Preventing another bioterrorist attack is a very serious matter. By comparison, mail fraud is not.

Implications for Intelligence and Limiting Bioterrorist Threats

A failure of imagination was one main critical findings of the final report issued by the National Commission on Terrorist Attacks Upon the United States (also known as the 9-11 Commission).27 By definition, artists are creative and imaginative people. In doing their work, they share, with scientists, the need to imagine beyond what is known; artists and scientists use different methodologies. That imaginative ability can aid efforts at terrorist threat anticipation and threat reduction.

Specifically, the Kurtz case may be invaluable for assessing the capability of non-technically trained individuals to generate an air-dispersed microbiological. How good or successful were the CAE artists in making their anthrax simulants? Much of the argument surrounding the fall 2001 mailings of anthrax-spore containing envelopes has revolved around the question of expertise required to produce the weaponized agents that resulted in five deaths.28 How successful was the CAE at creating a free-flowing, micron-sized powder? What did they try? And what resources did they find that led them to pursue those choices? These are all legitimate questions that can provide information for construction of empirical models of behavior as part of threat anticipation and reduction. From a technical security studies perspective, there is an edifying aspect regarding how successful a group of non-technically inclined individuals can be without any malicious intent.

In the late 1990s, the Defense Threat Reduction Agency (DTRA) sponsored a project that attempted to assemble a make-shift laboratory to produce weaponized Bacillus anthracis (the causative agent of anthrax) in Nevada.29 It was called Project Bacchus. How does CAE compare to Project Bacchus? The comparison should provide useful information in distinguishing a makeshift biological warfare production facility from improvised biotechnology for peaceful purposes. What critical differences distinguish the two experimental setups? Someone can only evaluate these questions with access to both the DTRA exercise and the FBI investigation. This is a further example of the need for interaction across traditional boundaries in the fight against bioterrorism, against cooption of legitimate research for malicious purposes, and in protection of the civil liberties.

A June editorial in the pre-eminent British science journal Nature encouraged scientists to support Kurtz, noting that “art and science are forms of human inquiry that can be illuminating and controversial, and the freedoms of both must be preserved as part of a healthy democracy – as must a sense of proportion.”30 In the war against terrorism, neither art, science, nor democracy should be an unintended casualty.

An earlier version of this article appeared as a Center for Nonproliferation Studies (CNS) Research Story; http://cns.miis.edu/pubs/week/040727.htm

Margaret E. Kosal
Non-State Actors and WMD

UN Security Council Resolution 1540: Monitoring Implementation

Angela Woodward

UN Security Council Resolution 1540 (2004), adopted on 28 April 2004, is the latest in a string of Security Council initiatives aimed at stemming the global threat of terrorism. The resolution prohibits states supporting efforts by non-state actors, primarily terrorist groups, to acquire and use weapons of mass destruction (WMD) along with related equipment and delivery systems. It also requires states to establish and enforce a comprehensive system of domestic controls on WMD and related materials. States must adopt national measures, including legislation, to facilitate their compliance with the resolution and they must report on their implementation efforts to a Security Council committee established by the resolution.

This article assesses what Resolution 1540 (2004) contributes to WMD non-proliferation efforts and how its framework provisions for monitoring states’ implementation should be implemented. It also addresses some of the criticisms of an earlier draft of the resolution, both of which can be found in the April 2004 issue of INESAP Information Bulletin.

Context

Resolution 1540 is intended to deal with the threat to international peace and security posed by non-state actors acquiring WMD, yet it cunningly lays down a framework for WMD non-proliferation that should also stymie prospective illicit development by states. It follows a series of resolutions condemning specific terrorist atrocities involving conventional weapons in the US, Indonesia, Russia, Kenya, Colombia, Turkey and Spain, although it is more closely related to two other Security Council Chapter VII terrorism resolutions that also establish monitoring committees: Resolution 1267 (1999), which creates sanctions against named individuals and groups suspected of terrorism and the 1267 committee, recently assisted by a Monitoring Group; and Resolution 1373 (2001), which prescribes comprehensive obligations in support of counter-terrorism and creates the UN Counter-Terrorism Committee. More broadly, the resolution encapsulates and universalizes non-proliferation initiatives originating in multilateral fora, in particular the G8.

Some commentators have criticised the resolution as sidestepping the WMD ‘disarmament bargain’ of the negotiated, multilateral agreements prohibiting biological, chemical and nuclear weapons. This argument is likely supported by precisely those states that employ this ‘bargain’ as a leverage for obtaining technical cooperation or other treaty assistance without demonstrating much else in the way of support for, or compliance with, these agreements.

In any event, compliance with WMD disarmament treaty obligations is no panacea for non-proliferation, especially when materials may be either dug out of the ground (anthrax) or bought off the internet (pre-curser or dual-use chemical agents).

Resolution 1540 does not ignore the proliferation of WMD to terrorist groups will likely involve diversion from illicit or permitted, defensive state-sponsored programmes. Rather, it specifically affirms the importance of the major multilateral WMD treaties – which apply to state-sponsored and non-state actor alike in the states parties’ territory – and calls for states to universalise and comply with these treaties.

Obligations

The resolution requires states to “refrain from providing any form of
support” to non-state actors’ efforts to engage in any activity involving nuclear, chemical or biological weapons and their delivery systems. It is notable that in this case, “refrain” requires states currently providing such support to desist, rather than simply prohibiting any such assistance in future. States must also adopt and enforce national laws to prohibit non-state actor involvement in WMD activities. This requirement to establish criminal legal sanctions for violations is important, as not all member states are pro-active in complying with their UN Charter obligations to enforce Security Council resolutions.

Even WMD prohibitions arising from treaties have been poorly incorporated into states parties’ national laws due to inadequate direction as to what standards are expected. For example, the wider remit for “national implementation measures” in the 1972 Biological and Toxin Weapons Convention (BTWC) has had to be extended by politically-binding agreements to require criminal sanction through legislation. Unlike in the draft of resolution 1540, this requirement to adopt national implementation legislation now contains the proviso of “in accordance with their national procedures,” which may go some way to countering criticism that the draft resolution was overly prescriptive in detailing legislative requirements for states.

While the resolution is frequently touted as targeting WMD proliferation to non-states actors, the resolution makes substantial inroads to preventing proliferation between states. Paragraph 3 requires states to “take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical and biological weapons,” including their delivery systems and related materials. Not only does this provision lay down a comprehensive WMD control system – comprising materials accounting, security and physical protection of materials, border control, law enforcement and national export controls including national control lists and controls on trans-shipment and end-users – but it must also be established through legislation, including appropriate criminal or civil penalties. Unlike the requirement for criminalization of non-state actors’ WMD activities, this control system for non-proliferation applies across the board, to other states and non-state actors alike.

**Monitoring**

The resolution establishes a committee of the Security Council, comprising all its members, which is tasked with reviewing states’ reports on their implementation efforts. The first report is due on 28 October, six months after the resolution’s adoption, with further reporting anticipated. The committee may call on experts to assist its review before reporting to the Security Council. The committee’s mandate has been extended from a paltry six months in the draft resolution, to two years. The Ambassador of Romania to the UN, Mihnea Motoc, has been appointed as its Chair.

The committee has agreed basic guidelines for the conduct of its work, but substantive arrangements – such as what technical expertise it may need to call on, how such experts would be paid and the format of its reports to the Security Council – are yet to be finalised. Its relationship with the committees established to monitor related resolutions, 1267 and 1373, is also to be determined.

As with any set of binding obligations, states’ implementation of this resolution will need to be effectively monitored and verified in order for it to achieve its rather ambitious goals. The Security Council has clearly learned some lessons from previous committees, notably those established to monitor mandatory arms embargoes, by specifically providing for outside technical assistance during the review process. But the committee Chair must also look to the practice of the related committees, the 1267 Committee and the 1373 Counter-Terrorism Committee, as they have both been substantially restructured to improve their monitoring capacity. The 1540 committee will likely need to coordinate its work closely with these committees: the Security Council had earlier specifically instructed those committees to more closely coordinate their activities.

The committee would also benefit by liaising with international organisations with specific expertise in responding to terrorism, such as Interpol and the World Customs Organisation, in addition to the WMD multilateral frameworks noted in the resolution: the International Atomic Energy Agency (IAEA), the Organization for the Prohibition of Chemical Weapons (OPCW) and the Biological and Toxin Weapons Convention (BTWC). The extent to which BTWC states parties can be called a “framework” for these purposes, especially when compared with the IAEA and OPCW, is debateable making the continued absence of a verification organisation for that treaty all the more deplorable.

Recognizing that it can take many months for states to review their existing national measures and determine whether amendments or new measures are required, the resolution requires states merely to report on the “steps they have taken or intend to take” to achieve compliance. The committee can assist states by adopting the practice of the Counter-Terrorism Committee in providing substantive and procedural guidance on reporting. The first report will provide a baseline assessment of implementation, against which the committee will be better able to assess assistance requirements and to develop or revise guidelines on implementation and reporting. The committee will also need to develop a timetable of reporting deadlines after the initial reports are due on 24 October.

The committee’s guidelines provide that it will report regularly to the Security Council on states’ implementation of the resolution, including recommendations, but it is unclear whether the committee will proactively seek to verify and report on states’ compliance. If its role is to
verify, rather than simply monitor, states’ implementation, then it will need to be able to gather information from outside sources to assist its analysis. In addition to the envisaged cooperative arrangements with relevant international, regional and subregional bodies and Security Council committees, it might easily gather open-source information or contract specific collations of such information, as other UN monitoring and verification bodies have done. Depending on how serious the Security Council is about pursuing improved WMD controls through such an imposed measure, it might further request states to provide the committee with information from national technical means, although that is unlikely, at least initially.

The resolution’s acknowledgement that some states lack the legal and regulatory infrastructure, implementation experience and/or resources necessary for them to comply promptly its pragmatic request for other states to offer such expertise to others. States could use their reports to the 1540 Committee to indicate what, if any, assistance they require to comply with the resolution, as states parties to the 1997 Landmine Convention are encouraged to do in their Article 7 transparency reports.

The committee should also actively identify those states that are prepared to offer technical or other assistance and establish systems to match such offers with any requests for assistance. The Counter-Terrorism Committee’s Database of Counter-Terrorism Information and Sources of Assistance is an excellent model in this respect. Whether the 1540 committee might be requested to share or contribute to such a resource or perhaps establish one of its own is yet to be seen.

It is encouraging that the committee’s guidelines provide for transparency of its work, such as through regular briefings for states, international bodies and the media, and of states’ implementation reports, which are to be circulated as documents of the Security Council. It would be helpful if the committee established a dedicated website, following the practice of the Counter-Terrorism Committee and the 1267 Committee, where all relevant documentation could be easily located.

Conclusion

While Resolution 1540 does not explicitly ban state-sponsored WMD activities – as some civil society groups had called for it to do – it is an important instrument in preventing access by non-state actors to WMD. It also effectively extends WMD prohibitions and controls to those states that have not joined the 1972 Biological and Toxic Weapons Convention, the 1980 Convention on the Physical Protection of Nuclear Material and the 1993 Chemical Weapons Convention.

Whether or not those states ever join these treaties, they are at least obliged to adopt national measures to halt any sub-state level WMD activities in their territory and to prevent proliferation to other states. Depending on the ultimate success of its monitoring provisions, Resolution 1540 might result in a substantial improvement in states’ domestic controls for WMD non-proliferation.

1 All Security Council resolutions listed in this article are available at www.un.org/Docs/sc/unsc_resolutions.html.
12 For example, UN Security Council Resolution 1566, 8 October 2004 specifically “directs” the Counter-Terrorism Committee to make consensual visits to states to enhance implementation monitoring and to facilitate implementation assistance.
14 The committee’s guidelines note that it may establish cooperative arrangements with “other relevant international, regional, subregional bodies and relevant committees established under the Security Council, which it decides can contribute to its work;” see footnote 10.

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VERTIC

VERTIC is an independent, non-profit making, non-governmental organization. Its mission is to promote effective and efficient verification as a means of ensuring confidence in the implementation of international agreements and intra-national agreements with international involvement. Verification is understood to mean the use of information to make judgements about the compliance or non-compliance of parties to an agreement. VERTIC’s brief encompasses the negotiation of verification and compliance provisions; the implementation, monitoring, and verification of agreements; the operation of compliance, enforcement and review mechanisms; and the establishment of confidence-building measures to enhance the operation of agreements.
Crude Nukes on the Loose?
By Morten Bremer Mærli

This PhD thesis assesses the threat of nuclear terrorism and identifies strategies for diminishing the risk of such incidents. Never before have the material, the technology, the know-how, and, perhaps, the motivations needed to perform acts of nuclear terrorism been more exploitable.

Building on eight research papers, the thesis sets out to answer three principal questions:
- Can terrorists possibly perform acts of terror by means of crude nuclear explosive devices based on highly enriched uranium? What are the main barriers to the production of crude nuclear explosives?
- Is there an optimum way of protecting fissile material from falling into terrorist hands? What role – if any – do transparency and non-intrusive verification play in this regard?
- Within legitimate security constraints, what kind of measures could be put in place to enhance the transparency and non-intrusive verification of stocks of sensitive fissile material?

Answers to these questions may be summarized as follows:

To would-be nuclear terrorists, access to fissile material is the most formidable obstacle to their nuclear ambitions. If non-state actors have sufficient quantities of unirradiated, or “fresh”, highly enriched uranium (HEU), the production of crude nuclear explosives could be within their reach. Terrorists will have far less stringent requirements to their nuclear explosives in terms of reliability, safety, security and delivery, than states do.

Once the needed quantities of fissile material have been obtained, it is easier to construct a nuclear explosive device using highly enriched uranium than using plutonium. Technical barriers to the construction of crude nuclear explosives based on HEU should not be regarded sufficient to avoid nuclear terrorism, because:
- HEU allows for the easy and reliable manufacture of crude nuclear explosives;
- perpetrators with access to sufficient quantities of HEU of high enough quality will have good chances of achieving an explosion in the lower kiloton-range, i.e. with a yield comparable to that of the Hiroshima bomb;
- HEU exists in large quantities, in part under unsatisfactory levels of protection, control and accounting;
- HEU detection, e.g. at border-crossings and checkpoints, is demanding due to the low levels of radiation that are emitted;
- radiation levels from unirradiated uranium are low and the handling of HEU involves limited health hazards.

Several implications for countermeasures against nuclear terrorism and protection and control of highly enriched uranium follow from these findings.

There is scant protection against the pressure, heat, and radiation that would ensue from the detonation of even a crudely assembled nuclear device. There would be very few possibilities for meaningful mitigation after a nuclear terrorist attack. Reducing vulnerability by shielding particular or possible targets is neither prudent nor desirable. Accordingly, efforts to thwart nuclear terrorism should aim entirely at prevention.

Detecting illicit fissile material at borders or in a busy urban environment, however, is challenging. The production of crude nuclear explosive devices could go undetected. To stem nuclear terrorism, comprehensive stockpile inventories and stringent norms should be developed to ensure that all stocks of highly enriched uranium are secure and rendered unusable as nuclear explosives. Denying terrorists access to fissile material through satisfactory security at possible sources of supply could be the bell and end-all of nuclear terrorism countermeasures.

Hence, a key issue for nuclear terrorism prevention becomes how to ensure optimum nuclear husbandry. The past decade has shown some remarkable achievements in the field of practical, cooperative nuclear arms control. Scientists and others whom very few had believed would ever collaborate have worked jointly to secure the excessive stocks of fissile material that were produced during the Cold War arms race. But despite unprecedented efforts, the majority of the security challenges remain. Less than half of the estimated hundreds of tons of proliferation-attractive fissile material in Russia have been secured with international assistance.

The highly enriched uranium, enough for tens of thousands of crude nuclear explosive devices, is managed with very little of the transparency necessary to build confidence that it is safe and secure, or to provide the foundation for deep, transparent and irreversible reductions. Optimal countermeasures against nuclear terrorism thus require significantly more openness on existing holdings of fissile material in the nuclear weapon states. Appropriate schemes for non-intrusive verification of sensitive stocks of HEU are available and ready for implementation.

Keeping a massive shroud of secrecy on stocks of highly enriched uranium can only maintain and exacerbate current uncertainties in fissile material stockpiles and levels of protection and control. This could increase the risk of diversion and, accordingly, elevate the threat of nuclear terrorism. It is not beneficial to the security of any state.

For the complete PDF file, see www.nupi.no/IPS/?module=Articles&action=Article.publicShow;ID=1437.

Morten Bremer Mærli successfully defended his PhD thesis at the Norwegian Institute of International Affairs. He works on nuclear nonproliferation and prevention of nuclear terrorism. A physicist by training, from 1995 to 2000 he served as a senior executive officer at the Nuclear Safety Department of the Norwegian Radiation Protection Authority. He has served as technical consultant to the Norwegian Ministry of Foreign Affairs, is a member of the Norwegian Pugwash Committee and of the INESAP Coordinating Committee.
INSEAP Annual Report 2003

The International Network of Engineers and Scientists Against Proliferation (INESAP) is a non-profit, nongovernmental network organization with participants from all over the world. It is part of the worldwide activities of the International Network of Engineers and Scientists for Global Responsibility (INES). The decision-making body of INESAP is the Coordinating Committee which has seven members from four continents.

The main objectives of INESAP are to promote nuclear disarmament; to strengthen existing arms control and non-proliferation regimes in the nuclear and the missile field; to develop and promote cooperative approaches to curbing the proliferation of nuclear, chemical, and biological weapons and their means of delivery and controlling the transfer of related technology; as well as to support a transformation of the nuclear non-proliferation regime into a nuclear weapons free world regime.

Global Background

For INESAP, as for a large part of civil society worldwide, the war waged by the United States-led “coalition of the willing” against Iraq was the most prominent event in the year 2003. The war was initiated with the overriding goal of eliminating Iraq’s nuclear, chemical, and biological weapons and its prohibited ballistic missiles. When no such weapons could be found, the military activities were justified instead by the positive effects expected to result from “regime change.” The U.S. government claimed that freedom and democracy in Iraq would have positive impacts, both on the overall development in the Middle East and on non-proliferation efforts.

Many observers, however, fear that the display of “preventive action” in Iraq could encourage some weaker countries to offset their military inferiority by trying to acquire nuclear capabilities. The relatively patient pursuit by the U.S. of negotiations with the North Korean leadership, in spite of that country’s withdrawal from the Non-Proliferation Treaty, could be interpreted alternatively as showing the potential of diplomatic avenues, or as suggesting that a small nuclear arsenal, or even the perception that a country might have one, could play a role in deterring U.S. military action.

“Non-proliferation” became the new catchword of the year, far beyond the war in Iraq. Just two examples:

■ In April and May 2003, the third Preparatory Committee (PrepCom) meeting for the Non-Proliferation Treaty (NPT) Review Conference (to be held in 2005) reflected the US focus on non-proliferation while at the same time marginalizing the disarmament obligations of the nuclear weapons states. While insisting that non-nuclear weapon states refrain from acquiring any nuclear weapons-capable technology, the US continued debate on development of nuclear weapons with new capabilities (from new varieties of “mini nukes” to much bigger “bunker busters”), while increasing readiness for underground nuclear tests. The Bush Administration also rejected ratification of the Comprehensive Test Ban Treaty (CTBT), further diminishing prospects for its eventual entry into force.

■ Shortly after the NPT PrepCom, the U.S.-led Proliferation Security Initiative (PSI) was announced, with the goal of stopping “the flow of [WMD items] to and from states and non-state actors of proliferation concern.” The PSI functions outside the United Nations and stresses “the need for proactive measures,” including the interdiction of shipments by air or sea.

Further relevant U.S. actions included withdrawal from the Anti-Ballistic Missile (ABM) Treaty in June 2003 and increased funding for development of tactical and long-range missile defense systems and for military space programs, including those which could lead to the weaponization of space.

With proliferation of nuclear weapons, missiles, and missile defenses globally on the rise and space militarization/weaponization becoming a recurring theme, a new civil society initiative brought a ray of hope to many NGOs. The Mayors for Peace, lead by Hiroshima Mayor Tadatoshi Akiba, took the lead in promoting a renewed vision for a nuclear weapons free world, to be achieved by 2020. INESAP is proud to have been able to further this important initiative, which complements INESAP activities related to nuclear non-proliferation and disarmament; ballistic missile non-proliferation, control, and disarmament; and efforts to make the case against missile defenses and to prevent the weaponization of space.

INESAP Projects & Activities 2003

Moving Beyond Missile Defense

The project Moving Beyond Missile Defense, which was started in cooperation with the Nuclear Age Peace Foundation (NAPF) in 2001, continued throughout 2003. The year began with the third project conference being held in Berlin in January under the title Arms Control, Transparency, and Verification in a European-Russian Framework of Cooperative Security.

The conference brought together scholars and researchers from many European countries, including Russia, but also from the United States and Latin America, to discuss European and Russian perspectives on missile defense and space weapons as well as to draw lessons from different existing control regimes (Biological and Chemical Weapons Conventions, Comprehensive Test Ban Treaty, Non-Proliferation Treaty, Ballistic Missile Control Regime, Outer Space Treaty, etc.) that could be useful when devising frameworks for missile, missile defense, and space control regimes.

For the Moving Beyond Missile Defense project, a homepage is maintained at <http://www.mbmd.org> by the Nuclear Age Peace Foundation.
Space Weapons Ban
At the NPT PrepCom in 2003, INESAP initiated an informal European Working Group on Missile Defense and Space Weaponization, in order to improve exchanges of missile defense and space weapons-related information in Europe and to encourage joint work on the promotion of alternatives including a missile flight test ban, missile disarmament, the prohibition of missile defenses, and a space weapons ban. The working group communicates via the discussion list <EU_MDandSpace@yahoogroups.com>.

Non-Proliferation Treaty Preparatory Committee 2003
As in the past, INESAP has had a focus on the preparations for the next Non-Proliferation Treaty Review Conference, which will be held in New York in 2005.

At the 2003 Preparatory Committee (PrepCom) meeting in Geneva in April/May 2003, INESAP together with IALANA and the Mayors for Peace convened a discussion forum on Compliance within a Nuclear Abolition Regime with Hiroshima Mayor Tadatoshi Akiba, UN Institute for Disarmament Research consultant Jozef Goldblat, and IALANA consultant Alyn Ware as speakers. The PrepCom appearance of Mayor Akiba was the result of previous INESAP interaction with the Mayors for Peace. In Geneva, Mayor Akiba took the opportunity to formally announce a new global campaign for the complete elimination of nuclear weapons by the year 2020 under the auspices of the Mayors for Peace in his address to the PrepCom delegates. The campaign was formally launched in Nagasaki in November 2003 under the name of 2020 Vision: An Emergency Campaign to Ban Nuclear Weapons, and calls for a formal decision at the NPT Review Conference in 2005 that States Parties will negotiate a Nuclear Weapons Convention by 2010. The mayors’ campaign has already gained considerable support both from the NGO community and from mayors, with 20 large-city mayors announcing participation in the 2004 PrepCom and NGOs in several countries making it the focal point for the work in August 2005 (i.e. through the NPT Review Conference up to the 60th anniversaries of the Hiroshima and Nagasaki A-bombings.)

INESAP also participated actively in NGO activities at the PrepCom, being closely involved in the drafting of statements to be delivered to the delegates in the “NGO Session.” The INESAP Coordinator contributed with the statement Nuclear Disarmament and Ballistic Missile Elimination Go Hand in Hand <http://www.reachingcriticalwill.org/legal/npt/NGOpres2003/Missiles.htm>.

Abolition 2000 – International and German Section
As a founding member of “Abolition 2000, A Global Network To Eliminate Nuclear Weapons” <http://www.abolition2000.org>, INESAP continued to be active in the network. Several of the Abolition 2000 working groups are convened by active INESAP members, others are members of the Abolition 2000 Coordinating Committee and Global Council. In addition to the contributions to the NPT PrepCom, INESAP also plays a crucial role in the German Abolition 2000 section “Trägerkreis Atomwaffen abschaffen – bei uns anfangen!” and in preparing its annual conference, which was held in Berlin this year. At the conference, the INESAP Coordinator was nominated one of three co-coordinators of the German network.

German Initiative “Raketen abrüsten statt abwehren”
In May 2003, the exhibition Macht den Himmel nicht zur Hölle. Argumente gegen eine Raketenabwehr (Don’t Turn the Heavens into Hell: Arguments against Missile Defense) on the dangers of missile defense became available for public showings. Developed for the German Abolition 2000 section by Regina Hagen, Jürgen Scheffran, and Wolfgang Schlupp-Hauck and funded by the German Berghof Foundation, the exhibition drew great interest and has already been shown in many towns. The exhibition continued the “Raketen abrüsten statt abwehren” (Missile disarmament instead of missile defense) initiative. To advertise the exhibition, a booklet containing the full exhibition was produced, as well as a CD containing posters and flyers which can be easily adapted by local exhibition organizers. The exhibition can be viewed at <http://www.ippnw.de/frieden/awaffen/AusstellungRaketenAbriuesten_2003.pdf> (6 MB).

Model Nuclear Weapons Convention
The Mayors for Peace’s Emergency Campaign brought renewed attention to the Model Nuclear Weapons Convention (mNWC). Merav Datan, one of the main mNWC drafters, was involved in the mayors’ campaign, assuring that the mNWC was presented in the most useful way. The complete text of the mNWC is contained in the book From Survive to Survive: The Case for a Nuclear Weapons Convention, which is co-edited by INESAP, IPPNW and IALANA <http://www.ippnw.org/IPPNWBooks.html>.

Biological Weapons Prevention
INESAP Coordinating Committee member Kathryn Nixdorf is actively involved in a series of projects that deal with bioweapons and means of their prevention.

The BioWeapons Prevention Project <http://www.bwpp.org>, founded in November 2002, gained additional momentum in 2003 with the appointment of its own director. The project, a new civil society initiative to monitor the ban on biological weapons, is located in Geneva, Switzerland, the meeting place of the United Nation’s Conference on Disarmament. BWPP is a joint project of...
eight founding non-governmental organizations, among them INES. The initiative aims to establish a global monitoring network to increase openness in biological weapons matters.

BWP will strengthen the ban on biological weapons by monitoring governments, industry and others. The watchdog group will be assisted by partner organizations around the world. The project follows in the footsteps of successful non-governmental efforts to monitor the ban on landmines and the spread of small arms.

**Other Issues**
INESAP expertise on the use of space was provided to German and European parliamentarians in need of information on and an evaluation of space policy, on a global and European as well as national level. INESAP participants contributed to a hearing on the “Green Paper: European Space Policy” and published several statements on the planned integration of European space policy in the increasingly militarized European Security and Defense Policy of the European Union.

A high-level delegation of the Middle Powers Initiative, of which INESAP’s ‘mother organization’ INES is a member, visited several European capitals and NATO in autumn 2003, to lobby the Foreign (and Defense) Ministries for a more outspoken stance on the issue of nuclear disarmament. As a national delegation member, Regina Hagen participated in meetings with German officials during the delegation’s visit to Berlin.

**General Networking**
INESAP has extended contacts to government officials and diplomats as well as to other NGOs and active individuals.

As the network’s only staff person, the INESAP Coordinator now represented the network at many events and in many NGO bodies, e.g. in the Abolition 2000 Global Council, as a co-coordinator of the German Abolition 2000 section, on the Board of the Global Network Against Weapons and Nuclear Power in Space, and as Vice President of the NGO Committee for Disarmament in Geneva. Regina Hagen has also become a member of the editorial team of the German quarterly “Wissenschaft und Frieden” (Science & Peace).

Armin Tenner, INES chair, took over representation of INES/INESAP on the Middle Powers Initiative Steering Committee from Fernando de Souza Barros.

On a daily basis, many INESAP participants continue to represent INESAP and its expertise and ideas at conferences, in other organizations, at UN meetings, in expert bodies, and in a variety of other forums. INESAP also maintains, among others, regular contact with the Pugwash Conferences on Science and World Affairs, the United Nations Institute for Disarmament Research, the International Peace Bureau, and the Women’s International League for Peace and Freedom.

**INESAP Coordinating Committee**
A few changes were made to INESAP committees at the “Moving Beyond Missile Defense” conference in Berlin. On that occasion, the INESAP Coordinating Committee (CoCo) had the opportunity to meet. Most members of the committee renewed their commitment. After 7 years, Martin Kalinowski left the committee because of other obligations. Martin played a key role in INESAP for many years, and his continued advice will be greatly appreciated. Johan Swahn, one of the founding fathers of INESAP, left the committee because his main research focus has shifted to sustainable development.

At the same meeting, Prof. Kathryn Nixdorf accepted a place in the committee. She is professor for microbiology at the Darmstadt University of Technology, a member of JANUS, and has been participating in INES and INESAP activities since its foundation. She has been working on non-proliferation and preventive arms control for biological weapons as well as on verification for toxicological weapons. The last open place in the CoCo was filled by Dr. Morten Bremer Mærlí, researcher at the Norwegian Institute of International Affairs. Morten is working on nuclear non-proliferation and prevention of nuclear terrorism. He is a physicist by training with both practical and research experience in the fields of nuclear safety and security.

**INESAP Information Bulletin and Briefing Paper**
The Editorial Board of the INESAP Information Bulletin saw changes as well. The only person remaining in this group is Dr. Jürgen Scheffran who continues to be the main editor. Alexander Glaser, Regina Hagen, Andrew Lichterman, Dr. Götz Neuneck, and Prof. Dave Webb are the new Editorial Board members.

In 2003, INESAP published two issues of the INESAP Information Bulletin:

- #22, *Catching the Bomb. 10 Years Networking in INESAP – The Role of Scientists in International Security*, in December 2003.

Between 800 and 1,100 copies of each issue were printed, with approximately 500 being mailed to subscribers. The other copies were distributed to diplomats, policy makers, media people, as well as NGO and academia representatives on many occasions. The Bulletin can also be obtained both in PDF and HTML format from the INESAP webpage <http://www.inesap.org/publ_bul.htm>.

The series of INESAP Briefing Papers was continued in October...
INESAP Information Bulletin No.24, December 2004

In 2003 with Issue No. 11, "Cleanup of Cold War Contaminations. The Ongoing Nuclear Contamination of the Arctic Region," written by Ulrike Kronfeld-Gocharani, a Researcher at the Schleswig Holstein Institute for Peace Research (SHIP).

INESAP Homepage
The INESAP homepage is located at <http://www.inesap.org> and gives access to INESAP publications and information, with the INESAP Information Bulletin making up the largest part. In 2003, the webpage continued to receive steady use, with an average of 200-250 visits and approx. 2,000 hits per day. Interestingly, INESAP webpage information seems to be much appreciated by US educational, US military, and US government users.

Various
INESAP continued to co-sponsor the Middle Powers Initiative, and is now represented by Armin Tenner from the Netherlands on the MPI International Steering Committee <http://www.middlepowers.org/mpi/index.shtml>.

Unfortunately, several active INESAP participants lost their positions in 2003 due to a lack of funding of their respective projects or organizations. This reflects the general difficulties in obtaining funds for NGO work in the field of disarmament. If this situation continues, the work of INESAP as well as other NGOs will be seriously threatened. Even more so is it appreciated that these individuals continued contributing to INESAP activities.

Organizational Matters in 2003
INESAP Coordinator
The Coordinator manages most INESAP activities. The INESAP office is located in Darmstadt and hosted by the Interdisciplinary Research Group in Science, Technology and Security (IANUS) at Darmstadt University of Technology (Germany) <http://www.ianus.tu-darmstadt.de>.

In 2003, the coordinator, Regina Hagen, spoke at a wide variety of events on INESAP activities and topics. Of particular importance was her participation in the 2nd Nagasaki Global Citizens’ Assembly for the Elimination of Nuclear Weapons in Nagasaki/Japan, where the Mayors for Peace officially launched their Emergency Campaign “2020 Vision” for the complete elimination of nuclear weapons by 2020. Further planning between the Mayors for Peace, INESAP, and a few other Abolition 2000 representatives was possible in a follow-up visit to Hiroshima on this occasion.

INESAP E-mail Discussion List
Since 1994, Johan Swahn has facilitated an e-mail discussion list for information exchange and networking among INESAP participants. To subscribe, go to <http://lists.chalmers.se/mailman/listinfo/inesap>. Project-specific lists have been created for the Moving Beyond Missile Defense project and the Space Weapons Ban Study Group. To subscribe, contact Regina Hagen at <inesap@hrzpub.tudarmstadt.de>.

Funding and Support
INESAP funding in 2003 came from the Nuclear Age Peace Foundation (core funding for Coordinator salary, project work, and general expenses), from the IANUS group at Darmstadt University of Technology (office and infrastructure), INESAP Information Bulletin #21 and #22 and website maintenance), from the German Berghof Stiftung für Konfliktforschung (Berlin conference of Moving Beyond Missile Defense project), and from the New York-based Global Resource Action Center for the Environment (study work on missile control and disarmament). Gert Harigel from Geneva generously hosted the INESAP Coordinator during the NPT PrepCom 2003.

Selected Publications of INESAP or INESAP Participants:
The following selection of publications authored by INESAP participants is in no way complete. INESAP members are encouraged to inform the INESAP office of their future publications.

- Regina Hagen and Jürgen Scheffran, Is a space weapons ban feasible? Thoughts on technology and verification of arms control in space, United Nations Institute for Disarmament Research, Disarmament Forum, no. 1/2003, pp. 41-51.

The International Network of Engineers and Scientists Against Proliferation wants to take the opportunity to express thanks for the continuing support we have been receiving in 2004, in particular from the Nuclear Age Peace Foundation (core funding); Alice Slater, President of GRACE (hosting INESAP Coordinator during NPT PrepCom in April/May 2004), and IANUS at Darmstadt University of Technology (infrastructure).
Condemnation of the Iraq War

International Network of Engineers and Scientists for Global Responsibility

Appeal to the international Peace and Academic community

Although the US-led coalition transferred authority to an interim Iraqi authority on June 28, 2004, the military occupation of Iraq continues as do the consequences of the war against Iraq.

INES sought to contribute to averting this war by issuing an appeal in Paris on February 1, 2003, calling upon scientists, engineers and academics throughout the world to work in solidarity to prevent this war in both their personal and professional capacities. But the US government and some of its allies, relying on their military might, chose the path of war in defiance of international law, without authorization of the Security Council, and against the will of the people all over the world as manifested in protests by millions in demonstrations against war.

The argument of weapons of mass destruction given by the US and the UK to justify the war has proven to be false. The atrocious and barbaric images of torture of arrested Iraqi citizens by American and British soldiers in Iraqi prisons have eroded any moral justifications of the US that the war was undertaken to “liberate” and “democratize” the Iraqi people and to give an example to be followed in the Arab region. These atrocities are simply the tip of the iceberg of what the whole Iraqi nation is suffering. The occupation is an ongoing crime, that violates the honour and freedom of the Iraqi people.

INES now looks with great concern to the grave consequences of the Iraq War and continuing military occupation. These consequences include inside Iraq:

- The deaths, injuries and suffering of Iraqi citizens and international aid workers as well as those of the occupation forces;
- The destruction of Iraqi infrastructure, damage to its cultural heritage, deficits in meeting basic needs of its people, collapse of the standard of living and increasing violence contributing to a decline in security;
- On a global scale, the consequences of the increased adherence to the “might over right” principle as manifested by the US-led war include:
  - Weakening of UN authority as a result of the US proceeding to war without a mandate from the Security Council;
  - Undermining of the spirit of dialogue among nations/cultures;
  - Growth of anti-democratic, militaristic attitudes and cultural antagonism throughout the world.
For the United States, the results of the war include:

- Loss of prestige as a source of ethical standards and inspiration for humane values, especially in countries formerly viewing the US as an ideal of a free democratic modern nation;
- Growth of opposition to and mistrust of American policies throughout the world, especially in the Arab countries, which view the US-led occupation of Iraq as an act of extreme violence against all of them.
INES condemns the US-led war and occupation of Iraq and expresses concern for the present and future of the Iraqi people and the stability of the Middle East. We call upon scientists, engineers and other intellectuals, as well as Universities and other scientific and technical institutions throughout the world to engage in all forms of peaceful protest against the war and continuing occupation of Iraq and exert all possible peaceful pressure, to achieve the following objectives:

1. Withdrawal of the US-led military forces from the territory of Iraq and their replacement by multi-national forces, acceptable to the Iraqi people, under a UN mandate;
2. Support of all measures necessary for the guarantee of sovereignty, independence and territorial integrity of Iraq, including full control of national resources, and the safety, security and health of its people;
3. Release of all individuals being held in prison or under arrest in Iraq without cause, since 90% of all prisoners were arrested by mistake during the occupation, as revealed by the Red Cross;
4. Restoration of the cultural heritage and return of the treasures of Iraq, which have been subjected to robbery, damage or loss due to the invasion; as a second option, provision of full compensation for these losses by the occupying countries. (The occupation forces had the responsibility for protecting this cultural heritage according to the Geneva Conventions);
5. Support, by all possible means, of the engineers and scientists of Iraq, who are suffering insecurity, persecution, hindrance of their professional activities and loss of their means of livelihood due to consequences of war and occupation;
6. Provision of all necessary measures to bring to justice the leaders of occupation forces and other parties responsible for deaths and injuries of civilians and torture of prisoners, and appropriate compensation to the victims;
7. Encouragement of the creation of an open, democratic society built by the Iraqi people.

Sopron, Hungary, July 2004

This appeal was launched by the INES Council Meeting and seminar held in Sopron, Hungary, July 3-7, 2004. INES, the International Network of Engineers and Scientists for Global Responsibility, is the ‘mother’ organization of INESAP. For more information on INES activities, see www.inesglobal.com.
Participants of the conference (from left to right):
First row: Alyn Ware, Akira Kurosaki, Shoji Sawada, Tim Savage, David Krieger, Jürgen Scheffran, Etsuko Fujieda
Second row: Cheong Wookaik, Jungmin Kang, Carah Ong, Mitsuo Okamoto, Zhang Hui, Pavel Podvig, Naoko Akizumi
Third and fourth row: Terence O’Brien, Hans Kristensen, M.V. Ramana, Götz Neuneck, Hiromichi Umebayashi, Wolfgang Liebert, Andrew Lichterman, Ye Ru’an, Eugene Miasnikov, Regina Hagen

INESAP is the International Network of Engineers and Scientists Against Proliferation and was founded in 1993. It is a non-profit, non-governmental network organization with participants from all over the world. INESAP is part of the activities of the International Network of Engineers and Scientists for Global Responsibility (INES), which currently comprises more than 60 organizations from 25 countries. INES is a UN accredited NGO.

Although those active in the network can and do work independently from each other, the office plays an essential organizational role in most INESAP activities. It is hosted by the Interdisciplinary Research Group in Science Technology and Security (IANUS) at Darmstadt University of Technology. The INESAP Coordinator (Regina Hagen) cooperates closely with the international Coordinating Committee.

If you want to support the work of INESAP, you can send cash money (preferred to avoid high bank charges) or a cheque to the INESAP office or transfer money as follows:
Bank: Nassausche Sparkasse, Liebfrauenstr. 2, 61440 Oberursel, Germany
Account number: 258 131 002
Bank ID: 510 500 15
IBAN: DE40 5105 0015 0258 1310 02
SWIFT-BIC: NASSDE55XXX

Impressum
Published by INESAP, with support of Nuclear Age Peace Foundation.

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Layout: Clemens Beier
Title graphic: Julia Veits
Photos: Regina Hagen, Jürgen Scheffran, Shoji Sawada, private
Printed at copies etc., Germany
ISSN 1028-5482
Recommended supporting price for annual subscription $ 25