# Arms Control / Strategic Arms

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MEMORANDUM FOR: Faculty Advisor, L06, United States Army Sergeants Major Academy (USASMA), Ft Bliss, TX 79906

SUBJECT: Arms Control / Strategic Arms

1. Thesis Statement. The 21st century presents new and difficult challenges for the nuclear arms control program throughout the world.

2. Discussion. Today, there are many nations, some hostile towards the U.S., or each other, that now possess nuclear weapons or are actively pursuing a nuclear weapons program. India and Pakistan both have nuclear weapons and are engaged in a border dispute over Kashmir. China has made claim to Taiwan and their parliament has authorized the use of force to take Taiwan. North Korea, Israel, France and other countries now possesses nuclear weapons and Iran is actively pursuing a weapons program. The collapse of the Russian economy has caused former Russian nuclear scientists to look for employment in other countries, many of which are hostile towards the U.S. and the West. The collapse of the Soviet Union has caused and has drastically increased the risk of stolen nuclear materials. We will make a comparison of the challenges of Arms Control in the 21st century (post – cold war era) with the 20th century (cold war era).

3. Conclusion. The 21st century presents new and difficult challenges to nuclear arms control throughout the world and these challenges make the threat more dangerous and more likely to occur today than ever before.

4. Counterpoint. Because of the programs and safeguards put in place by the United States government, there are fewer challenges to Arms Control today and therefore the threat today is not as great and less likely to occur.

5. Haines Award. We do not request that the Haines award selection board consider this paper for the General Haines Award for Excellence in research. *Writing research Papers,* 10th edition by James D. Lester, is the guide used in preparation of this research paper.

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# Outline

**Thesis**: The 21st century presents new and difficult challenges for nuclear arms control throughout the world.

I. Many new nations now have nuclear weapons or they are actively pursuing a nuclear weapons capability.

II. Some of the new nations that now possess nuclear weapons are hostile towards each other, for example, India and Pakistan. Some of the nations actively pursuing nuclear weapons capability are hostile towards the U.S. and the west.

III. The collapse of the Soviet Union has presented some significant challenges making nuclear arms control more dangerous and more difficult.

A. A severely weakened Russian economy caused former Russian nuclear scientist to look for employment in other countries.

B. A severely weakened Russian economy has caused a severe degradation in weapons facilities and weapons security. This has allowed for theft of nuclear materials within Russia and the Newly Independent States (NIS) of the former Soviet Union.

C. The loss of weapons and/or weapons materials to former Soviet States has caused, or may have caused, the increase in the number of countries who possess or are actively pursuing nuclear weapons capability.

IV. The U.S. and the International Atomic Energy Agency have implemented many measures and controls over the last few years to track and control nuclear material.

These measures were intended to ensure that the nuclear materials do not end up in the wrong hands and protect the United States' national interests and borders.

A. Many new nations now have nuclear weapons or they are actively pursuing a nuclear weapons capability but there are measures in place to control which nation states can have nuclear weapons.

B. Although countries like India and Pakistan and other nation states have nuclear capabilities, the Nuclear Non-Proliferation Treaty (NPT) enables International Atomic Energy Agency (IAEA) to perform intensive inspections in their countries for treaty compliance.

C. There are hostile countries toward the U.S. trying to pursue nuclear weapons; however, the United States is currently working on a Theater Missile Defense Program that will protect the U.S. and its territories from ballistic missile attacks.

V. Closing

A. Summary

B. Questions

C. Conclusion

The 21st Century presents new and difficult challenges to nuclear Arms control throughout the world. These challenges make it a more difficult, more dangerous, and a more unstable environment within the United States and the world than ever before.

Many people believe that in order to maintain a peaceful and stable environment in the world, there must be a balance of power between world powers; this balance of power no longer exists. The Soviet Union has collapsed, the war on terrorism has begun, and many different nations now have nuclear weapons or are actively pursuing a nuclear weapons capability. New alliances have formed, pooling resources for developing nuclear weapons capabilities while technology rapidly advances and global economic conditions make it easier to transfer material and expertise. Presently, it is estimated that approximately 25 countries either have nuclear weapons or are actively pursuing nuclear weapons and weapons technology. The countries known to have nuclear weapons are the U.S., the UK, Russia, France, China, India, Pakistan, North Korea, and Israel, although Israel will not publicly acknowledge it. Ukraine, Belarus and Kazakhstan are also suspected of having nuclear weapons or weapons grade materials acquired from the collapse of the Soviet Union. The nuclear threat to the United States and the rest of the world will likely grow during the next several decades as technology advances and more countries or organizations pursue their own programs. Although this threat of nuclear weapons proliferation does exists, and the basic sciences are widely understood, we must remember that the complex engineering tasks required to produce effective nuclear weapons are not achieved easily. "To develop a nuclear weapon, a nation, group, or organization must successfully acquire a sufficient quantity of weapons grade fissile

materials, high explosives, related explosive technology, and a workable design for a nuclear explosive device."

So, what is the likelihood that a nation, group or an organization can acquire sufficient materials, the technology and a workable design to construct a nuclear weapon, or buy, steal or otherwise acquire a nuclear weapon? A question such as this is very difficult to answer; however, we believe that the events that have taken place in the late 20th and early 21st century make this possibility more likely today than ever before. The situation in the 21st century is and will continue to be a challenge to the U.S. and other western allies to prevent the spread of nuclear weapons and weapons technology throughout the world. According to the chief of the International Atomic Energy Agency, Mohamed ElBaradei, up to 40 countries are believed to be capable of manufacturing nuclear weapons, underlining the need to reinforce and update the Nuclear Non-Proliferation Treaty. Mr. ElBaradei has also stated that several terrorist organizations are interested in acquiring nuclear weapons, most notably, Al-Qaeda.

Al-Qaeda is present on six continents, with its primary senior leaders still at large. The Al-Qaeda terrorist organization has spent many years trying to find ways to acquire a nuclear device. Al-Qaeda has made it clear that its primary objective is to target America and kill Americans whenever possible. Besides the ever-present threat of Al-Qaeda and other terrorist organizations actively pursuing nuclear weapons or weapons technology, there is also the growing list of Nation States developing nuclear weapons such as North Korea.

North Korea is the world's primary source of ballistic missiles and related components and materials and is currently seeking additional fissile material to increase its nuclear

stockpile. North Korea violated its Nuclear Program Treaty obligations and then proved its strategic decision to seek nuclear weapons by withdrawing from the treaty entirely. North Korea openly admits to having a military nuclear program and has recently declared that they do indeed have nuclear weapons! It is a great possibility that this may prompt other nations to rethink their positions on nuclear weapons. The world now faces the danger of North Korea's possession of nuclear weapons. The world also faces the risk that North Korea may export fissile material or weapons to other states or terrorist organizations.

Countries like Iran are also actively violating their treaty obligations. There has been a large amount of information indicating numerous major violations of Iran's Treaty obligations under its Nuclear Program Treaty Safeguard Agreement. Iran has gained access to technologies and materials for their nuclear weapons programs. Over time, Iran, like North Korea, may have the capability to export complete missile systems. Iran is pursuing the fissile material and technology required to develop nuclear weapons. It uses its contract with Russia for nuclear reactors to obtain sensitive dual-use technologies that directly support its weapons program. Iran has concealed a large-scale covert nuclear weapons program for over 18 years.

If successful, Iran could have a nuclear weapon within ten years. Iran also has a relatively large ballistic missile force and is likely assembling additional SCUD missiles within the country. Iran is also developing and testing longer-range missiles and is currently pursuing the technology to develop a space launch vehicle re-entry weapon. It is possible that Iran could test this re-entry vehicle before the end of the decade. Such a weapon would have global reach capabilities. Cooperation with Russia, North Korea,

and China is critical to Iran's ultimate weapons program success. If Iran were to accomplish its goal of developing nuclear weapons, this would certainly upset the balance of power in the Middle East, particularly with Israel.

Israel is engaged with a territorial dispute with Palestine, another Muslim nation that draws much support from Iran. Israel is very widely believed to possess a substantial arsenal of nuclear weapons and intermediate-range ballistic missiles to deliver them. Israel has not yet signed the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).

The People's Liberation Army of China focuses on acquiring high technology arms-especially air, air defense, anti-submarine, anti-surface ship, and battle management capabilities. These elements are essential to Beijing's strike capabilities towards the United States. China is rapidly expanding its conventionally armed theater missile force, some of which can target United States bases in the region. This could provide increased leverage against Taiwan and to other US Asian allies. China has openly stated that the U.S. is its enemy. China has also recently stated that it has not ruled out the use of force to counter its neighbor, Taiwan's claim of independence. China's parliament recently passed a law authorizing an attack to stop Taiwan's claim of independence! The thought of China attacking Taiwan is a scary scenario to think about considering Taiwan is a ally of the United States and this situation could lead to two nuclear powers at war!

Two other nations that are hostile towards each other, India and Pakistan, now possess nuclear weapons. They are currently engaged in a conflict over Kashmir. India and Pakistan have a long complicated history with each other. In fact, these two countries simultaneously became independent from Britain. British India was supposed to be divided into two parts when it became independent. Areas consisting of 75% or

more Muslims were to become Pakistan and the rest of the territory was to become India. The question with the Kashmir conflict is, who is right, India or Pakistan. This arrangement did not include the Princely States, one of which is Kashmir. Princely States were at liberty to determine their own future. They could join Pakistan, join India, or remain as a separate state. The Maharaja of Kashmir decided to preserve the state of Kashmir so he decided to join neither India nor Pakistan. However, Pakistan sent tribal lashkars to talk to Kashmir about their decision. The Indian government saw Pakistan's action as a sign of invasion and sent their troops to help defend the state of Kashmir. The result of this first war between India and Pakistan involving Kashmir was Pakistan controlling 37% while India controlled 63%. "Even before India refused to join the NPT in 1968, Pakistan was convinced that India was intent on building nuclear weapons. Pakistan made clear that its response would be the acquisition of its own nuclear weapon."

It is difficult to determine the actual size and composition of India and Pakistan's nuclear arsenals, but the Natural Resources Defense Council (NRDC), estimates that both countries have 50 to 75 weapons. The NRDC believes that India has about 30 to 35 nuclear warheads, slightly less than Pakistan, which may have as many as 48 warheads. Both countries have fission weapons, similar to the early designs developed by the United States in the late 1940s and early 1950s. According to a senior Pakistan military official, Pakistan's main nuclear warheads are designed to be delivered by missile systems. India's nuclear weapons are reportedly gravity bombs deployed on fighter aircraft. Fears of nuclear terrorism against the United States were heightened in November 2001, barely two months after the attacks on the World Trade Center and the Pentagon, when news

reports surfaced about contacts between Pakistani nuclear scientists and Al-Qaeda. At least six Pakistani scientists have met with Osama Bin laden in Kabul. There are suspicions about links between Pakistan's nuclear establishment and al-Qaeda. These suspicions were also fueled when two other Pakistani nuclear scientist, hastily departed to the reclusive nation of Myanmar shortly after September 11, 2001. The two scientists were high on the list of nuclear scientist wanted for questioning by United States officials. Pakistan and North Korea received aid from the United States to shore up their collapsing economies, while at the same time engaging in proliferation of nuclear weapons and missiles that threatens United States interests. Critics say that Pakistani's feel that the United States abandoned them. This abandonment resulted in Pakistan's rise in extremism and the emergence of nuclear dangers.

There is no doubt that the United States is interested in preventing a South Asian nuclear disaster. The United States main interest in South Asian nuclear issues is largely by fear of Al-Qaida's, or other affiliated groups possible nuclear connection. The United States is also intent on stopping or limiting the spread of nuclear weapons technology and materials, not just in South Asia, but throughout the rest of the world as well. Russia has proven to be the biggest challenge when it comes to stopping or limiting the spread of nuclear weapons, weapons technology, and materials.

Since the collapse of the Soviet Union in 1991, the uncertain status of nuclear weapons, fissile materials, and the status of nuclear scientists in Russia and other former Soviet republics are widely regarded as creating the greatest challenges and posing perhaps the most immediate threat of nuclear proliferation and nuclear terrorism. Despite significant assistance from the United States over the last ten years, many of Russia's

nuclear facilities are poorly secured, and there is still no comprehensive, verifiable system of nuclear materials accountability. No one even knows how much nuclear weapons material the Soviet Union produced. With confirmed incidents of Russian-origin, fissile materials turning up for sale on the black market, this danger is more than hypothetical. These factors make nuclear arms control significantly more challenging today than ever before.

The United States Department of Energy (DOE) has invested hundreds of millions of dollars in programs designed to secure jobs for former Russian nuclear weapons scientists who are, or were out of work. The U.S. government was so concerned that they started enlisting the ingenuity of former soviet nuclear scientists. The Moscow-based Kurchatov Research Institute for Nuclear Energy employed more than 10,000 nuclear-energy experts and scientists during the cold war. With the demise of the Soviet Union and the collapse of the Soviet economy, a significant number of these professionals could not find employment or were forced to work for meager salaries. The U.S. was intent from the beginning on preventing these scientists from accepting employment in rogue states considered a threat to international peace and security. Aleksandr Rumyantsev, Russia's atomic energy minister, acknowledged at a Philadelphia conference that there are few opportunities for these scientists in Russia, especially those employed in the so-called "closed cities" inaccessible to foreigners. A closed city is a closed territory within Russia where nuclear weapons design and production takes place. "It's true, it is definitely a problem for us to determine how we should transform these unemployed [or underemployed] scientists for a peaceful, [nonmilitary] working environment,"

Rumyantsev said. It is a serious problem; here are a couple of examples of why it is such a serious issue:

On 04 November 2004, a Russian scientist surrendered eight containers filled with weapons grade nuclear material to police that he had kept in his garage for eight years! It was 400 grams of plutonium 238. He only surrendered the material when the police offered rewards for anyone who surrendered weapons. In another situation, a top Russian nuclear scientist who headed the Kristall Research center in Siberia went missing. He was seen leaving his home with a stranger; two weeks later, he was found dead. Many similar cases have taken place in Russia.

According to most estimates, the Soviet Union possessed more than 27,000 nuclear weapons in 1991. These include more than 11,000 strategic nuclear weapons -- warheads on land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and weapons on bombers with the range needed to attack the continental United States. They possessed more than 15,000 warheads for tactical nuclear weapons (such as artillery shells, short-range missiles, nuclear air-defense and ballistic missile defense interceptors, nuclear torpedoes and sea-launched cruise missiles, and nuclear weapons for shorter-range aircraft). Additional information that became available in late 1993 indicated that the Soviet Union had at one time possessed almost 45,000 nuclear warheads -- 12,000 more than had generally been thought to exist by Western analysts. In addition, the same source indicated that the Russian inventory of bomb-grade uranium was now believed to be nearly 1,200 tons -- more than twice as large as was formerly thought to exist.

Since the breakup of the Soviet Union, the security environment surrounding nuclear weapons and materials in Russia has changed radically. Security measures in both the Ministries of Defense (MOD) and Atomic Energy (Minatom) during the Soviet era were aimed at preventing the external or outsider threat; it was virtually unthinkable that an insider would attempt to steal a nuclear weapon or nuclear material. In contrast, the deterioration of the Russian economy, state security apparatus, and military has resulted in an entirely new security environment—one in which concern about an insider threat predominates.

Russia's transition to democracy and a capitalist market has caused many foreign businesses to be reluctant to invest there; this has not helped their already suffering economy. The events of September 11, 2001 have intensified concern that terrorist groups will attempt to steal weapons-useable nuclear material in order to build a nuclear weapon. Although stocks of these materials—plutonium and highly-enriched uranium (HEU)—exist in many countries around the world, large inventories are still held in the Newly Independent States of the former Soviet Union (NIS) such as Ukraine, Belarus and Kazakhstan. Because of economic and political turmoil, this material is vulnerable to theft. Since 1991, there have been numerous reports of the theft of such nuclear material from facilities in the NIS, and a close examination of open source evidence reveals many confirmed cases of theft or attempted theft of weapons-useable material from NIS facilities between 1991 and 2003. The first confirmed case involving the diversion of fissile material from nuclear facilities in the former Soviet Union occurred at the Luch Scientific Production Association in Podolsk, a town approximately 40 kilometers southwest of Moscow. Between late May and early September 1992, Leonid Smirnov, a

chemical engineer and long-time employee of the plant, stole approximately 1½ kg of weapons-grade uranium. He accumulated this quantity by some 20-25 different diversions, taking the material in the form of UO2 powder from the facility in glass jars and storing it on his apartment balcony. Smirnov had no accomplices and said he was motivated by an article he read in a Russian newspaper about the fortune to be made by selling HEU. He was captured at the Podolsk Railroad Terminal on October 9, 1992, along with most of the HEU concealed in three lead cylinders. He had planned to travel to Moscow to sell the nuclear material. Although Smirnov initially confessed to having a specific customer from the Caucasus in mind, the official investigation concluded that there was no concrete buyer.

One of the earliest confirmed thefts of HEU occurred in late July 1993 at a storage facility of the Northern Fleet naval base at Andreeva Guba, 40 kilometers from the Norwegian border. Two naval service men were arrested in the case and accused of stealing 1.8 kilograms of HEU from two fuel assemblies. The material was recovered; it was enriched to approximately 36 percent uranium-235 (U-235) and used as fuel for third-generation naval reactors. The men said they were operating under instructions from two naval officers -- both of whom denied involvement in the theft. At the trial of the four suspects, which concluded in November 1995, the two naval service men were sentenced to prison terms of five years and four years. The two naval officers were found not guilty due to lack of evidence.

On November 27, 1993, Captain Alexei Tikhomirov and Oleg Baranov slipped through an unprotected gate and into the Sevmorput shipyard near Murmansk -- one of the Russian navy's main storage facilities for nuclear fuel. Captain Tikhomirov climbed

through one of many holes in the fence surrounding "Fuel Storage Area 3-30," sawed through a padlock on the back door, and pried open the door with a metal fire pole he found next to the building. Once inside, he located the containers of fresh submarine fuel, broke off parts of three assemblies from a VM-4-AM reactor core, stuffed the material containing 4.5 kg of uranium (enriched to approximately 20 percent U-235) into a bag, and retraced his steps. The theft was soon discovered because the perpetrators carelessly left the back of the storage building open. The culprits, however, were only caught and the material recovered from Baranov's garage six months later when Dmitry Tikhomirov told a fellow officer about the theft and asked for help in selling the stolen merchandise. In early 1994, the three defendants -- all past or present naval officers -- were tried for the theft of naval fuel. Two received prison sentences of three and one-half years; the third was set free. According to the military prosecutor who investigated the case, at the time of the theft, potatoes were guarded better than naval fuel, despite the fact that most of the fuel was highly enriched and some of it was weapons-grade.

The first known case in which more than minuscule quantities of HEU or plutonium were illegally exported occurred in May 1994. It was inadvertently discovery by German police in Tengen, Bavaria; it was a vial containing 5.6 grams of nearly pure Pu-239. The super-grade material was found in the garage of Adolf Jaekle who was under investigation for counterfeiting. Although the origin of the material has not been determined definitively, there are indications that it was produced for non-weapons purposes at the Soviet nuclear weapons laboratory Arzamas-16 (renamed Kremlev). Samples similar to the amount seized in Tengen may have been distributed by Arzamas-16 to dozens of nuclear research laboratories in the former Soviet Union, as well as in

Eastern Europe. Many important questions about the Tengen case remain unresolved, especially regarding the plutonium supply route and the intended end-user.

In June 1994, Bavarian authorities seized 800 milligrams of HEU enriched to 87.7 percent U-235. The authorities recovered the material in Landshut, Bavaria. Subsequently, they arrested a German real estate dealer as the central figure in a group accused of illegal commerce in and possession of nuclear material. Also arrested as part of a sting operation were five men from Slovakia and the Czech Republic.

One of the most significant German smuggling cases occurred in Munich on August 10, 1994, when Bavarian authorities seized a suitcase that had been unloaded from a Lufthansa flight from Moscow. Inside the suitcase was a metal container holding 560 grams of mixed oxides of uranium and plutonium. This seizure, the result of a sting operation, was by far the largest quantity of weapons-usable material (363 grams of Pu-239) recovered in the West. The authorities arrested a Columbian national and two Spaniards at the airport in connection with the smuggling operation. The Russian Foreign Intelligence Service confirmed to German officials that the material in question had been diverted from a research facility at Obninsk. Although the Russian Ministry of Atomic Energy (Minatom) disputes the report, the Russian communiqué to Germany appears to be authentic. The Munich seizure was significant in demonstrating that sizable quantities of weapons-usable material could be procured.

On December 14, 1994, Prague police seized 2.72 kilograms of HEU from the back seat of a car parked on a busy street in the Czech capital. The HEU, enriched to 87.7 percent U-235, was in the form of uranium dioxide (UO2) powder. Police arrested the

car's owner, Jaroslav Vagner, from the Czech Republic, and his two companions in the car from Belarus and Ukraine. All three had backgrounds in the nuclear industry. The seized material -- the largest quantity of weapons-usable nuclear contraband found outside of Russia to date -- appears to be identical to the 800 milligrams of HEU recovered in Landshut, Germany in June 1994. The case also resembles the Landshut seizure in that it too appears to have been the result of a German sting operation. These seizures of nuclear material are significant because, unlike other reported cases of nuclear diversion, they involved more than small quantities of either HEU or plutonium. While international efforts to better secure nuclear material in the NIS have made significant strides, additional efforts are needed to finish the job and ensure that these materials do not fall into the hands of terrorists or proliferant states. Seizures of NIS-origin HEU from 1999 and 2003 indicate that the possible leakage of these materials still remains a very serious challenge for nuclear arms control.

Thus far, we have painted a grim picture of the world situation today in regards to nuclear arms control; however, the United States and the International Community have put some measures and controls in place to counter nuclear proliferation. The biggest challenge with controlling nuclear weapons proliferation is that the same technology used for developing nuclear weapons is also used for developing nuclear reactors, which is used for energy. Many countries active nuclear weapons programs were started with nuclear energy programs. It is much easier to make the leap to a weapons program from an energy program. To counter this significant challenge, the International Atomic Energy Agency (IAEA) under the Non-proliferation Treaty (NPT), cracked down on inspections on nuclear energy technologies or materials being shipped from and to

countries who have signed the treaty. One hundred ninety countries signed and agreed to the treaty that was initially implemented in 1970. Pakistan and Iran refused to join the program. North Korea pulled out of the Nuclear Non-Proliferation Treaty last year. Iraq was part of the treaty and after 12 years of violations, the United States led a coalition to disarm Iraq in the spring of 2003. One of the provisions of this treaty is for countries not to transfer nuclear weapons to other states. Another requirement is for non-nuclear nation states not to receive or pursue the development of nuclear weapons or nuclear explosive devices. The treaty states, "All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. The treaty also states, that Parties to the Treaty in a position to do so shall also cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world."

One control measure that has been put in place is the Megaports Program. The Megaports Program was created last year to help protect the United States from radioactive waste, equipment, and weapons from entering the United States. The program involves placing radiation detection equipment at all major seaports and airports through out the world. Rotterdam's security was completed last summer. Unfortunately, there is still much to do, the cost is tremendous, the maintenance and upkeep on the systems are difficult, and there are ways to get around these safeguards.

In 2004, President Bush requested a 75% (1.35 billion dollars) increase in the budget for the Department of Energy (DOE) to assist and control the nuclear waste in the former Soviet Union and in the current states that broke away from the old superpower. In May 2004, the DOE secretary announced an initiative called the Global Threat Reduction initiative (GTRI) which would reduce the threat to the United States and International community by removing and securing the high-risk nuclear and radiological materials and equipment, which pose a threat to the world. The program works closely with Russia to bring back all fresh and expended HEU from reactors around the world, which used to be controlled by the former USSR. This initiative would also require the U.S. to take whatever steps to get back over 20 metric tons of expended HEU fuel from over 40 locations around the world. Additionally, the GTRI would convert 105 research reactors that use HEU to operate off Low Enriched Uranium fuel. Currently, the National Nuclear Security Administration (NNSA) is securing almost 600 tons of useable weapons material and they are over 50% complete with this project and anticipate to have secured all 600 tons of the material by the end of 2008.

Another control measure that the United States is currently working on is a theater ballistic missile defense program that will protect the U.S. and its territories from ballistic missile attacks. The National Missile Defense Act of 1999 developed this program. The intent of the National Missile Defense program is to defend the Continental United States, deployed troops, and our allies. The system will utilize satellites and early warning radars to monitor whenever a missile has been launched. Unfortunately, this system does absolutely nothing for emplaced devices, which is the likely means of deployment of a weapon for a rogue state or a terrorist organization within the U.S.

Another initiative the United States has is in development and near completion of the first phase; is the Ground-Based Interceptor (GBI) multi-stage silo-launched booster rocket and kill vehicle that will track and destroy high-speed ballistic missiles in their midcourse. The missile would be destroyed while the missile is still outside the atmosphere and at its highest trajectory, approaching its target at over 15,000 MPH. However, there are still some glitches with some of the systems as there was a software error during testing in December 2004. Currently there are six interceptors installed at Alaska and four in California. They will position twenty more interceptors in the next two years throughout the United States. Another nuclear defense that the United States is developing is the Airborne Laser (ABL). Which is an anti-missile laser system mounted to a 747 aircraft that will be able to shoot down a missile within minutes of launch and destroy the weapon with a laser beam. Again, this does not do much for emplaced devices, which is the likely means of deployment of a nuclear weapon for a rogue state or a terrorist organization within the U.S.

The United States and the International Community have demonstrated the ability to put control and safety measures in place around the world and to some degree limit the spread of nuclear weapons and weapons technology. These measures however, have unfortunately not been able to stop the spread of nuclear proliferation entirely. North Korea now has nuclear weapons. Pakistan and India, two countries hostile towards each other, have both acquired nuclear weapons. Israel, although not willing to acknowledge it, has likely developed nuclear weapons and Iran has been secretly working on a nuclear weapons program for years. China has laid claim to its neighbor, Taiwan, a strong ally of the U.S., and the Soviet Union's collapse has severely degraded Russia's ability to

account for and secure its nuclear arsenal. The 21st Century indeed presents new and difficult challenges to nuclear Arms control throughout the world. These challenges make it a more difficult, more dangerous, and a more unstable environment within the United States and the world than ever before.

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