Handbook on Preventing the Proliferation of Weapons of Mass Destruction in the Asia-Pacific

Council for Security Cooperation in the Asia Pacific
WMD Handbook
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The information provided in the handbook is drawn from a variety of sources and is intended to provide a one-source document that summarizes the various treaties, conventions, and regimes that have been established to promote disarmament and prevent the spread of WMD and related materials. While we have tried to be as inclusive and accurate as possible in the describing the various regimes, we recognize that the information is subject to change. Therefore, we consider this a living document and are committed to providing updates as policies change and new developments occur. As such, Pacific Forum encourages your feedback and comments on the content of the handbook and will continually strive to keep the information current and relevant.

Chapter 1
Statement of Objectives and Basic Principles

1. Objectives

Weapons of Mass Destruction (WMD) pose a serious threat to all nations and peoples; these dangers are heightened by further proliferation, especially to non-state actors. All Asia-Pacific governments should therefore commit themselves to active efforts to help prevent and stop the proliferation of WMD and their means of delivery. At the same time, all states that possess WMD should reaffirm their commitment to the objective of eliminating these weapons.

This handbook provides in a single document a summary of the threats and challenges posed by WMD and a description of the global nonproliferation regime that has been developed over the years in response. The descriptions of the various components of the regime highlight its key aspects. In all cases where more information is available on the internet, a link has been provided for those seeking a more detailed account of the specific component. Likewise, a summary of participation by states in the Asia Pacific is provided in the handbook with a link to a website that provides detailed information regarding participation in a particular component of the regime.

2. Basic Principles

Adherence to the global nonproliferation regime rests on the following basic principles:

- a commitment by individual nations and the region as a whole to prevent and stop the proliferation of WMD, their delivery systems, and related materials, including dual-use goods and technology;
- a commitment to prevent and stop WMD terrorism;
- a commitment to support effective multilateralism that acknowledges a key role for the United Nations and its instruments in global nonproliferation work, but includes regional, subregional, and other multilateral initiatives. This includes the commitment by individual nations to comply with both the spirit and the letter of their nonproliferation commitments and disarmament obligations under relevant UN resolutions and the international treaties to which they are party;
- a commitment to take all measures to ensure proper protection and safeguarding of nuclear facilities and relevant materials in their territory;
- a commitment to a wide spectrum of measures, ranging from peaceful dispute resolution to the elimination of conditions that lead nations to develop WMD to consequence management if WMD are used. Prevention, counter- and nonproliferation should be included;
- a recognition of the growing possibility that non-state actors may acquire or develop WMD, components, materials, or know-how and that because deterrence

is less applicable to them, non-state actors may be more likely to use WMD if acquired;

- a recognition of the centrality of managing trade of strategic goods in any effort to stem the proliferation of WMD, their components, materials, and know-how;
- a recognition that the prevention of WMD proliferation should not hamper regional growth and development or international coordination in the use of materials, equipment, and technology for peaceful purposes and;
- a recognition that individual countries will take action in accordance with these commitments in ways that reflect their national interests and characteristics.

Underlying the above principles is the recognition that weapons of mass destruction pose a unique threat to the inalienable right of all nations and peoples to live in peace and pursue economic prosperity.

3. Definition of WMD

In this document, we will use the definition for WMD that was developed in 1948 by the UN Commission on Conventional Armaments. It states that "[WMD are] ... atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above." While other definitions have been used by various countries and agencies, this definition remains the basis for international disarmament diplomacy and continues to serve as a common baseline for most multilateral organizations engaged in the various aspects of nonproliferation and disarmament.

Chapter 2
Threats and Challenges Posed by Weapons of Mass Destruction

Weapons of mass destruction (WMD) have been with us for a long time. Recorded use of biological weapons dates back to the Middle Ages. Chemical weapons were used on a large scale in World War I and World War II saw the development and use of nuclear weapons. Recently, the potential use of radiological materials in making radiological dispersion devises or so-called "dirty bombs" has emerged as a new threat. The threat posed by WMD is critical to each individual state's security, and to collective security on a global scale. The magnitude of destruction associated with the detonation of a single nuclear weapon in one of the world's large population centers would be overwhelming. The large number of casualties and the massive damage to the economic infrastructure would be devastating to the individual country and the entire world. The use of chemical weapons or a biological agent could produce widespread death among an unprotected civilian population. Due to the varied nature of the WMD threats, it is impossible for any single mechanism to provide sufficient security. Instead, the threat is best addressed through multiple measures at the global, regional, and national level.

Five trends since the end of the Cold War have been identified that change the nature and increase the threat of an incident involving the use of WMD. They are:

- the growth in the number of non-state groups motivated by various convictions with or without clear political motivation,
- the creation of black or gray markets for WMD-related materials and expertise,
- the increased access to materials and components for developing chemical, biological, and nuclear weapons,
- advances in technology that have made it easier to carry out a WMD attack,
- and the involvement of organized crime networks in nuclear smuggling and trafficking.

These trends coupled with the presence of existing weapons stockpiles make proliferation to undesirable parties, especially terrorists, a growing concern. Accordingly, there is a need for constant vigilance and increased attention to ensuring the security of materials associated with WMD.

1. Motivations for Development and Acquisition of WMD

Beyond the obvious intent to actually use WMD, two primary motivations have traditionally been cited to explain why states choose to develop or acquire WMD: prestige and their deterrent value. The applicability of these motivations to the decision making process of non-state groups is less certain. Although some have argued that these groups would also derive a great deal of prestige and deference from states if they developed a WMD capability, others have argued that these groups tend to be technologically conservative and their objectives can be better met with conventional capabilities. The deeper fear is that non-state actors are potentially less rational than states and would be more inclined to actually use these weapons.

Prestige has been an important consideration for states deciding to develop nuclear weapons since the development of atomic weapons during World War II. However, the number of States possessing NW has remained relatively small due to factors such as the financial, technical and human resources required to develop these weapons, their technical sophistication, and treaty limitations on their development. A common perception that has developed, especially among states aspiring to become a nuclear weapon state, is that a state is taken more seriously in the international system if it possesses nuclear weapons.

The deterrent value of WMD to a state has traditionally been characterized in terms of the capacity to retaliate in response to an attack by another state, and in the case of biological or chemical weapons, for a relatively low price. Aggressors are deterred if they choose not to act, perceiving the cost of their action to be too high in relation to its likely success.

The end of the Cold War, and the growth of international terrorism as a problem of global importance, has seen the motivations for developing WMD evolve and change. While the sense of prestige associated with the possession of WMD remains an important factor, the deterrent value of maintaining a nuclear arsenal has come under serious question in the face of continued proliferation and acquisition by an increasing number of states, especially unstable regimes.

2. Threat of Weapons Proliferation

While there are no acknowledged operational stockpiles of biological or chemical weapons, the existence of nuclear weapon stockpiles presents three distinct types of threats. First, there is the obvious danger associated with the decision of a state to use these weapons against external or internal enemies. Second, there is the danger of an accidental detonation of such a weapon. Third, there is the risk of theft or seizure by outside forces or diversion by corrupt or disaffected individuals. Ensuring robust command and control of these weapons is of particular concern in countries under societal stress.

2.1 Nuclear Weapons

The five Nuclear Proliferation Treaty (NPT) recognized nuclear weapon states (Russia, China, France, United Kingdom, and United States) all have declared stockpiles of nuclear weapons and have developed detailed command and control procedures for maintaining them. The US and Russia currently maintain larger nuclear weapons stockpiles than the other three recognized nuclear weapon states (NWS) and also have the world's most advanced delivery systems. Although each state claims to maintain strict accounting of weapons in its possession, there have been reports of lapses in control and questionable security practices associated with these stockpiles.

Four countries have so far developed a nuclear weapon capability outside the framework of the NPT. Pakistan and India have conducted several nuclear tests and have declared

that they possess nuclear arsenals. North Korea, after conducting nuclear tests in 2006, 2009, 2013, and 2016, has declared that it is in possession of a "nuclear deterrent capability." It is generally accepted that Israel possesses a sizable and advanced nuclear arsenal, although it maintains a policy of nuclear ambiguity and there is no evidence that it has ever tested a nuclear weapon. Partly because these four states are not recognized in the NPT as nuclear powers, less is known is about the size and security of these stockpiles.

2.2 Biological Weapons

Although there are no acknowledged stockpiles, biological weapons are considered to be relatively inexpensive to develop and deploy. The dual-use phenomenon – where the expertise, techniques, materials, and equipment for weapons manufacture and legitimate uses are very similar – is particularly acute in the areas of biological research and weapon development. Production can be divided into three main stages: a biological agent must first be chosen and acquired, then grown to sufficient quantities (it is here that the materials can be modified for different characteristics), and finally the agent must be prepared for delivery. Stabilizing or weaponizing biological agents and disseminating them in large quantities for maximum effect remain formidable technological challenges. There are three main types of organisms used in the production and transmission of the biological weapons: bacteria, which form to make many different diseases, some of which are the plague, leprosy, cholera, botulism, tetanus, and typhoid fever; a virus, which is much smaller than the bacteria cell and cannot reproduce or grow unless it is in a host; and protozoa, a large group of single-celled, usually microscopic organisms, such as amoebas, ciliates, flagellates, and sporozoans. Prions, which are small proteinaceous infectious disease-causing agents believed to be the smallest infectious particle, have also been identified as potential biological weapons. They are neither bacterial nor fungal nor viral and contain no genetic material.

Biological agents can be "silent killers." With effects not immediately noticeable because of gestation periods and delays involved in identifying the agent, these weapons have the capability to spread their effects through large segments of a population before they are discovered or classified. The inability to control the effects once released make biological weapons more likely to be used by non-state groups interested in disrupting society than by nation states, which would normally be concerned about infections spreading to their own populations.

Information on suspected biological weapons programs is highly classified and generally unavailable outside the intelligence community. While no country in the world acknowledges the existence of any stockpiles of biological agents for offensive purposes, several are believed to have retained biological weapons stockpiles and active offensive research and development programs. These assessments are generally denied by the suspect countries, tend to be based on sketchy information, and have not been verified through an independent verification regime.

2.3 Chemical Weapons

Following the extensive use of chlorine and mustard gas in WWI, the use of "asphyxiating, poisonous or other gases, and of bacteriological methods of warfare" was banned under the Geneva Convention of 1925, but not the production or stockpiling of such weapons. The development of nerve agents in the 1920s and 1930s – significantly more deadly and difficult to defend against – created renewed interest in chemical weapon development in the inter-war period in Europe. Despite the fact that all the belligerents in World War II elected not to employ chemical warfare agents, the US, United Kingdom, Soviet Union, and possibly up to 20 other states deployed arsenals of chemical warfare agents and advanced delivery systems after that war's conclusion.

The seven States Parties (A State Party, Albania, India, Iraq, the Libya, Russia, and the United States) that declared the possession of chemical weapons upon acceding to the CWC agreed to destroy 8.67 million items, including 71,196 metric tons of chemical agents. Albania, India and a third country (referred to as "A State Party" above) have completed destruction of these weapons, which has been verified by the Organisation for the Prohibition of Chemical Weapons (OPCW) as being irreversible. The remaining States Parties are in the process of destroying their remaining stockpiles of chemical weapons and are obliged to place the highest priority on the safety of people and on protecting the environment. According to the OPCW, 90 percent of the declared chemical agents have been destroyed as of May 2015. All known chemical weapons stockpiles have been inventoried and verified and all chemical weapon production facilities have been inactivated.

2.4 Radiological Weapons

Crude radiological dispersal devices can be made by strapping explosive material to radioactive materials (radionuclides) commonly used in medical, industrial and agricultural applications. These so-called "dirty bombs" can also take the form of radiological emission devices that spread radiation without an explosion. It should be noted, however, that only certain radioactive isotopes can be used for this purpose. While the immediate destructive force would cause limited casualties, the psychological impact could cause havoc and massive societal disruption as a result of panic and the economic impact of large city areas rendered unusable pending intensive clean-up efforts could be enormous. There are no known stockpiles of such weapons and the most serious threat is probably the use by terrorists. The nuclear fuel and radioactive waste stored at nuclear power plants also present a potential WMD risk, both for use in dirty bombs but more likely as targets of attack by conventional weapons in order to spread radiation.

3. Proliferation and Dual-use Components and Materials

Many of the materials and components used to produce WMD also have legitimate civilian applications in medical, energy, and industrial fields. The threat associated with these materials is that they can be misappropriated for illicit uses. Such dual-use materials must be safeguarded against diversion for military purposes by states with the intention

of developing WMD outside the framework of the global nonproliferation regime. Another major concern with these materials is diversion to terrorists through illicit trafficking networks.

3.1 Uranium

Uranium is the principle fuel component in the nuclear fuel cycle as well as an essential material used in the production of nuclear weapons. Natural uranium consists largely of the non-fissile isotope U-238, with only 0.72 percent of the radioactive isotope U-235. Uranium enrichment is the process whereby the percentage of U-235 is increased to the higher levels needed for use as fuel in reactors or for nuclear weapons. Some reactors run on natural uranium fuel (i.e., unenriched) but the most common nuclear power plants use uranium enriched to 3.5 to 5 percent in U-235. Enrichment can be accomplished in several ways; the most economical method is through the use of gas centrifuges.

Concentration of 20 percent U-235 is the accepted threshold between low enriched uranium (LEU) and highly enriched uranium (HEU). Although 20 percent HEU is theoretically weapons-usable, the necessary critical mass would be too large for effective weaponization. In practice, the threshold for weapons grade HEU is considered to be 80 percent and the typical level of enrichment in deployed weapons is thought to be around 93-94 percent. It is often said that 25kg of weapons-grade HEU are required for an implosion-type weapon, because this is the amount the IAEA has determined to be a "significant quantity," or the minimum amount of fissile material which could be used "directly" to manufacture a nuclear explosive device. This threshold amount includes the material that will unavoidably be lost in manufacturing a nuclear explosive device, and should not be confused with the minimum critical mass needed for an explosive chain reaction. Gun-type weapons (in which one subcritical quantity of uranium is fired into another) can use HEU of as low as 80 percent, as was the case with the weapon dropped on Hiroshima in 1945, but requires a larger mass. Given the lower technological hurdle of gun-barrel bomb designs, HEU is of greater concern than plutonium in respect of acquisition by non-state actors.

Naval reactors use HEU for ship propulsion, and approximately 135 research reactors in 40 countries run on HEU fuel. Due to the danger of HEU being diverted or stolen, the US, Russia, and the IAEA have been engaged for several years in efforts to convert these research reactors to run on LEU. Other efforts to reduce the usage and stockpiles of HEU continue through various multilateral arrangements, however, significant quantities of the material still exist in national civilian stockpiles. While specific information regarding the amount of HEU is difficult to ascertain and in some cases is classified, the International Panel on Fissile Materials, which maintains a database on HEU inventories, estimates that the US and Russia have stockpiles of over 10,000 kilograms. It estimates that Canada, Japan, China, France, United Kingdom, and Kazakhstan each possess approximately 1,000-10,000 kilograms. Most estimates show that more than 1,600 metric tons of HEU exist in global stockpiles. The challenge is to ensure adequate measures to ensure control of this material.

3.2 Plutonium

Plutonium is a man-made element, created by bombarding uranium with neutrons in a reactor, either as an unwanted byproduct of power generation for civilian purposes or as the intended product produced in a dedicated reactor. Estimates indicate there is more than 1,800 metric tons of plutonium in world stockpiles. The amount of plutonium required to reach critical mass is relatively small – 8 kg by the IAEA definition, but 5-6 kg or even less in practice. Even seemingly insignificant amounts of plutonium present a security threat.

Plutonium used in a nuclear weapon must be chemically separated, or "reprocessed," from the other materials and fusion products that make up the bulk of spent fuel from a nuclear reactor. Reprocessing plutonium is a dangerous process that requires a heavily shielded facility. The International Panel of Fissile Materials estimates that the global stockpile of separated plutonium, all of which is weapon-usable, is about 500 tons. About half of this stockpile is civilian and continues to grow.

3.3 Biological Components

Biological agents are relatively easy to make using dual-use materials, equipment and technology. The fact that biological research and the development of these agents can be done in relatively small, unsophisticated laboratories has made it difficult to devise an effective multilateral verification system to assess compliance with their prohibition. It is difficult to characterize the threat from biological weapons components because while materials and expertise for creating a bacteria or a virus are readily available, manufacturing them in large quantities and dispersing them over wide areas requires significant resources and relatively sophisticated technology. Terrorists may use biological agents because they can create significant social disruption when deployed in relatively small quantities, they are extremely difficult to detect, and the effects of some can be delayed for several hours to several days. Some biological agents, like the smallpox virus, can be spread from person to person and some, like anthrax, cannot.

Biological agents are assigned to four biosafety levels (BSL) based on the risk they pose to human health and the environment. Such factors as severity of disease caused by the agent, routes of exposure, and virulence are used when determining the most appropriate BSL. Although these safety levels have been adopted as an international standard in an effort to control access and prevent the unintended spread of disease, they are directly relevant to the preventing the proliferation of biological agents.

A BSL-1 laboratory is suitable for work involving well-characterized agents not known to consistently cause disease in normal adult humans, and present minimal potential hazard to laboratory personnel and the environment.

A BSL-2 laboratory is suitable for work involving agents that pose moderate hazards to personnel and the environment. It differs from BSL-1 in that: 1) laboratory personnel have specific training in handling pathogenic agents and are supervised by scientists

competent in handling infectious agents and associated procedures; 2) access to the laboratory is restricted when work is being conducted; and 3) all procedures in which infectious aerosols or splashes may be created are conducted in physical containment equipment.

A BSL-3 laboratory is applicable to clinical, diagnostic, teaching, research, or production facilities where work is performed with indigenous or exotic agents that may cause serious or potentially lethal disease through the inhalation route of exposure. Laboratory personnel must receive specific training in handling pathogenic and potentially lethal agents, and must be supervised by scientists competent in handling infectious agents and associated procedures. All procedures involving the manipulation of infectious materials must be conducted in physical containment devices. A BSL-3 laboratory has special engineering and design features.

A BSL-4 laboratory is required when working with dangerous and exotic agents that pose a high individual risk of aerosol-transmitted lab infections and life-threatening disease. Only people whose presence in the facility or lab rooms is required for program or support purposes are authorized to enter. Personnel enter and leave the lab only through the clothing change and shower rooms. They take a decontaminating shower each time they leave the lab. Personal clothing is removed in the outer clothing changing room and kept there. Complete laboratory clothing is provided and used by all personnel entering the lab. When leaving the lab, personnel remove their lab clothing which is autoclaved before laundering. Supplies and materials needed in the facility are brought in through a double-doored autoclave, fumigation chamber or airlock. A system must be established for reporting lab accidents, exposure and employee absenteeism, and for the medical surveillance of potential lab-associated illness. Materials not related to the experiment being conducted are not permitted in the facility. There are currently fewer than 30 confirmed BSL-4 laboratories operating in the world.

3.4 Chemical Components

The toxic chemicals that have been used as chemical weapons can be categorized as choking (chlorine and phosgene), blister agents, which are also referred to as vesicants (mustard and lewisite), blood (hydrogen cyanide), or nerve agents (sarin, soman, VX). Although national stockpiles of traditional chemical weapons (defined as a toxic chemical contained in a delivery system) have been systematically inventoried and are being destroyed in countries that are party to the CWC, the threat of chemical agents persists in the components that are used to make chemical weapons. These components are known as toxic chemical precursors (TCPs), which, when combined with other compounds, can be used to create weapons. These TCPs are usually referred to as dual-use chemicals, meaning they can be used for commercial purposes or turned into weapons of mass destruction when mixed with other chemicals.

To preclude contravention of the CWC intent by separation of chemical weapons into component parts, the Convention defines each component of a chemical weapon (CW) as a chemical weapon whether assembled or not, stored together or separately. Anything

specifically designed or intended for use in direct connection with the release of a chemical agent to cause death or harm is itself a chemical weapon. Specifically, the definition is divided into three parts: the first part of the definition states that all toxic chemicals and their precursors, except when used for purposes permitted by the CWC in specified quantities, are chemical weapons. Toxic chemicals are defined as "any chemical which through its chemical action on life processes can cause death, temporary incapacitation, or permanent harm to humans or animals." Precursors are chemicals involved in production stages for toxic chemicals. Put simply, a toxic or precursor chemical is defined as a chemical weapon unless it has been developed, produced, stockpiled or used for purposes not prohibited by the CWC.

The second part of the Convention's definition of a chemical weapon includes any munitions or devices specifically designed to inflict harm or cause death through the release of toxic chemicals, including mortars, artillery shells, missiles, bombs, mines or spray tanks. In order to be defined as a chemical weapon the items in question would have been designed and built with the intent to release any of the toxic chemicals in the first part of the definition.

The third part of the definition includes any equipment specifically designed for use "directly in connection" with employment of the munitions and devices of the second part of the definition. As with the second part, the principle of specificity applies – only equipment specifically designed to be used with munitions and devices or toxic chemicals and their precursors is included.

The CWC classifies chemicals into three schedules of toxic chemicals and precursors. Schedule 1 chemicals have few or no uses outside of chemical weapons and are the most lethal and primarily consist of current chemical weapons and their precursors. Schedule 2 chemicals have legitimate small-scale applications and manufacture must be declared and there are restrictions on export to countries that are not CWC signatories. They are dual-use, highly-toxic chemicals that pose a significant risk to CWC objectives and are used in many industrial applications. Schedule 3 chemicals have large-scale uses apart from chemical weapons. Plants that manufacture more than 30 tons of these chemicals per year must be declared and are subject to inspection, and there are restrictions on export to countries that are not CWC signatories. These are generally dual-use chemicals that have been produced or used as a chemical weapon or are tertiary Schedule 1 precursors, and may be used in industrial applications. Specific information on the types of products associated with each of the schedules is provided in a separate annex of the CWC.

4. Challenges in Responding to the Threat

There are three aspects to an effective response to the threat of proliferation of existing WMD weapons and materials. First, there must be effective security and safety measures for weapons stockpiles, civilian nuclear facilities, component materials, manufacturing facilities, and research laboratories. Second, measures must be taken to prevent the proliferation of the weapons themselves, component materials, delivery systems, and

technology and expertise. This requires an effective global nonproliferation regime in which states work together to combat the threat in a cohesive and collective manner.

A third aspect of the response to the threat of proliferation is the commitment on the part of all states to the elimination of existing WMD. Public awareness of the everyday threat posed by WMD plays an important part in motivating states to reduce or eliminate dependence on WMD as means of providing security for its citizens. For biological and chemical weapons, a ban on all such weapons is called for in the respective treaties. The elimination of nuclear weapons has been much more difficult to achieve. First, although the Nuclear Nonproliferation Treaty (NPT) does call on all states to eliminate stockpiles of nuclear weapons, there is no timeline established. Meanwhile, the five so-called nuclear weapon states (NWS) have sought to justify the need for retaining their stockpiles. In recent years, there has been renewed interest in the complete elimination of nuclear weapons, which is reflected in several initiatives included in this handbook. Many believe that a commitment by the NWS to halt efforts at vertical proliferation and then work to eliminate their stockpiles completely is a necessary condition for halting the horizontal proliferation of nuclear weapons.

5. Proliferation of Weapons of Mass Destruction and Their Components

Proliferation is generally defined as the spread of WMD and the corresponding technical knowledge associated with their production. Analysts distinguish between two types of WMD proliferation: vertical and horizontal. An example of vertical proliferation is the amassing of atomic weapons by established nuclear powers, as occurred during the 1960s when the US and the Soviet Union stockpiled thousands of nuclear arms and continued to develop more powerful and sophisticated weapons. An example of horizontal proliferation is the spread of nuclear weapons to conventionally armed nations, as occurred when India developed a nuclear weapon in 1974. Most proliferation in the past has been state-to-state, but the rise of nuclear black-market networks, such as the one led by A.Q. Khan until 2004, alerted the world to the new proliferation danger posed by non-state actors. The emergence of international terrorism and the avowed intentions of some to acquire WMD of all types have heightened the threat. Horizontal WMD proliferation can manifest in four ways: the transfer of weapons themselves, proliferation of components and materials, proliferation of delivery systems, and proliferation of technology and know-how.

5.1 Transfer of Weapons

The actual transfer of complete WMD systems is rare. The prohibitions against possession of biological and chemical weapons in the BTWC and CWC and the strict security surrounding nuclear weapons have limited this type of proliferation. While there were significant suspicions that Saddam Hussein transferred WMD out of Iraq in 2003, to date there has been no confirmation of this actually occurring.

5.2 Illicit Trafficking in WMD Materials

Trafficking of component materials used in the development of WMD, particularly of nuclear weapons, is a serious concern. Since the early 1990s there has been a rise in the number of attempts to smuggle nuclear and other radioactive material. As of Dec. 31, 2016, the *Incident and Trafficking Database (ITDB): Incidents of nuclear and other radioactive material out of regulatory control* contained a total of 3,068 confirmed incidents reported by the participating states. Of those confirmed incidents, 270 incidents that involved a confirmed or likely act of trafficking or malicious use, 904 incidents for which there is insufficient information to determine if it is related to trafficking or malicious use, and 1,894 incidents that are not related to trafficking or malicious use. It is becoming increasingly difficult to gauge the amount of potentially lost material. The vast majority of incidents have occurred throughout Eastern Europe and the former Soviet Union, traceable to Russian nuclear installations. Most importantly, the majority of incidents tend to be opportunistic and related to insider theft by individuals who attempt to find buyers using organized criminal networks. Few of the reported incidents are known to be demand-side driven.

The proliferation of chemical and biological weapons components also represents an inherent threat. Since chemical precursors and biological agents that form the basis for building chemical and biological weapons are easily accessible and used by civilian medical and industrial services throughout the world, it is possible to gain access to them through legitimate transactions. A limiting factor has been the difficulty in weaponizing biological agents to maximum lethal effect.

5.3 Proliferation of Delivery Systems

The technology and systems engineering associated with delivery systems is also becoming rapidly available. Traditional delivery systems such as ballistic missiles, cruise missiles, and unmanned aerial vehicles, are now becoming more widespread. At the same time, recognition must be given to WMDs employed without traditional delivery systems. For example, toxins or a parasite may be delivered to a wide array of targets through an unprotected water supply.

Non-state actors, specifically terrorist organizations, attempting to gain WMD technology are a major cause for concern. While the technical knowledge has been readily available for a long time, the primary concern is to ensure that nations work together to prevent the spread of fissile material, toxic agents, and harmful biological organisms, etc.

5.4 Proliferation of Technology and Expertise

The globalization of commerce and the spread of technology through means such as the Internet have increased access to dual-use goods and technologies that are used in civilian applications but that also can be used for the development of WMD. The spread of nuclear energy creates concerns about diversion for other than the prescribed civilian purposes, especially when there is access to the most sensitive areas of the nuclear fuel

cycle: uranium enrichment and plutonium reprocessing. Biological and chemical technology proliferation is also a serious threat. Dual-use technology is in extensive use in medical and industrial research labs throughout the world. Radiological components are used in a wide variety of technologies throughout the world, and misuse of such technology is a serious global threat.

Another aspect of the proliferation of technology is through the diffusion of expertise or what has been described as the "know-how" proliferation threat. This was especially a concern in the 1990s after the Soviet Union dissolved in 1991 and tens of thousands of scientists, engineers, and technicians that comprised the backbone of the Soviets' unconventional weapons programs went from relative riches as an elite corps of patriots to highly skilled excess capacity residing in bloated weapons complexes throughout the region. Although most of these former Soviet workers have been absorbed into the workforce, including through cooperative threat reduction programs, this worldwide excess capacity in WMD-related expertise continues to be a concern. Coupled with the large quantities of component materials available on the black market, the threat of this expertise being used by undesirable non-state actors remains an important part of the proliferation threat.

It is imperative that all countries in the Asia Pacific work in unison to defeat the threat of proliferation. To ensure success against the threat dimensions posed by WMD, countries must adopt a multi-layered defense. Containing the threat posed by the presence of WMD and the proliferation of both the weapons and their components is in the interest of all countries and responsible international actors.

6. Disarmament and Elimination of WMD

While the elimination of WMD has been an integral part of the global WMD nonproliferation regime from its inception, it has also been a central challenge. The Biological and Toxin Weapons Convention (BTWC), the Chemical Weapons Convention (CWC), and the Nuclear Nonproliferation Treaty (NPT) all make specific mention of eliminating weapon stockpiles. However, there is considerable variation in how they deal with the issue of disarmament. Both the BTWC and the CWC prohibit the stockpiling of weapons, although there remain strong suspicions in both national and private assessments that some states continue to maintain arsenals of these weapons. These suspicions have led to an ongoing demand for some form of verification mechanism to ensure the declarations that these weapons have been eliminated.

The NPT uses more ambiguous language regarding disarmament. Unlike the BTWC and CWC, which outlaw their respective weapons, the NPT makes nuclear disarmament part of a trade-off, the so-called grand bargain. The three pillars of the grand bargain are as follows: the nuclear weapon states (NWS) agree to disarm; the non-nuclear weapon states (NNWS) agree not to acquire nuclear weapons; and all NPT signatories in compliance with their various obligations under the NPT are guaranteed the right to develop nuclear technology for peaceful purposes, with assistance from the NWS.

The NPT's disarmament section, Article VI, commits signatories "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament." Broadly speaking, the division between NWS and NNWS regarding their thinking on multilateral nuclear disarmament can be characterized in terms of two schools of thought that have competed for recognition: the *incremental* and *comprehensive* approaches to disarmament. Incrementalists have opposed the imposition of a time-bound framework for nuclear disarmament. They have more recently emphasized a step-by-step approach, revolving around the universalization of the NPT, entry into force of the Comprehensive Test Ban Treaty (CTBT), negotiation of a Fissile Material Cut-off Treaty (FMCT), and progressive inclusion of all the nuclear armed-states in a nuclear arsenal reductions process.

6.1 Comprehensive Approach to Nuclear Disarmament

The *comprehensive* approach has traditionally been favored by many NNWS, especially those of the Non-Aligned Movement (NAM), as well as by many non-governmental organizations (NGOs). This approach to disarmament focuses strongly on nuclear weapons elimination within a time-bound framework and argues that progress toward elimination aids non-proliferation.

For many advocates of comprehensive nuclear disarmament, a Nuclear Weapons Convention (NWC) represents the most appropriate model for eliminating nuclear weapons. A model NWC was developed in response to the unanimous Advisory Opinion of the International Court of Justice in 1996 that there is a binding legal obligation to eliminate nuclear weapons. It has been an official UN document since 1997 and was updated and republished in 2007 in book form, entitled "Securing Our Survival" to incorporate expert comment and criticism. It was officially introduced into the NPT process that year. The model NWC prohibits the development, testing, production, stockpiling, transfer, use and threat of use of nuclear weapons. Its five-phase plan for the progressive drawdown of nuclear arsenals includes disarmament verification mechanisms; compliance, cooperation and dispute settlement clauses; enforcement mechanisms; and national implementation measures.

In recent years, civil society advocacy and diplomatic efforts toward nuclear disarmament shifted away from the proposed NWC to the negotiation of a nuclear weapons ban. Unlike a comprehensive convention, a treaty banning nuclear weapons would not include dismantlement and disarmament verification provisions, concentrating only on legal prohibitions, including the use, possession, development, deployment, and transfer of nuclear weapons. As such, its proponents argue, the negotiation of a ban treaty does not require the participation of nuclear weapons possessors.

6.2 Incremental Approach to Nuclear Disarmament

The Final Document produced at the 2000 NPT Review Conference committed all states parties to "systematic and progressive efforts to implement" Article VI of the NPT

through specific practical measures, commonly known as the 13 Steps. They included urgent signature and ratification to achieve the early entry into force of the CTBT; a verifiable FMCT; the early entry into force and full implementation of START II and the conclusion of START III as soon as possible; further development of the verification capabilities that will be required to provide assurance of compliance with nuclear disarmament agreements; and an unequivocal undertaking by the NWS to accomplish the total elimination of their nuclear arsenals.

At the 2008 NPT PrepCom, Norway proposed the formation of an Intergovernmental Panel on Nuclear Disarmament to advise governments on the various requirements for a weapon free world. In July 2009, the International Commission on Nuclear Non-proliferation and Disarmament, which is co-sponsored by Australia and Japan, released a report that called for NWS to minimize the role of nuclear weapons in their security doctrines, give unequivocal negative security assurances to the NNWS, "rethink existing approaches to extended deterrence," and to devise a set of entitlements and corresponding obligations to make nuclear–armed non-NPT States stakeholders in the global nonproliferation regime. In October 2008, UN Secretary General Ban Ki-moon presented a "5-Point Plan" designed to "revitalize the international disarmament agenda." He urged the NWS to fulfill their NPT disarmament obligations either by agreement on a framework of separate, mutually reinforcing instruments or consider negotiating a NWC, backed by a verification system. He also circulated to all UN member states a draft of such a Convention.

In 2010, states parties also unanimously adopted a 64-points action plan as part of the Final Document for the 2010 NPT Review Conference. The 64-point action plan included detailed steps for strengthening non-proliferation norms, reducing nuclear dangers and for eventually achieving general and complete disarmament. Yet by 2015, a Reaching Critical Will report assessed that only 5 of 22 disarmament actions, 12 of 23 non-proliferation commitments, and 11 of 18 actions related to nuclear energy had seen definite progress.

Despite intensive consultations, the 2015 NPT RevCon could not reach a consensus agreement or a substantive final declaration. The non-nuclear weapon states have accused the nuclear weapon states of "discrimination, hypocrisy, and failure to live up to their commitments to disarm."

6.3 Nuclear Weapons Arms Control Measures

Despite the lack of progress on multilateral disarmament, there have been some advances in unilateral and bilateral nuclear arms control measures that could lead to a greater acceptance of multilateral approaches. Russia and the US, who together hold around 95 percent of the world's nuclear weapons, have reduced both stockpiled and operational nuclear warheads, bringing the global arsenal down from an estimated 68,500 weapons in 1985 to around 15,695 in 2015. This was accomplished within the framework of bilateral Russia-US agreements, with the most recent being the New START, which was ratified by both countries in 2012. However, the US has at the same time announced an

expenditure of $80 billion to upgrade its nuclear weapons facilities and Russia appears to have increased the salience of nuclear weapons in its national security doctrine.

The UK has reduced the operational readiness of its nuclear weapons, stating that it has reduced the time-to-fire of its submarine-launched ballistic missiles (SLBMs) "from hours to days." It has also reduced the number of its nuclear weapons delivery systems, and reduced its stockpile of nuclear warheads by 50 percent since 1997. However, contrasting these positive developments in the direction of disarmament, the UK announced in 2006 that it will spend around £20 billion replacing its four SLBM-capable submarines, thus enabling it to extend its nuclear weapons capabilities for several more decades. A decision has yet to be taken publicly regarding the possibility of renewing its arsenal of nuclear warheads.

France has also engaged in limited nuclear disarmament activities. It dismantled its ground-launched nuclear missiles and reduced its fleet of ballistic missile submarines by a third. In early 2008, President Sarkozy announced that France's operational nuclear warhead stockpile would be brought down to under 300, around half of its maximum Cold War arsenal. However, nuclear weapons are apparently intended to play a crucial role for the indefinite future in France's national security.

6.4 Potential Third Ways?

The divide between the NWS and the NNWS has led to a deadlock in negotiations that has prevented the UN Conference on Disarmament (CD), the only official forum for the negotiation of multilateral disarmament treaties, from agreeing to a negotiating mandate since 1997. Since the late 1990s, a "third way," the "comprehensive-incremental" approach to disarmament, has gained more supporters, in particular as advocated by the New Agenda Coalition (NAC – a group of states comprising Brazil, Egypt, Ireland, Mexico, New Zealand, and South Africa).

Shortly after the 1996 ICJ Advisory Opinion, the Australian government-sponsored *Canberra Commission on the Elimination of Nuclear Weapons* called on the NWS to give an "unequivocal commitment" to this end. Subsequently, the NAC repeated this call in its 1998 and subsequent, yearly UN General Assembly Resolutions entitled "Towards a nuclear-weapon-free world." A key contention of the NAC is that nuclear disarmament and non-proliferation are mutually reinforcing processes that can only be pursued effectively in parallel. This strategy enabled the NAC to take a lead role in the negotiation of disarmament commitments made at the 2000 NPT RevCon, leading to the "unequivocal undertaking" made by the NWS. This "third way" approach is similar to the earlier Rajiv Gandhi Action Plan and is also reflected in US President Barack Obama's Prague speech, where he called for complete elimination of nuclear weapons. In 2014, the Austrian government delivered the "Austrian Pledge" in which it committed to work to "fill the legal gap for the prohibition and elimination of nuclear weapons," pledged "to cooperate with all stakeholders to achieve this goal" and invited other states to do so. The "Austrian Pledge" was delivered during the third of a series of "International Conferences on the Humanitarian Impact of Nuclear Weapons," conferences organized by several

governments, international organizations, and civil society and hosted for the first time in Oslo, Norway in March 2013, successively in Nayarit, Mexico in February 2014, and finally in Vienna, Austria in December 2014.

There have been several other multilateral initiatives. For decades, the NAM played a significant role in advocating nuclear disarmament. By taking "nuclear disarmament" as one of its principled positions, the NAM has been a negotiating and voting bloc that has been seen as representing the aspirations and interests of NNWS in pursuing nuclear disarmament. A notable concrete and detailed proposal was the Rajiv Gandhi Action Plan for Nuclear Disarmament in 1988, which still retains a contemporary relevance. The position was supported by several NGOs in West European countries.

Non-governmental initiatives have also increased in recent years, with a series of initiatives gaining media and political attention. Global Zero is an international campaign endorsed by over 100 high-level leaders which aims to elicit commitments from the NWS to eliminate nuclear weapons through phased and verified arsenal reductions. Another initiative is the Mayors for Peace 2020 Vision campaign which calls for the abolition of nuclear weapons and has been endorsed by over 3,200 mayors from 134 countries and regions. Similarly, Parliamentarians for Nuclear Non-proliferation and Disarmament (PNND), a bipartisan organization bringing together over 700 parliamentarians from more than 75 countries, including several NWS, has released a "Parliamentarians' Declaration Supporting a Nuclear Weapons Convention." Other like-minded non-governmental initiatives include a joint statement by a group of Nobel Peace Prize Laureates calling for nuclear weapons elimination; the International Campaign to Abolish Nuclear Weapons (ICAN); and Abolition 2000 (over 2,000 organizations worldwide calling for a nuclear weapons convention). ICAN won the 2017 Nobel Peace Prize "for its work to draw attention to the catastrophic humanitarian consequences of any use of nuclear weapons and for its ground-breaking efforts to achieve a treaty-based prohibition on such weapons."

6.5 Nuclear Weapons Ban Treaty

After the failure of states parties to the 2015 NPT Review Conference to reach consensus, many countries sought to press forward the nuclear disarmament agenda in the United Nations General Assembly. Over the course of three sessions in 2016, an Open-Ended Working Group (OEWG) of states recommended that the UN General Assembly convene a conference in 2017 to "negotiate a legally binding instrument to prohibit nuclear weapons, leading toward their total elimination." On 27 October 2016, the First Committee of the UN General Assembly voted to adopt the resolution to convene the nuclear ban conference, and the full UN General Assembly followed suit on 23 December 2016. The first round of negotiations was held at the United Nations in New York from 27 March - 31 March 2017, with a second round from 15 June 2017 - 7 July 2017.

No nuclear-armed nation supported the nuclear weapons ban treaty; a number of them, including the United States and Russia, expressed explicit opposition. North Korea was

the only nuclear state to vote for initiating ban negotiations. Many of the non-nuclear-armed members of the North Atlantic Treaty Organization (NATO), along with Australia and Japan, were also resistant to a ban treaty given the role of US nuclear weapons in their security. A group of states including NATO members, Canada, Australia, and South Korea that did not vote in favor of the treaty explained their position as a belief that "the measure will: be ineffective in eliminating nuclear weapons; have potentially adverse consequences for regional and global security; not advance implementation of Article VI of the NPT; and impact negatively on the NPT review process, making a consensus outcome in 2020 all the more difficult." In their assessment, "a prohibition treaty would only engage those states that are already bound by the NPT and would likely mirror existing obligations, without any mechanism to ensure any new treaty obligations were being fulfilled."

Nonetheless, the Treaty on the Prohibition of Nuclear Weapons (NWPT or Nuclear Weapons Ban Treaty) was adopted on 7 July, 2017, after two rounds of negotiations at the UN General Assembly. Both rounds were boycotted by all nuclear weapons possessing states, most NATO countries, and many military allies of nuclear weapons states. Proponents of the Treaty have hailed it as an important step in delegitimizing nuclear weapons and reinforcing the norms against their use, while opponents have criticized the Treaty as political grandstanding which could undermine the NPT. In the vote on the treaty text, 122 were in favor, 1 voted against (Netherlands), and 1 abstained (Singapore). Sixty-nine nations did not vote, among them all of the nuclear weapon states and all NATO members except the Netherlands.

Immediately after adoption, the permanent missions of the United States, the United Kingdom and France issued a joint statement saying they "have not taken part in the negotiation of the treaty … and do not intend to sign, ratify or ever become party to it."

After stating that the instrument clearly disregarded the realities of the international security environment, they said accession to it was "incompatible with the policy of nuclear deterrence, which has been essential to keeping the peace in Europe and North Asia for over 70 years."

While the Nuclear Weapons Ban Treaty represents a tangible outcome for those advocating a comprehensive approach to disarmament, many see the Nuclear Weapons Ban Treaty as manifesting or further widening the gap between NWS and NNWS. Experts disagree on whether the existence of the Ban Treaty will jeopardize the NPT, especially before the 2020 NPT RevCon, or if it will encourage NWS to finally make serious progress on implementing their Article VI obligations.

The effect of the Nuclear Weapons Ban Treaty on nuclear disarmament remains to be seen. Meanwhile, several negative trends could stymie further progress on nuclear disarmament. These include the refusal of some NNWS to comply with NPT commitments; the reluctance of some states to sign the IAEA Additional Protocol, a protocol to a nuclear safeguards agreement that provides additional tools for verification; the decision of others to engage in nuclear weapon development programs; factors

complicating the Russia-US strategic reductions process; increasing investments in maintenance and modernization of nuclear weapons in Russia, the United States, and China; and the fact that several states continue to maintain and develop nuclear arsenals outside the constraints of the NPT, including North Korean acquisition of at least 15 nuclear weapons. Meanwhile, arms control advocates have called on other NWS to engage constructively at the appropriate stage if the momentum in stockpile reductions is to be converted into multilateral disarmament progress and for NNWS to uphold and strengthen their commitment to nonproliferation.

The elimination of nuclear weapons remains a challenge. Even with the bans outlined in the BTWC and the CWC, concerns remain over whether states have actually eliminated biological and chemical weapons, and whether non-state actors could create these weapons for terrorist purposes. The disarmament or elimination of all types of WMD, whether through an incremental or comprehensive approach, or a "third way," requires the ongoing cooperation and coordination of all states in the Asia-Pacific region.

Chapter 3
Basic Treaties and Conventions

The purpose of this chapter is to provide a summary of the three major treaties that form the basis for the global nonproliferation and disarmament regime. These agreements are open to all states and are legally binding on acceding parties. There is a separate treaty to address nuclear, biological, and chemical weapons. Each treaty has different requirements for elimination of weapons, compliance verification, and national implementation of the disarmament and nonproliferation regimes. These differences reflect the characteristics of the materials used in the weapons, the political will to address compliance and verification issues at the time these treaties were developed, and the inherent difficulties in establishing international governance mechanisms that deal with disarmament and the trade of strategic materials.

This chapter also provides a summary of the implementing organizations that were established as part of the individual treaties. These organizations have evolved over the years since the ratification of the applicable treaty and continue to serve important roles in maintaining the regime.

The 1968 Nuclear Non-Proliferation Treaty (NPT) does not prohibit states from maintaining nuclear materials and does not explicitly require states parties to adopt national implementation measures to give effect to the treaty. It does require states to enter into nuclear safeguards agreements with the International Atomic Energy Agency (IAEA), which has promulgated non-binding guidelines for national measures to protect nuclear materials and equipment from security breaches. There are also subsequent UN agreements that require compliance by states parties to several additional restrictions in their handling of nuclear materials. These agreements are covered separately in Chapter 4 of this handbook.

The 1972 Biological Weapons Convention (BWC), also known as Biological and Toxin Weapons Convention (BTWC), expands upon the provisions of the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare by prohibiting states from maintaining biological weapons in any form and requires them to take “any necessary measures” in accordance with their constitutional processes to implement the Convention. To do so effectively, States need a regulatory framework including criminal measures (to prohibit biological weapons activities and facilitate law enforcement), and transfer controls and measures to account for and physically secure potential bio-warfare agents, related materiel and delivery systems. While the treaty leaves the form of national implementation measures to states parties, the scope of obligations they must cover is clear: comprehensive measures are necessary to ensure compliance.

The 1993 Chemical Weapons Convention (CWC) requires the dismantlement of all existing chemical weapons and contains the most detailed national implementation provision of the three major agreements addressed in this chapter. In contrast to the BTWC, it explicitly requires states parties to adopt criminal legislation for activities that

violate the treaty and to extend these measures to offenses committed by their citizens outside of their territory. National laws are also necessary to establish and operate the National Authority required under the CWC. The prohibitions in the BTWC and CWC apply equally to states and non-state actors, while the NPT allows nuclear-weapon states recognized by the treaty to maintain nuclear weapons stockpiles during negotiations on nuclear disarmament.

1. Nuclear Nonproliferation Treaty (NPT)

a. General Information

Title:	Treaty on the Nonproliferation of Nuclear Weapons
Opened for Signature:	1 July 1968
Number of Parties:	190 (excluding North Korea)
Entry into Force:	5 March 1970
Inspection / Verification:	Yes

Additional information:
The basic treaty: http://disarmament.un.org/treaties/t/npt/text
Background: http://www.iaea.org/Publications/Documents/Treaties/npt.html

The NPT is a treaty to limit the spread of nuclear weapons. It recognizes five nuclear weapons states – the United States, the United Kingdom, France, Russia, and the People's Republic of China – that, as defined in Article IX, manufactured and exploded a nuclear weapon device prior to January 1, 1967. All other signatories are obliged to forego nuclear weapons.

The NPT consists of a preamble and eleven articles. Although the concept of "pillars" appears nowhere in the NPT, the treaty is nevertheless sometimes interpreted as having three pillars: non-proliferation, disarmament, and the right to use nuclear technology for peaceful purposes. Under the first pillar, the five nuclear weapons states (NWS) agree not to transfer "nuclear weapons or other nuclear explosive devices" and "not in any way to assist, encourage, or induce" a non-nuclear weapon state (NNWS) to acquire nuclear weapons (Article I). NNWS parties to the NPT agree not to "receive, manufacture or acquire" nuclear weapons or to "seek or receive any assistance in the manufacture of nuclear weapons" (Article II). NNWS parties also agree to accept safeguards by the International Atomic Energy Agency (IAEA) to verify that they are not diverting nuclear energy from peaceful uses to nuclear weapons or other nuclear explosives devices (Article III).

Disarmament is a so-called second pillar of the treaty. The NPT's preamble contains language affirming the desire to ease international tension and strengthen international trust in the hope of eliminating nuclear weapons and delivery vehicles from national arsenals. Article VI elaborates on the preamble's language. It says that "Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective

measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament."

The third pillar concerns the transfer of nuclear technology and materials to NPT signatory countries for the development of civilian nuclear energy programs in those countries, as long as they can demonstrate that their nuclear programs are not being used for the development of nuclear weapons. Article IV.1 of the treaty recognizes the inalienable right of sovereign states to use nuclear energy for peaceful purposes, but restricts this right for NPT parties to be exercised "in conformity with Articles 1 and 2." Article IV.2 says, "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…."

By consensus of the signing parties, the treaty was extended indefinitely and without conditions in 1995. However, the agreement requires that review conferences be held every five years to assess implementation of the Treaty. Preparatory work for the review conferences is done through a preparatory committee, which meets annually during the three years prior to the review conference. The next conference is scheduled to be held in 2015.

b. NPT Status in the Asia Pacific

Only three recognized sovereign states are not parties to the treaty: India, Israel, and Pakistan. India and Pakistan both possess and have openly tested nuclear bombs. Israel has had a policy of opacity regarding its own nuclear weapons program. North Korea acceded to the treaty in 1985, violated it, suspended it membership, and claimed to withdraw in 2003. However, because the withdrawal process is not considered complete, its current status is best described as undetermined. All other states in East Asia have ratified the treaty.

Specific information regarding individual country status with the NPT is provided at: http://disarmament.un.org/treaties/t/npt

c. Organizational Aspects of the NPT

The UN Office of Disarmament Affairs (UNODA) plays an important role in the implementation of the NPT by promoting the goals and strengthening the regimes of nuclear disarmament and non-proliferation. UNODA also provides substantive and organizational support for norm-setting in the area of disarmament through the work of the UN General Assembly and its First Committee, the Disarmament Commission, the Conference on Disarmament and other bodies.

The IAEA was established in 1957 in an effort to promote safe, secure, and peaceful use of nuclear energy. The Secretariat is located in Vienna and it is governed by the IAEA Statute, which outlines three key areas of the agency's work: nuclear verification and security, safety, and technology transfer. The agency has five departments that focus on

specific areas. The nuclear applications department helps countries use nuclear and isotopic techniques to promote sustainable development objectives in agriculture, human health, water resource management, marine environment and industrial applications. The nuclear energy department promotes the efficient and safe use of nuclear power by supporting nuclear programs and building capability in energy planning, analysis, and nuclear information and knowledge. The department of nuclear safety and security works to provide a global nuclear safety and security framework, protecting people and the environment from the harmful effects of ionizing radiation. The department of safeguards serves as the world's nuclear inspectorate and verification authority for safeguards agreements mandated in Article 3 of the NPT, under which states parties have an obligation to declare to the IAEA all nuclear material and facilities subject to safeguards. The department of technical cooperation helps countries to improve their scientific and technological capabilities in the peaceful applications of nuclear technology. Its website provides a wide range of information on its various programs including a complete library of its publications and many of the nuclear-related conventions and treaties included in this handbook: http://www.iaea.org

2. Biological and Toxin Weapons Convention (BTWC/BWC)

a. General Information

Opened for Signature:	10 April 1972
Number of Parties:	179
Entry into Force:	26 March 1975
Inspection / Verification:	No

Additional information:
The basic treaty: http://disarmament.un.org/treaties/t/bwc/text
The University of Bradford has established a website that provides a wide range of information about the treaty and implementation at: http://www.opbw.org/

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction – more commonly known as the Biological and Toxin Weapons Convention BTWC) – bans the development, production, stockpiling, acquisition and retention of microbial or other biological agents or toxins, in types and in quantities that have no justification for prophylactic, protective or other peaceful purposes. It also bans weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict. The actual use of biological weapons is prohibited by the 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (usually referred to as the 1925 Geneva Protocol) and Article VIII of the BTWC recognizes that nothing contained in the Convention shall be construed as derogation from the obligations contained in the 1925 Geneva Protocol.

Article I defines the scope of the BTWC's prohibition (the so-called general purpose criterion) as being all microbial and other biological agents or toxins that cannot be

justified as being for a prophylactic, protective or other peaceful purpose, as well as weapons, equipment and means of delivery that are designed to use such agents or toxins for hostile purposes or in armed conflict. If biological agents and toxins are in types and quantities that cannot be justified for a permitted purpose, then they are prohibited. Subsequent Review Conferences have reaffirmed that the general purpose criterion encompasses all future scientific and technological developments relevant to the BTWC.

Article II requires each state party to destroy or divert to peaceful purposes all agents, toxins, weapons, equipment and means of delivery specified in Article I no later than nine months after the Convention has entered into force.

Article III prohibits states parties from transferring or otherwise encouraging other states or organizations to acquire any of the agents, toxins, weapons, equipment or means of delivery specified in Article I. Subsequent Review Conferences have affirmed that this prohibition extends to transfers to anyone, including nonstate actors or terrorists.

Article IV requires states parties to take any necessary national measures (e.g., passage of national laws, educating life scientists about the ban on biological weapons) to prohibit and prevent the misuse of biological agents, toxins, weapons, equipment and means of delivery within their territories. Only a small proportion of states Parties have comprehensively implemented this provision.

In Article V, states parties undertake to consult with one another and to cooperate in solving any problems that may arise in relation to the Convention. This compliance mechanism has been used on two occasions to date, in a bilateral mode and a multilateral mode involving a consultative meeting of interested States Parties.

Under Article VI, any state party finding another state acting in breach of the Convention may lodge a complaint with the United Nations Security Council, including all possible evidence confirming its validity. States parties undertake to cooperate in carrying out any investigation the Security Council may initiate on the basis of the complaint. The Security Council will inform states parties of the results of the investigation.

In Article VII, states parties undertake, if requested, to assist any party which the Security Council decides has been exposed to danger as a result of violation of the Convention.

Article VIII stipulates that nothing in the Convention shall in any way limit or detract from obligations assumed under the Geneva Protocol. Subsequent Review Conferences have affirmed that the BTWC effectively prohibits States Parties using biological weapons and called upon States Parties that entered a reservation reserving the right to retaliate in kind using biological weapons, or to use biological weapons against States that are not Parties to the Convention, to remove them.

In Article X, states parties undertake to facilitate the fullest possible exchange of equipment, materials and scientific and technological information for the use of biological agents and toxins for peaceful purposes.

Article XII provided for the convening of the first Review Conference five years after the Convention entered into force, with a mandate to review the operation of the Convention, with a view to assuring that the purposes of the preamble and the provisions of the Convention are being realized. This first Review Conference, held in 1980, was also to review progress in negotiating a treaty prohibiting chemical weapons (which became the 1993 Chemical Weapons Convention). Subsequent Review Conferences are held at five-yearly intervals on the agreement of States Parties.

The BTWC was the first multilateral disarmament treaty to ban an entire category of weapons. Based on a decision made at the Fifth Review Conference (RevCon) in 2002, there are now annual, one-week meetings of states parties in the years between RevCons, which take place every five years. Each of these "intercessional" MSPs is immediately preceded by a one-week meeting of experts.

At the Sixth RevCon (2006), states parties agreed to a set of specific actions to strengthen the implementation of the BTWC These included:

- Mandating a BTWC Implementation Support Unit (ISU) within the UN Office of Disarmament Affairs to help States Parties to fulfill their obligations and to convene BTWC meetings;
- Reporting on national measures to implement the BTWC;
- Annual reporting on the implementation of Confidence-Building Measures (CBMs) agreed to in 1986 and updated in 1991;
- Reporting on whether member states required or could provide assistance to other states parties in the areas of CBMs, national implementation, or biosafety and biosecurity measures.

b. BTWC Status in the Asia Pacific

Most states in the Asia-Pacific region have signed and ratified/acceded to the Convention, although there are significant gaps among the Pacific Island States. Kiribati, Federated States of Micronesia, Niue, Samoa, and Tuvalu are non-signatories. Specific information regarding the status of individual states is provided at:
http://disarmament.un.org/treaties/t/bwc

c. Significant Reservations / Explanations of Accession

Significant issues identified in the reservations, declarations and explanations of accession to the BTWC involve matters of neutrality, commitments of assistance, strength and effectiveness of the BTWC. Those BTWC States Parties that still maintain a reservation to the Geneva Protocol reserving the possibility of retaliating to biological weapon use in kind (which is inconsistent with their BTWC obligations) have been urged through numerous UN General Assembly resolutions and BTWC Review Conferences to remove them.

India in a statement upon signature (15 January 1973) reiterated that assistance must be in conformity with the Charter of the United Nations, and stated that any assistance which might be furnished under the terms of the Convention, would be of medical or humanitarian nature.

China in a statement upon ratification (15 November 1984) raised a number of issues concerning the lack of explicit terms in the Convention including reference to concrete and effective measures for the supervision and verification of biological weapons and forceful measures or sanctions for violations. India expressed concern that these will be addressed at an appropriate time. It hoped that a more extensive convention on complete prohibition and thorough destruction will be completed. India identified the inseparable link between the BTWC and the CWC as part of WMD security as a whole. This point was reiterated by China. Additionally, India cautioned that R&D on biological agents or toxins for legitimate defensive purposes should not be construed as a "loophole in regard to the production or retention of biological and toxic weapons."

d. Organizational Aspects of the BTWC

The BTWC relies on states parties to develop national measures to prohibit and prevent the misuse of biological agents, toxins, and weapons. The Convention charges the UN Security Council with the responsibility to investigate violations brought to its attention by a state party to the Convention. The UN Secretary-General also has authority to investigate potential breaches of the Geneva Protocol, including alleged biological weapon use, which he has done on a number of occasions. From 1994-2001, efforts by a specially mandated Ad Hoc Group to negotiate a legally binding verification protocol proved unsuccessful. Instead, the focus has been on developing an effective confidence building mechanism.

In an important step in institutionalizing the BTWC, the 2006 Review Conference (RevCon) established an Implementation Support Unit (ISU) to, *inter alia*, facilitate, collect and correlate data, and report on the implementation activities of states parties. The ISU is located within the Geneva Branch of the United Nations Office for Disarmament Affairs and has a permanent staff of three. Its website provides information including an archive of all BTWC-related documents and confidence building measures: http://www.unog.ch/80256EE600585943/%28httpPages%29/16C37624830EDAE5C12572BC0044DFC1?OpenDocument

The UN Office of Disarmament Affairs (UNODA) plays an important role in implementation of the BTWC by providing substantive and organizational support for norm-setting in the area of disarmament through the work of the UN General Assembly and its First Committee, the Disarmament Commission, and the Conference on Disarmament.

3. Chemical Weapons Convention (CWC)

a. General Information

Opened for Signature:	13 January 1993
Number of Parties:	192
Entry into Force:	29 April 1997 following ratification by 65 signatories
Inspection / Verification:	Yes

Additional information:
The basic treaty: http://disarmament.un.org/treaties/t/cwc/text
Background: http://www.opcw.org/chemical-weapons-convention/

The Chemical Weapons Convention bans the development, production, stockpiling, transfer and use of chemical weapons and provides for their destruction within stipulated deadlines. States parties to the CWC undertake not to engage or assist anyone to engage in activity prohibited under the Convention and have an obligation to assist other states parties who are threatened by, or who have suffered, chemical attack.

The CWC defines chemical weapons as toxic chemicals and their precursors (aside from types and quantities of such agents consistent with and intended for peaceful applications); munitions and devices specifically designed to cause death or harm through the release of such agents; and any equipment designed specifically for use with such munitions or devices.

The convention distinguishes three classes of controlled substance, chemicals which can either be used as weapons themselves or used in the manufacture of weapons. The classification is based on the quantities of the substance produced commercially for legitimate purposes. Each class is split into Part A, which are chemicals that can be used directly as weapons, and Part B which are chemicals useful in the manufacture of chemical weapons.

- Schedule 1 chemicals have few or no uses outside of chemical weapons. These may be produced or used for research, medical, pharmaceutical or chemical weapon defense testing purposes but production above 100 grams per year must be declared to the Organisation for the Prohibition of Chemical Weapons (OPCW). A country is limited to possessing a maximum of 1 ton of these materials. Examples are mustard and nerve agents, and substances which are solely used as precursor chemicals in their manufacture. A few of these chemicals have very small scale non-military applications, for example minute quantities of nitrogen mustard are used to treat certain cancers.

- Schedule 2 chemicals have legitimate small-scale applications. Manufacture must be declared and there are restrictions on export to countries which are not CWC

signatories. An example is thiodiglycol which can be used in the manufacture of mustard agents, but is also used as a solvent in inks.

- Schedule 3 chemicals have large-scale uses apart from chemical weapons. Plants which manufacture more than 30 tons per year must be declared and can be inspected, and there are restrictions on export to countries which are not CWC signatories. Examples of these substances are phosgene, which has been used as a chemical weapon but which is also a precursor in the manufacture of many legitimate organic compounds and triethanolamine, used in the manufacture of nitrogen mustard but also commonly used in toiletries and detergents.

The Convention also deals with carbon compounds called in the treaty *discrete organic chemicals*. These are any carbon compounds apart from long chain polymers, oxides, sulfides and metal carbonates, such as organophosphates. The OPCW must be informed of, and can inspect, any plant producing (or expecting to produce) more than 200 tons per year, or 30 tons if the chemical contains phosphorus, sulfur or fluorine, unless the plant solely produces explosives or hydrocarbons.

b. CWC Status in the Asia Pacific

All countries in the Asia Pacific except North Korea have signed and ratified/acceded to the CWC. Specific information regarding the status of individual states is provided at: http://disarmament.un.org/treaties/t/cwc

c. Significant Reservations and Declarations

Significant issues identified in the reservations and declarations to the CWC involve matters of universality, verification, abandoned weapons, trade and export controls.

In a declaration upon signature (13 January 1993) and upon ratification (25 April 1997), China referred to the need for the countries with the largest chemical weapons arsenals to ratify the convention so as to increase the universality of the treaty and to attain the conventions purposes and objectives at an early date.

China also referred to the challenges facing verification systems, specifically the Article 9 provision for challenge inspections, stating that potential abuse would have a detrimental effect on the security interests of states parties unrelated to chemical weapons" and on state sovereignty. As a result, China suggests that this would adversely affect the universality of the Convention. Challenge inspections allow states parties to request the OPCW Secretariat to conduct an on-site challenge inspection anywhere in the territory (or under the jurisdiction or control) of any other state party in order to clarify and resolve any questions concerning possible non-compliance with the CWC.
Reference was made to states parties who have abandoned chemical weapons on the territories of other states parties and the necessity to implement the relevant provisions of the Convention and undertake the obligation to destroy the abandoned chemical weapons.

Additionally, China reaffirmed the Convention's role in promoting international trade, scientific and technological exchanges and operation for peaceful purposes in the field of chemical industry. The convention should "become an effective legal basis to regulate trade and exchange among the states parties in the field of chemical industry." To do this export controls that are inconsistent with the convention should be abolished.

The United States in a reservation upon ratification (25 April 1997) stated that analysis of samples collected in the United States pursuant to the Convention cannot be transferred for analysis outside the territory of the United States. As a consequence, verification and the effective implementation of the Convention rely on the states parties' capacity to regulate themselves.

d. Organizational Aspects of the CWC

Unlike the BTWC, the CWC has a comprehensive mechanism, in the form of the Organisation for the Prohibition of Chemical Weapons (OPCW), for verifying the compliance of states parties with their obligations under the Convention. The Technical Secretariat is responsible for the day-to-day administration and implementation of the Convention, including inspections mandated to monitor and verify the deactivation, then the destruction or conversion, of all declared chemical weapons production facilities and stockpiles. The Executive Council and the Conference of the States Parties are decision-making organs of the OPCW. The Technical Secretariat is headed by a Director-General, who is appointed by the Conference on the recommendation of the Council. The OPCW website contains a wide range of information about the treaty and its implementation: http://www.opcw.org

CWC Members must designate or establish a National Authority as a point of contact. These National Authorities are tasked with implementing the CWC at the national level and are obliged to report annually to the OPCW on progress in this regard. They also foster the development and sharing of chemistry for peaceful purposes.

4. The Treaty on the Prohibition of Nuclear Weapons (NWPT or Nuclear Weapons Ban Treaty)

a. General Information

Opened for Signature:	20 September 2017
Number of Parties:	58 signatories; 9 have ratified as of May 2018
Entry into Force:	Not yet entered into force. The Treaty will enter into force 90 days after ratification by 50 states.
Inspection / Verification:	No. (Each State Party must maintain its existing safeguards agreements with the International Atomic Energy Agency (IAEA). States Parties that have not yet done so must, at a minimum, conclude

a comprehensive safeguards agreement (INFCIRC/153)

Additional information:
The basic treaty: http://undocs.org/A/CONF.229/2017/8
Background: http://www.nti.org/learn/treaties-and-regimes/treaty-on-the-prohibition-of-nuclear-weapons/

The Treaty on the Prohibition of Nuclear Weapons prohibits States Parties from developing, testing, producing, manufacturing, acquiring, possessing, or stockpiling nuclear weapons or other nuclear explosive devices. Signatories are barred from transferring or receiving nuclear weapons and other nuclear explosive devices, control over such weapons, or any assistance with activities prohibited under the Treaty. States are also prohibited from using or threatening to use nuclear weapons and other nuclear explosive devices. Lastly, States Parties cannot allow the stationing, installation, or deployment of nuclear weapons and other nuclear explosive devices in their territory. In addition to the Treaty's prohibitions, States Parties are obligated to provide victim assistance and help with environmental remediation efforts.

The Treaty was adopted on 7 July, 2017, after two rounds of negotiations at the UN General Assembly. Both rounds were boycotted by all nuclear weapons possessing states, most NATO countries, and many military allies of nuclear weapons states. Proponents of the Treaty have hailed it as an important step in delegitimizing nuclear weapons and reinforcing the norms against their use, while opponents have criticized the Treaty as political grandstanding which could undermine the NPT. In the vote on the treaty text, 122 were in favor, 1 voted against (Netherlands), and 1 abstained (Singapore). 69 nations did not vote, among them all of the nuclear weapon states and all NATO members except the Netherlands.

b. Nuclear Weapons Ban Treaty Status in the Asia Pacific

Several states in the Asia Pacific (Fiji, Indonesia, Kiribati, Malaysia, New Zealand, Palau, the Philippines, Samoa, Thailand, Togo, Tuvalu, Vanuatu, and Vietnam) have signed the Treaty, while Thailand is the only country to have ratified it.

c. Significant Reservations and Declarations

The treaty (Article 16) says that The Articles of this Treaty shall not be subject to reservations.

Chapter 4
International Implementation Mechanisms

This chapter addresses international mechanisms associated with implementing the global nonproliferation regime. These mechanisms have been developed over the years in response to specific concerns with different aspects of the threat from weapons of mass destruction (WMD), component materials, and radioactive waste. The mechanisms described in this chapter are considered inclusive in the sense that participation in them is open to all UN member states. The implementation mechanisms are divided into four categories: international treaties and conventions dealing with weapons of mass destruction, nuclear materials, and radiological materials; IAEA-based safeguards agreements, which are used to verify that states are not using nuclear programs for nuclear-weapon purposes; UN Security Council (UNSC) resolutions; and nuclear weapon test bans in the global commons. The international treaties and conventions are binding for all individual states acceding to the provisions of the specific agreement based on national laws and regulations. IAEA safeguards agreements apply to all IAEA member states. UN Security Council Resolutions are binding on all UN member states.

Nuclear materials and radioactive waste have received a significant amount of attention in several treaties, conventions and IAEA safeguards agreements. Because they are associated with peaceful use of nuclear energy, the purpose of these mechanisms is to ensure safe handling and control access to them. Nuclear materials include fissile, fissionable, fusionable, and source materials. Fissile materials are those that are composed of atoms that can be split by neutrons in a self-sustaining chain-reaction to release energy, and include plutonium-239, uranium-233 and uranium-235. Fissionable material is material that is capable of undergoing fission reaction after absorbing either thermal (slow or low energy) neutrons or fast (high energy) neutrons. Fusionable materials are those in which the atoms can be fused in order to release energy, and include deuterium and tritium. Source materials include uranium containing the mixture of isotopes occurring in nature, uranium depleted in the isotope 235, and thorium; or any of the foregoing in the form of metal, alloy, chemical compound, or concentrate.

Radioactive material is defined as material that contains unstable (radioactive) atoms that give off ionizing radiation as they decay. Although most of the treaties associated with radioactive material are concerned with health and safety issues associated with these materials, there is growing recognition that these materials also present a growing proliferation risk in that they can be utilized to manufacture radiological dispersion devices or so-called “dirty bombs.”

UNSC resolutions are formal expressions of opinion by the Council members and most of those included in this handbook have been issued to address specific concerns regarding proliferation of WMD. UN Security Council Resolution 1540 is unique in that it is the only mechanism that pertains to all types of WMD and addresses a specific concern with the international security risk associated with nonstate actors acquiring and proliferating WMD.

A final category of compliance mechanisms is nuclear weapons test ban treaties. The early efforts were led by the nuclear powers. In accepting limitations on testing, the nuclear powers accepted as a common goal "an end to the contamination of the environment by radioactive substances." Efforts to achieve a test ban agreement involved complex technical problems of verification and the difficulties of reconciling deep-seated differences in approach to arms control and security. The uneven progress of the negotiations also reflected fluctuations in East-West political relationships. As knowledge of the nature and effects of fallout increased, and as it became apparent that no region would be untouched by radioactive debris, the issue of continued nuclear tests drew increased public attention. Apprehension was expressed about the possibility of a cumulative contamination of the environment and of resultant genetic damage. As a result, the idea of a comprehensive test ban treaty gained support.

1. International Treaties, Conventions, and Legal Agreements

1.1 Convention on the Physical Protection of Nuclear Material (CPPNM) and Amendment

a. General Information

Opened for Signature:	3 March 1980
Number of Parties:	155
Entry into Force:	8 February 1987
Inspection / Verification:	No
Additional information:	

http://www.iaea.org/Publications/Documents/Conventions/cppnm.html

The Convention on the Physical Protection of Nuclear Material (CPPNM) is the only legally binding undertaking dealing with the physical protection of nuclear materials. It was established to implement measures related to the prevention, detection and punishment of offenses relating to such materials following the Non-Proliferation Treaty review conference of 1975 and the passage of the Nuclear Non-Proliferation Act by the US in 1978. It provides a framework for international cooperation against the theft or unauthorized diversion of nuclear materials from civilian to military programs and obliges CPPNM member states to ensure the physical protection of nuclear material during international transit.

The Convention was amended in 2005, with the updated version creating a legal obligation for states parties to protect peaceful nuclear facilities and material in domestic use, storage and transit. It also provides for expanded cooperation between and among states parties regarding rapid measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offenses. The amendment entered into force on May 8, 2016 with 115 parties.

b. CPPNM Status in the Asia Pacific

There are several states in the Asia Pacific that have not signed the CPPNM including Brunei, Malaysia, North Korea, Thailand, and Timor-Leste. Also, several Pacific Island States have not signed the convention including the Cook Islands, Micronesia, Papua New Guinea, Samoa, Solomon Islands, Tuvalu, and Vanuatu. Only Australia, China, Fiji, India, Indonesia, Nauru, Russia, and Vietnam have accepted or ratified the 2005 Amendment. Specific information on the status of individual states for the CPPNM and the 2005 Amendment is available under "related documents" at:
http://www.iaea.org/Publications/Documents/Conventions/cppnm.html

c. Significant Reservations and Declarations

Reservations to the Convention are allowable under Article 17(3).

The significant reservations to the CPPNM are focused on disputes settlement and criteria of criminalizing actions and government jurisdiction over criminal actions of Article 7.

China, EURATOM, France, India, Indonesian and Korea (Rep. of) declare exemption to Article 17.2; jurisdiction of the International Court of Justice in the matter of unresolved disputes. In such cases a Party can request the President of the International Court of Justice or the United Nations Secretary-General as an arbiter.

EURATOM expressed reservations towards Articles7-13 and France to Articles 7 and 8. Article 7 defines a number of acts or attempted acts that could be criminalized; such acts include (but are not limited to) robbery or theft of nuclear material, a threat, or act without lawful authority. Article 8 requires government to establish jurisdiction over such criminal acts. Articles 9-13 set out the procedures for expediency of trials and international assistance in criminal proceedings.

1.2 Convention on Nuclear Safety (CNS)

a. General Information

Opened for Signature:	20 September 1994
Number of Parties:	83
Entry into Force:	24 October 1996
Inspection / Verification:	Yes
Additional information:	

http://www-ns.iaea.org/conventions/nuclear-safety.htm

The Convention on Nuclear Safety was adopted in Vienna on 17 June 1994. The purpose of the Convention is to legally commit participating states operating land-based nuclear power plants to maintain a high level of safety. The obligations are based largely on the

IAEA document entitled *The Safety of Nuclear Installations*. The Convention is incentives based, focusing on the common interest to achieve higher levels of safety, to be developed and promoted through regular meetings of the parties. The key obligations require the parties to submit reports on the implementation of their obligations for peer review at these meetings.

Original interest in development of the Convention stemmed from concern over older Soviet-designed power reactors that presented a greater safety risk than reactors of more recent design. Members are required to take appropriate safety precautions covered by the Convention in relation to siting, design, construction, operation, availability of adequate financial and human resources, assessment and verification of safety, quality assurance, and emergency preparedness. The Convention applies only to civilian nuclear power facilities, which pose the greatest safety risk because of the magnitude of stored energy and the inventory of radioactive isotopes. Members must submit reports on the implementation of their obligations for "peer review" at meetings held at the IAEA.

b. CNS Status in the Asia Pacific

Many countries in the Asia-Pacific region are party to the CNS. Those not signing include Brunei, Laos, Malaysia, Mongolia, New Zealand, North Korea, Thailand, and Timor-Leste. None of the Pacific Island States (Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu) have signed the CNS. Specific information on submission dates by individual states is available at:
http://www.iaea.org/Publications/Documents/Conventions/nuclearsafety_status.pdf

c. Significant Reservations and Declarations

India made a reservation upon signature that the Convention should cover all nuclear power plants, civil and military. It was Indian government's suggestion that the safety aspects of nuclear power plants would apply to the military domain.

1.3 International Convention on the Suppression of Acts of Nuclear Terrorism (NTC)

a. General Information

Opened for Signature:	14 September 2005
Number of Parties:	112
Entry into Force:	7 July 2007
Inspection / Verification:	No

Additional information:
http://www.un.org/en/sc/ctc/docs/conventions/Conv13.pdf

The International Convention for the Suppression of Nuclear Terrorism, also known as the *Nuclear Terrorism Convention* (NTC), was adopted by consensus by the UN General Assembly on April 3, 2005 in response to international concern about the worldwide escalation of acts of terrorism in all its forms. The Convention obliges states to create legislation criminalizing acts of terrorism, to investigate alleged terrorist offenses and to arrest, prosecute or extradite offenders as appropriate. It also obliges states parties to cooperate with the investigations of other states parties through information sharing. The NTC provides definitions for acts of nuclear terrorism, including a broad range of related materials and possible targets including radioactive and nuclear material, enriched uranium, and nuclear reactors and power plants.

The idea for a Convention on the suppression of acts of nuclear terrorism originated in the 1990s in the wake of growing concerns about the threat of terrorists using nuclear or radiological material. In 1996, the UN General Assembly established an Ad Hoc Committee with a mandate "to elaborate an international convention for the suppression of terrorist bombings and, subsequently, an international convention for the suppression of acts of nuclear terrorism, to supplement related existing international instruments, and thereafter to address means of further developing a comprehensive legal framework of conventions dealing with international terrorism. The Convention represents the first anti-terrorism treaty adopted after September 11, 2001.

b. NTC Status in the Asia Pacific

Most states in the Asia Pacific have signed the NTC. The exceptions are Brunei, Laos, Myanmar, and North Korea. Pacific Island States that have not signed the convention are Cook Islands, Marshall Islands, Micronesia, Niue, Papua New Guinea, Tonga, Tuvalu, and Vanuatu. Specific information on submission dates by individual states is available at:
http://treaties.un.org/doc/Publication/MTDSG/Volume%20II/Chapter%20XVIII/XVIII-15.en.pdf

c. Significant Reservations and Declarations

Upon signature, India made a reservation that excludes obligation to Article 23 Paragraph 1 in relation to disputes settlement. Article 23 requires that any dispute that cannot be settled "within reasonable time" shall be submitted to arbitration by request. Furthermore, if agreement is not reached within six months of such a request, any party may refer proceedings to the International Court of Justice.

1.4 The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal

a. General Information

Opened for Signature:	22 March 1989
Number of Parties:	186
Entry into Force:	5 May 1992; open to states and political and/or economic integration organizations
Inspection / Verification:	Yes
Additional information:	http://www.basel.int

In the late 1980s, the dramatic rise in the cost of disposing hazardous waste due to a tightening of environmental regulations in industrialized countries led to the undesirable practice of shipping waste from developed to developing countries especially in Eastern Europe. This led to the development of the Basel Convention. While the Convention was developed to address a broad range of hazardous waste materials, its provisions have also been applied to the disposal of radiological waste materials and served as the basis for development of the Rotterdam and Stockholm Conventions, which deal with transportation of hazardous chemicals.

The initial focus of the Convention was setting up a framework for controlling the international movement of hazardous waste, and developing the criteria for "environmentally sound management." Since 2000, the Convention has built on the initial framework by emphasizing the implementation and enforcement of commitments. There has also been recognition that reducing the amount of waste generated is one solution to the issue of long-term waste storage.

The Convention covers hazardous wastes defined as those that are toxic, poisonous, explosive, corrosive, flammable, ecotoxic, and infectious and addresses financial responsibility in the event of an incident. These responsibilities take into consideration the many stages of transboundary movement, from generation to export, international transit, import, and disposal. Under the Convention, transboundary movements of hazardous wastes or other wastes are controlled by formal codes and procedures. The Basel Convention's Secretariat represents a key component of the agreement. This office cooperates with national authorities in developing national legislation, setting up inventories of hazardous wastes, strengthening national institutions, assessing the hazardous waste management situation, and preparing hazardous waste management plans and policy tools. It also provides legal and technical advice to countries in order to solve specific problems related to the control and management of hazardous wastes. The Basel Convention has also established Regional Centers for Training and Technology Transfer tasked with providing detailed guidance on the technical, technological, and enforcement aspects of the Convention.

Although many Pacific Island States have not signed this convention, they have in place the Waigani Convention, which acts in a similar capacity by banning the importation of hazardous wastes into the South Pacific region.

The United States signed the Basel Convention in 1990 and has provided its advice and consent to ratification as of 1992. However, additional legislation to provide the necessary statutory authority to implement the convention is required before ratification is complete. Until this occurs, the US remains a non-party, allowed to participate, but not allowed to vote.

An additional amendment to the Convention was adopted in 1995 to prohibit the export of hazardous wastes, for both recycling and disposal. To date, the amendment has not been ratified and it has not yet gone into force for any party.

b. Basel Convention Status in the Asia Pacific

The following states in the Asia Pacific have not signed the Basel Convention: Fiji, Niue, Solomon Islands, Timor-Leste, Tuvalu, and Vanuatu. Specific information on submission dates by individual states is available at:
http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/1290/Default.aspx

c. Significant Reservations and Declarations

The Basel Convention does not have provision for reservations, however, a number of states made declarations concerning navigational rights and freedoms.

Germany declared upon signature (23 October 1989) and confirmed upon ratification its understanding that the provisions in Article 4(12) shall in no way affect the exercise of navigational rights and freedoms as provided for international law and reflected in other international instruments. Particular reference was made to the free passage, without notice or consent, of hazardous wastes on a vessel under the flag of a party exercising its right of innocent passage and freedom of navigation. Italy, Japan, Singapore, Spain and the United Kingdom made similar declarations.

Indonesia stated upon accession (20 September 1993) of its need to adjust and enact existing national laws and regulations, in order to implement Article 3(1) of the Convention.

The Russian Federation noted that the definition of "Territory" in the Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Wastes, which is referenced in the Convention's preamble, cannot be used in the interpretation of the Convention in light of Article 31(2) or Article 32 of the 1969 Vienna Convention on the Law of Treaties.

1.5 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (JC)

a. General Information

Opened for Signature:	29 September 1997
Number of Parties:	76
Entry into Force:	18 June 2001
Inspection / Verification:	No
Additional information:	http://www.iaea.org/Publications/Documents/Conventions/jointconv.html

The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (JC) aims to achieve and maintain a high level of safety in spent fuel and radioactive waste management by enhancing national measures and international cooperation to prevent accidents with radiological consequences and ensuring there are effective defenses against potential hazards so that individuals, society, and the environment are protected against the harmful effects of ionizing radiation. It is the first international instrument that deals with the safety of management and storage of radioactive waste and spent fuel in countries with and without nuclear programs. It also considerably elaborates on and expands the existing IAEA nuclear safety regime and promotes international standards in the area. Each Contracting Party must establish and maintain a legislative and regulatory framework to govern the safety of spent fuel and radioactive waste management, including a licensing system, inspection, and enforcement of the terms of the licenses and regulations.

The JC applies to spent fuel and radioactive waste resulting from civilian nuclear reactors and applications and to spent fuel and radioactive waste from military or defense programs if and when such materials are transferred permanently to and managed within exclusively civilian programs, or when declared as spent fuel or radioactive waste for the purpose of the Convention by the Contracting Party. It also applies to planned and controlled releases into the environment of liquid or gaseous radioactive materials from regulated nuclear facilities.

The Convention establishes rules and conditions for the transboundary movement of spent fuel and radioactive waste that *inter alia* require a state of destination to have adequate administrative and technical capacity and regulatory structure to manage spent fuel or radioactive waste in a manner consistent with the Convention. It obligates a state of origin to take appropriate steps to permit re-entry into its territory of such material if a transboundary movement cannot be completed in conformity with the Convention.

b. Joint Convention Status in the Asia Pacific

The Joint Convention has been adopted by nine of the states (Australia, Canada, China, Indonesia, Japan, Philippines, Russia, South Korea, and the US) in the Asia-Pacific region. Specific information on submission dates by individual states is available at:

http://www.iaea.org/Publications/Documents/Conventions/jointconv_status.pdf

c. Significant Reservations and Declarations

Only four declarations/reservations were made to this Convention, focusing on the definition of "spent fuel management," the territories to be covered by or excluded from the Convention, and the alignment of treaty provisions and domestic law.

In a declaration received 3 July 2007, China stated that the Convention applies to the Hong Kong Special Administrative Region, but does not apply to the Macao Special Administrative Region. Similarly, Denmark stated the Convention does not apply to Greenland and the Faroe Islands.

EURATOM submitted a reservation in regard to non-compliance with Article 12(1), which refers to taking action to upgrade the safety of existing facilities.

Japan declared upon accession to the Convention (26 August 2003) that spent fuel waste management, pursuant to Article 3(1), includes reprocessing.

1.6 Convention on Early Notification of a Nuclear Accident or Radiological Emergency

a. General Information

Opened for Signature:	26 September 1986 (at Vienna) and 6 October 1986 (at New York)
Number of Parties:	121
Entry into Force:	27 October 1986. (Thirty days after the date on which three states expressed their consent to be bound by the Convention, as required under Article 12)
Inspection / Verification:	No
Additional information: http://www.iaea.org/Publications/Documents/Conventions/cenna.html	

Adopted in 1986 following the Chernobyl nuclear plant accident, this Convention establishes a notification system for nuclear accidents which have the potential for international transboundary release that could be of radiological safety significance for another state. This Convention aims to strengthen international cooperation in order to provide relevant information about nuclear accidents as early as necessary. States party commit that, in the event of a nuclear accident that may have transboundary radiological consequences, they will notify countries that may be affected and the IAEA, and provide relevant information on the development of the accident. In turn, the IAEA informs other states that may be physically affected and relevant international organizations of a

notification received and promptly provides other information on request. Each state Party and the IAEA have identified 24-hour warning points to which a notification can be directed, as well as competent authorities who are authorized to send notifications and verify information provided. The IAEA maintains an up-to-date list of such authorities and warning points and provides it to states parties, member states and relevant international organizations.

The Convention requires states to report the accident's time, location, radiation releases, and other data essential for assessing the situation. Reporting is mandatory for any nuclear accident involving any nuclear reactor wherever located; any nuclear fuel cycle facility; any radioactive waste management facility; the transport and storage of nuclear fuels or radioactive wastes; the manufacture, use, storage, disposal and transport of radioisotopes for agricultural, industrial, medical and related scientific and research purposes; and the use of radioisotopes for power generation in space objects (Article 1). Under Article 3, states may notify other accidents as well. The five nuclear-weapon states (China, France, Russia, the United Kingdom, and United States) have all declared their intent also to report accidents involving nuclear weapons and nuclear weapons tests.

b. Convention on Early Notification Status in the Asia Pacific

All states in the Asia Pacific have signed the Convention except Brunei and Timor-Leste. None of the Pacific Island States (Cook Islands, Fiji, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Tonga, Tuvalu, and Vanuatu) have signed the Convention. Specific information on submission dates by individual states is available at:
http://www.iaea.org/Publications/Documents/Conventions/cenna_status.pdf

c. Significant Reservations and Declarations

A large number of states, including China, France, India, Indonesia, Malaysia, Myanmar, North Korea, Romania, Russia, Spain, Thailand, US, and Vietnam, expressed the reservation that they would not be bound by dispute settlement through arbitration or submission to the International Court of Justice as stated in Article 11 of the convention.

India expressed a reservation that the Convention was defective because it made a distinction between nuclear and non-nuclear states and did not make it mandatory for nuclear weapons states to make notification of accidents involving nuclear weapons tests.

1.7 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency

a. General Information

Opened for Signature:	26 September 1986
Number of Parties:	115
Entry into Force:	26 February 1987

Inspection / Verification: No

Additional information:
http://www.iaea.org/Publications/Documents/Conventions/cacnare.html

This Convention requires that states parties cooperate between themselves and with the IAEA to facilitate prompt assistance in the event of a nuclear accident or radiological emergency to minimize its consequences and to protect life, property and the environment from the effects of radioactive releases. In the event of a nuclear accident or radiological emergency, the IAEA's functions are to make available to a state party or a member state requesting assistance appropriate resources for the purpose of conducting an initial assessment of the accident, transmit requests for assistance and relevant information to states parties that may possess the necessary resources, offer its good offices to the states parties or member states, liaise with relevant international organizations to obtain and exchange relevant information, and, on request, coordinate the assistance at the international level. Each state party and the IAEA have identified 24-hour warning points to which a request for assistance can be directed, as well as competent authorities who are authorized to send requests and to arrange for the provision of assistance. The IAEA maintains an up-to-date list of such authorities and warning points and provides it to states parties, member states and relevant international organizations.

The Convention requires states to notify the IAEA of their available experts, equipment, and other materials for providing assistance. In case of a request, each state party decides whether it can render the requested assistance as well as its scope and terms. Assistance may be offered without costs taking into account the needs of developing countries and the particular needs of countries without nuclear facilities. The IAEA serves as the focal point for such cooperation by channeling information, supporting efforts, and providing its available services.

b. Convention on Assistance Status in the Asia Pacific

All States in the Asia-Pacific region have signed the Convention of assistance except Brunei, Cambodia, Myanmar, and Timor-Leste. None of the Pacific Island States (Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Tonga, Tuvalu, and Vanuatu) have signed the Convention. Specific information on submission dates by individual States is available at:
http://www.iaea.org/Publications/Documents/Conventions/cacnare_status.pdf

c. Significant Reservations and Declarations

Several states have expressed reservations regarding taxation privileges and immunities for those proving assistance, exemption from claims and compensation in cases of gross negligence, and dispute remedies that include referral to arbitration or the International Court of Justice.

1.8 Vienna Convention on Civil Liability for Nuclear Damage

a. General Information

Opened for Signature:	21 May 1963
Number of Parties:	40
Entry into Force:	12 November 1977, three months after the date of deposit with the Director General of the fifth instrument of ratification, in accordance with Article 23
Amendment:	In 1997, the Vienna Convention was amended and the Convention on Supplementary Compensation for Nuclear Damage was adopted.
Inspection / Verification:	No
Additional information:	http://www.iaea.org/Publications/Documents/Conventions/liability.html

The Convention is the fundamental international legal document setting liability, procedure, timeframe, and principles of offsetting damage resulting from incidents at civilian nuclear installations contains a number of uniform rules to be applied by all contracting parties. The objective is to establish minimum standards to provide financial protection against damage resulting from peaceful uses of nuclear energy. Under the Convention, the country responsible for a nuclear installation or an operator appointed by it should offset damage resulting from any incident in line with a relevant decision of a court in the country where the incident takes place. Each signatory is to set the upper liability limit that cannot be below $5 million. The money is meant to compensate victims both in the country the incident takes place and abroad. Insofar as its provisions are self-executing, each state can choose between the incorporation of the Convention in the domestic legal system, thus allowing for its direct application, and the adoption of national legislation specifically implementing the Convention. The Convention does not cover the issue of state responsibility or liability for nuclear damage. Article 13 makes it clear that the Convention is not to be "construed as affecting the rights, if any, of a Contracting Party under the general rules of public international law in respect of nuclear damage."

The 1997 Protocol sets the possible limit of the operator's liability at not less than 300 million Special Drawing Rights (roughly equivalent to $400 million). The Convention on Supplementary Compensation defines additional amounts to be provided through contributions by states parties on the basis of installed nuclear capacity and United Nations rate of assessment. The Protocol also provides a better definition of nuclear damage by incorporating the concept of environmental damage and preventive measures.

b. Vienna Convention on Civil Liability Status in the Asia Pacific

The only states in the Asia Pacific that have signed the Vienna Convention on Civil Liability for Nuclear Damage are the Philippines and Russia. Specific information on submission dates by individual states is available at:
http://www.iaea.org/Publications/Documents/Conventions/liability_status.pdf

1.9 Paris Convention on Third Party Liability in the Field of Nuclear Energy

a. General Information

Opened for Signature:	29 July 1960
Number of Parties:	16
Entry into Force:	1 April 1968
Amendment:	Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982
Inspection / Verification:	No
Additional information:	http://www.nea.fr/html/law/nlparis_conv.html

The Convention on Third Party Liability in the Field of Nuclear Energy was established under the auspices of the OECD Nuclear Energy Agency (NEA) and covers most West European countries. It is open to any OECD country as of right and to any non-member with the consent of the other contracting parties. It is included here because of its relationship with the CSC, outlined below in paragraph 1.10.

The purpose of the Convention is to provide adequate compensation to the public for damage resulting from a nuclear accident and to ensure that the growth of the nuclear industry would not be hindered by bearing an intolerable burden of liability. The compensation includes injury to or loss of life of any person, and for damage to, or loss of any property caused by a nuclear accident in a nuclear installation or during the transport of nuclear substances to and from installations. It does not cover damage to the nuclear installation itself.

The Paris Convention generally applies when an accident causing damage occurs in the territory of a party and damage from this accident is suffered in the territory of a party, including the territorial sea. In 1968, the NEA Steering Committee recommended that the Convention cover nuclear incidents occurring or nuclear damage suffered on the high seas and in 1971, it recommended that the Convention apply to damage suffered in a Paris Convention state even if the nuclear incident occurs in a state not party to the Convention. Many of the Paris Convention states have adopted these recommendations.

b. Paris Convention on Third Party Liability Status in the Asia Pacific

None of the states in the Asia Pacific have signed the Paris convention on third party liability. Specific information on submission dates by individual states is available at: http://www.nea.fr/law/nlparis_conv.html

1.10 Convention on Supplementary Compensation for Nuclear Damages (CSC)

a. General Information

Opened for Signature:	29 September 1997
Number of Parties:	10
Entry into Force:	15 April 2015
Inspection / Verification:	No
Additional information:	
http://www.iaea.org/Publications/Documents/Conventions/supcomp.html	

The convention recognizes the importance of the measures provided in the Vienna Convention on Civil Liability for Nuclear Damage and the Paris Convention on Third Party Liability in the Field of Nuclear Energy as well as in national legislation on compensation for nuclear damage. The intent is to establish a worldwide liability regime to supplement and enhance these measures with a view to increasing the amount of compensation for nuclear damage. It assumes that such a worldwide liability regime would encourage regional and global co-operation to promote a higher level of nuclear safety in accordance with the principles of international partnership and solidarity.

On the ninetieth day following the date on which at least five states representing among them at least 400,000 megawatts (thermal) of installed nuclear capacity have deposited an instrument of ratification, acceptance or approval the CSC will be considered entered into force. It will enter into force for any state that subsequently ratifies, accepts, approves, or accedes to the convention ninety days following the deposit of its instrument. The convention contains definitions of twelve terms pertaining to "nuclear damage," thus reflecting a need to address differing concepts of tort liability while at the same time ensuring uniformity with respect to particular core elements. It also requires that the "minimum national compensation amount" be distributed equitably without discrimination on the basis of nationality, domicile or residence. Domestic and transboundary victims are required to be treated by the courts of the signatory state without regard to their nationality when allocating the first tier of compensation.

b. Convention on Supplementary Compensation Status in the Asia Pacific

Only Australia, Indonesia, the Philippines, and the US have signed the Convention on supplementary compensation. None of the Pacific Island States have signed the Convention. Specific information on submission dates by individual states is available at:

http://www.iaea.org/Publications/Documents/Conventions/supcomp_status.pdf

1.11 Rotterdam Convention

a. General Information

Opened for Signature:	11 September 1998
Number of Parties:	159
Entry into Force:	24 February 2004
Inspection / Verification:	No
Additional information:	

http://www.pic.int/Home/tabid/855/language/en-US/Default.aspx

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, more commonly known simply as the Rotterdam Convention, promotes shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged make sure that producers within their jurisdiction comply. The Convention requires parties to notify the Secretariat when taking a domestic regulatory action to ban or severely restrict a chemical.

To achieve its objectives, the Convention includes two key provisions, namely the Prior Informed Consent (PIC) Procedure and Information Exchange. The PIC procedure is a mechanism for formally obtaining and disseminating the decisions of importing parties as to whether they wish to receive future shipments of those chemicals listed in Annex III of the Convention and for ensuring compliance with these decisions by exporting parties. The Convention facilitates information exchange among parties for a very broad range of potentially hazardous chemicals. Annex III of the Convention contains a list of pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons by two or more parties and which the Conference of the Parties has decided to subject to the Prior Informed Consent (PIC) procedure. There are a total of 43 chemicals listed in Annex III, 32 are pesticides (including 4 severely hazardous pesticide formulations) and 11 industrial chemicals.

b. Rotterdam Convention Status in the Asia Pacific

All countries in the Asia Pacific have either ratified or signed the Rotterdam Convention except Brunei, Myanmar, and Timor-Leste. None of the Pacific Island States have signed or ratified the Convention except Cook Islands, Marshall Islands, Samoa, and Tonga. Specific information on submission dates by individual states is available at:

http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx

1.12 Stockholm Convention

a. General Information

Opened for Signature:	23 May 2001
Number of Parties:	181
Entry into Force:	17 May 2004
Inspection / Verification:	No
Additional information:	http://chm.pops.int/Home/tabid/2121/Default.aspx

The Stockholm Convention on Persistent Organic Pollutants (POPs) aims to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have adverse effects on human health or to the environment. Although it is not directly related to prevention of WMD, it is closely associated with the Basel and Rotterdam Conventions because they share the common objective of protecting human health and the environment from hazardous chemicals and wastes. It includes a process by which persistent toxic compounds can be reviewed and added to the convention, if they meet certain criteria for persistence and transboundary threat. Key elements of the Convention include the requirement that developed countries provide new and additional financial resources and measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally sound manner.

b. Stockholm Convention Status in the Asia Pacific

All countries in the Asia-Pacific region have signed or ratified the Stockholm Treaty except Timor-Leste. All Pacific Island States have signed or ratified the Treaty. Specific information on submission dates by individual countries is available at: http://chm.pops.int/Countries/StatusofRatifications/tabid/252/Default.aspx

1.13 Cartagena Protocol on Biosafety

a. General Information

Opened for Signature:	15 May 2000
Number of Parties:	171
Entry into Force:	11 September 2003
Inspection / Verification:	No
Additional Information:	https://bch.cbd.int/protocol

The Cartagena Protocol on Biosafety protects biological diversity from the potential risks posed by living modified organisms (LMOs). This treaty governs the transboundary movements of living modified organisms (LMOs), which result from modern biotechnology. The Protocol establishes an advanced informed agreement (AIA) procedure to ensure countries are provided with the information necessary to make informed decisions before agreeing to the import of organisms into their territory. The Biosafety Protocol creates an enabling environment for biotechnology while minimizing risks to the environment and human health.

1.14 Fissile Material Cut-off Treaty (FMCT)

a. General Information

In December 1993, the UN General Assembly adopted a resolution that recommended the negotiation of a non-discriminatory, multilateral, and internationally verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices. This object of this resolution became known as the Fissile Material Cut-off Treaty (FMCT). The CD first reached consensus in 1995 on a mandate (Shannon Mandate) for an ad hoc committee "...to negotiate a non-discriminatory, multilateral and internationally and effectively verifiable treaty" and to settle the issue of existing stocks and other relevant issues. But internal CD agenda disputes and irreconcilable positions among member states, particularly concerning the scope of the potential treaty prevented negotiations from ever commencing. Some states believe the treaty should include fissile materials already produced and stockpiled, and require that they be rendered unusable. A number of states, particularly nuclear weapon states, argue the cut-off should only apply to the future production of fissile materials. There is also contention over whether the treaty should also include some non-fissionable materials also used in the production of nuclear weapons, such as tritium. Further complicating the issue is the preference by some states that the FMCT negotiations should be linked with other issues, such as the prevention of an arms race in outer space. Other states believe negotiations should begin without preconditions to break the stalemate that has arisen due to a lack of consensus on the scope and nature of a potential treaty.

All states parties to the NPT endorsed the immediate commencement of FMCT negotiations at both the 1995 and 2000 NPT Review Conferences, and the negotiation of an FMCT was one of the 13 steps towards disarmament produced at the end of the 2000 NPT Review Conference. A program of work including FMCT negotiations was approved in the CD in May 2009, but Pakistan later that year raised procedural issues that precluded any work from commencing. Since then, the CD has remained stalemated over the treaty's purpose; definitions and scope; the production of fissile materials for non-explosive purposes and the role of the IAEA; transparency and stockpiles of fissile materials; compliance and verification; and other provisions including settlements of disputes, entry into force, ratifications, depositaries, duration, and conditions for withdrawal. Meanwhile, the CD has been unable to establish a committee to begin formal negotiations on an FMCT. As a result, some have that the discussion regarding the

development of the FMCT should be moved out of the CD to help break the current stalemate.

b. Draft Texts

Since the proposal of the Shannon Mandate, a number of draft treaties have been put forward. In 2003, Japan produced a working paper. Greenpeace proposed a draft treaty in 2004, which has no standing. In 2006, the US put forward a treaty that calls for banning the production of fissile materials for nuclear weapons and other nuclear explosive devices. The latest version, which was drafted by the International Panel on Fissile Materials, includes provisions for verification and expands the definition of what is considered to be fissile material and is available at:
http://fissilematerials.org/library/G1060052.pdf

1.15 Arms Trade Treaty (ATT)

a. General Information

Opened for Signature: 3 June 2013

Number of Parties: 94

Entry into Force: 24 December 2014

Inspection / Verification: Yes

Additional information: http://www.nti.org/learn/treaties-and-regimes/arms-trade-treaty-att/

The basic treaty: https://unoda-web.s3-accelerate.amazonaws.com/wp-content/uploads/2013/06/English7.pdf

The Arms Trade Treaty (ATT) is the first legally binding instrument in the United Nations to establish common standards for the international transfer of conventional weapons. The ATT regulates the international trade in conventional arms – from small arms to battle tanks, combat aircraft and warships. It establishes common standards for the international trade of conventional weapons and seeks to reduce the illicit arms trade. The treaty aims to reduce human suffering caused by illegal and irresponsible arms transfers, improve regional security and stability, as well as to promote accountability and transparency by states parties concerning transfers of conventional arms. The ATT does not place restrictions on the types or quantities of arms that may be bought, sold, or possessed by states. It also does not impact a state's domestic gun control laws or other firearm ownership policies.

The Arms Trade Treaty requires all states-parties to adopt basic regulations and approval processes for the flow of weapons across international borders, establishes common international standards that must be met before arms exports are authorized, and requires annual reporting of imports and exports to a treaty secretariat.

b. ATT Status in the Asia Pacific

Six states in the region are ATT States Parties: Australia, Japan, New Zealand, Samoa, South Korea, and Tuvalu. Most of these States were among the first to join the Treaty. Eleven states in the region are signatories of the Treaty (Bangladesh, Cambodia, Kiribati, Malaysia, Mongolia, Nauru, Palau, Philippines, Singapore, Thailand and Vanuatu). Other States in the region have signaled their intent to accede, including Fiji and the Solomon Islands.

China, India, Pakistan, Russia, and other major arms exporters and importers are not party to the ATT and have stated that they will not become party to it. The United States has signed but not ratified the Treaty.

2. IAEA Safeguards Agreements

2.1 Comprehensive Safeguards Agreements (CSA), Additional Protocol (AP) and Small Quantities Protocol (SQP)

a. General Information

Date established: Comprehensive Safeguards in 1968
Additional Protocol in 1997
Small Quantities Protocol in 1971, modified in 2005

Inspection/Verification: Yes

Additional information:
https://www.iaea.org/safeguards/safeguards-legal-framework/safeguards-agreements

SQP Text:
http://ola.iaea.org/OLA/documents/ginf276mod1.pdf

A Comprehensive Safeguards Agreement is a contract developed on an individual basis between the International Atomic Energy Agency (IAEA) and the state concerned. The basic purpose of the Agreement is to demonstrate compliance with article III of the NPT by allowing the IAEA to confirm accountability of all fissionable material used in peaceful nuclear activities within the state's territory, under its jurisdiction or carried out under its control anywhere. It is a means of verifying and assuring that such materials and technologies are solely for peaceful purposes and that they are not diverted to the production of nuclear weapons or other nuclear explosive devices. A rigid system of safeguards is essential to ensure peaceful nuclear programs are not, and do not become, weapons capable.

A significant loophole in the original CSA arrangement that became apparent in the early 1990s was that it depended on the contracting state to declare the facilities where the CSA should be applied. This allowed states to maintain "undeclared facilities" outside

the reach of the IAEA verification program. To address the loophole, the IAEA developed a formal expansion of its legal mandate in the form of an Additional Protocol (AP) to be adopted by member states to supplement their existing CSAs.

The AP essentially reshapes the IAEA's safeguards regime from a quantitative system focused on accounting for known quantities of materials and monitoring declared activities to a qualitative system that gathers a comprehensive picture of a state's nuclear and nuclear-related activities, including imports and exports. It substantially expands the IAEA's ability to check for clandestine nuclear facilities by providing the agency with authority to visit any facility – declared or not – to investigate questions or inconsistencies in the state's nuclear declarations. In practice, it strengthens the original CSA regime and improves its efficiency by granting the IAEA greater access including short-notice inspections of all buildings on a nuclear site, collection of samples from sites beyond those declared by the state, information on the state's entire nuclear fuel cycle, and information about the manufacture and export of sensitive nuclear-related technologies.

The Small Quantities Protocol (SQP) is an addition to the framework created by the Comprehensive Safeguards Agreement. The SQP was set up for states that have minimal or no nuclear activities and it is essentially a declaration of this limited activity. Thus, they do not require the strict system of reporting and obligations that the CSAs involve. The implementation of the measures in Part II of the CSA, including reporting, inspection and verification come into effect when the quantity of nuclear material held by the state which is subject to safeguards exceeds the limits set by the SQP.

In 2005, the IAEA Board of Governors approved the modified text of an SQP, which reduces the number of measures held in abeyance for states with minimal or no nuclear activity and makes an SQP unavailable to a state with an existing or planned nuclear facility. This Protocol is an agreement between individual states and the IAEA.

b. CSA, AP and SQP Status in the Asia Pacific

Most states in the region have concluded a CSA with the IAEA. Only three Pacific Island States (Cook Islands, Micronesia, and Niue) have not completed one. There are several states that have not concluded an Additional Protocol Agreement including Brunei, Laos, Myanmar, and North Korea. Additionally, several of the Pacific Island States have not concluded an AP Agreement with the IAEA. Brunei, Cambodia, Laos, Myanmar, Singapore, Fiji, Kiribati, New Zealand, Palau, and Papua New Guinea all have an SQP. Of these, only Singapore and Palau have the modified version as recommended by the IAEA.

Specific information on submission dates by individual states is available at: https://www.iaea.org/safeguards/safeguards-legal-framework/additional-protocol/status-of-additional-protocol

3. United Nations Security Council Resolutions

Under Chapter VII of the Charter, the UN Security Council can take enforcement measures to maintain or restore international peace and security. Such measures range from economic and/or other sanctions not involving the use of armed force to international military action. These measures can be broadly applied to all states or focus on measures to be taken against individual states or entities for creating circumstances that are deemed as detrimental to international peace and security.

3.1 United Nations Security Council Resolution 1540 (2004)

a. General Information

Date of adoption:	28 April 2004
Related resolutions:	Resolution 1673 (2006) adopted on 27 April 2006 Resolution 1810 (2008) adopted on 25 April 2008 Resolution 1977 (2011) adopted on 20 April 2011
Additional information:	http://www.un.org/en/sc/1540/

United Nations Security Council Resolution 1540 (2004) adopted under Chapter 7 of the United Nations Charter puts into place an overarching structure that addresses the international security risks associated with weapons of mass destruction (WMD) and the acquisition of these weapons by nonstate actors. It brings together a wide range of initiatives into a universally applicable regime. The resolution places comprehensive obligations on states aiming to harmonize the implementation of previously separate agreements relating to WMD and obliges states to recognize these agreements in national legislation. It acknowledges that the acquisition of WMD by nonstate actors and the illicit trafficking of WMD, their means of delivery, and related materials is one of the most significant threats to international peace and security.

This resolution fills existing gaps in both the non-proliferation and counterterrorism regimes by placing responsibility on states and at the same time directing attention to the role of nonstate actors. The use of Chapter 7 authority means that the resolution is not only legally binding, but also enforceable through the punitive measures available to the Security Council.

Resolution 1540 places emphasis on state implementation and compliance with the resolution's obligations. A UN Security Council (UNSC) Committee monitors the implementation of this resolution by receiving state reports, requesting additional information and reporting these findings to the Security Council. Resolution 1673 (2006)

extended the mandate of the Committee. This was reaffirmed by the Security Council in Resolution 1810 (2008) until 2011. UNSCR 1977 (2011) extended the Committee's mandate to monitor efforts for a period of 10 years.

Compliance with this resolution is problematic as the obligations are comprehensive. The obligations of the resolution are organized into 10 operative paragraphs and include reporting requirements, national implementation, the effectiveness of national legislation, enforcement mechanisms, assisting other states in implementing the resolution, and promoting the aims of multilateral security. Operative paragraph four required a first report to be submitted by the October, 28, 2004 outlining actions states have taken and actions intended. Of the 193 states, 59 met this deadline and as of December 2012 a total of 169 states had submitted a first report. The patterns of reporting and non-submission indicate that noncompliance is associated with a lack of physical capacity to implement the measures required, a misunderstanding of the depth of these requirements, and insufficient political will to complete the required actions in the face of other priorities concerning more basic economic needs.

To aid reporting and implementation, the 1540 Committee has provided states with a variety of tools including a matrix template (available at the UNSCR Committee website shown above) that clearly breaks down the obligations of the resolution and a legislative database that provides a model for implementing legislation. UNSCR 1977 also encourages states to prepare national plans to lay out priorities for implementing provisions of UNSCR 1540 and encourages states to request visits by 1540 Committee experts to assist and evaluate national progress in implementing the resolution

b. UNSCR 1540 Status in the Asia Pacific

As a region, Asia is considered a high risk for WMD proliferation due to the expansion of nuclear energy and research, the production and storage of hazardous chemicals, the location of busy transshipment points, and the existence of known terrorist organizations. The Pacific on the other hand, is generally considered as low risk, due to the small population, lack of facilities, capacity and minimal use of restricted materials in the health and industrial sectors. Significant problems arise when tailoring the requirements of Resolution 1540 to each national context. However, it is a reality of the international security environment that the domestic policies of both Asia and the South Pacific are in fact integral to the global implementation of Resolution 1540. There is still much work to be done in these regions to achieve effective compliance including the submission of initial reports from the Cook Islands, North Korea (DPRK), Niue, Solomon Islands, and Timor-Leste.

Specific information on submission dates by individual states is available at:
http://www.un.org/en/sc/1540/national-implementation/national-reports.shtml

3.2 UN Security Council Sanctions Resolutions

a. General Information

The use of mandatory sanctions is intended to apply pressure on a State or entity to comply with the objectives set by the Security Council without resorting to the use of force. The universal character of the United Nations makes it an especially appropriate body to establish and monitor such measures. The range of sanctions has included comprehensive economic and trade sanctions and/or more targeted measures such as arms embargoes, travel bans, financial or diplomatic restrictions.

At the same time, a great number of States and humanitarian organizations have expressed concerns at the possible adverse impact of sanctions on the most vulnerable segments of the population. Concerns have also been expressed at the negative impact sanctions can have on the economy of third countries. In response to these concerns, UNSC decisions have reflected a more refined approach to the design, application and implementation of mandatory sanctions. These refinements have included measures targeted at specific actors, as well as humanitarian exceptions included in resolutions. Targeted sanctions, for instance, can involve the freezing of assets and blocking the financial transactions of political elites or entities whose behavior triggered sanctions in the first place.

Additional information: Although the UNSC does not maintain a website that provides information on its sanctions resolutions, an independent organization, Security Council Report, maintains a comprehensive website that provides information on UNSC activity including the latest information on UNSC sanctions and other Council activity. The website is found at: http://www.securitycouncilreport.org/

b. UNSC Sanctions in the Asia Pacific

The UNSC has passed a number of sanctions resolutions in response to the DPRK missile and nuclear programs. The complete record of the resolutions and related material is available at: http://www.securitycouncilreport.org/un-documents/dprk-north-korea/

4. Nuclear Weapons in the Commons and Test Bans

The first nuclear weapon test was conducted by the US in 1945. Since then, hundreds of tests have been carried out to determine the effectiveness, yield, and explosive capability of nuclear weapons. In the last half of the 20th Century, most nations that have developed nuclear weapons have tested them. Tests have historically been done in four conducted in four categories: atmospheric, exoatmospheric, under water, and underground. While early tests were conducted with little regard to environmental impact, by the early 1960s there was an increasing awareness of the potential damage caused by these tests. This led to a series of treaties banning tests in the global commons.

4.1 Outer Space Treaty

a. General information

Opened for Signature: 27 January 1967

Number of Parties: 105

Entry into Force: 10 October 1967

Inspection / Verification: No

Additional information:
http://www.unoosa.org/oosa/SpaceLaw/outerspt.html

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies was the second of the so-called "nonarmament" treaties; its concepts and some of its provisions were modeled on its predecessor, the Antarctic Treaty. Like that treaty it sought to prevent "a new form of colonial competition" and the possible damage that self-seeking exploitation might cause. Between 1959 and 1962 the Western powers made a series of proposals to bar the use of outer space for military purposes. Addressing the UN General Assembly on September 22, 1960, President Eisenhower proposed that the principles of the Antarctic Treaty be applied to outer space and celestial bodies.

Article 4 prohibits placing in orbit around the Earth, installing on the moon, any other celestial body, or otherwise station in outer space, nuclear or any other weapons of mass destruction. Additionally, it limits the use of the moon and other celestial bodies exclusively to peaceful purposes and expressly prohibits their use for establishing military bases, installation, or fortifications; testing weapons of any kind; or conducting military maneuvers.

The Soviet Union initially objected based on a demand that a prohibition on all foreign military bases should be included in the treaty. After the signing of the LTBT, the Soviet Union dropped the linkage.

b. Outer Space Treaty Status in the Asia Pacific

All states in the Asia Pacific have signed the Outer Space Treaty except Brunei, Cambodia, and Timor-Leste. In addition, the Pacific Island States of Cook Islands, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Samoa, Solomon Islands, Tuvalu, and Vanuatu) have not signed the Treaty. Specific information regarding the status of individual states is available at: http://www.state.gov/t/isn/5181.htm

4.2 Seabed Arms Control Treaty

a. General information

Opened for Signature: 11 February 1971

Number of Parties: 94

Entry into Force: 18 May 1972

Inspection / Verification: Yes

Additional information: http://disarmament.un.org/treaties/t/sea_bed/text

The full title of the Treaty is the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof. In the 1960s, advances in the technology of oceanography and elevated interest in previously untapped resources of the ocean floor led to concern that the absence of clearly established rules of law might lead to conflict. There also existed concerns that the seabed could become a new environment for military installations, including those capable of launching nuclear weapons. The treaty shared with the spirit of the Outer Space Treaty, the Antarctic Treaty, and the various Nuclear Weapons-Free Zones treaties to prevent the introduction of international conflict and nuclear weapons into new areas and environments not established by previous treaties.

The Treaty sought to prevent the introduction of international conflict and nuclear weapons into an area that had otherwise been free of them. It prohibits the placement of nuclear weapons or weapons of mass destruction on the seabed and the ocean floor beyond a 12-mile coastal zone to be measured in accordance with the provisions of the 1958 Convention on the Territorial Sea and the Contiguous Zone. It allowed parties to undertake verification using their own means, with the assistance of other parties, or through appropriate international procedures within the framework of the United Nations and in accordance with its Charter allowing parties to assure themselves the obligations were being fulfilled without interfering with legitimate seabed activities. It stipulates that parties are to work for further measures to prevent an arms race on the seabed.

There was some friction in the differences between the drafts of the United States and the Soviet Union. Prominent among these differences was that the USSR proposed using the Outer Space Treaty as a precedent for inspection, deciding that all installations and structures would be open, provided that reciprocity was observed. The US believed that the Outer Space Treaty was an unsuitable precedent since no claims of national jurisdiction existed on the moon and that provisions suitable for the Moon would not be adequate for the seabed where national jurisdiction had been and was in the process of being articulated. The Soviet-approved draft would have banned all military uses of the seabed and would have precluded such things as submarine surveillance systems that were fixed to the ocean floor. The US regarded these systems as essential. Also, coastal states were concerned about whether their rights would be respected and if they possessed the ability to check on violations. Some wondered whether the verification procedures would really be effective.

b. Seabed Arms Control Treaty Status in the Asia Pacific

The Seabed Arms Control Treaty has not been signed by Brunei, North Korea, and Timor-Leste. In addition, none of the Pacific Island States (Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Tonga, Tuvalu, and Vanuatu) except the Solomon Islands have signed the Treaty. Specific information regarding the status of individual states is available at:
http://disarmament.un.org/treaties/t/sea_bed

4.3 Partial (Limited) Test Ban Treaty

a. General information

Opened for Signature:	5 August 1963
Number of Parties:	126
Entry into Force:	10 October 1963
Inspection / Verification:	No
Additional information:	http://disarmament.un.org/treaties/t/test_ban/text

The development of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water reflected a growing concern over the environmental and health consequences of testing of nuclear weapons as research on the potential damages became clear. As a result of the hydrogen bomb tests in the 1950s, there was concern about radioactive fallout and the likelihood of even greater damage from more powerful nuclear devices. The treaty prohibits any nuclear weapon test explosion, or any other nuclear explosion, at any place under the state's jurisdiction or control:

(a) In the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas; or

(b) In any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the state under whose jurisdiction or control such explosion is conducted.

b. Limited Test Ban Treaty in the Asia Pacific

The Limited Test Ban Treaty has been signed by all states in the Asia Pacific except Brunei, Cambodia, North Korea, Timor-Leste, and Vietnam. None of the Pacific Island States (Cook Islands, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Samoa, Tuvalu, and Vanuatu) except Fiji, Papua New Guinea, and Tonga have signed the Treaty. Specific information regarding the status of individual states is available at: http://disarmament.un.org/treaties/t/test_ban

4.4 Comprehensive Nuclear Test Ban Treaty (CTBT)

a. General Information

Opened for Signature:	24 September 1996
Number of Parties:	183
Entry into Force:	Not yet entered into force. The Treaty will enter into force 180 days after all 44 of the states that at the time of the opening for signature of the Treaty possessed nuclear power reactors or research

	reactors, which have potential to produce plutonium for military applications.
Inspection / Verification:	Yes
Additional information:	http://www.ctbto.org

The Comprehensive Nuclear Test Ban Treaty, which was completed in 1996 after four years of intense negotiation, bans all nuclear test explosions. Although proposals for a total ban on nuclear testing were first expressed in the 1950s at the time the Limited Test Ban Treaty was being developed, negotiations for the CTBT did not begin until after the Cold War ended. The Treaty includes implementation measures, a verification regime, punitive measures for violators, and a dispute resolution mechanism.

The verification regime includes an international monitoring system, consultation and clarification, on-site inspections, and confidence building measures. The use of national technical means for verification is explicitly provided for in Article 3. Requests for on-site inspections must be approved by at least 30 affirmative votes of members of the Treaty's 51-member Executive Council, which must act within 96 hours of receiving a request for an inspection.

Due to existing nuclear weapons capabilities or the potential for these to be developed from current civilian nuclear programs, ratification of the CTBT by 44 specific states named in Article 14 of the Treaty is required before it will enter into force. Three of these states (India, Pakistan and North Korea) have not signed the treaty and six more (China, Egypt, Indonesia, Iran, Israel, and the US) have signed but not ratified the Treaty.

b. CTBT Status in the Asia Pacific

All states in the Asia Pacific have signed the CTBT except India and North Korea, although as noted above, there are several that have not ratified it. In addition, the Pacific Island States of Tonga and Tuvalu have not signed the Treaty. Specific information regarding the status of individual states is available at:
http://www.ctbto.org/the-treaty/status-of-signature-and-ratification/

c. Significant Reservations and Declarations

This Treaty does not allow for reservations to the Articles or Annexes. However, reservations to the provisions of the Protocols and Annexes to the Protocol are allowed provided they are compatible with the object and purpose of the Treaty.

India has not signed the Treaty and has argued that it should include a specific commitment by the nuclear weapon states to eliminate their nuclear weapons in a negotiated finite span of time, and made its support of the draft treaty contingent on such a commitment. India rejected the entry-into-force formula. Given its stated inability to endorse the treaty as drafted, it argued that making ratification by specific states a requirement for entry into force is contrary to customary international law rules that no obligation can be imposed on a state without its consent.

In 1999, the US Senate voted not to ratify the Treaty. Most opposition in the US has been driven by concerns over stockpile stewardship and test verification procedures. Critics have contended that in the absence of nuclear testing, the U.S will be unable to maintain its expertise in nuclear weapons or to ensure the reliability and safety of its nuclear stockpile. Furthermore, under these circumstances, opponents contend that the US and its allies would not be able to maintain the necessary confidence in its nuclear deterrent. President Obama pledged in his speech in Prague on April 5, 2009, promised to aggressively pursue U.S. ratification.

Chapter 5
Treaty-based Regional Nuclear Weapon Free Zones

Regional initiatives have played an important part in creating incentives to discourage the proliferation of WMD in the Asia Pacific. One particular initiative, a nuclear-weapons-free zone, has been created in several regions of the world. This chapter provides a summary of the seven treaties that have been developed for this purpose both in the Asia-Pacific region and other regions of the world.

A nuclear-weapons-free zone (NWFZ) is defined by the United Nations as an agreement to ban the use, development, or deployment of nuclear weapons in a given area. Additionally, these agreements have mechanisms of verification and control to enforce its obligations. NWFZs are conceived as incremental measures toward total nuclear disarmament, and have steadily grown in number since the first, governing Antarctica. Today, there are eight recognized zones that have been achieved or are in the process of acceptance. Also, some countries have not signed international treaties, but have outlawed nuclear weapons, like Austria with the Atomsperrgesetz in 1999. There are also a number of agreements that have been proposed over the years covering the Middle East, the Korean Peninsula, Central Europe, and South Asia.

1. Antarctic Treaty

a. General Information

Opened for Signature:	1 December 1959
Number of Parties:	53
Entry into Force:	23 June 1961
Inspection / Verification:	Yes
Additional information:	http://www.ats.aq/index_e.htm

The key obligation of the Treaty is that the Antarctica must be used for peaceful purposes. The Treaty prohibits “any measures of a military nature such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons” (Article 1). Military personnel or equipment, however, may be used for scientific research or for any other peaceful purpose. The treaty also prohibits any nuclear explosions and the disposal of radioactive waste material in the Antarctica.

b. Antarctic Treaty Status in the Asia Pacific

The following states in the Asia Pacific have not signed the Antarctic Treaty: Brunei, Cambodia, Indonesia, Laos, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, and Vietnam. Of the Pacific Island States, only Papua New Guinea has signed the

Antarctic Treaty. Specific information regarding the status of individual states is available at: http://www.ats.aq/devAS/ats_parties.aspx?lang=e

2. South Pacific Nuclear-Free Zone

a. General Information

Opened for Signature:	6 August 1985
Number of Parties:	13
Entry into Force:	11 December 1986
Inspection / Verification:	Yes
Additional information:	http://disarmament.un.org/treaties/t/rarotonga/text

The South Pacific Nuclear-Free Zone (SPNFZ), also known as the Treaty of Rarotonga, was adopted to enhance regional security by stemming nuclear arms competition throughout the South Pacific. SPNFZ was developed as a regional initiative to reinforce three other arms control treaties: the Seabed Treaty, which seeks to exclude the seabed from the arms race by preventing states from emplacing WMD or their launching devices on the seabed, the Limited Test Ban Treaty, which places limitations on the testing of nuclear weapons testing in the atmosphere, outer space, and under water, and the Treaty on the Nonproliferation of Nuclear Weapons (NPT), which recognizes the rights of states to conclude regional nuclear free zones (Article 7).

The Treaty prohibits the testing, manufacture, acquisition, and stationing of nuclear explosive devices in the territory of Parties to the Treaty and the dumping of radioactive wastes at sea within the zone (Article 7). The Treaty also requires all parties to apply full scope International Atomic Energy Agency safeguards to all their peaceful nuclear activities. A comprehensive control system has been established to verify compliance with the Treaty and there are mechanisms, including provision for mandatory on-site inspection, to assure compliance.

The Treaty affirms the right of each party to decide for itself whether to allow visits by foreign ships and aircraft carrying nuclear weapons to its ports and airfields. It also explicitly upholds the freedom of navigation on the high seas and passage through territorial waters guaranteed by international law.

The Treaty has three protocols. Under Protocol 1 the United States, France, and the United Kingdom are required to apply the basic provisions of the Treaty to their respective territories in the zone established by the Treaty. Under Protocol 2, the United States, France, the United Kingdom, Russia, and China agree not to use or threaten to use nuclear explosive devices against any party to the Treaty or against any territories located within the zone for which a party to Protocol 1 is responsible. Under Protocol 3, the United States, France, the United Kingdom, Russia, and China agree not to test nuclear explosive devices within the zone established by the Treaty. The protocols were opened for signature on August 8, 1986, in Suva, Fiji. All five nuclear weapon states have signed

the Protocols for which they are eligible. The US, the United Kingdom and France have signed all three, whereas China and Russia are Party to Protocols 2 and 3 of the Treaty, but did not accede to Protocol 1, since neither state has territories within the zone. Only the US has not yet ratified all three protocols.

b. SPNFZ Status in the Asia Pacific

The treaty is open for signature by the members of the Pacific Island Forum. Current signatories include all states in the region (Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu) except the Marshall Islands, Micronesia, and Palau. All eligible nuclear weapons states have signed the three protocols and all except the US have ratified them. Specific information regarding the status of individual states is available at: http://disarmament.un.org/treaties/t/rarotonga#

c. Significant Reservations and Declarations

Article 14 precludes reservations to the treaty.

Russia and China signed and ratified Protocol 2 noting that they do not control any territory in the region.

On ratification of Protocol 2, United Kingdom declared that nothing in the treaty affects the rights under international law to transit the zone or visit ports or airfields within the zone. It also stated that it would not be bound by protocol 2 in the event of an attack on the United Kingdom or its territories.

3. Southeast Asia Nuclear-Weapons-Free Zone

a. General Information

Opened for signature:	15 December 1995
Number of Parties:	10
Entry into Force:	27 March 1997
Inspection / Verification:	Yes
Additional information:	http://disarmament.un.org/treaties/t/bangkok/text

The Southeast Asia Nuclear Weapon Free Zone (SEANWFZ) was established after a decade of negotiating and drafting efforts by the ASEAN Working Group on a Zone of Peace, Freedom and Neutrality (ZOPFAN) in Southeast Asia. The SEANWFZ or Bangkok Treaty applies to the 10 regional states and was signed by the heads of the 10 states/governments in Bangkok.

States parties are obliged not to develop, manufacture or otherwise acquire, possess or have control over nuclear weapons, which is equated with nuclear explosive devices.

Parties are also prohibited from deploying, transporting, or testing them. The treaty requires states parties to prevent the stationing or testing of any nuclear explosive device and the dumping of radioactive wastes or other radioactive matter by anyone in the territorial sea of the states parties. Parties to the treaty are also prohibited from providing source or special fissionable materials or equipment to any non-nuclear weapon state (NNWS) or any NWS unless subject to safeguards agreements with the International Atomic Energy Agency (IAEA). The treaty covers the territories, continental shelves, and exclusive economic zones (EEZ) of the states parties within the zone.

The Treaty has one protocol which is open for signature by China, France, Russia, the United Kingdom, and the United States. The protocol states that these recognized NWS would undertake to respect the treaty and not to contribute to any act, which constitutes a violation of the treaty or its protocol by states parties. They would also undertake not to use or threaten to use nuclear weapons against any state party to the treaty and not to use or threaten to use nuclear weapons within the SEANWFZ. None of the NWS have signed or deposited the protocol.

The treaty provides for a Commission to oversee the implementation of this treaty and ensure compliance with its provisions. The treaty also gives each state party the right to ask another state party for clarification or a fact-finding mission to resolve an ambiguous situation or one which may give rise to doubts about compliance. Verification is to be achieved through reports by members and the exchange of information, and through the application of IAEA safeguards. States parties have discretion over visits by foreign ships and aircraft to ports and airfields, transit of airspace by foreign aircraft, and navigation by foreign ships carrying nuclear weapons.

The SEANWFZ Treaty includes two elements that go beyond other existing Nuclear-Weapon-Free Zone (NWFZ) agreements: 1) the zone of application also includes the continental shelves and EEZ of the contracting parties; and 2) the negative security assurance of the protocol implies a commitment by the NWS not to use or threaten to use nuclear weapons against any contracting state within the zone of application. In other aspects, the SEANWFZ contains all the standard obligations, prohibitions, and verification and control measures found in other zonal treaties.

The Bangkok Treaty does not have any designated Secretariat, given the informal style of ASEAN, but the Commission at the level of Foreign Ministers and the working group of Senior Officials will work to promote the full implementation of the zone. The Commission developed a plan of action in 2007 and is currently writing a second plan of action to cover 2013-2017, with increased emphasis on action-oriented measures.

b. SEANWFZ Status in the Asia Pacific

All ten ASEAN states (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) have signed the Treaty. None of the NWS have signed the Treaty's Protocol. Specific information regarding the status of individual states is available at: http://disarmament.un.org/treaties/t/bangkok

c. Significant Reservations and Declarations

The states parties to the Treaty still have internal differences over transit rights and port/airfield visits of foreign ships and aircraft and the NWS have not signed the Protocol to the SEANWFZ Treaty. Stated objections include the inclusion of continental shelves and EEZ, the restriction on the use of nuclear weapons within the zone or from within the zone against targets outside the zone, and the restriction on the passage of nuclear-powered ships through the zone *vis-à-vis* the issue of the high seas as embodied in the UN Convention on the Law of the Sea (UNCLOS). The NWS also raised the issue that the continental shelves and EEZ are not clearly defined in the South China Sea, which creates uncertainty over the scope of the treaty, as well as the treaty's protocol obligations.

The US also expressed concerns regarding the nature of the legally binding negative security assurances to be expected of the parties to the protocol, the alleged ambiguity of the treaty's language concerning the permissibility of port calls by ships, which may carry nuclear weapons, and the procedural rights of the parties to the protocol to be represented before the various executive bodies set up by the treaty to ensure its implementation.

India also has stated its willingness to sign the SEANWFZ protocol. However, because the protocol was intended for those NWS recognized in the Nuclear Nonproliferation Treaty, Article 3 of the protocol states that it shall be open for signature only "by the People's Republic of China, France, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland, and the United States of America."

4. Central Asia Nuclear Weapons Free Zone (CANWFZ)

a. General Information

Opened for Signature:	8 September 2006
Number of Parties:	5
Entry into Force:	21 March 2009
Inspection / Verification:	Yes

Additional information: The full text of the treaty and the status of the treaty and its protocol are available at: http://disarmament.un.org/treaties/t/canwfz/text

The five Central Asian states – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – signed a treaty establishing a Central Asian Nuclear Weapon Free Zone (CANWFZ). As the result of negotiations that began in 1997, the CANWFZ treaty text was finalized at talks held in Tashkent, Uzbekistan in February 2005. The treaty consists of 18 articles, a protocol, and the rules of procedure to implement Article 10, which includes the procedure of holding consultative meetings. Under the treaty, each party undertakes not to conduct research on, develop, manufacture, stockpile, or other acquire, possess, or have control over any nuclear weapon or other nuclear explosive device (Article 3). To a greater extent than other previous NWFZs, the one in Central Asia will

showcase a commitment to nuclear disarmament by a group of states which previously had nuclear weapons on their territory. It will also be the first NWFZ located entirely in the northern hemisphere.

Beyond its political impact, the Central Asian Treaty contains concrete provisions that strengthen regional and international nonproliferation efforts. Under its terms, the states will be the first countries in the world legally bound to adhere to enhanced International Atomic Energy Agency safeguards (the Additional Protocol) for their civilian nuclear assets. The treaty also requires them to meet international standards for the physical protection of nuclear material. Considering the danger that Central Asia could become a source or transit corridor for terrorist smuggling of nuclear materials, these terms of the CANWFZ are an important counterterrorism measure. In another unique feature, the treaty recognizes the need for cooperation in environmental rehabilitation of territories contaminated as a result of past activities related to the development, production or storage of nuclear weapons or other nuclear explosive devices, in particular uranium tailings storage sites and nuclear test sites (Article 6).

b. CANFZ Status

Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, and Uzbekistan have all signed and ratified CANFZ.

5. Latin American Nuclear Weapons Free Zone (LANWFZ)

a. General Information

Opened for Signature:	14 February 1967
Number of Parties:	33
Entry into Force:	25 April 1969 for 11 states parties and for all 33 parties October 2002
Inspection / Verification:	Yes

Additional information: Full text of the treaty and the status of the treaty are available at: http://disarmament.un.org/treaties/t/tlatelolco

The Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean predates the NPT and represents the first effort by a group of states to establish a nuclear weapon-free zone in a heavily populated region. The Treaty has 33 Latin American and Caribbean Contracting Parties. These states have accepted the application of IAEA safeguards for all their nuclear activities to assist in verifying compliance with the Treaty. The Treaty also establishes a regional organization, the Agency for the Prohibition of Nuclear Weapons in Latin America (known by its Spanish acronym OPANAL), to help ensure compliance with its provisions.

The Treaty officially entered into force in 2002 when all eligible states (Cuba was the lone holdout) signed and ratified (as necessary) the Treaty and its two Protocols and

concluded comprehensive safeguards agreements with the IAEA as required. However, several signatories individually waived these requirements and declared the treaty in force in 1969 for their respective territories, thereby creating the nuclear-free zone in a piecemeal fashion.

The US, France, the UK, the Netherlands are party to Additional Protocol I to the Treaty. All 5 nuclear weapons, states – the US, France, the UK, Russia, and China – are party to Additional Protocol II to the Treaty. The first Protocol requires parties with international responsibility for territories within the region to respect specific denuclearization provisions of the Treaty and to conclude IAEA safeguards agreements for their territories. The second Protocol requires nuclear weapon states also to respect and support the denuclearization provisions and not use or threaten to use nuclear weapons against Treaty parties. The US has also brought into force a safeguards agreement pursuant to Protocol I that covers the territories in the region for which we are internationally responsible. With France's 1992 ratification of Protocol I, all relevant states have now signed and ratified the two Protocols.

b. LANWFZ Status

All 33 countries (Antigua & Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Kitts/Nevis, St. Lucia, St. Vincent/Grenadines, Suriname, Trinidad & Tobago, Uruguay, Venezuela) in the Latin American region are Contracting Parties to the Treaty.

6. African Nuclear Weapons Free Zone Treaty (Pelindaba Treaty)

a. **General Information**

Opened for Signature:	11 April 1996
Number of Parties:	40
Entry into Force:	15 July 2009
Inspection / Verification:	Yes

Additional information: Full text and the current status of the treaty and its protocols are available at: http://disarmament.un.org/treaties/t/pelindaba/text

The African Nuclear Weapons Free Zone Treaty (ANWFZ) is the result of African Union's efforts to create a nuclear free zone for the continent of Africa. All the states of Africa are eligible to become party to the Treaty. Despite the initial objections of the Arab African states, many who refused to sign ANWFZ until Israel relinquished its nuclear weapons, Algeria, Libya, and Mauritania have since reconciled and ratified the treaty.

The Treaty prohibits the research on, development, manufacturing, stockpile, control and acquisition of any nuclear device as well as it prohibits the stationing of any nuclear explosives device and the dumping of radioactive material or waste anywhere in the zone. Signatories retain the right to peaceful nuclear activities that utilize nuclear science and technology to strengthen security, stability and development. The zone consists of the entire continent of Africa and the following islands: Agalega Island, Bassas da India, Canary Islands, Cape Verde, Cardagos Carajos Shoals, Chagos Archipelago, Comoros, Diego Garcia, Europa, Juan de Nova, Madagascar, Mauritius, Mayotte, Prince Edward & Principe Marion Islands, Reunion, Rodrigues Island, Sao Tome, Seychelles, and Tromelin Island.

The Pelindaba Treaty has three protocols. Under Protocol 1, the United States, the United Kingdom, France, China, and the Russia will not threaten to use a nuclear explosive device against any Treaty party or against any territory of a Protocol 3 party within the African zone. Under Protocol 2, the United States, France, the United Kingdom, the Russian Federation and China are invited to agree not to test or assist or encourage the testing of a nuclear explosive device anywhere within the African zone. Protocol 3 is open to states with dependent territories in the zone and obligates them to observe certain provisions of the Treaty with respect to these territories; it was signed by France on 11 April 1996 and ratified on 31 July 1997. Spain neither signed nor ratified Protocol III.

b. ANWFZ Status

Fifty-two of the countries in the African Union have signed or acceded to the Treaty. However, only 38 states have ratified it. Specific information regarding the status of individual states is available at: http://disarmament.un.org/treaties/t/pelindaba#

7. Treaty on the Final Settlement with Respect to Germany (2+4 Agreement)

a. General Information

Opened for Signature:	12 September 1990
Number of Signatories:	6
Number of Ratifications:	1
Entry into Force:	Ratified by unified Germany 3 October 1990 and entered into force on 15 March, 1991
Inspection / Verification:	Yes
Additional information:	http://usa.usembassy.de/etexts/2plusfour8994e.htm

The 2+4 Agreement was negotiated in 1990 between the Federal Republic of Germany (FRG), the German Democratic Republic (GDR), and the Four Powers which occupied Germany at the end of World War 2 in Europe: France, the United Kingdom, the United States, and the Soviet Union (USSR).

Under the terms of the treaty, the Four Powers renounced all rights they formerly held in Germany. As a result, the reunited country became fully sovereign on 15 March 1991. Germany reaffirmed its renunciation of the manufacture, possession of, and control over nuclear, biological, and chemical weapons, and in particular, that the Nuclear Non-Proliferation Treaty would continue to apply in full to the unified Germany. Also, no foreign armed forces, or nuclear weapons, or the carriers for nuclear weapons would be stationed in former East Germany (or deployed there), making it a permanent Nuclear-Weapon-Free Zone. Although the treaty was signed by the western and eastern German states as separate entities, it was ratified by the united Germany (the Federal Republic of Germany) per the terms of the treaty agreement.

8. Mongolian Nuclear Weapon Free Status

a. General Information

National Law Adopted: 3 February 2000

Entry into Force: 3 February 2000

Inspection / Verification: Yes

Additional information: http://www.nti.org/learn/treaties-and-regimes/nuclear-weapon-free-status-mongolia/

Mongolia proclaimed its territory a nuclear-weapon-free zone (NWFZ) on Sept. 25, 1992, and declared to have that status "internationally guaranteed" just like other zones. To that end, it took practical measures both at the national and international level. At the national level, its National Security Concept declared that Mongolia would not allow its territory to be used against other states and that its NWFZ status would form an important element of ensuring security by political means. In February 2000 the Mongolian Parliament adopted a national law entitled "Law of Mongolia on its nuclear-weapon-free status" and a parliamentary resolution to promote full implementation of the law.

The main provision of the law clearly defines the prohibitions resulting from the nuclear-weapon-free status and criminalizes acts that would violate that status. Article 4 of the law stipulates that an individual, legal person, or any foreign state would be prohibited on the territory of Mongolia from committing, initiating or participating in developing, manufacturing or otherwise acquiring, possessing or having control over nuclear weapons, stationing or transporting nuclear weapons by any means, … dumping or disposing nuclear weapons grade radioactive material or nuclear waste. The law also banned "transportation through the territory of Mongolia of nuclear weapons, parts of components thereof, as well as nuclear waste or any other nuclear material designed or produced for weapons purposes."

The law envisages national and international verification of the implementation of the law and respect of the status. An individual or legal person that violated the law is to be held criminally liable, while the facility, equipment, material, raw material or means of transportation used for such violation would be expropriated by the state. Appropriate

political and legal procedures would be undertaken to address issues of violation of the law by other states.

At the international level, the UN General Assembly adopted in 1998 resolution 53/77 D entitled "Mongolia's international security and nuclear-weapon-free status" which welcomed the declaration by Mongolia of its nuclear-weapon-free status and invited member states, including the five nuclear-weapon states, to cooperate with Mongolia in taking the necessary measures to consolidate and strengthen its status. Since then, UNGA has been considering the item regarding Mongolia's status every second year, taking note of the measures taken and progress made in consolidating the status and adopting supportive resolutions in support of the efforts.

As a response to the resolution mentioned above, in 2000, the five nuclear-weapon states have made a joint statement providing security assurances to Mongolia in connection with its status. Mongolia believes that the joint political statement was an important step in institutionalizing the status at the international level and expressed its readiness to work for strengthening the status by conclusion of an international treaty.

In September 2007, Mongolia presented to its immediate neighbors, Russia and China, a draft trilateral treaty that would define Mongolia's own commitment regarding its status as well as the two neighbor's pledge not to contribute to violation by Mongolia of its commitment. A draft protocol to the treaty would ask the other three nuclear-weapon states to commit to respect the treaty and contribute to its full implementation. In March and September 2009 Mongolian, Chinese and Russian representatives met in Geneva to exchange views on the proposed Mongolian draft treaty.

Chapter 6
Multilateral Initiatives and Agreements

Since the early 1990's, the threat of WMD proliferation has dramatically increased. There has been a substantially increased risk from countries and international terrorist groups with access to chemical and biological weapons, and at least several states have gained access to components and technology for making nuclear weapons. Curbing the supply of strategic goods and technologies is made more difficult by the ambivalent approach of many governments to the perceived threat of WMD proliferation. Some trade off concerns about the spread of WMD against economic and political interests. Others lack the capacity to prevent actors from using sovereign territory for illegal trafficking of material, equipment, and technology used for the development of WMD and related delivery vehicles.

In the face of such challenges, some states have argued that international standards of acceptable conduct embodied in treaties like the NPT, the CWC, the BWTC, and other nonproliferation treaties and protocols are being violated while the world seems to be reluctant to impose consequences. The response has been the development of a variety of ad hoc coalitions and arrangements to address the violations and seek better ways to enforce existing multilateral compliance regimes.

The range of mechanisms that have been developed to control WMD delivery systems, component materials, and technology is quite extensive both in terms of scope of participation and the focus of concern. By definition, none of these arrangements are treaty-based or legally binding. In some cases, participation is open to all states, while in others, participation is exclusive and controlled by current participants in the initiative. Some have argued that these types of mechanisms are preferable because they demonstrate a strong political will to act in response to violators and offer more flexibility in their enforcement. A criticism offered by others is that states have used the failure of multilateral treaties as justification for abandoning multilateralism and are pursuing these initiatives instead of seeking consensus on issues such as disarmament and equal treatment among states parties to the treaties.

1. The IAEA Code of Conduct on the Safety and Security of Radioactive Sources, and Supplementary Guidelines on the Import and Export of Radioactive Sources

a. General Information

Date Published: Code of Conduct 2004, Supplementary Guidelines 2005

Formally Supporting States: 136

Status: Open to all IAEA member States

Additional information: http://www-ns.iaea.org/tech-areas/radiation-safety/code-of-conduct.asp

Continuing incidents and accidents involving radiation sources and the new concern about the possible malicious use of these sources indicate a clear need for a comprehensive set of standards and guidance documents. These standards and supplementary guidelines support states in their efforts to ensure an adequate level of both safety and security for radioactive sources and aim to harmonize the national policies, laws and regulations of IAEA member states. The Code of Conduct was published by IAEA in January 2004. In an effort to implement the code, the Guidance on the Import and Export of Radioactive Sources was developed and first published in March 2005. While these instruments are not legally binding, by facilitating international cooperation they help to prevent the unauthorized use or theft of radioactive materials. The revised Guidance was published in May 2012.

b. IAEA Code of Conduct Status in the Asia Pacific

	IAEA Code of Conduct	**IAEA Supplementary Guidance on the Import and Export of Radioactive Sources**		
	Formal Support Expressed	Formal Support Expressed	Contact Point Designated	Response to S.A.Q
Australia	X	X	X	X
Brunei			X	
Cambodia			X	
Canada	X	X	X	X
China	X	X	X	
India	X	X	X	X
Indonesia	X	X	X	
Japan	X	X	X	X
Laos				
Malaysia	X	X	X	X
Mongolia				
Myanmar				
New Zealand	X	X	X	
North Korea				
Philippines	X	X	X	
Russia	X	X	X	X
Singapore	X		X	
South Korea	X	X	X	X
Thailand	X	X	X	X
Timor-Leste				
United States	X	X	X	X
Vietnam	X	X	X	

None of the Pacific Island States have expressed support for the Code or the supplementary guidelines. Information in the above table is drawn from the IAEA at: http://www-ns.iaea.org/downloads/rw/imp-export/status-list.pdf

2. The Wassenaar Arrangement (WA)

a. General Information

Established:	19 December 1995 with a declaration issued at the Peace Palace in The Hague
Number of Partners:	42 states
Status:	Limited, admission based on consensus of members
Inspection / Verification:	No
Additional information:	http://www.nti.org/learn/treaties-and-regimes/wassenaar-arrangement/

The Wassenaar Arrangement (WA) is the successor to the Cold-War export control organization the Coordinating Committee for Multilateral Export Controls (CoCom), which existed from 1950 to 31 March 1994. As reflected in the Initial Elements, the purpose of the WA is to contribute to regional and international security by:

> promoting transparency and greater responsibility with regard to transfers of conventional arms and dual-use goods and technologies, thus preventing destabilizing accumulations;
>
> seeking through national policies to ensure that transfers of these items do not contribute to the development or enhancement of military capabilities that undermine these goals, and are not diverted to support such capabilities;
>
> complementing and reinforcing, without duplication, the existing control regimes for weapons of mass destruction and their delivery systems, as well as other internationally recognized measures designed to promote transparency and greater responsibility, by focusing on the threats to international and regional peace and security that may arise from transfers of armaments and sensitive dual-use goods and technologies where risks are judged greatest; and
>
> enhancing cooperation to prevent the acquisition of armaments and sensitive dual-use items for military end-uses, if the situation in a region or the behavior of a State is, or becomes, a cause for serious concern to the participating States.

b. Membership in Wassenaar in the Asia Pacific

Australia, Canada, India, Japan, New Zealand, Russia, South Korea and the United States are WA participating states. A complete list of participating states is provided at: http://www.wassenaar.org/about-us/

3. The Missile Technology Control Regime (MTCR)

a. General Information

Established:	1987
Number of Partners:	35
Status:	Limited, admission based on consensus of members
Inspection / Verification:	No
Additional information:	http://mtcr.info/mtcr-guidelines/

The Missile Technology Control Regime is an informal, voluntary association of countries that seeks to control the proliferation of materials, equipment and technologies used in unmanned WMD delivery systems. The MTCR is not a treaty and thus creates a political commitment for partner states. It relies on the adherence of partner states to export policy guidelines (the MTCR Guidelines) regarding a common list of controlled technologies (the MTCR Equipment, Software and Technology Annex). This list includes practically all key equipment and technology needed to develop, produce, and operate missiles. The guidelines and annex are implemented by each partner state in accordance with its domestic legislation.

The MTCR is particularly focused on systems capable of delivering a payload of over 500kg at least 300km. These include rockets (projectiles that free fall to target in the latter stage of their flight trajectory, such as ballistic missiles, space launched vehicles, and sounding rockets) and unmanned aerial vehicle (UAV) systems (which can be maneuvered for a greater portion of their flight, such as cruise missiles, target drones, and reconnaissance drones). Category I items, for which the MTCR guidelines call for a strong presumption to deny, include complete rocket systems, production facilities, and major subsystems for rockets that exceed the range-payload thresholds. Category II items, which members are urged to exercise caution in exporting, but not with a presumption to deny, include dual-use equipment and components that can be used to produce or operate rockets and missiles.

Established in 1987 by Canada, France, Germany, Italy, Japan, the United Kingdom and the US, the MTCR initially focused on stemming the proliferation of nuclear weapons-capable missiles and related technologies. Since 1993, it has expanded its focus to include missiles designed to, or capable of, delivering chemical and biological weapons. The MTCR works by consensus and partner states regularly exchange information about relevant national export licensing issues. The MTCR guidelines are open to all nations to implement, including non-MTCR partners.

b. Membership in MTCR in the Asia Pacific

Australia, Canada, India, Japan, New Zealand, Russia, South Korea and the United States are MTCR partner states. A complete list of partner states is provided at: http://mtcr.info/partners/.

4. Hague Code of Conduct against Ballistic Missile Proliferation (HCOC)

a. General Information

Date Introduced:	26 November 2002
Subscribing States:	138 states
Status:	Voluntary commitment; open to all states
Inspection / Verification:	No
Additional information:	http://www.bmeia.gv.at/en/european-foreign-policy/disarmament/weapons-of-mass-destruction/hcoc-iccexecutive-secretariat/

The Hague Code of Conduct against Ballistic Missile Proliferation (HCOC), formally called the International Code of Conduct against Ballistic Missile Proliferation creates a political (as opposed to legal) commitment, with "subscribing states" agreeing "to prevent and curb the proliferation of Ballistic Missile systems capable of delivering weapons of mass destruction" and "to exercise maximum restraint in developing, testing, and deploying" such missiles. This includes, where possible, the reduction of ballistic missile stockpiles. As a voluntary code, there is no inspection or verification regime associated with the HCOC, and its focus is on general principles rather than specific action plans.

The HCOC consists of a set of general guidelines, commitments and confidence-building measures (CBMs). These include pre-launch notifications of peaceful rocket flights and annual declarations on space and ballistic missile policies, which are intended to address proliferation concerns caused by the similarities between technologies used in ballistic missiles and civilian rockets. The HCOC is intended to supplement, rather than replace, the Missile Technology Control Regime (MTCR). Unlike the MTCR, the HCOC is open to all states. Austria serves as the Immediate Central Contact (ICC), although the Code is administered collectively by all subscribing states and has no formal secretariat. Annual meetings are held in Vienna, where subscribing states discuss issues related to implementation of the HCOC and its CBMs and ongoing efforts towards achieving its universalization. All decisions, both procedural and substantive, are taken by a consensus of subscribing states present at meetings.

b. HCOC Status in the Asia Pacific

There are significant gaps in Asian buy-in to the HCOC. In Southeast Asia, Brunei, Indonesia, Laos, Malaysia, and Myanmar have not adopted the Code. In Northeast Asia, China and North Korea have not yet subscribed. All Pacific Island States except Nauru, Niue, and Solomon Islands have subscribed. A complete list of subscribers is found at: http://www.state.gov/t/isn/trty/101466.htm

5. Proliferation Security Initiative (PSI)

a. General Information

Established:	May 2003
Number of parties:	105 endorsing states
Status:	Open to all states that adhere to the statement of principles.
Additional information:	http://www.state.gov/t/isn/c10390.htm

The Proliferation Security Initiative was launched on May 31, 2003 by the United States and 10 other states. Since then the PSI has worked to restrict the proliferation of WMD through multilateral collaboration in military exercises and operations. The PSI characterized as an activity rather than an organization and has few formal mechanisms,

The Initiative aims to limit the flow of WMD through the application of existing national anti-smuggling laws while complying with the framework of international laws, which are much more restrictive on the issue of maritime interdiction. The goal is to stop shipments of WMD, their delivery systems, and related materials. In order to achieve this goal, states participating in the PSI have conducted several joint military exercises with a goal of practicing and improving search and seizure methods. While the PSI does "not create formal obligations," it does attempt to "represent a political commitment to establish 'best practices' to stop proliferation-related shipments."

While the primary aim of PSI is to limit the proliferation of WMD between non-participating states and nonstate actors, it does hold its members to the same standards and scrutiny, including compliance and cooperation with boarding arrangements. Compliance with UN Convention on the Law of the Sea (UNCLOS) provisions that ensure innocent passage has been the source of much controversy surrounding the PSI. Under UNCLOS, a nation's territorial waters, where its laws apply, extend twelve miles from the coast. Within this zone, weapons of all types may be confiscated, but only if the shipment is bound for known insurgents or terrorists. Beyond the 12 miles limit, a state cannot apply its laws to ships. UNCLOS does allow for interdiction on the high seas (beyond the 12 miles) if a ship is "suspected to be engaged in the slave trade, piracy, illegal broadcasting, or [does not fly] its flag."

b. PSI Status in the Asia Pacific

PSI participating states in the Asia-Pacific region are Australia, Brunei, Cambodia, Canada, Fiji, Japan, Malaysia, Marshall Islands, Mongolia, New Zealand, Papua New Guinea, Philippines, Russia, Samoa, Singapore, South Korea, Thailand, Vanuatu, Vietnam, and the United States. A complete list of participating states can be found at: http://www.state.gov/t/isn/c27732.htm

6. Global Initiative to Combat Nuclear Terrorism

a. General Information

Established:	15 July 2006

Agreement on principles:	31 October 2006
Partners:	88 countries and regional organizations
Status:	Open to all states and regional organizations
Additional information:	http://www.state.gov/t/isn/c18406.htm

The Global Initiative to Combat Nuclear Terrorism is a joint initiative launched by the United States and Russia to "expand and accelerate the development of partnership capacity to combat the global threat of nuclear terrorism" consistent with national legal authorities and obligations they have under relevant international legal frameworks, notably the Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment, and UNSC Resolutions 1373 and 1540. This initiative is open to states that share the common goal of combating nuclear terrorism. All states concerned with the threat to international peace and security can make a commitment to implement on a voluntary basis the following principles:

- Improve accounting, control, and physical protection of nuclear and other radioactive substances and materials;
- Enhance security of civilian nuclear facilities;
- Improve the ability to detect nuclear and other radioactive materials and substances in order to prevent illicit trafficking in such materials and substances, to include cooperation in the research and development of national detection capabilities that would be interoperable;
- Improve capabilities of participants to search for, confiscate, and establish safe control over unlawfully held nuclear or other radioactive materials and substances or devices using them;
- Prevent the provision of safe haven to terrorists and financial or economic resources to terrorists seeking to acquire or use nuclear or other radioactive materials or substances;
- Ensure adequate respective national legal and regulatory frameworks sufficient to provide for the implementation of appropriate criminal and, if applicable, civil liability for terrorists and those who facilitate acts of nuclear terrorism;
- Improve capabilities for response, mitigation, and investigation in cases of terrorist attacks involving the use of nuclear and other radioactive materials and substances, including technical means to identify nuclear and other radioactive materials and substances that are, or may be, involved in the incident; and
- Promote information sharing pertaining to the suppression of acts of nuclear terrorism and their facilitation, taking appropriate measures consistent with their national law and international obligations to protect the confidentiality of any information which they exchange in confidence.

The Global Initiative seeks to achieve its objectives by building the necessary state capacity and national capabilities to combat transnational threats of nuclear terrorism. Unlike previous nuclear counterterrorism efforts, the Global Initiative goes "beyond

interdiction" to operate inside the borders of countries with nuclear materials by setting protection and detection standards and jointly planning strategies to block terrorist efforts. Activities of the Global Initiative include improvement of capabilities to combat nuclear terrorism by providing and receiving assistance to partner states where appropriate to fill capacity gaps.

b. Partner States in the Asia Pacific

The US and Russia are the founding members of the Initiative. Other partner states in the Asia-Pacific region are Australia, Cambodia, Canada, China, India, Japan, Malaysia, New Zealand, Palau, Philippines, Singapore, South Korea, Thailand, and Vietnam. A complete list of participating states can be found at: http://www.gicnt.org/partners.html

7. Nuclear Suppliers Group (NSG)

a. General Information

Established:	1974
Initial guidelines:	1978
Participants:	48
Status:	Limited, admission based on consensus of members
Additional information:	http://www.nuclearsuppliersgroup.org/en/

The Nuclear Suppliers Group was formed in 1974 in response to India's first nuclear weapons test. Since India first obtained nuclear materials and technology for building reactors for power generation, several suppliers noted the ease with which the capacity was modified to create nuclear weaponry. The group was set up to encourage controls on exports of materials, equipment, and technologies that can be used in developing nuclear weapons. Since the aim of the group is to prevent nuclear weapon proliferation, it does not discourage nuclear research for energy needs and deter trade.

Membership in the NSG is voluntary and includes politically binding agreements. There are rules that govern the necessary steps in handling certain nuclear exports. In 1978, the NSG published its first set of guidelines, which lists exports of nuclear materials and equipment that require IAEA safeguards at the recipient facility. In 1992, in light of how Iraq was able to evade restrictions to further its nuclear-weapons program, the group issued a second set of guidelines that identifies nuclear dual-use goods, for which it recommends careful supervision. A "non-proliferation principle" adopted in 1994 requires the supplier to authorize a transfer only when satisfied that it would not contribute to the proliferation of nuclear weapons.

NSG membership has grown over time but does not include all nations that export nuclear materials covered by the guidelines. Prospective members are judged, *inter alia* on their observance of nonproliferation treaties and agreements, and management of the export of strategic goods. Since 2001, the NSG has initiated dialogue with several non-members that have developed civil nuclear programs and were considered to be potential

nuclear suppliers. These dialogue partners have included India, Indonesia, Malaysia, and Pakistan. The broad purpose of these contacts is to share information in order to prevent the proliferation of nuclear materials and equipment.

b. Nuclear Suppliers Group Membership

Argentina	Czech Republic	Japan	Portugal	Turkey
Australia	Denmark	Kazakhstan	Romania	Ukraine
Austria	Estonia	Latvia	Russia	United Kingdom
Belarus	Finland	Lithuania	Serbia	United States
Belgium	France	Luxembourg	Slovakia	
Brazil	Germany	Malta	Slovenia	
Bulgaria	Greece	Mexico	South Africa	
Canada	Hungary	Netherlands	South Korea	
China	Iceland	New Zealand	Spain	
Croatia	Ireland	Norway	Sweden	
Cyprus	Italy	Poland	Switzerland	

Source: http://www.nuclearsuppliersgroup.org/en/participants1

8. Australia Group (AG)

a. General Information

Established: 1985

Members: 42

Status: Limited, admission on consensus of members.

Additional information: http://www.australiagroup.net/en/index.html

The Australia Group was formed in 1985, following a 1984 UN investigation that revealed Iraq had manufactured chemical weapons used in the Iran-Iraq War after many Western countries had mistakenly supplied Iraq with dual-use chemicals. The original group was comprised of fifteen countries. In 1990, it expanded its mandate to include dual-use biological materials after it was discovered that Iraq was trying to develop biological weapons. While measures taken by the group are not legally binding, its influence is most felt through its shared commitment to preventing the proliferation of chemical and biological weapons components.

The Australia Group uses licensing measures to monitor and control the spread of technologies and materials that are of use in developing chemical and biological weapons. All member states must have an effective and legally based system by which national exports can be controlled. The group attempts to stop the export of materials and elements that appear on its common control list, which includes six areas: chemical weapons precursors, dual-use chemical manufacturing facilities and equipment and related technology, dual-use biological equipment and related technology, biological

agents, plant pathogens, and animal pathogens. The export licensing measures are designed to impede production of chemical and biological weapons and should not hinder normal trade of materials and equipment for non-weapon use. While the group cannot physically block the export of the materials on its list, it relies on the member governments to deny export licenses for listed materials.

The group originally focused mainly on preventing these technologies from being used by other states, but in a 2002 meeting, the group decided to also focus on preventing chemical and biological weapons from falling into the hands of terrorists.

b. Australia Group Membership

Argentina	Denmark	Ireland	Netherlands	Sweden
Australia	Estonia	Italy	New Zealand	Switzerland
Austria	European Commission	Japan	Norway	Turkey
Belgium	Finland	South Korea	Poland	Ukraine
Bulgaria	France	Latvia	Portugal	United Kingdom
Canada	Germany	Lithuania	Romania	United States
Croatia	Greece	Luxembourg	Slovakia	
Cyprus	Hungary	Malta	Slovenia	
Czech Republic	Iceland	Mexico	Spain	

Source: http://www.australiagroup.net/en/participants.html

9. Zangger Committee

a. General Information

Established: 1971

Members: 39

Status: Limited, open to signatories of the NPT

Additional information:
http://www.nti.org/treaties-and-regimes/zangger-committee-zac/

The Zangger Committee, also known as the "NPT Exporters Committee," was formed in 1971 to offer guidance on the implementation of Article 3, paragraph 2 of the NPT, which addresses the export of fissionable material. The Committee seeks to ensure that all materials requiring IAEA safeguards are properly controlled when exported to non-nuclear weapons states. This includes "source or special fissionable material, or equipment or material especially designed or prepared for the processing, use or production of special fissionable material." The Committee is relatively informal and does not hold members to legally binding agreements.

The Committee maintains a "trigger list" of materials used in generating nuclear power. The list includes source material and special fissionable material such as all forms of

naturally occurring uranium isotopes, depleted uranium 235, and thorium. In order to be transported, the recipient facility must be appropriately outfitted with the proper IAEA safeguards as a condition of supply. The Committee also established a list of nuclear power production equipment and materials that need IAEA safeguards. The items under this section of the guidelines include reactors as well as plants that reprocess irradiated fuel elements, separate isotopes of uranium, produce heavy water, and convert plutonium and uranium to fuel.

b. Zangger Committee Membership

Argentina	Czech Republic	Italy	Romania	Turkey
Australia	Denmark	Japan	Russia	Ukraine
Austria	Finland	South Korea	Slovakia	United Kingdom
Belgium	France	Luxembourg	Slovenia	United States
Bulgaria	Germany	Netherlands	South Africa	Kazakhstan
Canada	Greece	Norway	Spain	Belarus
China	Hungary	Poland	Sweden	New Zealand
Croatia	Ireland	Portugal	Switzerland	

Source: http://www.nti.org/treaties-and-regimes/zangger-committee-zac/

10. Asian Senior Talks on Proliferation (ASTOP)

a. General Information

Established:	November 2003
Membership:	ASEAN countries, Australia, Canada, China, France, Japan, New Zealand, South Korea, United States
Status:	Japan Ministry of Foreign Affairs Initiative. Talks are held annually

The Asian Senior Talks on Proliferation was established by the Japanese Ministry of Foreign Affairs as a forum for exchanging views on non-proliferation and strengthening non-proliferation measures in Asian countries. Various issues related to the strengthening of nonproliferation mechanisms in Asia are discussed during the Talks to deepen the level of understanding among countries of their desired non-proliferation implementation measures, the obstacles they would face and solutions to such obstacles. Additional information at: http://www.mofa.go.jp/policy/un/disarmament/arms/psi/index.html

11. International Framework for Nuclear Energy Cooperation (IFNEC)

a. General Information

Established:	16 September 2007
Membership:	34 participants, 4 permanent international observers, and 31 observer countries
Status:	Limited membership, by invitation of participants
Additional information:	http://www.ifnec.org/

The International Framework for Nuclear Energy Cooperation (IFNEC), formerly known as the Global Nuclear Energy Partnership (GNEP), "provide a forum for cooperation among participating states to explore mutually beneficial approaches to ensure the use of nuclear energy for peaceful purposes proceeds in a manner that is efficient and meets the highest standards of safety, security and non-proliferation. Participating states would not give up any rights and voluntarily engage to share the effort and gain the benefits of economical, peaceful nuclear energy." It aims to accelerate development and deployment of advanced fuel cycle technologies to encourage clean development and prosperity worldwide, improve the environment, and reduce the risk of nuclear proliferation. Participants agree to work in a cooperative and positive manner, to:

(1) Further strengthen cooperation with the International Atomic Energy Agency (IAEA) and other relevant international organizations in order to make Partnership activities as effective and efficient as possible.

(2) Establish global recognition that the peaceful use of nuclear energy is an effective measure against global warming and contributes to greater global energy security, the creation of employment, and sustainable economic growth.

(3) Consider new approaches to enhance international collaboration on nuclear power infrastructure, including human resource development, radioactive waste management, financing and economics, exchange of experience on operation and construction, etc., and to make nuclear energy more widely accessible to the international community in accordance with safety, security and nonproliferation objectives.

(4) Explore mutually beneficial approaches that support international civil nuclear cooperation, including assurances of nuclear fuel supply and services for spent nuclear fuel management.

The International Framework consists of a three-tiered organization. It receives its high-level direction from the IFNEC Executive Committee comprised of ministerial-level officials. The Steering Group, whose members are designated by the Executive Committee, carries out actions on behalf of IFNEC at the direction of the Executive Committee. At a September 2007 meeting of the Executive Committee, two working groups were established to address matters concerning reliable nuclear fuel services and infrastructure development.

b. Membership in IFNEC

There are 34 participant states in IFNEC. The IAEA, the Generation IV International Forum, NEA, and EURATOM are permanent international observers and have the responsibility of overseeing the operations of IFNEC and ensuring that they meet international standards. Partner states from the Asia- Pacific region include Australia, Canada, China, Japan, South Korea, Russia, and the United States. Indonesia, Mongolia, Philippines, Singapore, and Vietnam are observer states.

12. Regional Co-operative Agreement (RCA)

a. General Information

Established:	1972
Membership:	22 Member States, IAEA as partner
Status:	Open to interested states in the region
Additional information:	http://www.rcaro.org/

The Regional Co-operative Agreement (RCA) for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific is an intergovernmental agreement. Under the auspices of the IAEA, governments cooperate with each other and the IAEA to promote and coordinate cooperative research, development, and training projects in nuclear science and technology through their appropriate national institutions. Its vision is to be recognized as an effective partner in providing nuclear technologies that address socio-economic needs and contribute to sustainable development in the region.

Since the initial agreement in 1972, the RCA has expanded considerably, both in its membership and in the size and subject scope of its program. Projects have contributed in a number of areas such as food and agriculture, health care, industry, and environmental protection. The number of scientists, engineers and technicians of RCA member states involved in various projects has grown to several thousand. With the growing emphasis placed on technical cooperation among developing countries, the share of specialists from developing countries engaged in various RCA activities is steadily increasing.

The RCA Regional Office is located in Daejon, Korea and was established to promote the visibility and viability of the RCA through a variety of activities including training courses, the preservation of nuclear knowledge, and nuclear-related research. The office works closely with the UN Development Program and the IAEA.

b. Membership in RCA

There are 22 member states in the RCA including Australia, Bangladesh, Cambodia, China, Fiji, India, Indonesia, Republic of Korea, Japan, Laos, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam. The RCA for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific has the IAEA as a partner, not a

party. It is one of four regional cooperative agreements under the aegis of the IAEA. The others are ARCAL for Latin America (formed in 1984), AFRA for Africa (formed in 1990) and ARASIA for Middle East (formed in 2002).

13. Forum for Nuclear Cooperation in Asia (FNCA)

a. General Information

Established:	March 1999
Participants:	12
Status:	Open to new members
Additional Information:	http://www.fnca.mext.go.jp/english/

The Forum for Nuclear Cooperation in Asia is a framework established during the 10th International Conference for Nuclear Cooperation in Asia in March 1999. A Japan-led initiative, the FNCA promotes the use of peaceful and safe nuclear technology for social and economic development through dialogue and information sharing.

There are four main project areas: radiation utilization development, research reactor utilization development, nuclear safety strengthening, and nuclear infrastructure strengthening. Radiation utilization and development includes both industrial and medical applications. Work in these areas has been conducted regarding genetic mutation of certain crops with gamma-rays and ion-beams, bio-fertilizers using radiation sterilization, growth acceleration research and developments in oncology. The research reactor utilization development program focuses on creating a network of members to share effective uses of research reactors, as well as an environmentally conscious means of using neutron activation analysis, which is used to determine the elemental composition of substances. Nuclear safety strengthening works to enhance the safe use of radiation and radioactive waste management. Finally, nuclear infrastructure strengthening is aimed at developing nuclear energy infrastructure and sharing safeguard information.

The FNCA is organized at three levels. The forum meeting is a ministerial level meeting that makes final decisions for the FNCA and discusses broader cooperation measures and nuclear-energy policies. The coordinator meeting evaluates cooperation projects and includes one coordinator from each member state. Cooperation activities are run by project leaders.

b. Membership

Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Korea, Malaysia, Mongolia, The Philippines, Thailand and Vietnam.

14. Asia-Pacific Leadership Network for Nuclear Non-Proliferation (APLN)

a. General Information

Launched:	18 May 2011
Members:	Former leaders from 15 Countries
Status:	Regional former senior political, diplomatic and military officials
Additional Information:	http://a-pln.org/

Modeled after its European counterpart, the ELN, the APLN was convened to inform and energize public opinion on the topic of nuclear weapons and work toward their containment, diminishment, and elimination. Primarily an advocacy network, APLN members contribute by making public statements, lobbying regional governments, commissioning research, and coordinating conferences.

With an ultimate goal of achieving a world free of nuclear weapons, the APLN is developing working groups to address specific areas including nuclear deterrence, nuclear transparency, and "multilateralising the most sensitive stages of the nuclear fuel cycle." The third area more specifically looks at promoting international cooperation on insuring the safe use of nuclear energy and improving governance mechanisms to reduce the risk of proliferation.

b. Membership

Australia, China, India, Indonesia, Japan, Malaysia, Mongolia, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, and Vietnam are the member countries. Specific information can be found at a-pln.org/members/members/

15. Non Proliferation and Disarmament Initiative (NPDI)

a. General Information

Established:	22 September 2010
Membership:	12 Countries
Status:	Limited to initiating parties
Additional Information:	http://www.mofa.go.jp/policy/un/disarmament/npdi/index.html

The Non Proliferation and Disarmament Initiative focuses on promoting effective ways to implement the outcomes of the 2010 NPT Review Conference. Priorities include transparency in nuclear disarmament and strengthening legal instruments governing nuclear activities. The goal is to decrease the number of nuclear weapons and the elimination of nuclear weapons. NPDI believes the most effective way of achieving this aim is through the Comprehensive Test Ban Treaty and a Fissile Material Cut-off Treaty. NPDI supports the IAEA in implementing its mandate and responsibilities as well as the implementation of international mandates such as UNSC 1540.

b. Membership

Asia-Pacific members are limited to the initiating parties, Australia and Japan. Other members include Canada, Chile, Germany, Mexico, the Netherlands, Nigeria, the Philippines, Poland, Turkey and the United Arab Emirates.

16. Mekong Basin Disease Surveillance (MBDS)

a. General Information

Established:	2001
Membership:	6 Southeast Asian countries and partners
Additional Information:	http://www.mbdsnet.org/

MBDS countries work together to build local capacity and share information to reduce the morbidity of outbreak prone diseases. There are two general objectives:

1) To implement seven core strategies which are to maintain and expand cross-border cooperation, improve human-animal sector and strengthen community based surveillance, strengthen epidemiology capacity, strengthen IT capacity, strengthen laboratory capacity, strengthen risk communications, and conduct and apply policy research.

2) To improve pandemic influenza preparedness in the region. MBDS development partners supplement resources for the information sharing and capacity. The MBDS also serves as a sub-regional mechanism for observing international health regulations (IHR) passed by the World Health Organization (WHO) in order to detect, respond to, and communicate about public health emergencies of international concern (PHEIC).

b. Membership

Member countries are Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam. Additionally, MBDS has partnerships with Rockefeller Foundation, Nuclear Threat Initiative, Google, RAND Corp, World Health Organization, United Nations System Influenza Coordination, US Agency for International Development [USAID]/Kenan Institute, Asian Development Bank, and ASEAN.

17. Asia Partnership on Emerging Infectious Disease Research (APEIR)

a. General Information

Established:	2006
Membership:	Open
Additional Information:	http://apeir.net/

The Asia Partnership on Emerging Infectious Disease Research was first established in 2006 to facilitate regional cooperation on avian influenza research. The scope of APEIR was broadened in 2009 to include all emerging infectious diseases (EID). APEIR projects center around three main areas: knowledge building, research capacity building, and policy advocacy. The focus is to strengthen regional cooperation to reduce the threat of EID, in particular for vulnerable populations such as poor and marginalized groups.

APEIR is a "multi-country, multi-disciplinary, multi-sectorial research network" which is reflected in its framework. The Steering Committee, comprised of country and donor representatives, oversees regional coordinating offices and research partners. Current projects focus on monitoring the avian influenza virus in migratory birds, socio-economic impacts of outbreaks and control measures of avian influenza for poultry farmers, policy analysis of pandemic preparedness, and studies on effectiveness of regional cooperation.

b. Membership

Over 30 institutions are part of APEIR, including research institutions and universities in addition to ministry members from Cambodia, China, Lao PDR, Indonesia, Thailand and Vietnam. Specific membership information can be found at:
http://www.apeiresearch.net/new/aboutus_content_ourpartner.html

18. Asian Nuclear Safety Network (ANSN)

a. General Information

Established: 2002

Membership: Open

Additional Information:
https://ansn.iaea.org/Common/WhatIsANSN/WhatIsANSN.aspx

The Asian Nuclear Safety Network was established to share and analyze new and existing knowledge of nuclear safety practices among member countries, facilitate sustainable regional cooperation, and develop regional capacity building systems. Based on safety evaluations, the ANSN identifies regional and national specific needs from which different activities are proposed. ANSN organizes workshops, training courses, and expert missions for the region with nuclear safety experts from around the world, specifically from the IAEA and ANSN supporting countries.

The components of the ANSN are the IT Support Group, which provides support with documents and knowledge sharing as well as performs the safety evaluations, Topical Group, which focus on specific thematic areas and a Steering Committee, which coordinates proposals from the different groups and develops a program plan.

b. Membership

The current member countries are Bangladesh, China, Indonesia, Japan, Kazakhstan, Republic of Korea, Malaysia, the Philippines, Singapore, Thailand and Vietnam. Australia, France, Germany and the USA are ANSN supporting countries. Specific information on ANSN partners can be found at: https://ansn.iaea.org/Common/Partners/ParticipatingCountries.aspx

19. ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM)

ASEANTOM is an initiative to establish a network of nuclear regulatory bodies in South-East Asia. Currently there is limited information available on the progress of developing this network. Some information on Thailand's initial vision for ASEANTOM can be found in the presentation available at: http://www.nst.or.th/n-power/oap-3s-13.IntegratedApproachfor3S-CToskulkao.pdf

Chapter 7
Cooperation and Assistance for National Capacity Building

Technical assistance in building national capacity and enhancing international cooperative efforts for the purpose of preventing proliferation of WMD components and technology is available from a variety of official and unofficial sources. This chapter identifies the organizations and programs that provide assistance in building national capacity to combat WMD proliferation and information on issues related to disarmament and preventing proliferation. While the IAEA and the UN have played important roles in leading the multilateral effort on disarmament and nonproliferation, regional organizations, individual states, and non-governmental organizations are playing an increasingly important role in augmenting these organizations.

In the first part of the chapter, international organizations that play a major role in organizing and coordinating initiatives aimed at improving oversight and implementing specific aspects of the global WMD nonproliferation regime are included.

The second part of the chapter focuses on several nongovernmental organizations that have provided education and training on various aspects of nonproliferation and disarmament. The criteria for being included in the list are that the organizations provide specific training and assistance in improving national capacity for more effectively implementing nonproliferation initiatives, offer educational materials on the key issues related to WMD, and information on the status of nonproliferation treaties, protocols and other implementing agreements.

The third part of the chapter covers a variety of national-level programs. While the preponderance of the programs has been undertaken by the US, other states have also taken the initiative to establish outreach programs that provide training and capacity building for those requesting assistance. An innovation that has occurred with the establishment of the UN Security Council Resolution 1540 Committee is the creation of a central clearinghouse for a wide range of national-level assistance programs that previously had been undertaken in an ad hoc fashion. As the 1540 Committee becomes more institutionalized, it is expected to take on an increasingly important role as the focal point for coordinating assistance.

1. International Governmental Organizations

1-1. International Atomic Energy Agency

The IAEA, although not referred to in Article 4 of the NPT, plays a major role in planning and implementing multilateral cooperation stipulated in the Treaty with regard to the peaceful use of nuclear energy. It encourages and assists research, development and application of atomic energy; it provides technical advice, training, materials, services and equipment; it fosters exchange of scientific and technical information; it develops standards; and it establishes guidelines for the appropriate utilization of nuclear technology and materials. All these activities are related to key statutory functions of the

IAEA. Its role in promoting cooperation in nonproliferation has come to the fore in recent years as comprehensive safeguards have played an increasingly important role in controlling access to fissile materials.

Its work is divided into three main areas: promoting safeguards and verification, promoting safety and security, and promoting science and technology.

In promoting safeguards and verification, it serves as the world´s nuclear inspectorate. Inspectors work to verify that safeguarded nuclear material and activities are not used for military purposes. It inspects nuclear and related facilities under safeguards agreements with approximately 169 states around the world. Most agreements are with states that have internationally committed themselves not to possess nuclear weapons. These agreements are concluded pursuant to the NPT, for which the IAEA is the verification authority.

In promoting safety and security, the IAEA helps countries to upgrade nuclear safety and to prepare for and respond to emergencies. Work is keyed to international conventions, standards and, guidance. The main aim is to protect people and the environment from harmful radiation exposure.

More information on the full scope of programs administered by the IAEA can be found at their website: http://www.iaea.org/index.html

1.2 World Customs Organization

In recognition of the threat of terrorist use of WMD, the World Customs Organization (WCO) has endorsed a strategy to secure the movement of global trade in a way that does not impede but, on the contrary, facilitates the movement of that trade. WCO members have developed a regime known as the WCO SAFE Framework of Standards, which sets forth the principles and the standards and presents them for adoption as a minimal threshold of what must be done by WCO members.

The SAFE Framework consists of four core elements. First, it harmonizes the advance electronic cargo information requirements on inbound, outbound and transit shipments. Second, each country that joins the SAFE Framework commits to employing a consistent risk management approach to address security threats. Third, it requires that at the reasonable request of the receiving nation, based upon a comparable risk targeting methodology, the sending nation’s Customs administration will perform an outbound inspection of high-risk containers and cargo, preferably using non-intrusive detection equipment such as large-scale X-ray machines and radiation detectors. Fourth, the SAFE Framework defines benefits that Customs will provide to businesses that meet minimal supply chain security standards and best practices.

The four core elements rest on the twin pillars of Customs-to-Customs network arrangements and Customs-to-Business partnerships. The pillars involve a set of standards that are consolidated to guarantee ease of understanding and rapid international

implementation. Accordingly, the WCO is actively engaged with both Customs administrations and the business community in implementing the SAFE Framework. It is working on capacity building initiatives and raising awareness, particularly among Customs administrations.

The WCO SAFE Framework of Standards is available at the WCO website: http://www.wcoomd.org/en/topics/research/activities-and-programmes/~/media/44CC67F66E7C48FC9834F3504F9D7C19.ashx

1.3 Organisation for the Prevention of Chemical Weapons

The Organisation for the Prohibition of Chemical Weapons (OPCW) is the implementing body of the Chemical Weapons Convention (CWC or Convention). The OPCW is given the mandate to achieve the object and purpose of the Convention, to ensure the implementation of its provisions, including those for international verification of compliance with it, and to provide a forum for consultation and cooperation among states Parties. The Technical Secretariat of the OPCW is responsible for the day-to-day administration and implementation of the Convention, including inspections, while the Executive Council and the Conference of the states parties are decision-making organs designed primarily to determine questions of policy and resolve matters arising between the states parties on technical issues or on interpretations of the Convention. The chairs of the Executive Council and the Conference are appointed by each body's membership. The Technical Secretariat is headed by a Director-General, who is appointed by the Conference on the recommendation of the Council. Key components of the organization include:

Conference of the States Parties
The Conference of the States Parties is the main policy-making organ of the OPCW. Composed of all member states, the Conference meets annually as well as in special session when necessary.

Executive Council
The Executive Council is comprised of the representatives of 41 member states, who are elected by all other OPCW Member States to serve two-year terms. The Executive Council usually meets four times per year, and more frequently in meetings and informal consultations, to take policy decisions that enable the OPCW to function.

Technical Secretariat
The Technical Secretariat assists the Conference of States Parties and the Executive Council and has a staff of about 500 people. It carries out the daily work of implementing the Convention, including conducting inspections.

Subsidiary Bodies
The Convention also provides for the establishment of three subsidiary bodies to aid the three main organs of the OPCW in their work: the Scientific Advisory Board, the Advisory Body on Administrative and Financial Issues, and the Confidentiality Commission.

Additional information on the OPCW is available on its website at: http://www.opcw.org

1.4 United Nations Office of Disarmament Affairs

The Department of Disarmament Affairs was established in January 1998. It was originally established in 1982 upon the recommendation of the General Assembly's second special session on disarmament and in 2007 it was changed to the United Nations Office for Disarmament Affairs (UNODA).

The Office promotes the goal of nuclear disarmament and non-proliferation and the strengthening of the disarmament regimes in respect to other weapons of mass destruction, chemical and biological weapons. It also promotes disarmament efforts in the area of conventional weapons, especially land mines and small arms.

UNODA provides substantive and organizational support for the norm-setting in the area of disarmament through the work of the UN General Assembly and its First Committee, the Disarmament Commission, the Conference on Disarmament and other bodies. It fosters preventive disarmament measures, such as dialogue, transparency and confidence building on military matters, and encourages regional disarmament efforts. These include the United Nations Register of Conventional Arms, regional forums, disarmament education, full texts of disarmament treaties, and other data bases and publications dealing with disarmament issues.

Additional information on the UNODA is available on its website at: http://www.un.org/disarmament

1.5 United Nations Security Council Resolution 1540 Committee

When United Nations Security Council Resolution (UNSCR) 1540 on non-proliferation was adopted in 2004, the Council established a special Security Council Committee to promote implementation of the resolution and build national capacity to prevent the proliferation of WMD. The 1540 Committee works with states as a clearinghouse (using the information it has collected from states), assists states in meeting their 1540 obligations, and ensures that existing assistance programs have the most widespread availability for states to access. The scope of the obligations outlined in UNSCR 1540 has made the 1540 a central part of the international effort in preventing proliferation.

Operative paragraph 7 of UNSCR 1540 obliges capable states to recognize that some states lack the capacity to comply with provisions of the Resolution and offer assistance.

It also obliges those states that require assistance to request it. The Committee recognizes that technical assistance for implementing UNSCR 1540 is a long term issue, given the comprehensive requirements and political issues involved. The resolution requires that states outline in their reports offers of assistance, details of assistance measures in place, and point of contact details to facilitate the accommodation of requests. Assistance offers have also been made by a number of international organizations and other relevant arrangements, which can be viewed on the UNSCR 1540 Committee website at: http://www.un.org/en/sc/1540/

2. Nongovernmental Organizations

Another important source of information on nonproliferation initiatives and disarmament are non-governmental organizations. Below is a summary of the major organizations that provide a wide range of information and, in some cases, advocate particular approaches for dealing with WMD proliferation.

Acronym Institute for Disarmament Diplomacy (http://www.acronym.org.uk)
The Acronym Institute for Disarmament Diplomacy works to promote effective approaches to international security, disarmament, and arms control. Engaging with governments and civil society, Acronym provides reporting, analysis and strategic thinking on a range of issues relevant to peace and security, with special emphasis on treaties and multilateral initiatives.

ALSOS Digital Library for Nuclear Issues (http://alsos.wlu.edu)
The ALSOS website offers an internet based library with sources pertaining to nuclear studies. It categorizes its resources into fields from the science behind nuclear weapons to the political and international implications of the new age of nuclear warfare.

Arms Control Association (http://www.armscontrol.org)
The Arms Control Association (ACA) promotes public understanding of and supports for effective arms control policies. Through its public education and media programs and its magazine, *Arms Control Today (ACT),* ACA provides policy-makers, the press and the interested public with information, analysis and commentary on arms control proposals, negotiations and agreements, and related national security issues.

Asia-Pacific Safeguards Network (http://www.apsn-safeguards.org/)
The Asia-Pacific Safeguards Network (APSN) is a professional network of organizations involved in nuclear safeguards matters in states of the Asia-Pacific region. APSN's aim is to strengthen the quality, effectiveness and efficiency of safeguards implementation in the Asia-Pacific region, working closely with the IAEA, through activities such as training, professional development and sharing of experience. APSN provides a forum for safeguards professionals to exchange views and to share experience on matters of mutual interest. Organizations from 16 countries (Australia, Bangladesh, Cambodia, Canada, Indonesia, Japan, Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Singapore, South Korea, Thailand, US, and Vietnam) currently participate in the network along with the IAEA.

Bulletin of the Atomic Scientists (http://www.thebulletin.org)
The Bulletin of the Atomic Scientists informs the public about threats to the survival and development of humanity from nuclear weapons, climate change, and emerging technologies in the life sciences.

Carnegie Endowment for International Peace Nonproliferation Program
(http://www.carnegieendowment.org/npp)
The Carnegie Nonproliferation Program website provides various articles and resources published by the Carnegie Foundation. The website also has many case-specific articles on disarmament and nonproliferation and offers expert analysis about current events pertaining to WMD and related technology.

Canadian Coalition for Nuclear Responsibility (http://www.ccnr.org)
CCNR is a not-for-profit organization that offers education and research on nuclear energy with specific emphasis on those issues pertaining to Canada.

Center for Arms Control, Energy and Environmental Studies
(http://www.armscontrol.ru)
The Center for Arms Control, Energy and Environmental Studies is a part of the Moscow Institute for Peace and Technology, which focuses on acting as a vehicle for publication on products and resources related to WMD issues and environmental studies. Most content is in Russian including a course in nonproliferation and WMD reduction regime.

Center for International Trade and Security (CITS)
(http://www.uga.edu/cits/)
The strategic trade control program at CITS located at the University of Georgia in the US focuses on controlling proliferation-related trade. The strategic trade control program includes research, outreach, and training projects to strengthening export controls.

Global Security Initiative (http://www.gsinstitute.org)
The Global Security Institute focuses on strengthening international cooperation and security based on the rule of law, with a particular focus on nuclear arms control, non-proliferation, and disarmament. The site includes information on the Bipartisan Security Group, Disarmament and Peace Education, Middle Powers Initiative, and Parliamentarians for Nonproliferation and Disarmament.

Global Zero (www.globalzero.org)
Global Zero is an international campaign that combines high-level policy work with international public outreach efforts to gain a commitment to eliminate nuclear weapons through phased and verified reductions. Launched in December 2008 in Paris, the first major initiative of the campaign was to commission an independent opinion poll in 21 countries on the issue of nuclear weapons, which found that public opinion in all 21 countries favored an international agreement to eliminate nuclear weapons. Participants are developing the "Global Zero Action Plan," which is a roadmap for the elimination of nuclear weapons. Key steps envisaged include deep reductions to Russian-US arsenals followed by all nuclear weapons states cutting arsenals to zero in a phased and verified

manner. Finally, Global Zero seeks to help establish verification systems and international management of the nuclear fuel cycle to prevent the future development of nuclear weapons.

International Commission on Nuclear Non-Proliferation and Disarmament (http://icnnd.org/Pages/default.aspx)
The International Commission on Nuclear Non-Proliferation and Disarmament (ICNND), first proposed by Australian Prime Minister Kevin Rudd, was established in July 2008. It is co-chaired by the former Foreign Ministers of Australia and Japan, Gareth Evan and Yoriko Kawaguchi. ICNND aims "to reinvigorate international efforts on nuclear non-proliferation and disarmament, in the context of both the 2010 Nuclear Non-Proliferation Treaty Review Conference, and beyond." The Commission comprises an international panel of 15 eminent persons from military, political and academic backgrounds, which is augmented by high-level "advisers." ICNND has commissioned a series of research papers from commissioners and advisers on a range of topics including nuclear disarmament, no-proliferation, missiles and civil nuclear energy, as well as a bibliography of recent publications relevant to nuclear issues. These are available on the ICNND website.

Institute for Science and International Security (http://www.isis-online.org)
ISIS is dedicated to informing the public about science and policy issues affecting international security. Its efforts focus on stopping the spread of nuclear weapons, bringing about greater transparency of nuclear activities worldwide, and achieving deep reductions in nuclear arsenals. ISIS produces technical assessments of efforts by states to get nuclear weapons. The site provides extensive satellite imagery of various nuclear sites and information on global stocks of nuclear materials.

International Institute for Strategic Studies (www.IISS.org)
The London-based IISS has an active Non-Proliferation and Disarmament Program that provides fact-rich information and analyses. Several of its publications, including the 2009 strategic dossier on *Preventing Nuclear Dangers in Southeast Asia and Australasia*, can be downloaded from the IISS website.

James Martin Center for Nonproliferation Studies (http://www.nonproliferation.org/)
The James Martin Center for Nonproliferation Studies (CNS) offers training for nonproliferation specialists and disseminates information and analysis. The website offers free access to the journal *Nonproliferation Review*, extensive commentary on nonproliferation issues, and summaries of WMD-related treaties and regimes.

NGO Committee on Disarmament, Peace and Security (http://www.ngo.in/ngo-committee-on-disarmament.html)
The Non-Governmental Organization (NGO) Committee on Disarmament, Peace and Security provides services and facilities to citizens' groups concerned with the peace and disarmament activities of the United Nations. The Committee is viewed as a primary ally of the international movement for arms control and provides detailed information on UN activities and programs. The website includes a link to the journal *Disarmament Times*.

Nuclear Threat Initiative (http://www.nti.org)
NTI is engaged in developing and implementing projects to reduce the dangers from nuclear, biological and chemical weapons. The website has extensive news coverage of WMD-related topics and has a comprehensive database that provides analysis of UNSCR 1540. It also includes in-depth country profiles of WMD and missile development programs, which includes chronologies, maps, facility descriptions, and assessments.

Reaching Critical Will (www.reachingcriticalwill.org)
Reaching Critical Will focuses on nuclear disarmament. It serves as a clearinghouse for information on NGO logistical support, along with background materials, source documents, daily reporting, and analysis on UN disarmament processes. These include NPT review meetings, the Conference on Disarmament in Geneva, the UN General Assembly First Committee on Disarmament and Security, the UN Disarmament Commission, the Comprehensive Test Ban Treaty entry into force conferences, and other events and meetings at the United Nations.

Verification Research, Training and Information Centre (VERTIC) (http://www.vertic.org/)
The London-based VERTIC supports the development, implementation, and effectiveness of international agreements and related regional and national initiatives with particular attention to issues of monitoring, review, and verification. The NGO is involved in a joint project with the United Kingdom and Norway to seek proliferation-proof ways to check that nuclear warheads have been destroyed when a commitment has been made to their destruction. The research being conducted is scientific and technical in nature. One tool being investigated is an information barrier device that will enable inspectors to monitor that a nuclear warhead is where it is declared to be, without revealing nuclear weapon designs. Other areas being explored are non-intrusive on-site inspection techniques. Future research may include the development of new tags and seals for use in monitoring decommissioned equipment and materials, and permanent monitoring systems for nuclear facilities and storage spaces.

Asia-Pacific Biosafety Associations (http://www.a-pba.org/)
The Asia-Pacific Biosafety Association (A-PBA) is a professional association of over 800 practicing biosafety professionals from the Asia-Pacific region, specifically Afghanistan, Australia, Bangladesh, Brunei, Cambodia, China, Chinese Taipei, Hong Kong, Macau China, India, Indonesia, Japan, Laos, Malaysia, Myanmar, New Zealand, Philippines, Singapore, South Korea, Sri Lanka, Thailand, and Vietnam. Formed to promote biological safety and share biosafety information, it is affiliated with a broader global network: the International Biosafety Association. Specifically, A-PBA's mission is to encourage the safe management of micro-organism, products of biological processes by providing a forum for the exchange of information and promote biosafety activities in the Asia-Pacific region. The A-PBA also advocates Biological Safety as a scientific discipline and is committed to cooperating and networking with other biosafety associations internationally.

3. National Programs

3.1 United States

The US has several agencies that are actively engaged in outreach programs and offer assistance in the interest of improving accountability, controlling access and preventing the proliferation of WMD-related materials. While many of these programs were established in the context of the dissolution of the Soviet Union in the early 1990s many of the programs have expanded their scope to a more global perspective. The emphasis on improving homeland security in the US following the events of Sep. 11, 2001 also led to the establishment of several new programs aimed at reducing the threat of WMD-related terrorist attack on the US homeland.

The following link, which is the US National Report to the UNSCR 1540 Committee, provides a summary of US assistance programs on pp. 41-55. Additional information is available at: http://www.un.org/en/ga/search/view_doc.asp?symbol=S/ac.44/2013/17

Below is a partial list of programs that are relevant to the Asia-Pacific region. It should be noted that we have not included several programs that are specifically focused on US-Russian cooperation aimed at eliminating WMD-related materials and capabilities from facilities established by the Soviet Union.

3.2 International Nonproliferation Export Control Program

a. Established:

b. Sponsor: US NNSA

The mission of the International Nonproliferation Export Control Program (INECP) is to strengthen global efforts to prevent proliferation of WMD-related materials, equipment, and technology. INECP helps bilateral partners strengthen their ability to prevent illicit trafficking of materials and commodities that could be used in the development of WMD. Its main areas of engagement are proliferation risk analysis in the licensing process, government outreach and enterprise compliance, and WMD-related commodity identification training and reach-back for Customs. Additional information is available at: http://www.lanl.gov/projects/export-control-coordinators-org/_assets/docs/2013/2013-ashley-fullenwider.pdf

3.3 International Nuclear Safeguards and Engagement Program

a. Established: 1982

b. Sponsor: US NNSA

The International Nuclear Safeguards and Engagement Program (INSEP) provides expertise on the peaceful uses of nuclear science and technology and nuclear infrastructure preparedness. The program seeks to assist cooperating nations in meeting the technical requirements associated with civilian nuclear power development in a

manner that promotes international nonproliferation norms. Through INSEP, scientists from national laboratories in the US work with their international counterparts, exchanging information on subjects ranging from radiation protection and health physics to radioactive waste management, research reactor optimization, radioisotope production, neutron activation, and emergency response protocols.

Countries that have participated in this program include Algeria, Argentina, Egypt, Libya, Morocco, Peru, Romania, Thailand, and Vietnam. Five national laboratories from the U.S, participate: Lawrence Livermore, Los Alamos, Sandia, Oak Ridge, and Argonne. Universities such as the University of Texas at Austin, University of California at Davis, Texas A&M University, Massachusetts Institute of Technology, and University of Missouri also contribute. Additional information is available at: https://www.energy.gov/sites/prod/files/2017/10/f37/2014-06-25%2520NIS%2520insep-booklet%5B1%5D.pdf

3.4 Biosecurity Engagement Program

a. Established: 2006

b. Sponsor: US State Department

The Biosecurity Engagement (BEP) Program addresses the emerging global biological threats posed by terrorist threats outside traditional state-sponsored WMD programs. Working with multiple offices in the Department of State and other US government agencies, BEP has begun engagement of priority countries in Southeast Asia, funding threat assessments, trainings, and outreach that strengthen global pathogen security and laboratory biosafety. One aspect of the program has involved establishing a pathogen security working group that will coordinate the US government approach to global pathogen security. Additional information on the program is available at: http://www.bepstate.net/

3.5 Export Control and Border Security Program

a. Established: 2004

b. Sponsor: US State Department

The Export Control and Related Border Security (EXBS) program provides training, technical consultation, and equipment to establish and implement effective export and border controls that meet international standards. Drawing on the expertise from the Departments of State, Homeland Security, Commerce, and Energy as well as the private sector, the EXBS program has worked with countries around the world to enhance their ability to prevent and interdict shipments of dangerous items and technology. The EXBS program assists governments in strengthening their export controls by improving their legal and regulatory frameworks, licensing processes, border control and investigative capabilities, outreach to industry, and interagency coordination. A customized software program called TRACKER, enables the program help other countries' export control officials network via a standardized database with licensing officials in other countries.

3.6 Container Security Initiative

a. Established: 2002

b. Sponsor: US Department of Homeland Security

The US Bureau of Customs and Border Protection (CBP), an agency of the Department of Homeland Security, launched the CSI program in 2002. Its purpose is to increase security for container cargo shipped to the United States. As terrorist organizations have turned to destroying economic infrastructure to make an impact on states, the vulnerability of international shipping has been highlighted. The initial CSI program focused on the top 20 ports shipping approximately two-thirds of the container volume to the United States. Participation is open to any port meeting certain volume, equipment, procedural, and information-sharing requirements. CSI consists of four core elements:

- Using intelligence and automated information to identify and target containers that pose a risk for terrorism.
- Pre-screening those containers that pose a risk at the port of departure before they arrive at US ports.
- Using detection technology to quickly pre-screen containers that pose a risk.
- Using smarter, tamper-evident containers.

Under the CSI program, the screening of containers that pose a risk for terrorism is accomplished by teams of CBP officials deployed to work in concert with their counterparts at ports around the world. The CSI program offers participant countries the reciprocal opportunity to send their customs officers to major US ports to target ocean-going, containerized cargo to be exported to their countries. In June 2002, the World Customs Organization passed a resolution that will enable ports in all 161 of the member nations to begin to develop programs along the CSI model. On 22 April 2004, the EU and the US signed an agreement to expand CSI throughout the European Community.

There were 58 ports participating in CSI, accounting for 85 percent of container traffic bound for the US including the following East Asian ports:

Singapore, Hong Kong, Shenzhen and Shanghai in China, Kaohsiung and Chi-Lung in Taiwan, Pusan in South Korea, Port Klang and Tanjung Pelepas in Malaysia, Laem Chabang in Thailand and Yokohama, Tokyo, Nagoya and Kobe in Japan. More information can be found at: http://www.cbp.gov/border-security/ports-entry/cargo-security/csi/csi-brief

Appendix A
Glossary of Terms

A

Atom: A particle of matter which cannot be broken up by chemical means. Atoms have a nucleus consisting of positively-charged protons and uncharged neutrons of the same mass. The positive charges on the protons are balanced by a number of negatively-charged electrons in motion around the nucleus.

Atomic bomb: A weapon that uses fissile material in isotopes of uranium or plutonium to provide explosive power.

B

Background radiation: The naturally-occurring ionizing radiation which every person is exposed to, arising from the earth's crust (including radon) and from cosmic radiation.

Ballistic missile: A missile that travels to its target without power or guidance after being launched and at a velocity such that it will follow a flight trajectory to a desired point. Part of the flight of longer-range ballistic missiles may occur outside the Earth's atmosphere, and involve the "reentry" of the missile before it reaches its target.

Biological weapon (BW): Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.

C

CANDU: Canadian deuterium uranium reactor, moderated and (usually) cooled by heavy water.

Chain reaction: A reaction that stimulates its own repetition, in particular where the neutrons originating from nuclear fission cause an ongoing series of fission reactions.

Chemical weapon (CW): Munitions and devices specifically designed to cause death or other harm through the toxic properties of toxic chemicals that would be released as a result of the employment of such munitions and devices.

Compliance: Fulfillment by a treaty party of all its treaty obligations. A party in non-compliance is one that is violating all or part of its obligations.

Compliance mechanism: a procedure for dealing with questions about, allegations of, or actual non-compliance.

Compliance provisions: Enforcement provisions included in a treaty or legally binding agreement to ensure that parties abide by the requirements or restrictions set out in the treaty. Compliance provisions include inspection measures to confront states parties suspected of treaty violations and lists of sanctions that can be imposed on any state party that has violated its obligations.

Conference on Disarmament (CD): Group of states formed in 1979 following the first Special Session on Disarmament of the UN General Assembly held in 1978. As of August 2008, the CD had 65 member states, with a further 36 having observer status. Although the CD concerns itself with practically all issues involving multilateral arms control, it currently focuses its attention on issues related to nuclear disarmament and nonproliferation.

Control rods: Devices to absorb neutrons so that the chain reaction in a reactor core may be slowed or stopped by inserting them further, or accelerated by withdrawing them.

Core: The central part of a nuclear reactor containing the fuel elements and any moderator.

Counterproliferation: Diplomatic, intelligence, and military efforts to combat the proliferation of weapons, including both conventional weapons and WMD.

Critical mass: The smallest mass of fissile material that will support a self-sustaining chain reaction under specified conditions.

Criticality: Condition of being able to sustain a nuclear chain reaction.

D

De-activate: To remove a weapon from operational status for an indefinite period. Used synonymously with de-alert in referring to nuclear missiles.

De-alert: To reduce the level of readiness to launch of nuclear weapons systems. Measures include removing nuclear warheads from missiles and storing the warheads separately from the missiles.

Decay: Disintegration of atomic nuclei resulting in the emission of alpha or beta particles (usually with gamma radiation). Also the exponential decrease in radioactivity of a material as nuclear disintegrations take place and more stable nuclei are formed.

Decommissioning: Removal of a facility (eg reactor) from service, also the subsequent actions of safe storage, dismantling and making the site available for unrestricted use.

Dual-use item: An item that has both civilian and military applications.

E

Entry into force: The moment at which all provisions of a treaty are legally binding on its parties. Every treaty specifies preconditions for its entry into force.

Enriched uranium: Uranium in which the proportion of U-235 (to U-238) has been increased above the natural 0.7%. Reactor-grade uranium is usually enriched to about 3.5 percent U-235, weapons-grade uranium is more than 90 percent U-235.

Enrichment: Physical process of increasing the proportion of U-235 to U-238.

European Atomic Energy Community (EURATOM): Launched in 1958 to facilitate the development of nuclear energy for peaceful purposes within the European Community.

F

Fast breeder reactor (FBR): A fast neutron reactor configured to produce more fissile material than it consumes, using fertile material such as depleted uranium in a blanket around the core.

Fissile (of an isotope): Capable of capturing a slow (thermal) neutron and undergoing nuclear fission, e.g. U-235, U-233, Pu-239.

Fission: The splitting of a heavy nucleus into two, accompanied by the release of a relatively large amount of energy and usually one or more neutrons. It may be spontaneous but usually is due to a nucleus absorbing a neutron and thus becoming unstable.

Fissionable (of an isotope): Capable of undergoing fission: If fissile, by slow neutrons; otherwise, by fast neutrons.

Fossil fuel: A fuel based on carbon presumed to be originally from living matter, e.g. coal, oil, gas. Burned with oxygen to yield energy.

Fuel assembly: Structured collection of fuel rods or elements, the unit of fuel in a reactor.

Fuel fabrication: Making reactor fuel assemblies, usually from sintered UO_2 pellets which are inserted into Zircaloy tubes, comprising the fuel rods or elements.

Fussionable: (of an isotope): Those in which the atoms can be fused in order to release energy, e.g., deuterium and tritium.

G

Gamma rays: High energy electro-magnetic radiation from the atomic nucleus, virtually identical to X-rays.

Giga: One billion units (e.g., gigawatt = 10^9 watts or million kW).

Graphite: Crystalline carbon used in very pure form as a moderator, principally in gas-cooled reactors, but also in Soviet-designed RBMK reactors.

H

Half-life: The period required for half of the atoms of a particular radioactive isotope to decay and become an isotope of another element.

Heavy water: Water containing an elevated concentration of molecules with deuterium ("heavy hydrogen") atoms.

Heavy water reactor (HWR): A reactor which uses heavy water as its moderator, e.g., Canadian CANDU (pressurized HWR or PHWR).

High-level wastes: Extremely radioactive fission products and transuranic elements (usually other than plutonium) in used nuclear fuel. They may be separated by reprocessing the used fuel, or the spent fuel containing them may be regarded as high-level waste.

Highly (or High)-enriched uranium (HEU): Uranium enriched to at least 20 percent U-235. (That in weapons is about 90 percent U-235.)

Hydrogen bomb: A weapon that uses nuclear fusion to provide explosive power. Also referred to as a thermonuclear bomb.

I

Information Circular 26 (INFCIRC/26): The first IAEA safeguards system applicable to reactors rated less than 100 thermal megawatts, approved by the IAEA Board of Governors on January 31, 1961. It was revised in June 1963 to cover reactors of any size.

Information Circular 66 (INFCIRC/66): The model safeguards agreement approved by the IAEA in February 1965 to safeguard individual nuclear facilities. The guidelines were later revised to include reprocessing and fuel fabrication plants.

Information Circular 153 (INFCIRC/153): An IAEA document entitled "The Structure and Content of Agreements Between the Agency and States Required in Connection with the NPT." Established by the IAEA in April 1970 after the NPT entered into force. The document created the full scope safeguards system whereby any non-nuclear weapon state party to the NPT agrees to establish and maintain a system of accounting and control of all nuclear material under its jurisdiction.

Information Circular 540 (INFCIRC/540): A document approved by the IAEA in May 1997, called the "Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards," which supplements the INFCIRC/153. The Model Protocol grants IAEA inspectors additional physical access to sites of IAEA member states where nuclear material is or could be present, expands the use of unannounced inspections, and allows for collection of environmental samples.

International Monitoring System (IMS): Part of the verification system to verify the implementation of the CTBT. It mainly consists of a seismic monitoring network, an atmosphere radionuclide monitoring network, an infrasound monitoring network, and hydro acoustic monitoring network.

Ion: An atom that is electrically-charged because of loss or gain of electrons.

Ionizing radiation: Radiation (including alpha particles) capable of breaking chemical bonds, thus causing ionization of the matter through which it passes and damage to living tissue.

Irradiate: Subject material to ionizing radiation. Irradiated reactor fuel and components have been subject to neutron irradiation and hence become radioactive themselves.

Isotope: An atomic form of an element having a particular number of neutrons. Different isotopes of an element have the same number of protons but different numbers of neutrons and hence different atomic mass, e.g. U-235, U-238. Some isotopes are unstable and decay (qv) to form isotopes of other elements.

L

Light water: Ordinary water (H_20) as distinct from heavy water.

Light water reactor (LWR): A common nuclear reactor cooled and usually moderated by ordinary water.

Low-enriched uranium: Uranium enriched to less than 20 percent U-235. (That in power reactors is usually 3.5 - 5.0 percent U-235.)

Low-level wastes: Mildly radioactive material usually disposed of by incineration and burial.

M

Megawatt (MW): A unit of power, = 10^6 watts. **MWe** refers to electric output from a generator, **MWt** to thermal output from a reactor or heat source (e.g., the gross heat output of a reactor itself, typically three times the MWe figure).

Micro: one millionth of a unit (e.g., microsievert is 10^{-6} Sv).

Milling: Process by which minerals are extracted from ore, usually at the mine site.

Mixed oxide fuel (MOX): Reactor fuel which consists of both uranium and plutonium oxides, usually about 5 percent Pu, which is the main fissile component.

Moderator: A material such as light or heavy water or graphite used in a reactor to slow down fast neutrons by collision with lighter nuclei so as to expedite further fission.

Monitoring: The means by which information is obtained for verification purposes. It may be done remotely or on-site and it may seek to obtain a particular type of information or to detect any activity that is potentially non-compliant.

Multilateral: Negotiations, agreements or treaties that effect or are between three or more parties, countries, etc.

N

National technical means (NTMs): Satellites, aircraft, and electronic and seismic monitoring devices used to survey the activities of other states, including military movements and treaty compliance. NTMs are used to verify arms control treaties.

Natural uranium: Uranium with an isotopic composition as found in nature, containing 99.3% U-238, 0.7% U-235 and a trace of U-234. Can be used as fuel in heavy water-moderated reactors.

Negative security assurances: A pledge by a nuclear weapon state that it will not use nuclear weapons against a non-nuclear weapon state. Some states have policies that allow for the use of nuclear weapons if attacked with other WMD by a non-nuclear weapon state. [See positive security assurances below]

Neutron: An uncharged elementary particle found in the nucleus of every atom except hydrogen. Solitary mobile neutrons travelling at various speeds originate from fission reactions. Slow (thermal) neutrons can in turn readily cause fission in nuclei of "fissile" isotopes, e.g. U-235, Pu-239, U-233; and fast neutrons can cause fission in nuclei of "fertile" isotopes such as U-238, Pu-239. Sometimes atomic nuclei simply capture neutrons.

New Agenda Coalition (NAC): In June 1998, the foreign ministers from Brazil, Egypt, Ireland, Mexico, New Zealand, Slovenia, South Africa, and Sweden issued a statement calling for a new nuclear disarmament agenda. (Slovenia later withdrew from the NAC.) The NAC calls for the five nuclear weapons states and the three nuclear-capable states to make an unequivocal commitment to nuclear disarmament and to begin multilateral negotiations that would lead to the elimination of nuclear weapons through a Nuclear Weapons Convention.

Non-nuclear weapon state (NNWS): Under the NPT, states that had not detonated a nuclear device prior to January 1, 1967 (that is, all states other than the United States, Russia, the United Kingdom, France, and China).

Nuclear energy: The energy derived from nuclear reactions. Two types of nuclear energy are especially relevant, nuclear fission – when the nucleus of an atom is split into two lighter nuclei, and nuclear fusion – when two nuclei are joined together.

Nuclear fuel cycle: The processes of mining, refining and irradiating uranium and managing and disposing of reactor spent fuel. There are two common types of nuclear fuel cycles. One is the "open" fuel cycle, in which the spent fuel is not reprocessed, but kept in storage pending eventual disposal as waste. The other is the "closed" fuel cycle, where the spent fuel is reprocessed and the uranium and plutonium separated from the fission products. Both the uranium and plutonium can be recycled into new fuel elements.

Nuclear reactor: A device in which a nuclear fission chain reaction occurs under controlled conditions so that the heat yield can be harnessed or the neutron beams utilized. All commercial reactors are thermal reactors, using a moderator to slow down the neutrons.

Nuclear weapon states (NWS): As defined by Article IX, paragraph 3 of the NPT, the five states that detonated a nuclear device prior to January 1, 1967 (China, France, the Soviet Union, the United Kingdom, and the United States).

Nuclear-Weapon-Free Zone (NWFZ): A geographical area in which nuclear weapons are not allowed to be built, possessed, transferred, deployed, or tested.

Nuclide: elemental matter made up of atoms with identical nuclei, therefore with the same atomic number and the same mass number (equal to the sum of the number of protons and neutrons).

O

Oxide fuels: Enriched or natural uranium in the form of the oxide UO_2, used in many types of reactor.

P

Plutonium: A transuranic element, formed in a nuclear reactor by neutron capture. It has several isotopes, some of which are fissile and some of which undergo spontaneous fission, releasing neutrons. Weapons-grade plutonium is produced in special reactors to give >90 percent Pu-239, reactor-grade plutonium contains about 30 percent non-fissile isotopes.

Plutonium Reprocessing: The process of separating plutonium from irradiated uranium. Can be used to create components for nuclear weapons from spent reactor fuel.

Pressurized water reactor (PWR): The most common type of light water reactor (LWR), it uses water at very high pressure in a primary circuit and steam is formed in a secondary circuit.

Positive security assurances: Guarantees by nuclear weapon states that they will assist any non-nuclear weapon state that is the target of nuclear aggression or is threatened by such aggression.

Precursor chemical: Any chemical reactant that takes part at any stage in the production by whatever method of a toxic chemical. This includes any key component of a binary or multicomponent chemical system.

Proliferation (of WMD): The spread of WMD. Horizontal proliferation refers to the spread of WMD to states that have not previously possessed them. Vertical proliferation refers to an increase in the amount or devastating capacity of any currently existing

WMD arsenals within a state.

R

Radiation: The emission and propagation of energy by means of electromagnetic waves or particles.

Radioactivity: The spontaneous decay of an unstable atomic nucleus, giving rise to the emission of radiation.

Radiological weapons: Devices that release radiation with the intent of inflicting severe injury or financial and psychological costs. The radiological isotopes used to produce radiological dispersal devices are found in waste from medical facilities, industrial plants, and nuclear power plants.

Radionuclide: A radioactive isotope of an element.

Radiotoxicity: The adverse health effect of a radionuclide due to its radioactivity.

Radium: A radioactive decay product of uranium often found in uranium ore. It has several radioactive isotopes. Radium-226 decays to radon-222.

Radon (Rn): A heavy radioactive gas given off by rocks containing radium (or thorium). Rn-222 is the main isotope.

Ratification: The implementation of the formal process established by a country to legally bind its government to a treaty, such as approval by parliament. In the United States, treaty ratifications require approval by the president after he has received the advice and consent of two-thirds of the Senate. The country then submits the required legal instrument of ratification to the treaty's depositary governments.

Reactor pressure vessel: The main steel vessel containing the reactor fuel, moderator and coolant under pressure.

Reprocessing: Chemical treatment of used reactor fuel to separate uranium and plutonium and possibly transuranic elements from the small quantity of fission product wastes, leaving a much reduced quantity of high-level waste (which today includes the transuranic elements).

S

Safeguards: Monitoring of nuclear material to ensure it is not used for military purposes, as implemented by the IAEA.

Sarin: A nerve agent used in chemical weapons. Sarin is a highly toxic organophosphate compound, similar to an insecticide, first developed by German scientists in the 1930s. Like other agents in this category, it binds with the body's enzymes and causes chemical imbalances within the body's nervous system.

Signature: The signing of a treaty by a senior representative of a country, which indicates that the country accepts the treaty and commits, until the country completes its ratification process, not to take any actions that would undermine its purposes, according to the Vienna Convention on the Law of Treaties.

Source Material: Uranium containing the mixture of isotopes occurring in nature, uranium depleted in the isotope 235, and thorium; or any of the foregoing in the form of metal, alloy, chemical compound, or concentrate; any other material containing one or more of the foregoing in such concentration as the IAEA Board of Governors shall from time to time determine.

Special Fissionable Material: Plutonium-239, Uranium-233, uranium enriched in the isotopes 235 or 233, any material containing one or more of the foregoing, and other fissionable material as the IAEA Board of Governors shall from time to time determine.

Spent fuel: Used fuel assemblies removed from a reactor after several years use and treated as waste.

T

Thermal reactor: A reactor in which the fission chain reaction is sustained primarily by slow neutrons, and hence requiring a moderator.

Toxin: A poison formed as a specific secretion product in the metabolism of a vegetable or animal organism as distinguished from inorganic poisons. Such poisons can also be manufactured by synthetic processes.

Treaty: A formal agreement between two or more states. A glossary of related terms is at http://treaties.un.org/Pages/Overview.aspx?path=overview/glossary/page1_en.xml

Transmutation: Changing atoms of one element into those of another by neutron bombardment, causing neutron capture and/or fission. In an ordinary reactor neutron capture is the main event, in a fast reactor fission is more common and therefore it is best for dealing with actinides. Fission product transmutation is by neutron capture.

Transuranic element: A very heavy element formed artificially by neutron capture and possibly subsequent beta decay(s). Has a higher atomic number than uranium (92). All are radioactive. Neptunium, plutonium, americium and curium are the best known.

U

Uranium (U): A mildly radioactive element with two isotopes which are fissile (U-235 and U-233) and two which are fertile (U-238 and U-234). Uranium is the basic fuel of nuclear energy.

Uranium hexafluoride (UF_6): A compound of uranium which is a gas above 56°C and is thus a suitable form in which to enrich the uranium.

Uranium oxide concentrate (U_3O_8): The mixture of uranium oxides produced after milling uranium ore from a mine. Sometimes loosely called yellowcake. It is khaki in color and is usually represented by the formula U_3O_8. Uranium is sold in this form.

V

Verification: The process of gathering, interpreting and using information to make a judgement about parties' compliance or non-compliance with an agreement. The aim of verification is to establish or increase confidence that all parties are implementing a treaty fairly and effectively.

W

Waste:

> **High-level waste (HLW)** is highly radioactive material arising from nuclear fission. It can be what is left over from reprocessing used fuel, though some countries regard spent fuel itself as HLW. It requires very careful handling, storage and disposal.
>
> **Low-level waste (LLW)** is mildly radioactive material usually disposed of by incineration and burial.

Weapons-grade: Refers to nuclear material that is most suitable for the manufacture of nuclear weapons- e.g., uranium (U) enriched to 93 percent U-235 or plutonium (Pu) that is over 90 percent Pu-239. Crude weapons can be fabricated from lower-grade material.

Weapons of mass destruction (WMD): The most widely used definition is that of nuclear, biological or chemical weapons (NBC) although there is no treaty or customary international law that contains an authoritative definition. Some experts also define radiological weapons as a type of weapon of mass destruction.

Y

Yellowcake: Ammonium diuranate, the penultimate uranium compound in U_3O_8 production, but the form in which mine product was sold until about 1970. See also Uranium oxide concentrate.

Appendix B
List of Abbreviations

ABM – Anti-ballistic Missiles

ASEAN – Association of Southeast Asian States

BCR – Bio-Chem Redirection Program (US)

BEP – Biosecurity Engagement Program (US)

BOG – Board of Governors (IAEA)

BTWC – Biological and Toxin Weapons Convention (also known as BWC)

CD – Conference on Disarmament (UN)

CNS – Convention on Nuclear Safety

CPPNM – Convention on the Physical Protection of Nuclear Material

CSA – Comprehensive Safeguards Agreement (IAEA)

CSCAP – Council for Security Cooperation in Asia-Pacific

CSI – Container Security Initiative

CTBT – Comprehensive Nuclear Test Ban Treaty

CTR – Cooperative Threat Reduction

CWC – Chemical Weapons Convention

DHS – US Department of Homeland Security

DNDO – US Domestic Nuclear Detection Office

DOD – US Department of Defense

DOE – US Department of Energy

EXBS – Export Control and Related Border Security Program (US)

EU – European Union

FAO – Food and Agriculture Organization

FMCT – Fissile Material Cut-Off Treaty

GNEP – Global Nuclear Energy Partnership (renamed IFNEC)

GNMTRP – Global Nuclear Material Threat Reduction Program

GRTRP – Global Radiological Threat Reduction Program

GTRI – Global Threat Reduction Initiative (US)

HCOC – Hague Code of Conduct Against Ballistic Missile Proliferation

HEU – Highly enriched uranium

IAEA – International Atomic Energy Agency

IBRAE – Nuclear Safety Institute (Russia)

ICMS – Information and Collaboration and Management System (EU BTWC implementation assistance program)

IFNEC – International Framework for Nuclear Energy Cooperation

IND – Improvised Nuclear Device

INF – Treaty on Intermediate-Range Nuclear Forces

INFCC – International Fuel Cycle Centers

INPRO – International Project on Innovative Reactors and Fuel Cycles

INSEP – International Nuclear Safeguards and Engagement Program (US)

IPFM – International Panel on Fissile Materials

ISU – Implementation Support Unit (BTWC)

ITDB – Illicit Trafficking Database

ITWG – Nuclear Smuggling International Technical Working Group

IUEC – International Uranium Enrichment Center (Russia)

KINAC – Korea Institute for Nuclear Nonproliferation and Control

KINS – Korea Institute for Nuclear Safety

LSF – Long-term Radioactive Waste Storage Facility

LWR – Light Water Reactors

MOX – Mixed Oxide Fuel

MPC&A – Material, Protection, Control, and Accounting

MTCR – Missile Technology Control Regime

NAM – Non-Aligned Movement

NFC – Nuclear Fuel Cycle

NNSA – US National Nuclear Security Agency

NNWS – Non-nuclear weapon states

NPT – Nuclear Non-Proliferation Treaty

NTI – Nuclear Threat Initiative (US)

NTC – International Convention for the Suppression of Acts of Nuclear Terrorism (Nuclear Terrorism Convention)

NWC – Nuclear Weapons Convention

NWS – Nuclear weapon states

OIE – World Organization for Animal Health

OPCW – Organisation for the Prohibition of Chemical Weapons

PIC – Pacific Island Country

PIF – Pacific Islands Forum

PrepCom – Preparatory Committee (to the BTWC, CWC, NPT, CTBT or other treaties)

PSI – Proliferation Security Initiative

RevCon – Review Conference (of the BTWC, CWC or NPT or other treaties)

RW – Radiological Waste

SNF – Spent Nuclear Fuel

SORT – Strategic Offensive Reduction Treaty

SQP – Small Quantities Protocol (IAEA)

START I – Strategic Arms Reduction Treaty

START II – Strategic Arms Reduction Treaty

UNSCR 1540 – United Nations Security Council Resolution 1540

WMD – Weapons of Mass Destruction

WNA – World Nuclear Association

Appendix C
Council for Security Cooperation in the Asia Pacific
Memorandum No. 14
Guidelines for Managing Trade of Strategic Goods

Introduction

Trade management protects a nation's security, trade relations, and international reputation. It is fundamental to ensuring the security and integrity of the global supply chain. It also serves as a confidence-building measure for facilitating trade, economic growth, and development. Using the guiding principles outlined in Appendix 1, *this memorandum recommends specific measures involving legislation, licensing procedures, enforcement practices, and industry outreach* that are essential to an effective management system for trading strategic goods.

Countries developing high-tech and value-added economies increasingly depend upon their trade management system to protect strategic goods and technology from diversion, manipulation, theft, and other criminal activities. Secure supply chains are critical to the success of global nonproliferation efforts by guarding against the improper transfer of legitimate dual-use and other strategically useful commodities to those wishing to acquire Weapons of Mass Destruction (WMD) or radiological weapons capability. We must also ensure that non-state groups ready to use these weapons do not obtain such technologies and equipment. Raising awareness, due diligence, and risk assessment capabilities are important means to this end.

Asia's increasingly important role in the global economy, its growing capabilities in value-added manufacturing and services sectors, its highly developed transportation systems, including key transshipment hubs, and the deepening integration of states within and outside the region underscore the need to strengthen national and regional capacity to implement and enforce a management system for trading strategic goods. United Nations Security Council Resolution 1540 (UNSCR 1540) imposes an affirmative obligation on all member states to take active measures to prevent the proliferation of WMD. Managing the trade of strategic goods is an integral component of that effort.

Increasing integration implies that effective trade management is only possible on the basis of broader international cooperation. Management systems for trading strategic goods should be promoted by all Asia-Pacific community-building institutions including ASEAN, the ASEAN Regional Forum (ARF), Asia-Pacific Economic Cooperation (APEC), East Asian Summit (EAS), and ASEAN Plus Three. Regional efforts to develop trade management systems for strategic goods will ensure that national programs are harmonized to the extent possible, respecting and reflecting particular domestic circumstances and capabilities. Insofar as differences among states exist, all nations should commit to assisting other governments in need to improve their capabilities, participate meaningfully in such regimes, and enjoy the full range of economic and security benefits. To accomplish this objective, we urge all governments and economies

to conduct a rigorous assessment of their capabilities and requirements for managing the trade of strategic goods.

Recommendations

An effective management regime for strategic goods should be based upon a common set of elements. These elements include, *inter alia*, comprehensive legislation, effective procedures for licensing and enforcement, associated incentives and penalties, fostering good inter-ministry cooperation as well as mandatory and sustained outreach to industry. CSCAP offers the following recommendations in the interest of establishing such a regime in the region:

1. **Legislation**

   (a) Each member state should establish a comprehensive law or amend existing laws to provide for controls on *all activities* by unauthorized individuals, organizations, and groups regarding all goods, equipment, materials, software and technologies related to Weapons of Mass Destruction (WMD) and their delivery systems.

   (b) Controlled *activities*, as per UNSCR 1540, should include possession, stockpiling, transport, exports, re-exports, transfers, imports, transit, transshipment, brokering, intangible transfers, and warehousing, complementing and consistent with prohibitions on manufacture, sale, use, and intent to use that already exist in regulations of most states.

   (c) National legislation should establish either a unified control list that covers items related to all types of WMD and their delivery systems (i.e., nuclear, chemical, biological, missile, munitions) or individual WMD control lists for each type, drawing upon models such as the European Union list of items or technologies to which these controls apply. Such lists will provide a clear frame of reference for enforcement agencies such as Customs, border security, national police, and armed forces as they train their staff to identify proliferation-relevant items and prohibited activities.

   (d) The legislation should have provisions for "catch-all" controls. Exporters must pay attention to end users and end uses and should have the ability to regulate any export transaction regardless of whether the product or technology is on a control list or not, when it is known that the item will be used in a program of proliferation of WMD or related materials. The primary responsibility for ensuring proper use rests with original manufacturers.

   (e) Member states should consider establishing a region-wide common control list and common minimum licensing criteria, keeping in mind individual national capacity, capability, and state structure. This would allow for uniform standards and controls across the region and greatly reduce time and cost incurred in the review of license and Customs documents relating to regional trade in advanced goods, technologies and services.

2. **Licensing Procedures**

(a) Criteria should be established for a transparent licensing process that includes national security, foreign policy, trade promotion, and technology development.

(b) An inter-agency license review process that involves all the concerned ministries/agencies should be established to ensure all relevant factors (national security, foreign policy, trade promotion, and technology development) are duly considered in reaching each decision.

(c) In addition to the inter-agency license review process, a consolidated electronic database on exporters, importers, and foreign end users involved in transactions relating to controlled items should be established. The database would allow governments to monitor the number of licenses issued for each technology-type over time – a useful statistic for domestic and foreign policy purposes. It would also be a useful tool for enforcement agencies as they develop risk-based systems for cargo inspections.

(d) Procedures to confirm, as appropriate, the legitimacy of stated end users and end uses.

3. Enforcement

(a) All states should consider consolidating authority into a limited number of ministries/agencies with specific authority to serve as the nodal enforcement mechanism for strategic trade violations.

(b) Policies, laws, and regulations should provide enforcement agencies the mission, authority, training, and resources necessary to detect, identify, and deter transfers that violate export control laws and regulations.

(c) Procedures should be developed procedures for evaluating parties involved in export, re-export, transit, and transshipment transactions.

(d) Legal authorities should permit routine advanced review of detailed manifest data (including electronic manifest) to analyze for suspicious transfers.

(e) Authorized and empowered ministries/agencies should work with trade management mechanisms and regimes to establish a positive correlation between each of the licensed commodities on the country's internal control lists and the trade-relevant harmonized tariff system codes (HS), to ensure that enforcement officials (Customs, border guards, and coastal patrol service) are easily able to identify potentially controlled products on the documents that they review (shippers export declaration, shipping manifest, and Customs declaration, etc.).

(f) The agency empowered with inbound and outbound trade monitoring, should develop a risk management system, including automated and targeting strategies, that will assist these officers, licensers, and others in conducting risk review on

manifests quickly and prior to the goods transiting, transshipping, arriving, or departing at the nation's port.

(g) Enforcement agencies responsible for risk management should strive to share information to ensure this information is used for assessing transfer risk and aiding in investigations.

(h) The agency designated with investigative responsibility should be authorized to take the lead in investigations related to sensitive commodity trade violations as well as an active role in the prosecution of civil and criminal cases related to WMD-related violations.

(i) WMD proliferation and crimes related to illegal strategic commodity transfers, including corruption, should be treated with the utmost severity by assessing fines and criminal penalties in accord with the intent and extent of the transfer.

(j) The enforcement and legal community should be clear about the severity attached to different types of transfers that violate national security so penalties are in accord with intention and the proportional damage to state security.

(k) All agencies involved in enforcing WMD-relevant laws and regulations, including prosecutors and the judiciary, should be provided relevant training.

(l) All agencies involved with enforcement should have a dedicated process in which to seek expert national or international technical assistance on a potential controlled item.

(m) All enforcement agencies should take advantage of assistance being offered by the international community in the area of enforcement and reach out to the United Nations and relevant assistance providers with requests for any required training support.

4. Industry-Government Relations

(a) Effective outreach should be conducted to raise the awareness of companies and commercial individuals about their responsibilities under the country's/economy's export control system, including penalties for violations.

(b) Either the lead agency for license review or the lead agency for enforcement should establish standard operating procedures to provide outreach to industry. This should include developing and updating a website devoted to clarifying WMD-relevant regulations. This website could provide texts of all relevant laws, regulations, guidelines and forms, along with links to all concerned ministries, contact information, and appropriate explanations that would help businesses direct their queries relating to compliance or commodity classification or other issues.

(c) Governments and industry should institutionalize dialogue on the management of strategic goods trade. This should include events where government officials and industry representatives exchange views on WMD-relevant regulations and implementing procedures. Annual meetings of various manufacturers and industry associations, or technology exhibitions and trade fairs, might be utilized to organize such interactive meetings.

(d) Agencies participating in investigations should actively work with their strategic industry to develop a close relationship to develop leads related to illicit transfer of controlled commodities as well as having a "hotline" available for other informants.

(e) Governments and industry should create incentives to encourage compliance with strategic trade systems to promote trade.

(f) Seek voluntary compliance by industry, including encouragement of relevant companies to establish internal compliance procedures that incorporate checks on end users and end uses of concern, and governments should be ready to advise and assist them in that process.

5. Financial and Technical Assistance

(a) ASEAN and/or the ARF should promote the creation of a pool of technical and financial resources that will be made available to strengthen capacity building in managing the trade of strategic goods. This effort should complement bilateral efforts.

(b) Countries with more advanced management systems should provide financial and/or technical assistance to those with nascent or less developed systems. This assistance should be sourced bilaterally and recipient countries should make a thorough evaluation of their needs prior to seeking assistance from donor countries.

(c) Donor and recipient countries should meet periodically to review and evaluate assistance given and to guide further action.

Appendix D
Council for Security Cooperation in the Asia Pacific
Memorandum No. 17
Promoting the Peaceful Use of Nuclear Energy

Introduction

Asia's large population and rapid economic growth have created a dramatic increase in demand for energy. Increasingly, nuclear power is seen as an attractive option for states that seek to increase electricity output. As a result, the majority of civilian nuclear power facilities under construction globally are now located in Asia and there are plans for many more in the coming decades. Many of these facilities will be built in countries with limited experience in dealing with the safety and security issues associated with nuclear technology. While not discouraging development of peaceful nuclear energy use, there is a need to ensure that nonproliferation commitments are upheld and strengthened to prevent the diversion or theft of materials and horizontal as well as vertical proliferation. The specific conclusions and recommendations in the action plan produced at the Nuclear Nonproliferation Treaty 2010 Review Conference provide a firm basis for striking the proper balance between peaceful use of nuclear technology, nonproliferation, and disarmament.

Each state in the Asia-Pacific should make efforts to develop and implement international safeguards along with safety and security measures in accordance with International Atomic Energy Agency (IAEA) standards. States should provide assistance to other governments in their commitment to peaceful use and nonproliferation compliance to ensure the benefits of nuclear technology are fully realized and the dangers minimized. The creation of a global infrastructure that is based on multilateral approaches to managing the nuclear fuel cycle and a proliferation-stable architecture is necessary as peaceful use of nuclear energy increases. In response to a growing need for civilian nuclear energy, and building upon recommendations of the CSCAP Study Group on Countering the Proliferation of Weapons of Mass Destruction in the Asia Pacific, this memorandum recommends specific measures involving regional cooperation, national legislation, verification and transparency, outreach and capacity building, and compliance with international regimes.

Recommendations for Promoting the Peaceful Use of Nuclear Energy

Considering resource requirements and constraints associated with the peaceful use of nuclear energy, it is important to rely and build on existing international and regional organizations and institutions rather than attempt to duplicate the requirements established by them. Accordingly, CSCAP offers the following recommendations in the interest of establishing a safe and secure framework to promote peaceful use of nuclear energy in the Asia-Pacific region:

Regional Cooperation

All ASEAN Regional Forum states should promote regional cooperation to enhance nuclear safeguards, safety, and security in the region through the following initiatives:

- Participate in the Asian Nuclear Safety Network to improve the safety of nuclear facilities.
- Promote civilian nuclear cooperation through the Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific.
- Promote regional information collection and dissemination capability with the goal of sharing expertise, training, and best practices for facility operations.
- Cooperate in promoting regional standardization and supporting the work of the UNSCR 1540 Committee.
- Promote development of an international fuel reserve center to ensure reliable access to nuclear fuel in a multilateral, economically viable, non-discriminatory, and transparent manner under the auspices of the IAEA.
- Promote the development of cooperative arrangements to store, treat and dispose of used fuel and low-level waste materials.
- Promote the establishment of a comprehensive monitoring and detection mechanism, a regional emergency response capability, and an enforcement mechanism to ensure transparency and compliance with IAEA and UN directives and resolutions related to nonproliferation of WMD.
- Collaborate in the development of more proliferation-resistant nuclear power reactors.
- Promote the establishment of a regional reprocessing and enrichment free zone.

National Legislation

National legislation covering all aspects of nuclear law, including safety, security, liability, nonproliferation, and other regulatory and commercial aspects must support the peaceful use of nuclear technology. Legislation should minimize legal impediments to the safe use of nuclear energy, encourage equitable compensation of nuclear damage resulting from an accident, and facilitate international trade in nuclear materials and equipment for peaceful purposes.

All states should ensure that a comprehensive legislative framework is established to provide legal authority for the establishment of a fully independent nuclear regulatory body. This body is critical to safeguarding and sustaining operational transparency to support the safe, secure, and efficient use of nuclear energy.

National legislation should:

- Establish a regulatory mechanism to ensure adequate licensing, inspection and enforcement.
- Set forth broad institutional responsibilities to ensure safe and secure use of nuclear technology and materials.
- Make provision for regulations and guidance documents that specify adequate controls for all nuclear and related material, equipment, and technology as well as adequate technical and human infrastructure in nuclear safety, radiological protection, and waste management.

Verification and Transparency

The IAEA has the authority under the Comprehensive Safeguards Agreement to verify the peaceful use of all nuclear material in NPT member states. However, the tools available under such an agreement are limited and should be supplemented with additional measures.

All states should consider the following such additional measures:

- Adopt the IAEA Additional Protocol to increase the effectiveness of the Comprehensive Safeguards Agreement.
- Establish a Nuclear Energy Program Implementation Organization or a similar body based on IAEA guidelines to ensure a comprehensive approach to nuclear power development is taken and complete operational transparency is maintained.
- Implement import and export control regulations for nuclear and nuclear-related equipment and technology similar to the Nuclear Suppliers Group Guidelines for Nuclear Transfers. CSCAP Memorandum No. 14, Guidelines for Managing Trade of Strategic Goods provides specific recommendations to help ensure an effective control regime is established.
- Take all possible practical steps to provide for adequate financing for the IAEA to ensure resources for technical cooperation, inspection, and enforcement activities are sufficient, assured, and predictable.

Outreach and Capacity Building

The IAEA is the world's focal point for building capacity, improving nuclear safety and security, and promoting scientific and technical cooperation in nuclear energy.

Countries with expertise in nuclear energy should help develop and implement regional and national strategies on nuclear energy to include areas such as resources, facility safety and security, and proliferation risks in accordance with relevant international agreements, including the Nuclear Nonproliferation Treaty.

Countries producing or contemplating the use of nuclear energy should:

- Promote capacity building through technical cooperation in emergency response to nuclear-related incidents, safety and security for waste management, and research partnerships to establish common evaluation and facility standards.
- Strengthen the IAEA Technical Cooperation program through assisting other states in the development of peaceful uses for nuclear energy;
- Promote human resources capacity development focusing on nuclear reactor operators and nuclear engineering and regional coordination of emergency responses to nuclear incidents.
- Promote development of human resources capacity, institutional capacity, and technical and managerial capabilities through technical, scientific cooperation via lab-to-lab and facility-to-facility exchanges, research and development, education and training in nuclear, radiation, transportation, and waste management safety, and nuclear security.
- Promote sharing and development of best practices in the areas of nuclear safety and security, including involvement of the nuclear industry and private sector as necessary.
- Support and promote the IAEA's International Low Enriched Uranium (LEU) Fuel Bank.

International Regime Compliance

All member states should consider signing or otherwise complying with enhanced nuclear safeguards, safety, and security as specified in the following documents, consistent with their international commitments and obligations:

- Nuclear Nonproliferation Treaty
- IAEA Comprehensive Safeguards and the Additional Protocol
- Global Initiative to Counter Nuclear Terrorism
- United Nations Security Council Resolution (UNSCR) 1540
- Convention on Nuclear Safety
- Convention on the Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- IAEA Vienna Convention on Civil Liability for Nuclear Damage and its amendments

- IAEA Convention on Supplementary Compensation for Nuclear Damage
- Convention on the Physical Protection of Nuclear Material (CPPNM) and its amendment
- International Convention on the Suppression of Acts of Nuclear Terrorism

All states in a position to do so should make additional contributions to the International Atomic Energy Agency's Peaceful Uses Initiative.

All states should identify best practices for national implementation of UNSC Resolution 1540 and assist other countries to meet the highest international standards.

Appendix E
Council for Security Cooperation in the Asia Pacific
Memorandum No. 19
Reduction and Elimination of Nuclear Weapons

Introduction

The reduction and elimination of all types of nuclear, biological, and chemical weapons are an integral part of the global nonproliferation regime. The Biological and Toxin Weapons Convention (BTWC), the Chemical Weapons Convention (CWC), and the Nuclear Nonproliferation Treaty (NPT) all have provisions that require or call for the elimination of weapon stockpiles. Based on total prohibition provisions included in the two conventions, there are no acknowledged stockpiles of biological weapons and all states that acknowledge possession of chemical weapons have established programs to eliminate them. The NPT is more ambiguous regarding disarmament as Article VI commits all states "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."

The political commitment to eliminate nuclear weapons must be matched by a willingness by all states to develop the political and technical conditions that make the implementation of universal and verified nuclear disarmament possible. States that possess nuclear weapons have the obligation under their treaty commitments to reduce the size of their arsenals and ultimately eliminate them while those that do not possess nuclear weapons have the obligation to not undertake programs to acquire or develop them. Complete elimination of nuclear weapons is contingent upon creating a sense of trust among all states and confidence in the capacity of multilateral processes to address security concerns through systematic steps to irreversibly reduce the size of existing arsenals while simultaneously preventing the proliferation of the weapons, their components, and delivery systems. A nonproliferation regime that emphasizes the obligations of all states to ensure the security of nuclear-related materials coupled with transparent and enforceable verification is needed to give states the assurance that violations will be detected and will be acted upon.

Given the central importance accorded to nuclear weapons in the current structure of the international security order, there is a need to ensure stability is maintained as these weapons are being phased out. Moving to an order free of nuclear weapons requires gradually phasing out the nuclear dimension of deterrence and eliminating nuclear weapons from security strategies and operational doctrines. This will create a sense of confidence and, in turn, reinforce further movement toward universal nuclear disarmament. This Memorandum offers a set of principles to guide policy recommendations to enable the process of moving toward a nuclear-weapon-free world.

Principles

The total elimination of nuclear weapons should be a priority for all states.

Disarmament and nonproliferation efforts are mutually reinforcing.

Multilateral cooperation is essential for achieving nonproliferation and disarmament.

While nuclear disarmament is a gradual process that requires participation by all states, those possessing nuclear weapons have a special responsibility to take the initiative to verifiably reduce and ultimately eliminate arsenals.

Disarmament measures that are transparent and irreversible contribute significantly to the goal of building trust needed to achieve the complete elimination of nuclear weapons.

All states bear responsibility for easing international tensions and strengthening trust in order to facilitate the progress toward the elimination of nuclear weapons and to cooperate to avert the risk of proliferation of WMD, related materials, and technology to state and non-state actors.

Preventing the weaponization of outer space is in the interests of all states.

Strengthening existing nuclear-weapon-free zones and establishing new ones through voluntary consensus of countries in a region are highly valued in the pursuit of nuclear disarmament and nonproliferation objectives.

Education and increased public awareness can help create an environment conducive to nuclear disarmament and nonproliferation.

Recommendations

Building upon recommendations of the CSCAP Study Group on Countering the Proliferation of Weapons of Mass Destruction in the Asia Pacific, this memorandum recommends policy actions to promote improved verification and transparency and increased political will to move toward the complete elimination of nuclear weapons. These recommendations include promoting and supporting an improved international normative-legal-enforcement framework, advancing national-level initiatives, and developing a wider understanding of the disarmament process through education and public awareness.

International Legal Framework

All states should promote the development of an international normative and legal framework to facilitate the process of de-emphasizing the role of nuclear weapons as a part of the international order and prohibit the transfer of nuclear weapon components and delivery systems. All states should support and promote specific actions to include:

- Strengthen the role of IAEA as the competent authority responsible for verifying compliance with IAEA safeguards agreements.
- Strengthen the International Monitoring system (IMS) of the CTBT to help maintain the continued moratorium on nuclear testing, prior to entry into force of the treaty.
- Take measures to enable the CTBT's entry into force.
- Participate in good faith in negotiations on completing a Fissile Material Cut-off Treaty on the basis of the 1995 Shannon Mandate.
- Take steps to de-legitimize the use or threat of use of nuclear weapons.
- Make the proliferation of special nuclear materials (defined as plutonium, uranium-233, or uranium enriched in the isotopes uranium-233 or uranium-235) an international crime and develop the means to prevent nonstate actors from acquiring nuclear weapons, pending their total elimination.
- Take steps toward the development of an international convention to prohibit the deployment and use of space-based weapons.
- Take steps toward the development of an international convention to prohibit the use or threat of use of nuclear weapons.
- Take steps toward the development of an international convention that prohibits the development, production, and stockpiling of nuclear weapons and establishes a timeframe for eliminating all nuclear weapons.

National Initiatives

Reducing the role of nuclear weapons in national security strategies and operational military doctrines is a key part of creating the trust needed to proceed toward the complete elimination of these weapons. To promote multilateral confidence and demonstrate the political will to fulfill disarmament commitments, all states based on their treaty commitments should take action to:

- Fully implement the actions contained in the Final Document of the 2010 NPT Review Conference.
- Adopt national legislation to prevent the proliferation of nuclear weapons and related materials in accordance with the requirements of UN Security Council Resolution 1540.
- Criminalize the proliferation of WMD-related materials.
- Conclude a country-specific Comprehensive Safeguards Agreement and Additional Protocol with the IAEA to improve transparency of all nuclear facilities. States that have a Small Quantities Protocol (SQP) in force should adopt the modified SQP version.

- Promote transparency and develop verification capabilities related to nuclear disarmament.

The states in possession of nuclear weapons have a special responsibility to promote disarmament. While most of this burden falls on the US and Russia due to their large arsenals, all states possessing nuclear weapons must be engaged in seeking ways to reduce the role of nuclear weapons in the international security order. To promote transparency and discourage other states from developing nuclear weapons programs, all states that possess nuclear weapons should:

- Reaffirm negative security assurances stating that nuclear weapons will never be used against countries that are in full compliance with their nonproliferation obligations.
- Declare or take steps toward a "no first use" or "sole purpose" policy for nuclear weapons.
- Accelerate the dismantlement and verified destruction of all nuclear forces and fissile materials declared in excess of requirements by individual states. Treaties should mandate the verifiable destruction of nuclear warheads.
- Make an open and detailed declaration regarding the size and composition of existing weapon arsenals and fissile material production facilities and stockpiles.
- Sign protocols for and adherence to all nuclear weapon-free zones.
- Develop a protocol for the safe and verified disablement and destruction of any nuclear weapons captured on the territory of a non-nuclear weapon state.
- Ensure that disarmed weapons are safely and securely destroyed, not just disabled.

All states in possession of nuclear weapons should establish confidence-building measures aimed at a systematic reduction of reliance on these weapons in military doctrines. These include:

- Take all necessary measures to reduce the risk of accidental or unauthorized launch of nuclear weapons.
- De-alert nuclear weapons from quick-reaction status.
- Limit the missions assigned to nuclear weapons and mandating their use only as a last resort and exclusively in response to the use of nuclear weapons.
- Avoid and prevent the policy of compensating for the reduction in nuclear systems by increasing the number of strategic conventional systems or modernizing nuclear weapons.

Education and Public Awareness

An important longer-term means of creating the political will to advance the goal of complete elimination of nuclear weapons is through disarmament and non-proliferation education. It is essential to raise public awareness that any perceived security or political advantages of nuclear weapons are outweighed by the grave threat they pose to humanity. To this end all states should promote and dedicate sufficient resources to:

- Increase awareness of the threats posed by nuclear, biological, and chemical proliferation and the value of nonproliferation and disarmament efforts.
- Conduct research into disarmament verification and enforcement mechanisms for responding to noncompliance with nuclear disarmament.
- Examine the process leading to the prohibition of chemical and biological weapons as a basis for establishing a prohibition convention for nuclear weapons.
- Develop a roadmap for the elimination of nuclear weapons that can be reviewed and revised as circumstances change.
- Detail the conditions that must be established for all states in possession of nuclear weapons to accept nuclear transparency and move in the direction of complete nuclear disarmament.
- Conduct studies to better understand the relation between nonproliferation and disarmament.
- Conduct studies to describe the nature of an international security order without nuclear weapons.

ASEAN Regional Forum member governments should promote awareness of the threats posed by WMD proliferation and the value of nonproliferation and disarmament efforts.

Appendix F
Council for Security Cooperation in the Asia Pacific
Memorandum No. 22
Nonproliferation of Weapons of Mass Destruction

Introduction

The proliferation of nuclear, biological, and chemical weapons, their related technologies, and their delivery systems is a threat to international peace and security. Responding to the threat is a shared responsibility of all states that requires a coordinated effort encompassing a wide range of actions and initiatives. Nonproliferation generally refers to actions (e.g., diplomacy, multilateral agreements, arms control, threat reduction assistance, and export controls) taken to prevent the proliferation of weapons of mass destruction (WMD) by dissuading the pursuit of or impeding access to, or dissemination of, the weapons themselves as well as related technologies, material, and expertise.

The WMD nonproliferation regime is an integral part of the international security order and is broadly defined in the Nuclear Nonproliferation Treaty (NPT), the Biological and Toxin Weapons Convention (BTWC), and the Chemical Weapons Convention (CWC). They all codify norms focused on preventing WMD proliferation (Articles I and II of the NPT, Articles I, III, and IV of the BTWC, and Article I of the CWC). All three treaties make the UN Security Council the final arbiter of enforcement decisions in case of noncompliance.

In addition, there are multiple legally-binding and other informal mechanisms that serve to further codify the norm of nonproliferation of WMD, its components, and delivery vehicles, especially ballistic missiles. States parties to the NPT agree to accept safeguards to verify that they are not diverting nuclear technology from peaceful purposes to nuclear weapons (Article III). Verification is conducted by the International Atomic Energy Agency (IAEA). Similarly, states parties to the CWC agree to accept extensive verification on their activities to ensure there is no diversion toward a military program and to verify that existing chemical-weapon stockpiles are being dismantled. Verification is conducted by the Organization for the Prohibition of Chemical Weapons (OPCW), which was established pursuant to Article VIII of the Convention. The BTWC does not include verification mechanisms, although an Implementation Support Unit (ISU) has been established, as well as a confidence-building measure process that serves to discourage proliferation of sensitive materials and technology has developed over the years. There is also widespread support from the States Parties to negotiate a verification protocol.

More generally, there has been an effort to establish more effective controls over the trade of WMD-related goods and sensitive technology. (See CSCAP Memorandum #14 for guidelines for managing trade of strategic goods.) Other efforts include the development of multilateral approaches to the nuclear fuel cycle, with agreement reached in 2010 on the establishment of an IAEA low-enriched uranium fuel bank. The adoption

of UN Security Council Resolution 1540 has since 2004 created new nonproliferation obligations for all UN Member States.

This Memorandum offers general principles to promote the norm of nonproliferation and its objectives, and recommendations to discourage proliferation in the Asia-Pacific region.

General Principles

Nonproliferation of WMD and progress toward disarmament are in the interest of all states.

Success in preventing, detecting, and responding to proliferation is possible only through international cooperation and effective national controls over related materials and technology.

The global WMD nonproliferation regime can and must be strengthened through its treaties and other implementing instruments and by the negotiation of a non-discriminatory nuclear weapons convention calling for the universal elimination of these weapons.

Education, increased public awareness, and research are crucial to help create an environment conducive to nonproliferation and, eventually, to a world free of WMD threats.

Recommendations

Building upon recommendations of the CSCAP Study Group on Countering the Proliferation of Weapons of Mass Destruction in the Asia Pacific, this memorandum recommends policy actions to sustain and strengthen the nonproliferation regime. These recommendations include promoting and supporting an improved international normative/legal-enforcement framework, advancing national-level initiatives, and developing a better understanding of nonproliferation through education, public awareness, and research.

International Legal Framework

All states should promote the development of an international normative and legal framework to sustain and strengthen nonproliferation policy through specific actions to include:

- Promote adherence by States Parties to the NPT, BTWC, and CWC as main nonproliferation and disarmament instruments.
- Strengthen the role of the IAEA in accordance with its Statute and respective safeguards agreements as the competent authority responsible for verifying compliance with nuclear safeguards agreements.

- Promote the requirement for states to adopt an Additional Protocol (AP) to their IAEA Comprehensive Safeguards Agreement (CSA), where appropriate, as a condition of supply for nuclear materials for use in civilian nuclear power facilities.
- Promote the full implementation of the IAEA safeguards system including the AP.
- Work toward discouraging withdrawal from the NPT, in particular addressing how to respond to withdrawal, for states that have been found in noncompliance with the Treaty.
- Work toward entry into force of the Comprehensive Test Ban Treaty.
- Strengthen the role of the OPCW in accordance with the CWC and decisions of the State Parties as the competent authority responsible for verifying compliance with chemical nonproliferation obligations.
- Work to sustain the verification process of destruction of existing chemical-weapon stockpiles so as to achieve the goal of complete elimination of all chemical weapon stockpiles at the earliest possible date.
- Work toward thorough implementation of the BTWC, including implementation of the inter-sessional work program, further submission of annual confidence-building measures, and the universality of the Convention.
- Explore how to improve responses to proliferation crises.
- Promote regional-level assistance capacity in implementing UNSCR 1540.
- Promote regional support for full and effective implementation of UN-mandated sanctions resolutions.
- Promote and develop regional initiatives to reduce proliferation, be it to better prevent or counter it, or manage its effects.
- Support the UN disarmament machinery including the UNGA, UNDC, and the Conference on Disarmament.

National Initiatives

Stopping the proliferation of WMD is a key part of making the world a safer place. In order to promote multilateral confidence and demonstrate the political will to fulfill nonproliferation commitments, all states should take action to:

- Faithfully fulfill their obligations and commitments as states parties to the nonproliferation and disarmament treaties and conventions.
- Conclude a CSA and an AP with the IAEA, where appropriate, to improve transparency of all nuclear facilities; states that have a Small Quantities Protocol in force should adopt the modified SQP version.

- Adopt national legislation to prevent, detect, deter, and disrupt the proliferation of WMD and related materials in accordance with the requirements of UN Security Council Resolution 1540.
- Promote comprehensive support for the four main multilateral export control regimes: the Nuclear Suppliers Group (NSG), the Australia Group (AG), the Missile Technology Control Regime (MTCR), and the Wassenaar Arrangement (WA); make use of the guidelines and understandings of these regimes in developing national export controls.
- Encourage broad support and follow the Hague Code of Conduct against Ballistic Missile Proliferation (HCOC); expand its membership and take steps toward enhancing the scope of restrictions of the agreement.
- Avoid exporting sensitive technologies to states that have not brought into force appropriate trade controls.
- Criminalize the proliferation of WMD-related materials and activities that directly or indirectly contribute to such proliferation.
- Maintain the highest possible standards of security and physical protection of sensitive materials and facilities.
- Act proactively to stop proliferation when it is occurring on their territories.

Address thoroughly all compliance issues with the major nonproliferation treaties, agreements, and arrangements, and help resolve all cases of noncompliance.

Education, Public Awareness, and Research

An important longer-term means of creating the political will to improve nonproliferation policy is through education, public awareness, and research. To this end, all states should promote and dedicate sufficient resources to:

- Increase awareness of the threats posed by WMD proliferation and the use of WMD, as well as of the value of nonproliferation efforts and disarmament.
- Promote cooperation with the UN and other stakeholders, including industries.
- Increase participation in the outreach activities organized by the four main multilateral export control groups and its members.
- Develop a roadmap of actions to undertake in case of noncompliance with the major nonproliferation treaties.
- Promote studies and research on verification aspects of nuclear disarmament.
- Conduct studies to better appreciate the relationship between global nuclear disarmament and nonproliferation.

- Enhance support for programs and projects aimed at developing expertise of WMD disarmament, nonproliferation, and arms control among the next generation of foreign affairs specialists.

ASEAN Regional Forum member governments should promote awareness of the threats posed by WMD proliferation and the value of nonproliferation efforts.

Appendix G
Council for Security Cooperation in the Asia Pacific
Memorandum No. 27
Implementation of United Nations Security Council Resolution (UNSCR) 1540

Introduction

Countries of the Asia-Pacific region possess a wide range of sensitive capabilities and face very different nonproliferation and terrorism challenges. Several countries possess nuclear capabilities that include advanced civilian and military capabilities or civil nuclear fuel cycle technology. In addition, there are several nuclear research reactors located throughout the region, dozens of nuclear energy reactors planned for construction by 2025, and a growing level of expertise in nuclear technology. Industries using biological and chemical materials and technology are also expanding in the Asia Pacific and a few states now possess advanced rocket technology. These dual-use technologies and materials have legitimate peaceful applications, but can also be used to develop illicit nuclear, biological, or chemical weapon programs or to conduct terrorist attacks.

While internal security and terrorist threats vary across the Asia Pacific, nonproliferation and terrorism challenges are of concern for the whole region because the use of nuclear, biological, or chemical weapons, materials, or technology by a terrorist anywhere in the Asia Pacific would have dramatic consequences well beyond the location where it is conducted. As the most dynamic region of the world, the Asia Pacific sits strategically at the intersection of sea lanes with a high volume of cargo traffic and, therefore, a high potential for illicit trafficking of sensitive materials and technologies.

United Nations Security Council Resolution (UNSCR) 1540 calls for all UN member states to develop and enforce appropriate legal and regulatory measures against the proliferation of nuclear, biological, and chemical weapons and their means of delivery, in particular, to prevent the spread of weapons of mass destruction to non-state actors. It recognizes non-state proliferation as a threat to peace under the terms of Chapter VII of the United Nations Charter and creates an obligation for states to prevent proliferation of these weapons and their means of delivery to non-state actors. In view of the adoption of UNSCR 1977 in 2011, which gave a 10-year extension to the mandate of the UNSCR1540 Committee to monitor efforts to develop and maintain such controls, the Council for Security Cooperation in the Asia Pacific (CSCAP) proposes a number of general principles and specific policy recommendations to facilitate the Resolution's implementation in the Asia Pacific region.

General Principles

The proliferation of nuclear, biological, and chemical weapons and their means of delivery is a threat to international peace and security.

The potential use of nuclear, biological, and chemical weapons, materials, equipment, and technology by non-state actors for acts of terrorism is a threat to international peace and security.

Preventing the proliferation of nuclear, biological, and chemical weapons and their means of delivery requires complementary measures beyond the obligations contained in the relevant multilateral treaties and conventions.

Access to dual-use goods and technology for peaceful purposes must be ensured when implementing the provisions of UNSCR 1540.

Transparency, cooperation, and coordination of efforts are needed to strengthen the response to the challenge posed by the proliferation-terrorism nexus.

Education, increased public awareness, and research are crucial to help create an environment conducive to prevent proliferation and counter terrorism.

Business sector support and government outreach are critical for effective control of sensitive dual-use technologies.

Recommendations

Recognizing that UNSCR 1540 outlines *what* UN member states are required to do, not *how* they should do so, and building upon the work of the CSCAP Study Group on Countering the Proliferation of Weapons of Mass Destruction in the Asia Pacific ("the WMD Study Group"), this memorandum recommends the following policy actions at the national and regional levels to better facilitate implementation of UNSCR 1540 in the Asia Pacific region.

National Initiatives

Given that each UN member state has a legal obligation to implement UNSCR 1540, all states are obliged to:

- Refrain from providing any form of support to non-state actors that attempt to develop, acquire, manufacture, possess, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery. (Paragraph 1)
- Adopt and enforce effective laws that prohibit any non-state actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery. (Paragraph 2)
- Take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery. (Paragraph 3)

UNSCR 1540 calls on UN member states to submit an initial report describing the steps that they have taken or intend to take toward implementation and to provide additional information following submission of the initial report.

One point of contact (POC) should be identified as a focal point for implementation and to help enhance interagency, regional, and international coordination, prioritization, and identification of assistance needs, requests, and offers.

To promote effective implementation of UNSCR 1540 all states should voluntarily prepare and submit to the 1540 Committee, a national implementation action plan (NAP) mapping out priorities and plans. Recognizing that implementation is a national decision, the scope, content, and form of NAP will vary and should fit national circumstances. NAPs, however, should explain efforts to address all the obligations contained in the operative paragraphs of UNSCR 1540.

NAPs should describe efforts to adopt and enforce laws that prohibit any non-state actor to manufacture, acquire, possess, develop, transport, transfer, or use nuclear, biological, or chemical weapons and their means of delivery.

NAPs should describe efforts to establish a regulatory framework to prevent such proliferation. In describing this framework, NAPs should detail efforts to:

- Develop and maintain measures to account for and secure sensitive technologies and materials in production, use, storage, or transport
- Develop and maintain physical protection measures
- Develop and maintain border controls and law enforcement efforts
- Develop procedures to stop and disrupt financial resources of non-state actors involved in the misuse of WMD for terrorism and take swift action against them and their financiers
- Establish, develop, review, and maintain national export and transshipment controls
- Collaborate with private industry in developing regulatory practices that help facilitate trade in a secure trading environment

NAPs should include a detailed description of assistance required to complete implementation of the obligations under UNSCR 1540 or assistance and expertise available to assist others in need.

Regional Initiatives

Regional organizations have an important role to play in facilitating implementation of UNSCR 1540 because they benefit from greater cultural and institutional knowledge of the regional states they represent and have a better understanding and appreciation of local priorities. Other incentives for states to cooperate at the regional level include

burden sharing, the pooling of resources, and other associated efficiency gains. Regional cooperation on UNSCR 1540 implementation complements national initiatives as well as cooperation at the bilateral level.

As called upon by UNSCR 1977, and following the successful example of the Caribbean Community, an association of Caribbean states, Asia Pacific regional organizations should designate a POC to facilitate UNSCR 1540 implementation.

Regional role models or champions should be identified. These states would help market the benefit of effective UNSCR implementation and act as a force multiplier at the regional level.

Regional organizations, in particular economy-focused organizations should reach out to the private sector, raise awareness of companies of proliferation risks, and help them adopt internal practices that are in compliance with regional governments' strategic trade control laws and regulations.

Regional incentives for cooperation should be established.

Regional organizations should establish a clearinghouse for regional expertise sharing and assistance. The clearinghouse should collect region-specific information so regional states can benefit from each other's expertise, share best practices, and provide examples of "appropriate effective measures" to implement UNSCR 1540.

Regional organizations should consider making a request for financial and manpower assistance to implement UNSCR 1540 on behalf of the region they represent.

Taking into consideration unique social, political, economic, and security contextual factors pertaining to specific geographical sub-regions or regions, regional organizations should develop standards and criteria for domestic proliferation controls and assist national governments in developing NAPs.

A regional technical group, formed under the auspices of one of the existing regional organizations, should assist regional governments in developing NAPs and develop tangible shared regional objectives to facilitate the process of identifying and prioritizing the steps each state should take to better prevent proliferation while facilitating trade.

Regional organizations should establish a forum for regional coordination between regulatory and enforcement agencies. Licensing agencies would share information on companies that raised suspicion and enforcement agencies would share information on strategic trade control violations and suspicious transactions.

Regional organizations should help develop common standards for trade that will both help facilitate legitimate trade and discourage illicit trade.