



# STUDY GUIDE OF SECURITY COUNCIL

Agenda Item: Addressing international nuclear  
testing sites

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## 1. Introduction of the Committee

### a. Security Council

The United Nations Security Council is established in order to maintain the peace and security of countries all around the world. The Security Council is the head organization of the United Nations that is associated with worldwide peace. Methods recommended in order to bring reconciliation are done by this committee. The council consists of 15 independent members. All member countries of the United Nations must follow the decisions of the Security Council. If such a condition occurs, the council may advise and order the usage of force so as to achieve international peace and security.

There are 15 member countries in total, 5 being permanent members. These 5 countries (China, France, the Russian Federation, the United Kingdom and the United States of America) have *veto* power.

### b. Atomic Energy

Atomic energy or, more commonly known as, nuclear energy is a type of energy that occurs inside the nucleus of an atom. The energy which is released through either a “nuclear reaction” or a “radioactive decay” is obtained with a process known as “fission”. Fission reactions are done in nuclear reactors which then releases heat energy generally. The heat obtained boils water in order to move large turbines using steam. By using a various number of processes, the steam will be converted to electrical power while it is passing through a generator. Power distributors, mostly, are used in delivering this energy to cities or military centers.

Atomic energy is also used in “atomic bombs” or “hydrogen bombs”. The first atomic bombs were produced under the name of “Manhattan Project” in United States of America. Again, by the United States, the first and only official nuclear attacks were done against Japan in 1946.

### c. Nuclear Testing

After the Manhattan Project, nuclear activities started trending among most of the developed countries. Countries with the most nuclear tests are: the United States, Soviet Union, France, United Kingdom, China, North Korea, India, Pakistan respectively. Additionally, another country with nuclear warfare, Israel, has not officially reported nuclear tests they have done. As nuclear testing caused multiple types of cancer rates to increase, thyroidal cancer mostly, tests were done in abandoned or isolated sites. The first nuclear test site was in New Mexico.

Nevertheless, as the researches in Hiroshima showed the drawbacks and risks, multiple states have started banning nuclear warfare. Some of the states are Austria, Kazakhstan, South Africa, Nigeria and Mexico. Additionally, New Zealand was the first country to ban nuclear energy.

## 2. Major Countries

### a. United States of America

United States of America is the country with the most nuclear tests. The United States conducted 1,032 nuclear tests between 1945 and 1992. These tests occurred at the Nevada Test Site, at sites in the Pacific Ocean, in Amchitka Island of the Alaska Peninsula, Colorado, Mississippi, and New Mexico.

#### i. Nevada Testing Sites

Between 1951 and 1958, around 100 nuclear weapons tests were conducted in the atmosphere at the Nevada Test Site (NTS). Located about 100 km northwest of Las Vegas, the NTS was larger than many small countries, offering some 3,500 square kilometers of undisturbed land.

The average yield for the atmospheric tests was 8.6 kilotons (kt). The fallout from the tests contained radionuclides and gasses which were transported thousands of miles away from the NTS by winds. As a result, people living in the United States during these years were exposed to varying levels of radiation.

#### ii. Pacific Ocean Open Sea and Marshall Islands Testing Sites

Between 1946 and 1958, the U.S. carried out 67 nuclear weapons tests at Bikini and Enewetak atolls in the Marshall Islands in the Pacific Ocean. The atolls were some of the main sites included in the “Pacific Proving Grounds”.

Operation Ivy in 1952 set the stage for the first test of a large thermonuclear device, or hydrogen bomb. Codenamed “Mike”, the blast had an explosive yield of 10.4 mt, which was over 400 times the destructive force of the bomb dropped on Hiroshima. It vapourized the island of Elugelab, leaving behind a deep crater about 1 km in diameter, which was blanketed in high levels of radiation.

Ionizing radiation, which refers to several types of particles and rays given off by radioactive materials, is one of the few scientifically proven carcinogens in human beings. The time that may elapse between radiation exposure and cancer development can be anything between 10 and 40 years. A report on the Estimation of the Baseline Number of Cancers Among Marshallese and the Number of Cancers Attributable to Exposure to Fallout from Nuclear Weapons Testing Conducted in the Marshall Islands was published in September 2004. The report was prepared by the Division of Cancer Epidemiology and Genetics, National Cancer Institute, National Institutes of Health, and the Department of Health and Human Service, USA, and stated that: “We estimate that the nuclear testing program in the Marshall Islands will cause about 500 additional cancer cases among Marshallese exposed during the years 1946-1958, about a 9% increase over the number of cancers expected in the absence of exposure to regional fallout.”

#### iii. Alaska Testing Sites

With Operation Grommet, United States has ordered a group of nuclear tests, 34 in total, to take place in various locations. One of these projects was named “Cannikin” which took place in Amchitka island of Alaska

#### b. Union of Soviet Socialist Republics

USSR is the country that used the most radioactive power during their test with 296,837 kilotons. Main testing sites were: Semipalatinsk, Siberia and Novaya Zemlya.

##### **i. Semipalatinsk Testing Site**

Between 1949 and 1989, 456 atomic and thermonuclear devices were exploded at the Semipalatinsk Test Site (STS) under conditions of tight confidentiality. Explosions were conducted on the surface and in the atmosphere. Five of the surface tests were unsuccessful and resulted in the dispersion of plutonium into the environment, with the first test on 29 August 1949 unexpectedly contaminating villages to the northeast of the STS. The approximate cumulative explosive yield of the tests conducted before 1963, when the Soviet Union signed the Partial Test Ban Treaty (PTBT), was 6.4 Mt. This was about six times greater than the explosive yield of the above ground tests at the Nevada Test Site and about six percent of the yield of the tests conducted in the Marshall Islands.

More than 300 test explosions were conducted underground after 1961. Semipalatinsk's Degelen Mountain nuclear test facility was the largest underground nuclear test site in the world, consisting of 181 separate tunnels. Between October 1961 and October 1989, 224 tests were conducted there.

##### **ii. Novaya Zemlya**

Most powerful nuclear bomb ever created known as “Tsar Bomb” was tested in Mityushika Bay of Novaya Zemlya. Although this bomb had a capacity of 100 megaton, due to safety problems this amount was kept at 50 megatons during the test.

#### c. People’s Republic of China

China is one of the 9 countries to produce nuclear weapons. China had not signed the “Partial Nuclear Test Ban Treaty” which made adjustments on states’ nuclear tests under water, on the Earth and in space. After 33 years, China has signed the “Comprehensive Nuclear Test Ban Treaty”. Nevertheless, the treaty was not ratified. Which made the treaty not put into force by the United Nations. Additionally, China conducted it’s last official nuclear test on 29 July 1996, which was 2 months prior to signing the treaty.

#### d. Demotratic People’s Republic of Korea

Democratic People’s Republic of Korea, mostly known as North Korea, is one of the rare countries that still continues its nuclear tests. A recent hydrogen bomb test was done on 3 September 2017 which occurred in Punggye-ri nuclear site. American, Chinese and South Korean officials reported an artificial earthquake with a magnitude of 6.3 right after the test. Additionally, North Korea has not signed both the “Partial Nuclear Test Ban Treaty” and “Comprehensive Nuclear Test Ban Treaty”.

### 3. History

On July 16, 1945, during the Manhattan Project, the first atomic weapons test was performed at Alamogordo, New Mexico, and was nicknamed "Trinity." The initial purpose of the test



*The first atomic test, "Trinity", took place on July 16, 1945.*

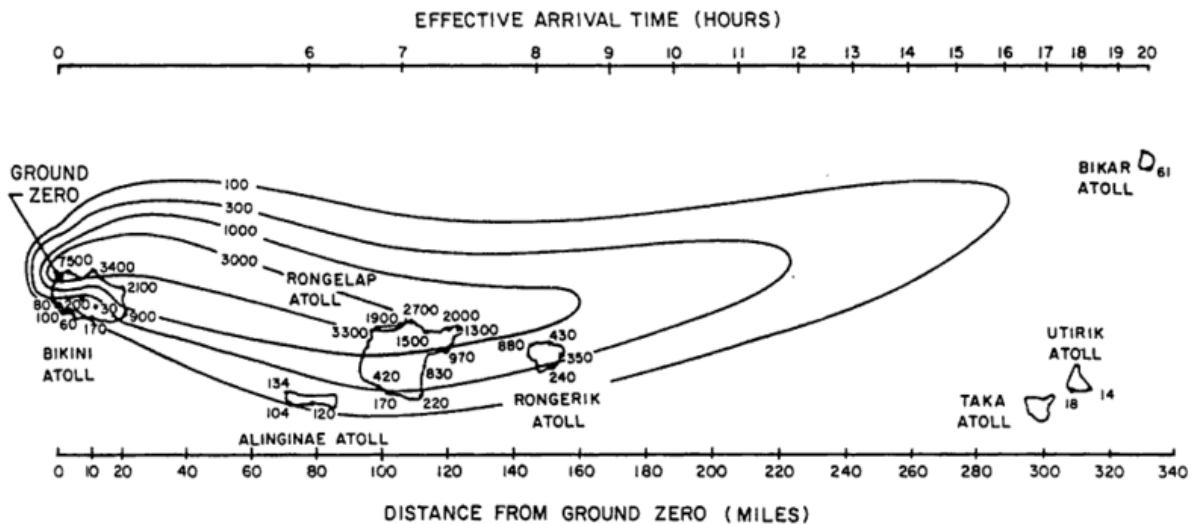
was to establish that the implosion-type nuclear weapon design was practical, as well as to provide a notion of the true magnitude and consequences of a nuclear explosion before they were employed in the war against Japan. While the test provided a decent estimate of many of the explosion's consequences, it did not provide an adequate grasp of nuclear fallout, which was not thoroughly understood by project scientists until long after the Hiroshima and Nagasaki atomic bombs. The United States conducted six nuclear tests before the Soviet Union produced and detonated their first nuclear bomb (RDS-1) on August 29, 1949. Because neither country had many atomic bombs to spare at the start, testing was relatively rare (when the U.S. used two weapons for Operation Crossroads in 1946, they

were detonating over 20 percent of their current arsenal). However, by the 1950s, the US had created a dedicated test site on its territory (Nevada Test Facility) and was also conducting major atomic and nuclear testing at a site in the Marshall Islands (Pacific Proving Grounds).

Early experiments were largely meant to determine the military consequences of atomic weapons (Crossroads had examined the effect of atomic bombs on a fleet, as well as how they functioned underwater) and to test new weapon designs. These featured new hydrogen bomb designs that were tested in the Pacific during the 1950s, as well as new and upgraded fission weapon designs. The Soviet Union also undertook limited testing, particularly in Kazakhstan. However, in the latter stages of the Cold War, both countries launched expedited testing programs, testing hundreds of bombs in the final half of the twentieth century.

Atomic and nuclear testing can pose several risks. Some of these were demonstrated in the 1954 Castle Bravo test in the United States. The weapon under test was a new type of hydrogen bomb, and the scientists misjudged the ferocity with which some of the weapon ingredients would respond. As a result, the output of the explosion (15 Mt) was more than double what was projected. Apart from this issue, the bomb produced a considerable amount of radioactive nuclear fallout, more than planned, and a shift in the weather pattern led the fallout to move in an unexpected direction.

The fallout plume carried significant amounts of radioactivity for more than 100 miles (160 kilometers), infecting several inhabited islands in surrounding atoll formations. Though they were quickly evacuated, many of the inhabitants of the islands suffered from radiation burns and later from other effects such as increased cancer rates and birth defects, as did the crew of the Japanese fishing vessel Daigo Fukury Maru.



*In 1954 the Castle Bravo fallout plume spread dangerous levels of radiation over an area over 100 miles (160 km) long, including inhabited islands.*

Castle Bravo was the worst nuclear tragedy in US history, although many of its components—unpredictably enormous yields, shifting weather patterns, unanticipated fallout contamination of communities and food supplies—occurred during other countries' atmospheric nuclear weapons tests as well. Concerns over global fallout rates finally led to the signing of the Partial Test Ban Treaty in 1963, which restricted signatories to underground testing. Although not all nations discontinued atmospheric testing, because the United States and the Soviet Union were responsible for nearly 86 percent of all nuclear tests, their cooperation significantly reduced the total level. France tested the atmosphere until 1974, and China until 1980.

From 1958 to 1961, there was a tacit moratorium on testing, which ended with a series of Soviet tests in late 1961, including the Tsar Bomba, the biggest nuclear weapon ever deployed. The United States reacted in 1962 with Operation Dominic, which included dozens of tests, including the detonation of a submarine-launched missile.

Almost all new nuclear superpowers have conducted nuclear tests to declare their acquisition of nuclear weapons. South Africa, the only recognized nuclear power that claims never to have conducted a test (but see Vela Incident), has since removed all of its tactical nukes. Israel is commonly believed to have large nuclear weapons, but it has never tested them unless they were in the Vela Incident.

Experts dispute whether governments can have viable nuclear arsenals without testing, particularly those that use sophisticated warhead designs such as hydrogen bombs and miniaturized weapons, but they all agree that substantial nuclear advances are unlikely to occur without testing.

There have been several attempts to limit the number and scale of nuclear testing; the most far-reaching being the Comprehensive Test Ban Treaty of 1996, which has still to be approved by eight of the "Annex 2 nations," including the United States, as of 2013. Nuclear testing has now become a contentious topic in the United States, with some legislators claiming that further testing may be required to retain Cold War-era weapons. Because nuclear testing is perceived as advancing nuclear weapons development, many people oppose future testing as accelerating the arms race.

From 1945 to 1992, 520 atmospheric nuclear explosions (including eight underwater) were conducted with a total yield of 545 megatons, with a peak occurring in 1961–1962, when the United States and the Soviet Union detonated 340 megatons in the atmosphere, while the estimated number of underground nuclear tests conducted from 1957 to 1992 was 1,352 explosions with a total yield of 90 Mt.



#### 4. Questions to Be Adressed

- How should nuclear test sites be cleaned?
- What protocol should be followed to reduce nuclear test sites?
- What can be established for nuclear weapon type reduction?
- What sanctions should be applied to states that do not implement the decisions taken as a result of the Treaty on the Prohibition of Nuclear Weapons?
- How to prevent the pollution and dangers caused by North Korea's nuclear tests?

## 5. Further Readings

- [Time-lapse map of all nuclear weapon tests from 1945 to 1998.](#)
- <http://nuclearweaponarchive.org/index.html>
- <https://www.atomcentral.com/>
- <https://www.wilsoncenter.org/nuclear-history-documents>
- <https://www.ctbto.org/map/>
- <https://www.ctbto.org/nuclear-testing/history-of-nuclear-testing/world-overview/>
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