**A COMPREHENSIVE ESSAY ON NUCLEAR WEAPONS**

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A nuclear weapon (also called an atom bomb, nuke, atomic bomb, nuclear warhead, A-bomb, or nuclear bomb) is an explosive device that derives its destructive force from nuclear reactions, either fission (fission bomb) or from a combination of fission and fusion reactions (thermonuclear bomb). Both bomb types release large quantities of energy from relatively small amounts of matter. Nuclear weapons have been used twice in war, both times by the United States against Japan near the end of World War II. On August 6, 1945, the U.S. Army Air Forces detonated a uranium gun-type fission bomb nicknamed "Little Boy" over the Japanese city of Hiroshima; three days later, on August 9, the U.S. Army Air Forces detonated a plutonium implosion-type fission bomb nicknamed "Fat Man" over the Japanese city of Nagasaki. These bombings caused injuries that resulted in the deaths of approximately 200,000 civilians and military personnel.

 Since the atomic bombings of Hiroshima and Nagasaki, nuclear weapons have been detonated over two thousand times for testing and demonstration. Only a few nations possess such weapons or are suspected of seeking them. The only countries known to have detonated nuclear weapons—and acknowledge possessing them—are (chronologically by date of first test) the United States, the Soviet Union (succeeded as a nuclear power by Russia), the United Kingdom, France, China, India, Pakistan, and North Korea. Israel is believed to possess nuclear weapons, though, in a policy of deliberate ambiguity, it does not acknowledge having them. Germany, Italy, Turkey, Belgium and the Netherlands are nuclear weapons sharing states. South Africa is the only country to have independently developed and then renounced and dismantled its nuclear weapons.

The Treaty on the Non-Proliferation of Nuclear Weapons aims to reduce the spread of nuclear weapons, but its effectiveness has been questioned, and political tensions remained high in the 1970s and 1980s. Modernisation of weapons continues to this day.

**EFFECTS OF NUCLEAR WEAPONS**;

1. Health and Climate Threat: Some scientists estimate that a nuclear war with 100 Hiroshima-size nuclear explosions on cities could cost the lives of tens of millions of people from long term climatic effects alone. The climatology hypothesis is that if each city firestorms, a great deal of soot could be thrown up into the atmosphere which could blanket the earth, cutting out sunlight for years on end, causing the disruption of food chains, in what is termed a nuclear winter.
2. Public Opposition: Peace movements emerged in Japan and in 1954 they converged to form a unified "Japanese Council Against Atomic and Hydrogen Bombs". Japanese opposition to nuclear weapons tests in the Pacific Ocean was widespread, and "an estimated 35 million signatures were collected on petitions calling for bans on nuclear weapons".

Eight sovereign states have publicly announced successful detonation of nuclear weapons.[1] Five are considered to be nuclear-weapon states (NWS) under the terms of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). In order of acquisition of nuclear weapons these are the United States, Russia(the successor state to the Soviet Union), the United Kingdom, France, and China.

Since the NPT entered into force in 1970, three states that were not parties to the Treaty have conducted overt nuclear tests, namely India, Pakistan, and North Korea. North Korea had been a party to the NPT but withdrew in 2003.

A number of multilateral treaties have since been established with the aim of preventing nuclear proliferation and testing, while promoting progress in nuclear disarmament. These include the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), the Treaty Banning Nuclear Weapon Tests In The Atmosphere, In Outer Space And Under Water, also known as the Partial Test Ban Treaty (PTBT), the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which was signed in 1996 but has yet to enter into force, and the Treaty on the Prohibition of Nuclear Weapons (TPNW), opened for signature in 2017 but has yet to enter into force.

A number of bilateral and pluralistically treaties and arrangements seek to reduce or eliminate certain categories of nuclear weapons, to prevent the proliferation of such weapons and their delivery vehicles.  These range from several treaties between the United States of America and Russian Federation as well as various other initiatives, to the Nuclear Suppliers Group, the Missile Technology Control Regime, the Hague Code of Conduct against Ballistic Missile Proliferation, and the Wassenaar Arrangement.

There are two main types of nuclear weapons: atom bombs which use fission as the main reaction, i.e. the atoms are split; hydrogen bombs which use fusion as the main reaction, i.e. the atoms are fused together. However, there other types and they are;

**The Atomic Bomb**: The enormous amount of nuclear energy that is released by this process produces a large amount of heat and electricity.

**Thermonuclear Weapons: T**hermonuclear weapons, often referred to as Hydrogen bombs or H-bombs, are nuclear weapons in which their extreme explosive powers are obtained through the process of nuclear fusion – the process of forming a heavier nucleus from two lighter ones.

**Dirty Bombs**: Dirty bombs, also known as radiological weapons, are usually considered non-nuclear bombs that when detonated spread radioactive material. This radioactive material contaminates the area in which the bomb exploded. It can be difficult to clean up and such nuclear waste can render an area uninhabitable for decades.

However, Nuclear weapons are also categorized by their destructive force and use into two groups: strategic and tactical weapons.