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Forum: GC1
Issue: The question of the extremities of nuclear testing
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Introduction

Today a majority of mankind bears radioactive substances in their bodies due to the fallouts from nuclear testing. A majority of the earth has been polluted at some point with radioactive particles. This radiation caused by nuclear tests not only affects our environment but also contributes to notable diseases such as cancer.

Nuclear tests have been a considerable health concern for humanity since 1945 when the first nuclear test took place in the United States of America. The World Health Organization (WHO) states: "There have been hundreds of atmospheric nuclear weapon tests between 1945 and 1980. They have contaminated the whole globe and in particular the northern hemisphere by the end of the 1950`s".http://www.unscear.org/ One may ask: Why would nations insist on contaminating their own nation in order to implement a nuclear test? This report aims to answer this question as well as to search for a solution to this issue.

Nuclear tests are usually carried out by nuclear-weapon states in order to check the effectiveness of the nuclear weapon, its explosive capacity, and provide practical information such as how it functions. Even though nuclear testing provides such information about the weapon this is not the main reason why these tests take place. Nations use nuclear testing for political means, such as an indicator of their scientific and military dominance. Most of the nuclear-weapon states use nuclear tests in order to publicly declare their nuclear status. Since nuclear weapons are known as the most destructive weapons ever created, bearing one as a nation is an indicator of power. Nations want to display that they are nuclear-weapon states in order to display their dominance over other nations.

Definition of Key Terms

Nuclear yield: The amount of energy released and its efficiency when a precise nuclear weapon is detonated. Nuclear yield is usually described with kiloton and megatons.

Thermonuclear Bomb: This is a 2nd generation nuclear bomb that has a more enhanced design than the 1st generation nuclear bombs. This design leads to greater destruction capability. Atomic bombs rely on fission while a thermonuclear bomb relies on fusion. Thermonuclear bombs can also be referred to as hydrogen bombs.

Nuclear Fallout: The radioactive material (usually in the form of dust) that is released into the atmosphere after a nuclear reaction. Nuclear fallouts can lead to very serious issues since it can form a black cloud and fall down in the form of radioactive raindrops in another region. Nuclear fallouts usually form after an atmospheric nuclear test.

Non-Proliferation of Nuclear Weapons: Controlling and limiting the production of nuclear weapons. Non-Proliferation by itself means controlling something that is going on in an excessive and accelerated spread. (And proliferation means spreading.)

Radioisotope: Atoms that accommodate excessive amounts of energy in their nucleus. Radioisotopes can occur naturally or through artificial operations.

Background Information

Nuclear power was the primary determinant of the outcome of World War 2. The first nuclear test occurred on 16 July 1945 by the United States. Its yield was 22 kilotons which is 1.5 times the yield of the nuclear explosion that happened in Hiroshima ("Little Boy", August 6, 1945). Ever since then over 2.000 nuclear tests have been conducted by different nations. Nuclear weapons are known as the most destructive weapons on earth. A single fault in the testing or a variable that wasn't predicted before can result in extreme contamination and damage. Nuclear weapons were a crucial element that affected the result of many ongoing disputes between countries such as but not limited to; World War II, Cold War, the ongoing dispute between the United States and Iran, the dispute between India and Pakistan.

Nuclear States

The term "nuclear-weapon states' ' is a term generated by the NPT (Non-Proliferation Treaty). Nuclear weapon states are the states that NPT recognized as states that possess nuclear weapons. There are 8 states that confirmed that they possess nuclear weapons through nuclear tests, 5 of them are considered as nuclear-weapon states (under the terms of NPT, Non-Proliferation Treaty) which are: United Kingdom, United States, Russian Federation (formerly known as the Soviet Union), France, People's Republic of China. These states are the states that carried out their first nuclear test by the time NPT was established. NPT is an international treaty that became valid in 1970 with collaboration with the UN. NPT aims to sustain nuclear disarmament and prevent the spread of nuclear weapons. There are only 4 states that haven't yet signed the treaty, 2 of them have proved that they possess nuclear weapons by conducting nuclear tests. These countries are India and Pakistan. Israel also didn't sign the treaty. Even though it's believed that Israel possesses nuclear weapons, Israel's nuclear weapon program is still yet unknown. North Korea signed the treaty in 1985 but then declared its withdrawal in 2003. After its withdrawal, North Korea detonated six nuclear weapons, the most recent being in September 2017. On the other hand, NATO (North Atlantic Treaty Organization) states such as Belgium, Germany, Turkey, Netherlands, and Italy also have a nuclear share program that enables them the opportunity to be provided with nuclear weapons by NATO if needed.

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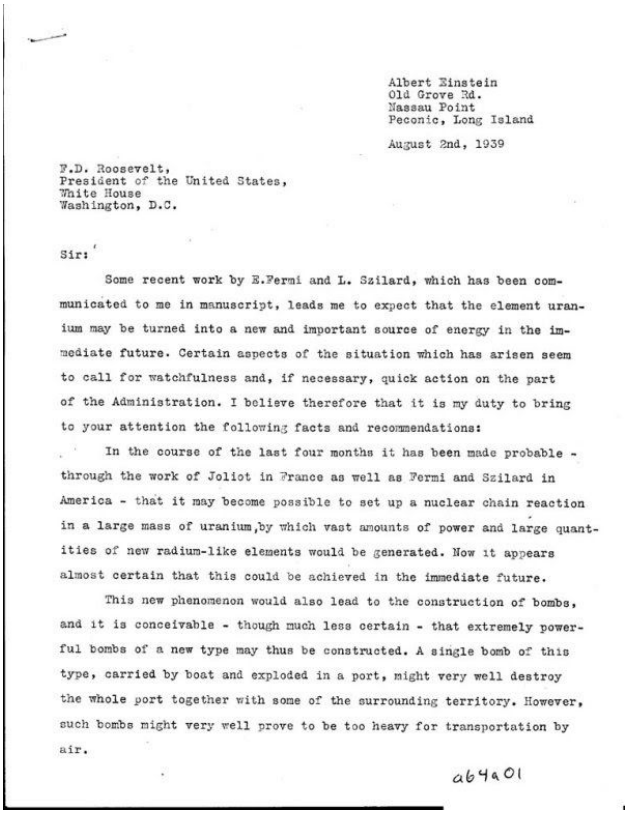
How it all started: Manhattan Project

The Manhattan Project was the start of the first nuclear weapon program. The Manhattan Project was started by the United States with the help of Canada and the United Kingdom in order to generate nuclear weapons during World War II. Einstein influenced the beginning of the Manhattan Project with the letter he wrote to the former President of the United States, Franklin D. Roosevelt. The letter was a warning of the start of possible German research regarding nuclear weapons. Einstein suggested to the American government to start its own nuclear research in order to be prepared. In the Manhattan Project scientists produced the first nuclear weapons. The Manhattan Project was the start of the manufacturing of the first nuclear weapon which was tested in 1945, which was called "TRINITY". Later on, on 6 August 1945, the United States carried out the detonation of the first nuclear weapon that was used in a war, which was called "Little Boy".



Albert Einstein
Old Grove Rd.
Nassau Point
Peconic, Long Island

August 2nd, 1939

F.D. Roosevelt,
President of the United States,
White House
Washington, D.C.

Sir:

Some recent work by E.Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into a new and important source of energy in the immediate future. Certain aspects of the situation which has arisen seem to call for watchfulness and, if necessary, quick action on the part of the Administration. I believe therefore that it is my duty to bring to your attention the following facts and recommendations:

In the course of the last four months it has been made probable - through the work of Joliot in France as well as Fermi and Szilard in America - that it may become possible to set up a nuclear chain reaction in a large mass of uranium,by which vast amounts of power and large quantities of new radium-like elements would be generated. Now it appears almost certain that this could be achieved in the immediate future.

This new phenomenon would also lead to the construction of bombs, and it is conceivable - though much less certain - that extremely powerful bombs of a new type may thus be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory. However, such bombs might very well prove to be too heavy for transportation by air.

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Einstein's letter to F. D. Roosevelt:

Types of Nuclear Testing:

- **Exoatmospheric** tests occur above the atmosphere, in space. These kinds of tests were conducted by the United States and the Soviet Union from 1958 to 1962. In October 1967 United Nations Outer Space Treaty entered into force. This treaty included articles regarding the prohibition of outer space nuclear tests. The treaty aims in banning the use of weapons of mass destruction including nuclear weapons in space.

- **Underground** testing is referred to as the least harmful type of nuclear testing. Underground tests are conducted below the surface of the earth. During the Cold War, the majority of the tests that were conducted by the US and Soviet Union were underground nuclear tests. Underground nuclear tests result in seismic activity.
- **Atmospheric** testing is the type of nuclear testing where the tests occur in the atmosphere. It usually takes place through means such as but not limited to; detonating devices on towers, balloons, descending from airplanes. Atmospheric testing leads to excessive amounts of nuclear fallout.
- **Underwater** testing occurs when nuclear devices are detonated underwater. Underwater testing is to understand and evaluate the effects of nuclear weapons against naval vessels.

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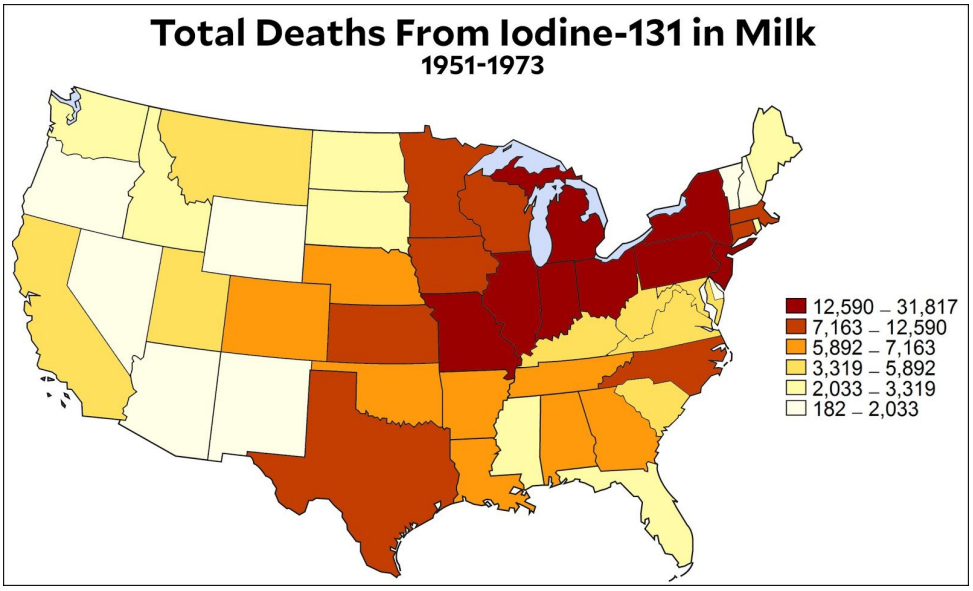
Nuclear Fallouts

The dangers of nuclear fallouts have been a threat to humanity since the start of nuclear enhancement programs in nations. During the detonation of a nuclear weapon, radioactive substances are released in the form of a nuclear fallout (usually released during and after an atmospheric nuclear test). Due to these radioactive fallouts, people have been exposed to substances such as Iodine131. Iodine 131 is a radioisotope of iodine. It's the primary radioisotope that led to health hazards due to atmospheric nuclear tests. Radioisotopes that spread via radioactive nuclear fallouts assemble on vegetative products and appear in the nutrition that is, later on, consumed by people. Nuclear Fallouts are the main causes of diseases that occur due to nuclear testing. Since nuclear fallouts blend with the atmosphere it's safe to say that mankind is exposed to radioactive substances in many ways.



total deaths from iodine-131 in dairy produced in the United States between 1951 and 1973.

SubCritical (Cold) Nuclear Testing

Cold Nuclear testing involves many methods that result in no yield. Cold Tests are the only type of tests that the Comprehensive Nuclear-Test-Ban Treaty allows. Since the 1990s; the Russian Federation, USA and People's Republic of China have been performing nuclear tests by using such methods. Most cold fusion research nowadays is being carried out by Japan. The tests that do not release colossal amounts of radioactive substances are called subcritical tests. One example of a method used to conduct a subcritical test is computer simulations.

Since 1992, the United States of America scientists have been gathering up to conduct Subcritical (cold) nuclear "tests". Some scientists call these tests "cold" nuclear tests since these tests aren't based on physical tests. The US DARPA (Defense Advanced Research Program Agency) carried out researches in order to build the largest computer that can work efficiently in the process of forming nuclear testing simulations. This new program was almost as efficient as the physical one but one might accept the fact that it had some deficiencies. Some scientists find the program inadequate since they believe that physical tests will always be needed in order to measure some of the variables such as heat.

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Timeline of Major Events

Date	Description
16 July 1945	**"**TRINITY**"** The detonation of the first nuclear weapon by the US.
29 August 1949	"RDS1" Soviet Union's first nuclear test occurs.
3 October 1952	"Hurricane" United Kingdom's first nuclear test was followed through.
13 February 1960	France follows through its first nuclear test "Gerboise Bleue" in French Algeria.
5 August 1963	The Nuclear Test ban Treaty was signed by the US, UK and the Soviet Union.
1 July 1968	The treaty on the Non-Proliferation of Nuclear Weapons was signed.
18 May 1974	India's first successful nuclear weapon was tested. "Smiling Buddha"
10 September 1996	CTBT (Comprehensive Nuclear Test Ban Treaty) was adopted.
28 May 1998	Pakistan's first nuclear test took place in Ras Koh Hills. Chagai-I was its code name.
9 October 2006	North Korea tested its first nuclear weapon (but delegates should keep in mind that this wasn't North Korea's first missile test, North Korea had been conducting missile tests since 1993.) after announcing their intention on October 3.
7 July 2017	The Treaty on the Prohibition of Nuclear Weapons (TPNW) first legally binding international agreement on the prevention of nuclear weapons.
September 2017	The most recent nuclear weapons test took place

	in North Korea. (hydrogen bomb)

Major Countries and Organizations Involved

United States:

The American development in nuclear technology began in World War II with the establishment of the Manhattan Project. The United States was the first nation to detonate a nuclear device. The United States conducted 1,032 nuclear tests between 1945 and 1992. Since 1992 the United States of America has been conducting nuclear tests via computer simulations (subcritical tests). The US has many test sites dedicated for this purpose, including test sites in Nevada and the Marshall Islands. The United States of America conducted 210 nuclear tests during the Cold War Era.

Russian Federation (Formerly known as the Soviet Union) :

The Russian Federation is one of the 5 countries that is considered as a nuclear-weapon state. Before the dissolution of the Soviet Union, on October 30th, 1961, The Soviet Union detonated the biggest nuclear weapon which had the biggest yield figure (50 Mt). Western Nations refer to it as the "Tsar Bomba" since it was requested by the Tsar Nikita Sergeyevich Khrushchev to detonate such a nuclear weapon. Tsar Bomba (original name: RDS 202 hydrogen bomb), is also considered as the most destructive weapon ever created. The Soviet Union tested its first atomic bomb on 29 August 1949 which is considered as the start of the Cold War which is the nuclear arms race between the United States and the Soviet Union. After the dissolution of the Soviet Union, the Russian Federation did not implement any nuclear tests.

Pakistan

Pakistan had its first nuclear test in May 1998. The code name for the five simultaneous underground tests was Chagai-I. Its timing served as a direct response to India's second nuclear test. This cold battle between Pakistan and India led to the establishment of another Security Council

Resolution on the topic. Some of the most developed countries such as the United States and Japan also implemented economic sanctions on both countries as a response.

People's Republic of China (PR China)

China is one of the five countries that is recognized as nuclear-weapon states by the NPT (Non-Proliferation Treaty). Many nuclear tests have been put into action by the Chinese Government. These nuclear tests also included hydrogen bomb tests. China stopped testing nuclear weapons in 1996 after the country signed the CTBT (Comprehensive Nuclear Test Ban Treaty).

India

India's first test "Smiling Buddha" was conducted in May 1974. India is one of the 4 nations that possess nuclear weapons but did not yet sign the NPT. Until now India implemented 3 nuclear tests. India has been focusing on nuclear weapons since the end of World War II.

North Korea

In the 1960s North Korea asked both China and the Soviet Union to aid North Korea in developing a nuclear weapon program. Both nations refused to provide such help. North Korea commenced its nuclear weapons program in the 1980s. North Korea withdrew from the NPT in 2003. In 2006 North Korea settled to shut down its main nuclear reactor but at the same time banned IAEA inspectors to ever have access to the site in order for them to conduct inspections. North Korea kept on carrying out nuclear weapon tests even after 2006. Many agencies including the CIA made investigations on North Korea's nuclear situation. Recently in 2017, North Korea detonated its most recent underground hydrogen bomb. Later that year, On November 20, 2017, Donald Trump the President of the United States recognized North Korea as a state sponsor of terrorism.

France

France is one of the nuclear-weapon states. France made 210 nuclear tests. French nuclear tests were carried out in French Algeria (on deserts) and French Polynesia.

United Kingdom

The United Kingdom is a nuclear-weapon state and was the third nation to detonate its first nuclear weapon. The United Kingdom was one of the nations that started the Manhattan Project which

led to the detonation of the first nuclear weapon. The United Kingdom kept on carrying out nuclear tests through cold tests.

UNODA (United Nations Office of Disarmament Affairs)

As the office that involves disarmament affairs, one can guess that UNODA has a special concern on this specific topic. UNODA has passed many resolutions and conducted many researches on the topic, and is still working on it.

Iran

Iran started developing nuclear technology in the 1970s with the assistance of the United States Atoms for Peace program. Iran signed the NPT in 1968 and ratified the treaty in 1970. In those years Iran was ruled by the Shah and was considered as a non-nuclear weapon state. After the Iranian Revolution in 1979, Iran kept on developing its nuclear program via special assistance from China and Russia. In the 1980s Iran developed its nuclear program by increasing the usage of uranium and experimenting on it. Two decades later, In August 2002, the National Council of Resistance of Iran revealed the existence of two secreted nuclear facilities. IAEA concluded a report on Iran stating that Iran had failed to meet its obligations according to the safeguard agreement, diplomatic negotiations between Iran and EU countries such as Germany, the United Kingdom, and France began. Soon a consensus was reached in these diplomatic negotiations which meant that Iran finally agreed to fully cooperate with IAEA. This was followed by Iran signing the Paris Agreement in which Iran agreed to temporarily cease enhancements, manufacture, and testing of nuclear weapons. Nevertheless, In 2005 after the elections, Iran slowly started to change its new policy and went back to enhancing its nuclear program. In 2006 Iran's nuclear program became a huge concern for the UN and its member states. International measures were taken such as freezing the assets of some Iranian authorities. UN adopted 5 resolutions on Iran's nuclear program. These resolutions were numbered as; 1747, 1803, 1835, 1929. In 2009 former president of the United States, Barack Obama revealed the presence of an underground enrichment facility in Iran. In 2013 after Hassan Rouhani was elected as the president of Iran, Barack Obama had a phone call which showed that the two nations were finally ready to cooperate. After long-lasting negotiations on November 24, 2013, an agreement called the Joint Plan of Action was signed by P5+1 countries and Iran. It included Iran agreeing to freeze portions of its nuclear program in exchange for a decline in the economic sanctions that were placed upon Iran. This was seen as the first step and the start of a long-term agreement. The Agreement was put into action in

2014. Furthermore, the same states that signed the Joint Plan of Action signed a more detailed nuclear deal called the JCPOA (Joint Comprehensive Plan of Action) in 2015. This agreement was followed through with the authorization of the United Nations Security Council. Although this nuclear deal was signed by P5+1 states and Iran, In 2018 President of the United States declared their withdrawal from the JCPOA. After its withdrawal, the United States continued to place sanctions on Iran. Iran kept abiding by JCPOA until July 2019. In July 2019 IAEA announced that Iran had violated the agreement and Iran has been violating ever since.

IAEA (International Atomic Energy Agency)

IAEA promotes the peaceful development of nuclear energies in member states. IAEA conducts researches on this topic. IAEA provides support to ensure safe and secure enhancements of nuclear technology.

Previous Attempts to Solve the Issue

The First Resolution adopted by the UN, (A/RES/1) (January 24, 1946)

This is the very first resolution adopted by the UN on any topic. It was adopted without voting and it suggested the establishment of a Commission to handle issues related to atomic energy. This Commission was called, "United Nations Atomic Energy Commission" (UNAEC).
https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/1(I)

Partial Nuclear Test Ban Treaty (PTBT) (5 August 1963)

This treaty aimed to ban all nuclear tests except underground tests. This Treaty was signed by the United States, the Soviet Union, and the United Kingdom but France and China refused to sign the treaty. Later on, France signed the treaty in 1974 and China signed the treaty in 1980.

Treaty on the Non-Proliferation of Nuclear Weapons / also known as the Non-Proliferation Treaty (NPT) (1 July 1968)

An international treaty whose goal is to encourage and enhance peaceful nuclear energy programs in nations and at the same time prevent nuclear weapon programs from further developing. The treaty was opened for signature in 1968. This treaty was the first treaty to define nuclear weapon states. This treaty defined nuclear weapon states as the following since these states were the only ones that have built and tested their nuclear weapons by the time of 1 January 1967; USA, UK, Russia, PR China, France. The treaty became applicable in 1970. Every five years member states gather to reconsider the

treaty. The treaty focuses on Non-Proliferation and disarmament while also focusing on peaceful ways of developing nuclear energy programs. Only 4 states have never signed the treaty, these states are; India, Israel, Pakistan, and South Sudan.

Comprehensive Nuclear Test Ban Treaty (CTBT)
(10 September 1996)

CTBT bans explosions of nuclear weapons everywhere and in every sort. This treaty differs from the previous treaties since it also bans underground nuclear tests. No country other than India, Pakistan and North Korea tested nuclear weapons after the CTBT became applicable in 1996.
168 member states ratified the treaty.

Treaty on the Prohibition of Nuclear Weapons (TPNW) / Also known as the Nuclear Ban Treaty
(7 July 2017)

The first legally binding international agreement on the prohibition of Nuclear Weapons. The idea of the treaty began in the UN General Assembly in 2016. The treaty was opened for signing on 7 July 2017. None of the nuclear-weapon states voted. They were 122 in favor and 1 against vote. By the time of 23 January 2020, 35 member states have signed and ratified the treaty. The treaty not only bans the testing of nuclear weapons but also bans the nations to use it as a threat. Additionally, the treaty also bans the production of any sorts of nuclear weapon.

Adopted by the General Assembly at its 64th meeting on 2 December 2009
(A/RES/64/35)

This resolution accepts the fact that nuclear tests are one of the main obstacles in achieving the goal of a nuclear-weapon-free world and the UN shall combat this obstacle in order to achieve this goal.
https://undocs.org/A/RES/64/35

JCPOA (Joint Comprehensive Plan of Action)
(14 July 2015)

A comprehensive agreement between P5+1 nations and Iran, that led to a cease in Iran's nuclear program.

Possible Solutions

This issue is one of the hardest issues to combat since nations, specifically more economically developed countries that possess nuclear weapons, refuse to cooperate. Delegates should focus on finding solutions that are beneficial for the nuclear-weapon states while at the same time beneficial for the environment. Preparing efficient legally binding agreements, executing productive and solution-oriented negotiations, and imposing precise sanctions are a way to solve the issue but as one can see, they're not enough. Delegates should consult with UN research labs in order to develop methods of nuclear testing that don't result in radioactive nuclear fallout. Delegates should also make sure that a majority of the member states signed and ratified the relevant treaties, if not encourage them to do so. Further inspections and research might be carried out by the IAEA. On the other hand,

delegates should keep in mind that food products are also affected by nuclear fallouts. Most of the food people consume in specific regions include radioisotopes that lead to radiation poisoning and heavy diseases such as cancer. Awareness among nations could be another way to solve the issue. Many nations do not have as much knowledge on nuclear programs. Nations can share information on carrying out peaceful methods to develop nuclear energy. But above all, delegates should keep in mind their diplomatic approach and act accordingly.

Useful Links For Further Research

https://www.ctbto.org/

https://www.iaea.org/

https://books.google.com.tr/books?id=t5jDCwAAQBAJ&pg=PA122&lpg=PA122&dq=activities+of+UNAEC&source=bl&ots=A91vhnug_1&sig=ACfU3U2jVsDQkNdl3-vR81XYLjDVOkFhNQ&hl=tr&sa=X&ved=2ahUKEwiw763Hv9rnAhWvxaYKHeOWDOcQ6AEwAHoECAcQAQ#v=onepage&q=activities%20of%20UNAEC&f=false

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