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Development of space law during cold war

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Abstract
The cold war took the world by strides after Second World War and continued till early 1990's until the disintegration of the USSR, More than a war, it was an ideological conflict. It was a conflict between what was a better way to run the world- Capitalism or Communism. Cold war refers to a situation where the countries are not actually at war with each other but still tensions prevail between them. It was a decade's long struggle for global domination and impacted each and every aspect of the world from politics to society and from economy to the science.
The cold war resulted in the space war between the two power blocs in order to prove their supremacy before the world. During the cold war years a number of missions were undertaken both by the USA and USSR to prove their supremacy. Moreover at the same time so as to prevent the indiscriminate misuse of the space a number of treaties and conventions also came into the picture.
This project focuses on what cold war was and how it resulted in the space war. Along with this various space missions and treaty conventions have also been dealt it detail.

Keywords: sputnik, Laika, able and baker, van Allen rays, Apollo

1. Introduction

What was cold war?

The end of Second World War is a landmark in contemporary world politics. In 1945, Allied Forces, led by the US, Soviet Union, Britain and France defeated the Axis Powers led by Germany, Italy, and Japan which lead to the end of second world war. The war had involved almost all the major powers of the world and spread out to regions outside Europe including Southeast Asia, China, Burma and parts of India's northeast. The war devastated the world in terms of loss of human lives and civilian property [1].
The Cold war was an outcome of the emergence of the US and USSR as two superpowers rival to each other. It was also rooted in the understanding that the destruction caused by the use of atom bombs is too costly for any country to bear. The logic is simple yet powerful. When two rival powers are in possession of nuclear weapons capable of inflicting death and destruction unacceptable to each other, a full-fledged war is unlikely. In spite of provocation weapons capable of inflicting death and destruction unacceptable to each other, a full-fledged war is unlikely. In spite of provocations, neither side would want to risk war since no political gains would justify the destruction of their societies. In the event of a nuclear war, both sides will be so badly harmed that it will be impossible to declare one side or the other as the winner. Even if one of them tries to attack and disable the nuclear weapons of its rival, the other would still be left with enough nuclear weapons to inflict unacceptable destruction. This is called the logic of' deterrence': both sides have the capacity to retaliate against an attack and to cause so much destruction that neither can afford to initiate war. Thus, the Cold War— in spite of being an intense form of rivalry between great powers — remained a 'cold' and not hot or shooting war. The deterrence relationship prevents war but not the rivalry between powers.
The two superpowers and the countries in the rival blocs led by the superpowers were expected to behave as rational and responsible actors. They were to be rational and responsible in the sense that they understood the risks in fighting wars that might involve the two superpowers. When two superpowers and the blocs led by them are in a deterrence relationship, fighting wars will be massively destructive.
Responsibility, therefore, meant being restrained and avoiding the risk of another world war. In this sense the Cold- War managed to ensure human survival.
The two superpowers were keen on expanding their spheres of influence in different parts of the world. In a world sharply divided between the two alliance systems, a state was supposed to remain tied to its protective superpower to limit the influence of the other superpower and its allies. The smaller states in the alliances used the link to the superpowers for their own purposes. They got the promise of protection, weapons, and economic aid against their local rivals, mostly regional neighbors with whom they had rivalries. The alliance systems led by the two superpowers, therefore, threatened to divide the entire world into two camps. This division happened first in Europe. Most countries of Western Europe sided with the US and those of eastern Europe joined the Soviet camp. That is why these were also called the 'western' and the 'eastern' alliances [2].

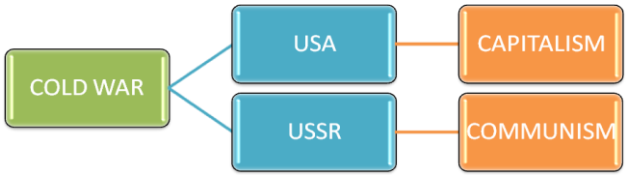

Fig 1: Diagrammatical representation of cold war blocs

2. What is space law?

Space law is an area of the law that encompasses national and international law governing activities in outer space. International lawyers have been unable to agree on a uniform definition of the term “outer space”, although most lawyers agree that outer space generally begins at the lowest altitude above sea level at which objects can orbit around the sun much like the Earth. The inception of the field of space law began with the launch of the world’s first artificial satellite by the Soviet Union in October 1957, Named Sputnik 1, the satellite was launched as part of the International Geophysical Year. Since that time, space law has evolved and assumed more importance as humankind has increasingly come to use and rely on space-based resources [3].

3. What was space race

After World War II drew to a close in the mid-20th century, a new conflict began. Known as the Cold War, this battle pitted the world’s two great powers–the democratic, capitalist United States and the communist Soviet Union–against each other. Beginning in the late 1950s, space would become another dramatic arena for this competition, as each side sought to prove the superiority of its technology, its military firepower and–by extension–its political-economic system [4].

The space race was a series of competitive technology demonstrations between the United States and the Soviet Union, aiming to show superiority in spaceflight. It was an outgrowth of the mid-20th-century Cold War, a tense global conflict that pitted the ideologies of capitalism and communism against one another, according to an online exhibit from the National Air and Space Museum [5].

The opening salvo of the space race was the launch of the Soviet satellite Sputnik 1 on Oct. 4, 1957. The U.S. government had already been planning to launch its own artificial satellite, and members of the public were shocked when they saw that the Soviet Union, which had been devastated during World War II, was able to achieve this milestone first, NASA wrote on the 60th anniversary of the launch [6].

The Soviets followed up with another triumph less than a month later with the launch of Sputnik 2, which carried a dog named Laika. It wasn't until the next year, 1958, that the Americans had their first achievement in the space race, launching a satellite called Explorer 1. That same year, NASA was founded and publicly announced the creation of a program to send human passengers into space [7].

Still, for much of the first half of the space race, the Soviet Union was considered to be ahead. Its engineers accomplished many firsts, including the first mission to leave Earth orbit, Luna 1; the first probe to reach the moon, Luna 2; and the first spacecraft to head toward Venus, Venera, which stopped responding a week after its launch.

On April 12, 1961, the Soviets obtained another spectacular victory with the successful flight of Yuri Gagarin, the first person to fly in space. After returning to Earth, Gagarin was celebrated as an international hero. Gagarin beat the first American, Alan Shepard, into space by less than a month. Shepard's flight took place on May 5, 1961.

A major turning point in the space race occurred that same month, when U.S. President John F. Kennedy stood before legislators in Congress and announced that he had committed NASA to landing people on the moon before the end of the decade. A few months later, at Rice University in Texas, Kennedy delivered his famous "Moon Speech," where he said, "We choose to go to the moon … in this decade and do the other things, not because they are easy, but because they are hard [8]."

Over the next few years, each side in the space race took several other firsts. The Americans achieved the first interplanetary flyby when Mariner 2 sped past Venus in 1962, followed by the first Mars flyby in 1965 with Mariner 4. The Soviets sent the first woman into space, Valentina Tereshkova, in 1963 (a feat that would take the U.S. 20 more years to achieve). Other nations launched their own rockets and satellites, including Canada in 1962, France in 1965, and Japan and China in 1970. But these countries' successes were mere sideshows in what came to be the main event of the space race: NASA's Apollo program. Following the achievements of the crewed Mercury and Gemini programs, NASA engineers embarked on a series of missions to place human footprints on the moon. NASA's successful Apollo program meant the U.S. was widely considered the winner of the space race [9].

Both USA and USSR launched several missions as a part of the ongoing space race. The following few sections discuss brief account of some of these missions.

4. Missions launched BU ussr as a part of space race

4.1) Launching of sputnik 1

Sputnik 1- the first artificial spacecraft was launched from Baikonur Cosmodrome at Tyuratam (370 km southwest of the small town of Baikonur) in Kazakhstan, then part of the former Soviet Union. The Russian word "Sputnik" means "companion" ("satellite" in the astronomical sense) [10].

In 1885 Konstantin Tsiolkovsky first described in his book, Dreams of Earth and Sky, how such a satellite could be launched into a low altitude orbit. It was the first in a series of four satellites as part of the Sputnik program of the former Soviet Union and was planned as a contribution to the International Geophysical Year (1957-1958) [11]. Three of these satellites (Sputnik 1, 2, and 3) reached Earth orbit.

The Sputnik 1 satellite was a 58.0 cm-diameter aluminum sphere that carried four whip-like antennas that were 2.4-2.9 m long. The antennas looked like long "whiskers" pointing to one side. The spacecraft obtained data pertaining to the density of the upper layers of the atmosphere and the propagation of radio signals in the ionosphere. The instruments and electric power sources were housed in a sealed capsule and included transmitters operated at 20.005 and 40.002 MHz , the emissions taking place in alternating groups of 0.3 s in duration. The downlink telemetry included data on temperatures inside and on the surface of the sphere.

The satellite transmitters operated for three weeks, until the on-board chemical batteries failed, and were monitored with intense interest around the world. The orbit of the then inactive satellite was later observed optically to decay 92 days after launch (January 4, 1958) after having completed about 1400 orbits of the Earth over a cumulative distance traveled of 70 million kilometers. The orbital apogee declined from 947 km after launch to 600 km by Dec. 9th.

The Sputnik 1 rocket booster also reached Earth orbit and was visible from the ground at night as a first magnitude object, while the small but highly polished sphere, barely visible at sixth magnitude, was more difficult to follow optically. Several replicas of the Sputnik 1 satellite can be

seen at museums in Russia and another is on display in 4.2) Smithsonian National Air and Space Museum in Washington, D.C

4.2 Laika the first living creature in the outer space

Laika a stray mongrel from the streets of Moscow became one of the first animals in space. In addition to this she became the first animals to orbit the earth. She was launched into the outer space as an occupant of Sputnik 2 on November 3rd,1957.

It was much more than evident that Laika would not return alive back to the earth as at that time the scientists and researchers had no knowledge abou how to de-orbit space craft and also on the impact of space flight on living creatures.

One of the technicians preparing the capsule before final liftoff stated that "after placing Laika in the container and before closing the hatch, we kissed her nose and wished her bon voyage, knowing that she would not survive the flight [12].

Some scientists believed humans would be unable to survive the launch or the conditions of outer space, so engineers viewed flights by animals as a necessary precursor to human missions [13].

Laika died within a few hours from hyperthermia, which is believed to be caused by a failure of the central R-7 sustainer to separate from the payload.

On 11 April 2008, Russian officials unveiled a monument to Laika. A small monument in her honour was built near the military research facility in Moscow that prepared Laika's flight to space. It portrayed a dog standing on top of a rocket. She also appears on the Monument to the Conquerors of Space in Moscow.

4.3 Yurı Gagarın : The Space Hero

Yuri Gagarin, in full Yuri Alekseyevich Gagarin, was born on March 9, 1934, near Gzhatsk, Russia, U.S.S.R. Her was a Soviet cosmonaut who in 1961 became the first man to travel into space. The US launched American citizen Alan Shepard into space less than a month later on 5 May 1961 [15].

The son of a carpenter on a collective farm, Gagarin graduated as a molder from a trade school near Moscow in 1951. He continued his studies at the industrial college at Saratov and concurrently took a course in flying. On completing this course, he entered the Soviet Air Force cadet school at Orenburg, from which he graduated in 1957 [16]. Gagarin's 4 3/4-ton Vostok 1 spacecraft was launched at 9:07 am Moscow time on April 12, 1961, orbited Earth once in 1 hour 29 minutes at a maximum altitude of 187 miles (301 km), and landed at 10:55 am in the Soviet Union. His spaceflight brought him immediate worldwide fame. He was awarded the Order of Lenin and given the titles of Hero of the Soviet Union and Pilot Cosmonaut of the Soviet Union. Monuments were raised to him, and streets were renamed in his honour across the Soviet Union.

Gagarin never went into space again but took an active part in training other cosmonauts. He made several tours to other nations following his historic flight, and from 1962 he served as a deputy to the Supreme Soviet. Gagarin was killed with another pilot in the crash of a two-seat jet aircraft while on what was described as a routine training flight. His ashes were placed in a niche in the Kremlin wall. After his death in 1968 the town of Gzhatsk was renamed Gagarin.

4.4 Valentina Tereshkova: The First Woman Cosmonaut In The Space

Valentina Tereshkova, in full Valentina Vladimirovna Tereshkova, (born March 6, 1937, Maslennikovo, Russia, U.S.S.R.), Soviet cosmonaut, the first woman to travel into space [18].

On June 16, 1963, she was launched in the spacecraft Vostok 6, which completed 48 orbits in 71 hours. In space at the same time was Valery F. Bykovsky, who had been launched two days earlier in Vostok 5; both landed on June 19 [19].

Although she had no pilot training, Tereshkova was an accomplished amateur parachutist and on this basis was accepted for the cosmonaut program when she volunteered in 1961 [20].

She left the program just after her flight, and on November 3, 1963, she married Andriyan G. Nikolayev, another cosmonaut. Tereshkova was named a Hero of the Soviet Union and was twice awarded the Order of Lenin [21].

4.5 Alexie leonov and space walk

Alexie Leonov was born inListvyanka, West Siberian Krai, then Soviet Union. He was selected to be part of the first cosmonaut group in 1960.His walk in space was originally to have taken place on the Voskhod 1 mission, but this was cancelled, and the historic event happened on the Voskhod 2 flight instead [22].

He was outside the spacecraft for 12 minutes and nine seconds on 18 March 1965, connected to the craft by a 5.35-metre (17.6 ft) tether. At the end of the spacewalk, Leonov's spacesuit had inflated in the vacuum of space to the point where he could not re-enter the airlock. He opened a valve to allow some of the suit's pressure to bleed off and was barely able to get back inside the capsule [23]. Leonov had spent eighteen months undergoing intensive weightlessness training for the mission. Leonov is the last survivor of the five cosmonauts in the Voskhod programme [24].

5. Missions undertaken by usa as a part of space race

5.1 Explporer 1 and van alllen rays

On October 4, 1957, the Soviet Union secretly fired Sputnik 1 into space, making it the world's first artificial satellite. Circling the globe at nearly 18,000 miles per hour (29,000 kilometers per hour), the beach-ball-sized, 190-pound orb took about 90 minutes to orbit the Earth. On the ground, however, citizens of the United States were temporarily frozen [25]. "Now we have a Soviet object flying overhead. And it was clear that they could build a missile now that would reach the United States," said Don Gurnett, a physics professor at the University of Iowa who has been intimately involved with space probes ranging from Voyager to Cassini. "And so there was this huge inferiority complex that had developed in the United States- we were behind [26].

In 1958 The U.S. announced the successful launch of Explorer 1 at the National Academy of Sciences in Washington. Explorer 1 continued to transmit data while orbiting Earth for about four months, but eventually its batteries gave out, causing it to stop operating on May 23, 1958. Though the satellite was essentially dead, it continued to circle the globe for almost twelve more years, completing over 58,000 orbits. Explorer 1 burned up upon re-entry to Earth's atmosphere on March 31, 1970 [27].

Much like Sputnik 1 and 2, Explorer 1 was more than just a proof of concept; it was intended to collect valuable scientific data.

Explorer 1 had three main scientific objectives:

- To record the temperature above Earth's atmosphere.
- To monitor micrometeorite impacts, and, most importantly [28].
- To explore the radiation environment around Earth by using Van Allen's Geiger tubes to hunt for cosmic rays.
- With this finding, Van Allen had made the first great discovery of the Space Age. He found that doughnut-shaped regions of high-energy particles that are held in place by Earth's magnetic field surround our planet. However, initially, the Soviets were skeptical of the discovery [29].

5.2 Able and baker: the monkeys who returned alive from the space

After the intensive tests with the V2 rockets in the early years of the 1950s, American scientist started aiming for a real trip to space. They finished assembly of the brand new rocket Jupiter AM-13 that was able to send its capsule to the altitude of over 300 miles. Their first test subject was a small squirrel monkey called Gordo. His 1958 journey into space was considered success even tough he died because of equipment failure during re-entry into Earths atmosphere [30].

In 1959, the U.S. needed a Cold War win and the country was eyeing spaceflight. And so a pair of mismatched monkeys found themselves bundled up and placed in a Jupiter missile. Dubbed Able and Baker, they became the first primates to survive spaceflight during a suborbital predawn flight on May 28, 1959 [31].

On May 25, 1959 NASA launched another mission with two monkey passengers – male rhesus monkey Able and female squirrel monkey Baker. Goal of that mission was to closely monitor life signs, mental state and cabin environment of both monkeys and safely return them to Earth alive. Both monkeys were suited with special space suits that would protect them in case their capsule sustained any damage. Wide array of scientific equipment monitored their heart beat, body temperature, muscular reaction and rate of breathing. During the flight that lasted over 15 minutes, powerful Jupiter AM-13 raised both monkeys to the space traveling with speed over 10.000 miles per hour. Both monkeys enjoyed their ride, while Baker even almost fell asleep during their 9 minute period of weightlessness. The capsule landed in South Pacific with monkeys alive and well, some 1500 miles away from the Cape Canaveral launching center in Florida [32].

Success of this mission proved to the scientist that the manned mission to the space was indeed feasible. Monkeys survived period of weightlessness very well, and during re-entry they encountered G forces up to 38. One day after they returned Able died during a medical procedure when they tried to extract a sensor electrode that was implanted to him before the mission. Surviving monkey Miss Baker instantly became US national celebrity, appearing in wide variety of television programs and paper articles. She lived for another 24 years [33].

5.3 Project Score

Project SCORE or alternatively known as (Signal Communications by Orbiting Relay Equipment) was the world's first purpose-built communications satellite. It was launched aboard by an American Atlas rocket on December 18, 1958.

SCORE provided the following:

- SCORE provided the second test of a communications relay system in space
- The first broadcast of a human voice from space
- The first successful use of the Atlas as a launch vehicle.

It captured the attention of the world by broadcasting a Christmas message via shortwave radio from U.S. President Dwight D. Eisenhower through an on-board tape recorder [35].

The satellite was popularly dubbed "*The Talking Atlas*". SCORE, as a geopolitical strategy, helped in placing the United States at an even technological par with the Soviet Union as a highly functional response as compared to the Sputnik 1 and Sputnik 2 satellites.

5.4 Explorer 6

Explorer 6 was a small, spheroidal satellite designed to study the following aspects:

- Trapped radiation of various energies
- Galactic cosmic rays
- Geomagnetism
- Radio propagation in the upper atmosphere
- The flux of micrometeorites.
- It also tested a scanning device designed for photographing the earth's cloud cover [36].

The satellite was launched into a highly elliptical orbit with an initial local time of apogee of 2100 h. Four solar cell paddles mounted near its equator recharged the storage batteries while in orbit. Each experiment except the television scanner had two outputs, digital and analog. A UHF transmitter was used for the digital telemetry and the TV signal. Two VHF transmitters were used to transmit the analog signal. The VHF transmitters were operated continuously. The UHF transmitter was operated for only a few hours each day. Only three of the solar cell paddles fully erected, and this occurred during spin up rather than prior to spin up as planned [37].

One VHF transmitter failed on September 11, 1959, and the last contact with the payload was made on October 6, 1959, at which time the solar cell charging current had fallen below that required to maintain the satellite equipment. A total of 827 h of analog and 23 h of digital data was obtained [38].

On 14 August 1959, Explorer 6 took the first image of Earth ever by a satellite. It was over Mexico at an altitude of approximately 27000 km. The image was a very crude picture of the north central Pacific Ocean, transmitted to a ground station in Hawaii over a 40 minute span [39].

5.5 Mariner 4

Mariner 4 was the fourth in a series of spacecraft used for planetary exploration in a flyby mode and represented the first successful flyby of the planet Mars, returning the first pictures of the martian surface. These represented the first images of another planet ever returned from deep space. Mariner 4 was designed to conduct closeup scientific observations of Mars and to transmit these observations to Earth. Other mission objectives were to perform field and particle measurements in interplanetary space in the vicinity

of Mars and to provide experience in and knowledge of the engineering capabilities for interplanetary flights of long duration [40].

5.6 Apollo 8

This spacecraft was the first of the Apollo series to successfully orbit the moon, and the first manned spacecraft to leave Earth's gravity and reach the Moon. The mission achieved operational experience and tested the Apollo command module systems, including communications, tracking, and life-support, in cis-lunar space and lunar orbit, and allowed evaluation of crew performance on a lunar orbiting mission. The crew photographed the lunar surface, both farside and nearside, obtaining information on topography and landmarks as well as other scientific information necessary for future Apollo landings. Additionally, six live television transmission sessions were done by the crew during the mission, including the famous Christmas Eve broadcast in which the astronauts read from the book of Genesis. All systems operated within allowable parameters and all objectives of the mission were achieved. The flight carried a three man crew: Commander Frank Borman, Command Module Pilot James A. Lovell, Jr., and Lunar Module Pilot William A. Anders [41].

5.7 Apollo 11

Apollo 11 was the first mission in which humans walked on the lunar surface and returned to Earth. On 20 July 1969 two astronauts (Apollo 11 Commander Neil A. Armstrong and LM pilot Edwin E. "Buzz" Aldrin Jr.) landed in Mare Tranquilitatis (the Sea of Tranquility) on the Moon in the Lunar Module (LM) while the Command and Service Module (CSM) (with CM pilot Michael Collins) continued in lunar orbit. During their stay on the Moon, the astronauts set up scientific experiments, took photographs, and collected lunar samples. The LM took off from the Moon on 21 July and the astronauts returned to Earth on 24 July [42].

The Apollo program included a large number of uncrewed test missions and 12 crewed missions: three Earth orbiting missions (Apollo 7, 9 and Apollo-Soyuz), two lunar orbiting missions (Apollo 8 and 10), a lunar swing by (Apollo 13), and six Moon landing missions (Apollo 11, 12, 14, 15, 16, and 17). Two astronauts from each of these six missions walked on the Moon (Neil Armstrong, Edwin Aldrin, Charles Conrad, Alan Bean, Alan Shepard, Edgar Mitchell, David Scott, James Irwin, John Young, Charles Duke, Gene Cernan, and Harrison Schmitt), the only humans to have set foot on another solar system body. Total funding for the Apollo program was approximately $20,443,600,000 [43].

6 various treaties of united nations on regulation of space

6.1 Declaration of legal principles governing the activities of states in the exploration and use of outer space, 1947

On 3rd November 1947, the General Assembly which was inspired by the great prospects mankind's' achievements in reaching out to space and outer space, recognized the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes. The members of UNGA believed that the exploration and use of outer space should be carried on for the improvement of mankind and for the benefit of States irrespective of their degree of economic or scientific development. Their desire was to contribute to international co-operation in the format of scientific and legal development, and to promote the exploration and use of outer space for peaceful purposes. It was their belief at the time that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between nations and peoples [44].

6.2 Declaration on international cooperation in the exploration and use of outer space for the benefit and in the interest of all states, taking into particular account the needs of developing countries, 1966

The UNGA, having considered the report of the Committee on the Peaceful Uses of Outer Space, on the work of its thirty-ninth session [45] and the text of the Declaration on International Cooperation in the Exploration and Use of Outer Space for the advantage and in the interest of all human being, has focused on particular on the Needs of Developing Countries, as approved by the Committee and annexed to its report [46].

6.3 Outer space treaty or **treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies**, **(1967)**

It is an international treaty binding the parties to use outer space only for peaceful purposes. In June 1966 the United States and the Soviet Union submitted draft treaties on the uses of space to the United Nations. These were reconciled during several months of negotiation in the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space, and the resulting document was endorsed by the UN General Assembly on Dec. 19, 1966, and opened for signature on Jan. 27, 1967. The treaty came into force on Oct. 10, 1967, after being ratified by the United States, the Soviet Union, the United Kingdom, and several other countries [47].

Under the terms of the treaty, the parties are prohibited from placing nuclear arms or other weapons of mass destruction in orbit, on the Moon, or on other bodies in space. Nations cannot claim sovereignty over the Moon or other celestial bodies. Nations are responsible for their activities in space, are liable for any damage caused by objects launched into space from their territory, and are bound to assist astronauts in distress. Their space installations and vehicles shall be open, on a reciprocal basis, to representatives of other countries, and all parties agree to conduct outer-space activities openly and in accordance with international law [48].

In 1959 a permanent Outer Space Committee was formed for the purpose of maintaining the United Nations Charter and other international law in space, which opened the way for peaceful exploration. In 1963 the Nuclear Test Ban Treaty was signed, followed by an Outer Space Committee resolution to prohibit nuclear weapons testing in space. Later that same year a UN General Assembly declaration acknowledged a free international interest in space development and outlined rules assigning each nation individual responsibility for dealing with transgressions of international law and for any resulting destruction. International cooperation was recommended for the safeguarding of all astronauts in crisis situations [49].

In 1967 an Outer Space Treaty was ratified by 63 participants in the United Nations. This agreement

reasserted all earlier guidelines for international space conduct. In addition, it banned certain military activities, such as the deployment of weapons of mass destruction in space and on celestial bodies; established each state's ownership of and responsibility for its space projectiles and components; urged common participation in the protection of space and terrestrial environments; and provided for the open observation and inspection of each state's activities and installations by others. This document has been noted as a landmark in the development of international space law; like most subsequent space-law agreements generated by the United Nations, it remains in effect today among participating countries [50].

6.4 Rescue Agreement

The Rescue Agreement of 1968, or Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the second treaty on outer space drafted in the bosom of the United Nations Committee on the Peaceful Uses of Outer Space, was adopted by a vote of 115-0 on December 19, 1967, opened for signature at Washington, London and Moscow on April 22, 1968, and entered into force on December 3, 1968. As of January 2019, ninety-eight States have ratified the Rescue Agreement of 1968. The Rescue Agreement was considered and negotiated by the Legal Subcommittee of COPUOS from 1962 to 1967. Consensus agreement was reached in the General Assembly in 1967 through Resolution 2345 (XXII). Consideration of the problems treated in the Assistance and Return Agreement has paralleled the Space Age. Elaborating on elements of articles V and VIII of the Outer Space Treaty (1967), the Rescue Agreement of 1968 provides that States shall take all possible steps to rescue and assist astronauts in distress and promptly return them to the Launching State, and that States shall, upon request, provide assistance to Launching States in recovering space objects that return to Earth outside the territory of the Launching State [51].

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