

OUTER SPACE TREATY IN 21ST CENTURY A CHANGE OF CONCEPT

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ABSTRACT

Fantasy of space exploration in 1960's has evolved to an ever increasing scientific strife and real life commercial arena for private venture.

Political competition and gaining national prestige in the beginning, which grow into cooperation and collaboration of governments in development of engineering and scientific knowledge has changed to multinational investment and deep private interest in a very promising new industry with almost no limits for growth, compare what is known in human history.

The pioneers in space explorations and those who put together the treaty have brought us something of value, concept that for duration of written history mass has been longing for. Now those concepts are being challenged and many aspect of life, and space technology will bring a devastating blow in next century, if we choose to take things as they come.

In this paper we review the fundamental concepts of Outer Space Treaty and discuss how they are being or going to be challenged. We also introduce some

measures that can be taken to prepare for the 21st century in space.

INTRODUCTION

On October 4, 1957 a long awaited dream came true. What Isaac Newton had stated about four centuries ago of how to put an object into earth's orbit, had become reality. Sputnik soon after its launch started beeping from space. That was all it did. This made true what Arthur C. Clark, in an article had anticipated in 1945 about space repeaters or as he called them "extra terrestrial relays". Of course U.S. Naval Research Laboratory had successfully transmitted the first voice message through space, using moon to reflect signals¹.

An era of intense and exciting competition started. Soviets had shown their scientific and technological superiority by successful launch of a satellite which was about nine time heavier than U.S. proposed one, and was injected into an orbit twice the altitude of what U.S. had planned².

In less than four months Explorer 1 was launched, on January 31, 1958. In the same year NASA was created as a civil agency to undertake space science and exploration programs.

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The race has just started. The first human, Soviet cosmonaut Yuri Gagarin was launched into orbit on April 12, 1961. Astronaut Neil Armstrong became the first human to set foot on the surface of the moon on July 20, 1969. Space program was a sign of national prestige and honor.

In 1971 Soviet Union was the first to soft land a probe on Mars, which was able to communicate for only 20 seconds. It should be mentioned that after 26 years Pathfinder successfully landed on Mars in 1997 and has been able to communicate and execute commands from earth rather flawlessly.

But soon it was realized that for going along this road successfully, cooperation was needed. Of course for real cooperation to start some time was needed, but it was obvious cooperation is part of the development of this technology.

In 1973 European Space Agency(ESA) was created. Even though this was a replacement for ELDO(European Launcher Development Organization, created in 1961,) but it was a turning point regarding cooperation in development of technology.

This fever of cooperation took many different faces in particular in application of space technology. INTELSAT, INMARSAT and EUTELSAT are the ones created by space fairing nations. The developing countries also tried to get into the game. Indonesia was the first to have its own satellite in 1979. ARABSAT was launched in 1985, providing service to twenty two Arab countries. This list is of course is very long and growing.

In the midst of all dreams and activities the need for cooperation grew to international levels. Several treaties and principals resulted as the consequence. Outer Space Treaty, as the major achievement has prove

to be of historic value. This treaty has been the subject of many discussions³.

MAIN CONCEPTS OF OUTER SPACE TREATY

Many interesting and powerful points were considered and included in the treaty, some of which are as follows:

- The exploration and use of outer space including the moon and other terrestrial bodies shall be carried out for the benefit and in the interest of all countries.
- Peaceful use of outer space
- Outer space shall be the province of all mankind.
- There shall be the freedom of scientific investigation in outer space.
- There shall be free access to all areas of celestial bodies.
- outer space including the moon and other celestial bodies is not subject to national appropriation.
- States shall pursue studies of outer space including the moon and other celestial bodies, and conduct exploration of them, so as to avoid their harmful contamination, and also adverse changes in the environment of the earth, resulting from the introduction of extra terrestrial matter.

The history of human being is a long story of struggle to own and possess, which for the most part has meant to fight, kill and destroy. Many different doctrine and theories were developed to solve or at least ease the situation, which all meant more of the same.

For the first time a phrase has been used, which is unique and brings the hope that

perhaps we have found the solution, i.e. "the province of mankind," which is to be "used peacefully." This phrase is supported by another one to make sure it can be materialized, i.e. "not subject to national appropriation." The picture is perfected by indicating clearly that "the exploration and use of outer space... shall be carried out for the benefit of all countries," regardless of their state of development. Of course the protection of environment is also taken into account. This by itself is of some value, because at the time protection of environment was not a popular and well established idea.

This kind of phrasing certainly shows a consistency in picturing a future different to what the human race is used to. Even if this has come out of political negotiation, it has come out the way it should have. We owe this to ourselves to try to use the opportunity to make a different future for us and coming generations, a future which is an environment for growth, free of wars for possessing of what is the province of mankind. The Outer Space Treaty seems to be the appropriate starting point.

RESPECTED CONCEPTS

Of all provisions considered in the treaty, some have worked well. Through the course of the development process of space technology they have shown to be meaningful and applicable. These are as follows:

- Freedom of scientific investigation in outer space.
- Free access to all areas of outer space and celestial bodies.

- Outer space not being the subject of national appropriation (at least for the time being)

It is quite clear away from technical obstacles that there are no barriers for scientific investigation and free access to all areas of outer space and celestial bodies.

Even the movement of Equatorial States with regard to some specific rights for them in geostationary orbit, failed⁴.

It is obvious that states which enjoy this freedom that outer space treaty has provided for them, are those which have more active roll and more significant technical abilities.

One could argue that freedom of scientific investigation and free access to space are so far exercised, mainly due to the fact no conflict of interest has come up in any situation. But whatever the reason the free nature of the current status is something desirable and of value.

So far non of the participant in the space activities either in exploration and/or application area, has made any claim of appropriation of moon or any other celestial bodies either in whole or in part. This on one hand is a success for the treaty, and on other hand this could be due to the fact that no state has enough establishment any where in the space to justify confronting the national and international public opinion.

Certainly this freedom is essential for exploration and exploitation. Thus if we value this notion, and do not wish to have a change of situation in the course of future development, we have to regulate internationally the outer space activities, in a meaningful manner.

NOT RESPECTED CONCEPTS

There are some provisions in outer space treaty which are not necessarily respected in practice, such as:

- Peaceful use of outer space
- Outer space as a province of all mankind
- Environmental issues in outer space

Even though we have not witnessed a war or a forced conflict in outer space, so far, but military investment in outer space in terms of satellite, and equipment is not only enormous, it is by all means much more capable than nonmilitary ones. These abilities are obviously not accessible to civilian use. The military activities not only outperform the civilian ones in terms of accuracy and coverage, but also in terms of number.

Even star war technology development in 1980's was part of US international and long range policies.

The gap between space fairing nations and the rest of the world with regard to outer space activities and benefit sharing has an ever increasing pace.

Distribution of data from outer space has become more and more selective, restrictive and expensive, especially for developing countries. States can be kept in darkness with regard to data collected by military and civilian satellites from their strategic and much needed information about their natural resources. This information can be misused very easily without any noticeable international objections. In other word mankind is losing his privacy to satellites and space technology which are out his control and jurisdiction. In fact the notion of jurisdiction is no longer of any significance when it comes to space technology.

CONCEPTS FOR 21ST CENTURY

All the provisions of the outer Space Treaty, either those that are being respected, or those that are ignored, do not cover what is needed for the development trend of space technology. There are some new concepts in the space arena that need to be considered, for the sake of saving the underlying principles of Outer Space Treaty. Among the more important ones one can easily notice the following:

- Commercialization and privatization of outer space.
- Liability and insurance.
- Intellectual property rights

Space activities like many other technology development processes started as a scientific curiosity but very soon entered a serious application period both civil and military. Now a days space activities are very much an everyday routine happening. MIR space station renting out its facilities. Many launches are taking place each month, from different launching facilities in different countries. The course of development is such that, ideas like Motorola's IRIDIUM which once was considered very aggressive, soon was a very ordinary project when TELEDISC was proposed to place 1000 satellite in orbit. If reusable launch vehicle was a far reaching idea, using helicopter autorotation concept for landing such vehicle certainly made it look a normal reality. Even though there is still some ways to go before real applications.

This fast pace course of development in space technology has prepared the ground for many investors and entrepreneurs to look at the commercialization of space

activities as an exciting and rewarding one. The volume of investment is certainly noticeable both in government and private sector compare to any other investment sector, one underlying point is that space technology is covering many fields, such as communication, earth observation, micro gravity, remote sensing, telemedicine, navigation... This already immense volume of investment is growing everyday, bearing in mind that exploring space is just taking off, not all its aspect is known yet, and commercialization is in its infancy.

One important issue is the legal frame work necessary for the current and future development. Some indication can be seen that even though the space law has had a fast course of development, there is a tendency to apply national law of one or the other space fairing nations. Of course this tendency has been seen in terrestrial activities, too. The current international law covering space activities are in the form of conventions, which are of a public law character, and to which states are parties.

These conventions do not make directly or indirectly any references to commercialization of outer space, and private sector involvement; neither make any direct or indirect references to prohibit such activities. In some provisions there are references to freedom of exploration and exploitation of outer space, which can be interpreted as a legal frame work for private sector activities in outer space. However, this is certainly insufficient, and need a considerable amount of work.

It should be noted that commercialization and private sector activities can be very beneficial for mankind, in many different ways, provided that there will be sufficient meaningful control and monitoring over these activities, to make sure all states

regardless of their degree of development will benefit from space technology advancement.

The interest of private sector in space activities, is certainly accompanied by many concern about some points. One issue of importance is the risk involved, and as a direct consequence the insurance is of main concern.

Clearly the main objective of private sector activities in outer space is to make and maximize profit. This policy is not necessarily in line with article 1 of outer space treaty, i.e. "the exploitation of outer space, including moon and other celestial bodies, shall be carried out for the benefit and interest of all countries, irrespective of their degree of economic and scientific development and shall be the province of mankind." Since the activities of private sector is of international character, to avoid misuse of the current and future opportunities, proper mechanism of control, coordination and monitoring is necessary.

Many work has been done on the subject of organizational structure for activities in outer space⁵. Reference 6 has a good and comparative review of different proposals. The main problem of all the proposed organization is that they are not thought out to be fully compatible with current treaties, particularly the Outer Space Treaty.

Here we suggest to create an agency to manage the outer space properties and resources including the moon and other celestial bodies.

OUTER SPACE AGENCY

It is proposed that this agency is created under the auspices of United Nations, for

the main purpose of management of outer space properties.

The creation of this agency is based on the following generally accepted facts:

- Outer space is the property of mankind.
- Outer space is to be explored for the benefit of all states regardless of their degree of development.

The Notion that space technology has opened a new era for people of earth, which is going to change all aspect of human life, and it necessary to have future developments of all countries based on space technology justifies the creation of this agency with the concept introduced here.

All properties of outer space including the moon and any other celestial bodies, accessible to mankind, at the present or the future, are under the management of this agency.

Any state or international organization planning to explore exploit or establish base anywhere in outer space inform this agency of its intention and plans.

Using outer space is possible only through renting or leasing properties.

The funds created from this operation is used to make the space technology the basis of development of all countries. The agency can invest the money earned in space industry sector.

United Nation Outer Space Office will set up the agency and prepare the necessary regulation for general assembly approval.

CONCLUSION

An outer space agency, which manages the outer space properties including the moon

and other celestial bodies will put the concepts of Outer Space Treaty in an applied frame work. While countries have the freedom to explore the outer space, a practical order is created, and some revenue is generated for development.

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