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# The Problem of Absolute Liability on the Moon.

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Abstract

Rules outpacing the scientific and technical progress of space activity are a characteristic peculiarity of international space law. Today, up to 130 countries take part in space activity. A number of states are already preparing for settlements on the Moon . The process of Moon habitation will very likely begin in the near future.

The satellite collision on February 10, 2009 testifies to the absence of an effective security control and/or settlement mechanism for damage caused in outer space. This case proves also the complexity of liability problems in outer space.

The Outer Space Treaty of 1967 has established the principle of liability for launching of objects into Outer Space. For the first time in the history, in a manner different from international maritime, air, and nuclear laws, space law has put the liability for extra dangerous activity on a divided level. The Convention on International Liability for Damage Caused by Space Objects of 1972 establishes a differentiation between absolute liability for damage which occurs on the surface of the earth or to aircraft flight, and a fault-based liability for damage caused elsewhere than on the surface of the earth or in the airspace to other objects, as for example in outer space. This is just such a case as that of the recent satellite collision.

By treaty definition, the Moon and other celestial bodies are part of outer space. For this reason, the damage caused by a space object of one state to a space installation of another state will be treated in the same way as in other parts of outer space, i.e., fault-based liability. So if a very expensive manmade station on the surface of the Moon were damaged by some space object from another nation, including by identifiable debris, the damage would be only recoverable under fault-based liability. The author of this paper proposes to defend interests of the future owners of a facility on the Moon's surface. This paper presents discussion of the problem of establishing absolute liability for damage to facilities on the Moon. It is recommended that this question be taken up in and be studied by the UNCOPUOS. Implications of the possibility of formation of a similar rule by international legal custom are also considered.



## I.

There is no quick and cheap way to return to the Moon. A launch from Earth into an Earth parking orbit; trans-lunar injection (TLI); establishment of a lunar parking orbit; Earth return vehicle remains in lunar orbit; landing vehicle descends to the lunar surface; landing vehicle ascends from the lunar surface; lunar orbit rendzvous (LOR) with the Earth return vehicle; trans-Earth injection (TEI); reentry of vehicle to the Earth.

Today the opinion is widely held that it is fully possible to plan for a return to the Moon using currently available technology or readily achievable technologies, and to establish semi-permanent or permanent lunar facilities. Such

a programme would not be unacceptably risky and would be affordable.

Establishing an initial lunar base by one nation would need investment of up to 5 billion dollars per annum during a 10 year period. One expects that some part of this funding would come from non-governmental sources, and therefore a lunar base would have to be the outcome of a joint commitment by governments of the spacefaring nations as an investment in the future well being of the all mankind.

Once the initial investments are complete the maintenance cost of the one lunar base could decline to less than one billion $ per annum, and such a base would be an attractive venue for research and future development.

**II.**

In the Wall Street Journal (6/23/09, A13, ), author Michio Kaku writes on the plans by several nations, including the US, to sending manned missions to the moon by 2020. "We could get a bottleneck on the moon, with manned and unmanned probes from several countries whizzing around it from different directions. ... Let's hope they don't bump into each other, creating the first global conflict in space." While Kaku does see the moon as a "symbolic, rather than strategic" destination because of the time it takes to reach it and the cost for resources, he does ask whether countries could "plant its flag on lunar soil, claiming the moon as its own." To Kaku, the Outer Space Treaty of 1967, which covered this issue, is "vague and out of date. Perhaps now is the best time to strengthen and rethink this old treaty before national rivalries and tensions heat up as we approach 2020."

In connection with this publication the Board of Directors of the International Institute of Space Law (IISL) issued the special statement[1] explaining that the Outer Space Treaty is certainly not an outdated old Treaty. It currently has 100 member states and some of its provisions may even be considered as binding on the entire community of states as principles of international customary law. Article II of the Treaty unequivocally prohibits claims of ownership of any part of outer space, including the Moon and other celestial bodies. Planting a flag is therefore not more than a symbolic act. It is because of the provisions agreed in the Outer Space Treaty and subsequent UN Treaties that the first half century of space activities could take place in a spirit of cooperation and for peaceful purposes. It is essential that the Treaty remains as is, because it sets the basic legal framework for space activities by states and private entities.

**III.**

Numerous liability avoidance accidents must be taken into consideration on the way of working in the lunar environment. The first lunar base must be assembled from the components using the machinery previously delivered to the site. The specialists must assemble the primary base components - prepare living quarters, the water and oxygen generating facilities, communications facilities, activate the nuclear or solar power plant, providing electricity for the base, the protective shielding of all facilities. During this phase there will be very important as a first step to involve the operation of a nuclear power plant, as well as verifying security of protection and shielding the base personnel from solar flares and meteoroids as well as the damage avoidance of the equipment and scientific instruments needed for future mining operations.

The first inhabitant on the Moon will need for an extended period of time the assistance from the home country. More than one human mission is anticipated to accomplish each base of assembly work.

By the 1967 Outer Space Treaty[2] end all other treaty definition, the Moon and other celestial bodies are considered as part of outer space. For this reason, if the damage will be caused by a space object of one State to a very expensive, man-made station on the surface of the Moon of another nation the damage would be only recoverable under fault-based liability.

In the Convention on International Liability for Damage Caused by Space Objects[3] [hereinafter the International Liability Convention] the launching State assumes strict liability for all damage caused by its space object on the earth's surface or to vehicles in flight. There is also provision about the liability to other space object once the satellite or vehicle is in space. However no specific mention is made about liability on the Moon when other nation landing vehicle descends to the lunar surface and causes damage to some installation of other nation. So if such an accident involving damage occurs under the assignment of a fault-based liability, is not clear how one is to prove the demand for compensation by the offending party.

The Convention on International Liability for Damage Caused by Space Object states: "In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the later shall be liable bly if the damage is due to its fault or the fault of persons for whom it is responsible.[4]"

It is difficult to imagine the manner of a party presenting a claim for injury on the Moon in a court on Earth. Besides, the word fault has no definition in international space law. It is true that the Convention on liability mentions gross negligence or an act of omission done with intent to cause damage, but otherwise there is exoneration from absolute liability. (Article VI). However, in the author's opinion these two terms do not bring clearness to notion of a fault[5]. A very likely result of this provision is that in all cases of collision in outer space of manmade objects it may never be possible to make the injuring party accountable.

**IV.**

The idea of an absolute liability for damage caused has originated as a measure of victims protection from possible dangerous after effects of extra hazardous activity. It is difficult to image a more dangerous activity than those in the extreme conditions on the surface of the Moon.

The only appropriate conclusion is to abandon the standard of liability based on fault. In relation to activities on the Moon and space around it

Such conclusion would comply with Article VII of the Outer Space Treaty, in which it is mentioned a liability for damage on the Moon. The inter-national space law urges us to create a favorable legal field for scientific and technical progress in space activity. It may be useful to recall, that in the text of the Agreement on activity of States on the Moon and other celestial bodies the necessity for detailed agreements on a liability for damage caused on the Moon may arise in addition to the Outer Space Treaty. (See Article 14.2)

**V.**

There are various means to reach international understanding concerning arrangements for a regime of absolute liability on the Moon. In the author's opinion, an additional protocol to the Outer Space Treaty is preferable. Alternative versions are possible also. We support the recommendation of Prof. Frans G. von der Dunk[6] to review the text of item III of the Convention on liability. However in this suggestion the attention is put up on thequestion of liability- based on fault liquidation. We wish to call attention only to review some part of the mentioned text of the Convention on Liability in relation to activity on the surface of the Moon and in space encircling it.

The Convention on liability provides a definition of the term "damage" as loss of life, personal injury or other impairment of health; or loss or damage to property of States or persons, natural or juridical, or property of international intergovernmental oganization. It is clear that the Convention on liability may not cover all the cases that could arise among the inhabitants of the different nations on the Moon. The general international law will be applied in these situations. The minerals and other resources obtained on the Moon will be of benefit to all the nations that will send missions to the Moon. They will use new materials for local use and may be provided relatively inexpensive, clean fusion energy to generate electric power at their Moon bases. Paving the way for a successful installation, with safe living conditions on the Moon it will be very useful for States to enact new national laws and regulations controlling all the aspects of human activities on the Moon. Special national legislations and regulations will ensure fair judgments by courts of real actions for damages caused to a property taking into accounts the extremely high degree of dangerous conditions for human activity on the Moon. On the basis of such judgments the customary rule of International Space Law concerning absolute liability for damage caused by the third party on the surface of the Moon will emerge in the due course of time. In the interim, national legislation may be useful for the future missions to the Moon and to Mars.

**Notes**

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[1] http://www.iislweb.org/docs/Statement%20BoD.pdf

[2] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (hereafter Outer Space Treaty), of Jam. 27, 1967, entered into force Oct. 10,1967; text in 610 UNTS 201 18 UST 2410.

[3] Convention on International Liability for Damage Caused £» Space Objects (hereafter Liability Convention), of March 3L 1972, entered into force Sept. 1, 1972, 10 text in ILM 965

5.Gabriella Catalano Sgrosso La responsabilita degli Stati per le attivita svolte nello spaqzio extra-atmosferico Padova. Cedam 1990 p.21 .